



West Durrington Community Building Flood Risk Assessment and Sustainable Drainage Strategy

West Durrington Consortium
September 2026

Prepared for:

West Durrington Consortium

Flood Risk Assessment and Sustainable Drainage Strategy September 2026

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CONTENTS

PAGE NO.

EXECUTIVE SUMMARY	1
1. INTRODUCTION	2
2. SCOPE OF THE ASSESSMENT	3
National Planning Policy	3
Flood Risk Assessment Planning Practice Guidance	5
Local Planning Policy	6
Summary of Scope	7
3. DEVELOPMENT SITE CONTEXT	8
Development Site Description	8
Onsite Watercourses and Existing Drainage Arrangements	8
Site Levels	8
Ground Conditions	8
Groundwater Source Protection	9
Ground Investigation	11
Summary of Ground Conditions	12
Development Proposals	12
Climate Change Allowances	12
Peak Rainfall Intensity Allowance	12
Standard of Protection	13
4. FLOOD RISK ASSESSMENT	14
Sources of Information	14
Site Specific Flood Risk	14
Flooding from Watercourses	14
Flooding from Surface Water	15
Historic Flooding	15
Flooding from Groundwater	17
Flooding from Overwhelmed Sewers and Drainage Systems	17
Flooding from Artificial Sources	18
Summary of Pre Development Flood Risk	18
Development and Flood Risk	18
Flooding from Watercourses	18
Flooding from Surface Water	19
Flooding from Groundwater	19
Flooding from Overwhelmed Sewers and Drainage Systems	19

Flooding from Artificial Sources	19
Residual Risk.....	20
Safe Access and Egress	21
Overland Flood Flow Paths	21
Off Site Impacts.....	21
Additional Consents	21
NPPF Planning Policy Flood Risk Tests	21
Flood Risk Vulnerability and Flood Zone ‘Compatibility’	21
Sequential Test.....	22
5. DRAINAGE STRATEGY	23
Sustainable Drainage Systems Guidance	23
Design Criteria.....	24
Infiltration Design Criteria	24
Surface Water Management	24
Pervious Pavement Design (Option A)	25
Discharge to an above ground surface water body (Option B)	26
Water Quality Assessment.....	28
Foul Water Drainage	30
Maintenance Strategy.....	30
6. CONCLUSIONS	34
 FIGURES	
Figure 1.1	Site Location Plan
Figure 2.1	Environment Agency’s Flood Map for Planning
Figure 3.1	Environment Agency’s Aquifer Designation Map (Bedrock Deposits)
Figure 3.2	Environment Agency’s Aquifer Designation Map (Superficial Deposits)
Figure 3.3	Groundwater Source Protection Zones
Figure 3.4	Groundwater Vulnerability Map
Figure 4.1	Flood Risk from Surface Water
Figure 4.2	Environment Agency’s Historic Flood Map
 APPENDICES	
Appendix A	Existing Surface Water Drainage, Drawing Number W687/06 Rev A
Appendix B	Topographical Survey, by Countryside, dated June 2026
Appendix C	SAAR and WRAP Maps, W687/05
Appendix D	Infiltration Assessment (Ref 26.06.027-dr01) by Lister Geotechnical Ltd, July 2026
Appendix E	Community Building – Site Layout, Drawing Number 423_PL_100
Appendix F	Preliminary Drainage Strategy, Drawing Number W687/07 Rev B
Appendix G	Micro Drainage Source Control Results - Option A
Appendix H	Micro Drainage Source Control Results – Option B

EXECUTIVE SUMMARY

- I. This Flood Risk Assessment has been prepared by PFA Consulting on behalf of the West Durrington Consortium in connection with proposals for a Community Building on land at West Durrington.
- II. The site is currently grassland and scrub and was previously used as a construction compound.
- III. With reference to the Environment Agency's Flood Map for Planning, the site falls within Flood Zone 1.
- IV. A drainage strategy, involving the implementation of SuDS, is proposed for managing the disposal of surface water runoff from the proposed development on the site. Infiltration methods are proposed comprising pervious paving within the parking area. The proposed drainage strategy would ensure that surface water arising from the developed site would be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.
- V. This Flood Risk Assessment demonstrates that the proposed development is compliant with the NPPF, DEFRA/Environment Agency guidance, and Local Plan Policies.
- VI. The overall conclusions drawn from this Flood Risk Assessment are that the development would be appropriately safe for its lifetime taking account of the vulnerability of its users, the development would not increase flood risk elsewhere when the proposed mitigation measures are taken into account, and would reduce flood risk overall.

1. INTRODUCTION

- 1.1. This Flood Risk Assessment (FRA) has been prepared by PFA Consulting on behalf of the West Durrington Consortium in connection with proposals for the development of a Community Building on land at West Durrington in Worthing, West Sussex.
- 1.2. The overall site comprises 0.21 hectares, and is located to the north of Celandine Road in West Durrington, which lies in the district of Worthing. The nearest post code is BN13 3HL, and the approximate grid reference for the site is TQ 11043 05108 (X: 511043, Y:105108). The location of the site is shown edged red on **Figure 1** below.

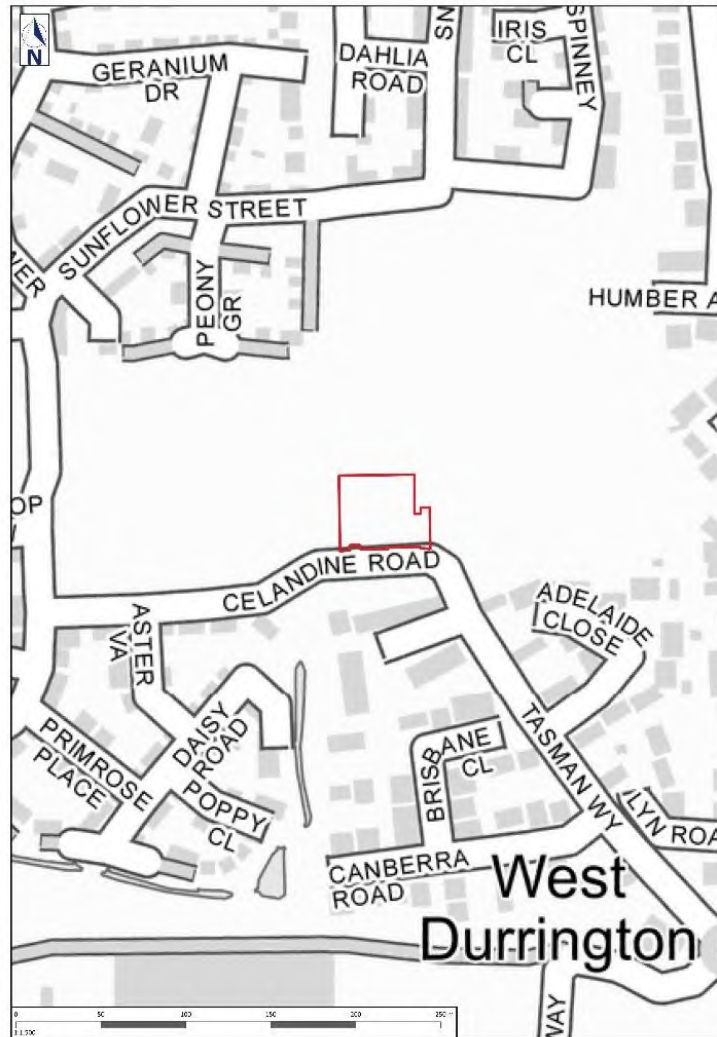


Figure 1.1: Site Location Plan

- 1.3. The main purpose of this site-specific Flood Risk Assessment is to provide sufficient flood risk information to support a planning application for the development proposals in order to demonstrate that the development would be appropriately safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, would reduce flood risk overall.

2. SCOPE OF THE ASSESSMENT

National Planning Policy

- 2.1. The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied. Policy on 'managing flood risk and coastal change' is dealt with in Policies F1 – F9 in chapter 18. The NPPF was published on 17 August 2026 and replaces the previous NPPF published in December 2024.
- 2.2. The Government published planning practice guidance covering flood risk and coastal change in March 2014. The guidance was last updated on 17 September 2025.
- 2.3. Policy F2 of the NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.
- 2.4. Policy F1.1a states that strategic policies should be informed by a strategic flood risk assessment (SFRA), and should manage flood risk from all sources.
- 2.5. A Level 1 SFRA was prepared by JBA Consulting on behalf of Adur and Worthing Council in July 2024 to support the development of its Local Plan. The SFRA provides an overview of flood risk from all sources including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.
- 2.6. As set out in Policy F2 of the NPPF, all plans should apply a sequential, risk-based approach to the location of development - taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by applying the sequential test and then, if necessary, the exception test.
- 2.7. Policy F5.2 of the NPPF states that a sequential risk-based approach should also be taken to individual applications in areas known to be at risk now or in future from any form of flooding.
- 2.8. Policy F5.1 states the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test.
- 2.9. A copy of the Environment Agency's Flood Map for Planning, obtained from the Government's website, which shows the Flood Zones in the vicinity of the site, is reproduced as **Figure 2.1** below.

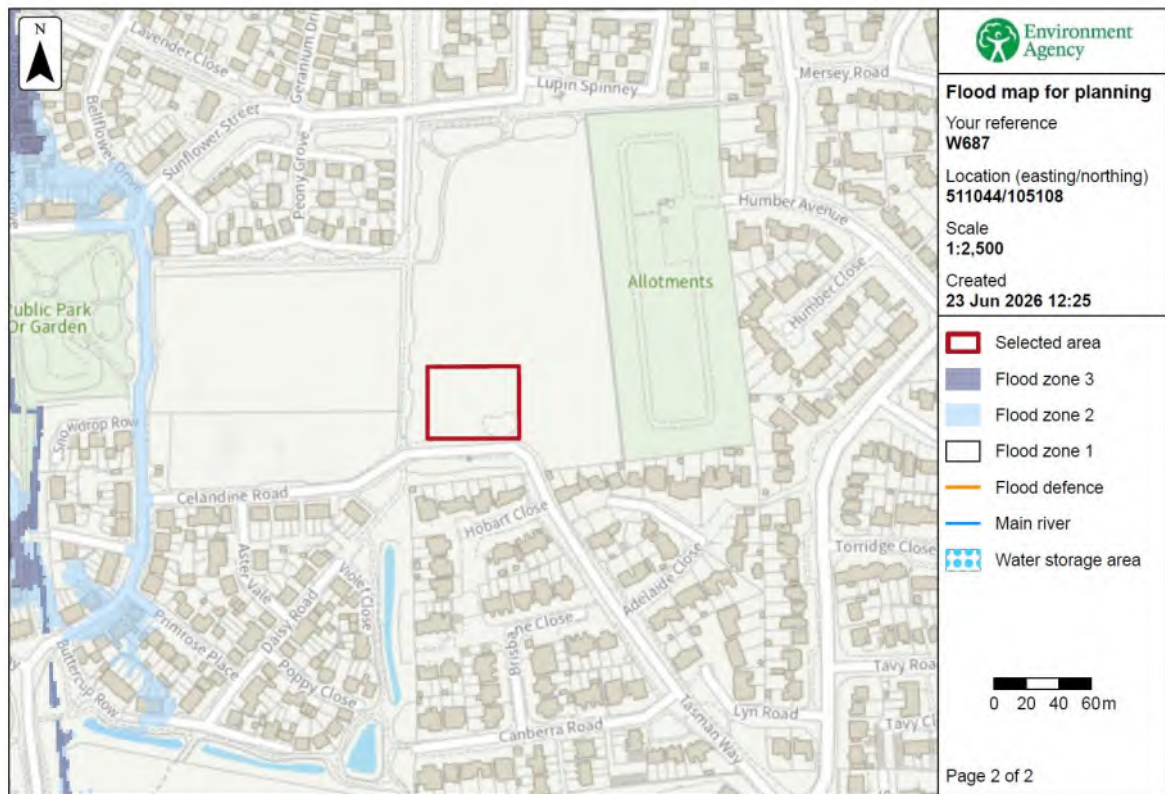


Figure 2.1: Environment Agency's Flood Map for Planning

- 2.10. The Environment Agency's Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences, and show the extent of the natural floodplain and the additional extent of an extreme flood. The Environment Agency's Flood Map for Planning shows the area that could be affected by flooding, either from rivers or the sea. Areas coloured dark blue correspond to Flood Zone 3. The light blue area is Flood Zone 2 and shows the additional extent of an extreme flood from rivers or the sea. These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. Where there is no blue shading, this shows the area where flooding from rivers and the sea is very unlikely corresponding to Flood Zone 1.
- 2.11. The red line site boundary has been added to the Environment Agency's Flood Map for Planning on **Figure 2.1**. From an inspection of the Flood Map it can be seen that the site falls within Flood Zone 1. Areas of Flood Zone 1 have a less than 1 in 1,000 annual probability of river flooding (<0.1% Annual Exceedance Probability (AEP)).
- 2.12. Policy F7 of the NPPF states:

Development proposals should not present a risk from flooding to potential occupiers, users, or visitors, and should not increase flood risk elsewhere.

2. Where development is proposed in a location known to be at risk from any form of flooding, now or in the future, it should be refused unless:

a. Within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons which justify a different arrangement;

- b. The development will be safe throughout its lifetime taking account of the vulnerability of its users;**
- c. Any residual risk can be safely managed, and safe access and escape routes are included where appropriate, as part of an agreed emergency plan;**
- d. The development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment; and**
- e. It can be demonstrated that flood risk will not be increased elsewhere.**

- 2.13. Policy F4 of the NPPF states a site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

Flood Risk Assessment Planning Practice Guidance

- 2.14. For the purposes of applying the NPPF, paragraph 001 in the Flood Risk and Coastal Change Planning Practice Guidance states that “flood risk” is a combination of the probability and the potential consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources of flood risk include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources.
- 2.15. Paragraph 020 advises that a site-specific flood risk assessment is carried out to assess the flood risk to and from a development site. The objectives of a site-specific flood risk assessment are to establish:
- whether a proposed development is likely to be affected by current or future flooding from any source;
 - whether it will increase flood risk elsewhere;
 - whether the measures proposed to deal with these effects and risks are appropriate;
 - the evidence for the local planning authority to apply (if necessary) the Sequential Test, and;
 - whether the development will be safe and pass the Exception Test, if applicable.
- 2.16. Paragraph 021 in the Guidance advises that the information provided in the flood risk assessment needs to be credible and fit for purpose. Site-specific flood risk assessments need to be proportionate to the anticipated degree of flood risk and make optimum use of information already available, including information in a SFRA for the area, and the Environment Agency’s Flood Map and interactive long term flood risk maps.
- 2.17. A flood risk assessment needs to be appropriate to the scale, nature and location of the development.
- 2.18. Paragraph 080 of the Guidance provides a model checklist for a site-specific flood risk assessment.

- 2.19. With regard to what further advice is available on the preparation of a site-specific flood risk assessment, Guidance from the Environment Agency, published on the Government's website, includes guidance on when an FRA is required, how to complete one and how it is processed, entitled: 'Flood risk assessments: applying for planning permission'.
- 2.20. This guidance provides information on the range of factors that need to be considered when assessing flood risk and sets out when to follow the Environment Agency's 'advice for minor extensions', 'standing advice for vulnerable developments' or advice contained in 'Flood risk assessment: flood zones 1, 2, 3 and 3b'.

Local Planning Policy

- 2.21. The Worthing Borough Council Local Plan (2020-2036) was formally adopted in March 2023 provides a planning policy framework for the period up to 2036. The Local Plan contains development control policies relevant to the proposed development.
- 2.22. Relevant policies from the Local Plan include: Policy DM20 – Flood Risk and Sustainable Drainage and Policy DM21 – Water Quality and Sustainable Water Use.
- 2.23. Policy DM20 – Flood Risk and Sustainable Drainage states:

‘...

The surface water drainage scheme should use Sustainable Drainage Systems, unless there is clear evidence that this would be inappropriate, and be designed to:

i) limit runoff to greenfield 1 year rates for events up to and including the 100 year plus climate change event where possible, and always ensure no increase in flows as a result of development;

ii) follow natural drainage flow paths and work with existing site topography;

iii) provide adequate capacity for the 30 year plus climate change event to be contained within the drainage system, and demonstrate that the development is safe for the 100 year plus climate change event scenario and does not increase in flood risk off site;

iv) incorporate green infrastructure and maximise multi-functional benefits ensuring adequate treatment of surface water prior to discharge to ensure that the quality of local water is not adversely affected;

v) be sensitively located and designed to promote an enhanced landscape/ townscape and good quality spaces that improve public amenity;

vi) discharge run-off according to the following hierarchy: (1) into the ground (infiltration), (2) to a surface water body, (3) to a surface water sewer, (4) to a combined sewer. Surface water connections to the public sewerage network should only be made with prior agreement of the relevant sewerage undertaker and where it can be demonstrated that there are no feasible alternatives (this applies to new developments and redevelopments) and where there is no detriment to existing users.

e) Clear management arrangements and funding for their ongoing maintenance over the lifetime of the development should be proposed. Planning conditions or obligations will be used to secure these arrangements’

2.24. Policy DM21 – Water Quality and Sustainable Water Use states:

‘a) Development should protect and enhance groundwater, surface water features and control aquatic pollution. Development will be permitted provided that it does not have an unacceptable impact on the quality and potential yield of local water resources, the water environment and its ecology.

b) The Council will support proposals to replace existing traditional drainage systems with suitable Sustainable Drainage Systems to further reduce water pollution and improve water quality.

c) Potentially polluting development should be steered away from the most sensitive areas. As a minimum a preliminary risk assessment will be required for any development where there is potential risk of contamination of controlled waters. New development within Groundwater Source Protection Zones will only be permitted provided that it has no adverse impact on the quality of the groundwater source or a risk to its ability to maintain a public water supply.

d) Development must be phased to take into account the timing of any water and/or wastewater infrastructure required which must be in place prior to the occupation of development.

... ‘

Summary of Scope

- 2.25. The scope of this Flood Risk Assessment is to provide sufficient information to satisfy the requirements of the NPPF and its associated guidance, Local Plan Policies, guidance published by DEFRA/Environment Agency, and the Government’s ‘Non-statutory technical standards for sustainable drainage systems’.

3. DEVELOPMENT SITE CONTEXT

Development Site Description

- 3.1. The site is located to the north of Celandine Road and west of Daisy Road, West Durrington. The site is currently grassland and scrub and was previously used as a construction compound.
- 3.2. The Site Location Plan and the Environment Agency's Flood Map for Planning are based on the Ordnance Survey map of the area, and show geographical features and identify watercourses and other bodies of water in the vicinity of the site.

Onsite Watercourses and Existing Drainage Arrangements

- 3.3. The nearest watercourse is an unnamed ditch which runs from north to south approximately 50m south west of the site. A swale is also located at the western boundary of the site, which forms part of an existing network of balancing ponds and swales serving the adjacent development.
- 3.4. The nearest main river is the Ferring Rife, which runs from east to west approximately 1.2km south of the site.
- 3.5. Currently the site naturally drains by a combination of overland flow towards the south of the site and by infiltration into the underlying ground.
- 3.6. The existing surface water management arrangements at the site are indicated on Drawing No. W687/06 Rev A a copy of which is contained in **Appendix A**.

Site Levels

- 3.7. A Topographical Survey was undertaken by Countryside in June 2026. The survey is shown on Drawing Number SURV3711, a copy of which is reproduced in **Appendix B**.
- 3.8. The Topographical Survey indicates that the site falls downhill slightly from north to south east from around 16.972 metres Above Ordnance Datum (AOD), at the northern boundary of the site, to around 15.741 m AOD to the south east of the site. A typical gradient across the site is approximately 1 in 40.

Ground Conditions

- 3.9. The British Geological Survey (BGS) geological mapping of the area shows the majority of the site is underlain by multiple superficial and bedrock deposits. Superficial deposits across the site consist of Head-Clay, silt, sand and gravel. In terms of bedrock deposits, the site is underlain by Lambeth Group-Clay, silt and sand.
- 3.10. Based on the Flood Studies Report Winter Rainfall Acceptance Potential (WRAP) Map, as shown reproduced on Drawing No. W687/05 in **Appendix C**, the site is located in a 'Soil Index Class 1' area. Soil Index Class 1 has a 'very high' winter rainfall acceptance potential and low standard percentage runoff, and so suggests the underlying soil has good permeability.
- 3.11. The Cranfield Soil and AgriFood Institute (CSAI), incorporating the National Soil Resources Institute (NSRI,) at Cranfield University maintains soil reports and maps for England and Wales. The Soilsapes dataset map indicates that soils in the area are '*freely draining slightly acid but base-rich soils*'. These soils are identified as being '*freely draining*'.

Groundwater Source Protection

- 3.12. From an inspection of the Environment Agency's Aquifer Designation Map dataset held on Natural England's MAGIC website, the site's bedrock deposits are classified as a Secondary A aquifer. A 'Secondary A' Aquifer which is classified as 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.
- 3.13. A copy of the Aquifer Designation (Bedrock) Map is reproduced in **Figure 3.1** below.

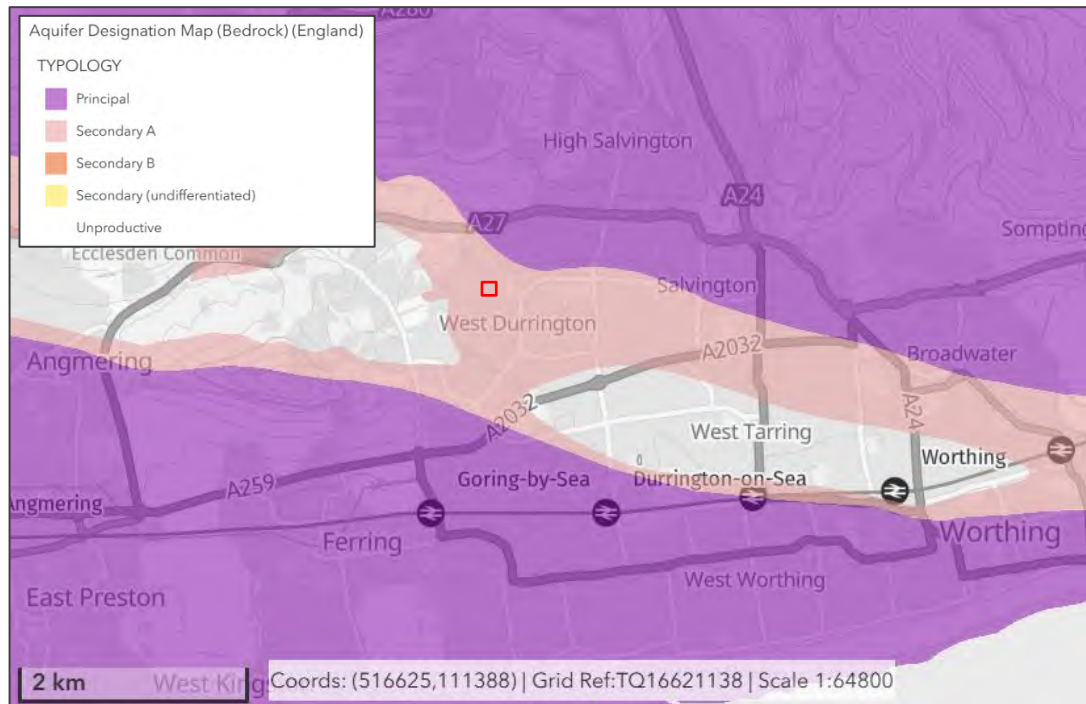


Figure 3.1: Environment Agency's Aquifer Designation Map (Bedrock Deposits)

- 3.14. The site's superficial deposits are classified as a Secondary (undifferentiated) aquifer. A 'Secondary (undifferentiated) aquifer' is where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type and only a minor value.
- 3.15. A copy of the Aquifer Designation (Superficial Drift) Map is reproduced in **Figure 3.2** below.

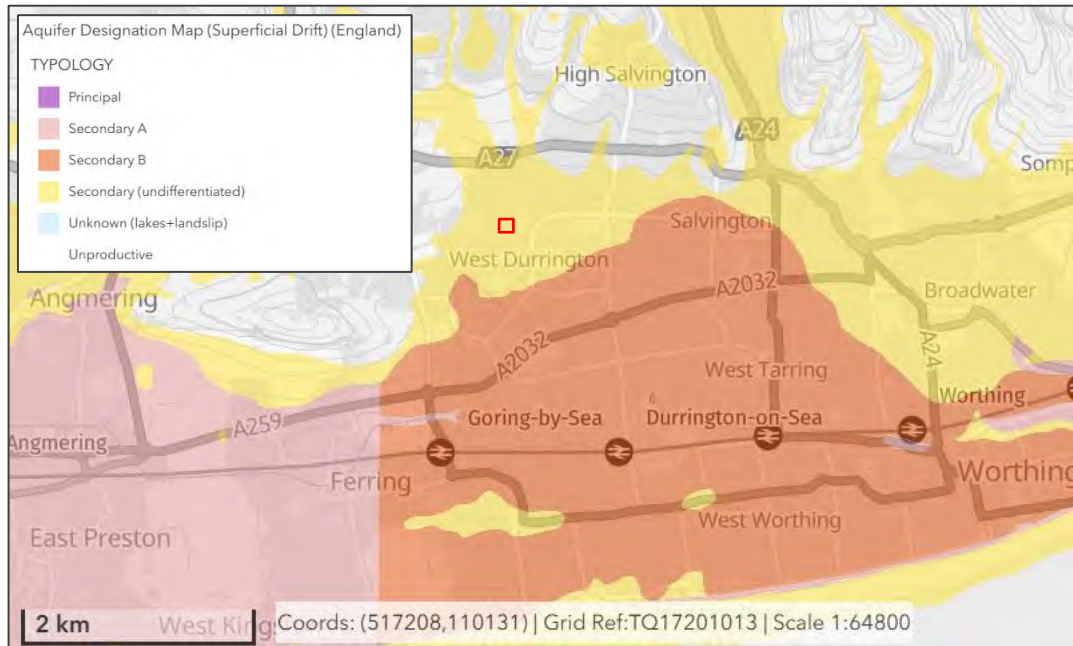


Figure 3.2: Environment Agency's Aquifer Designation Map (Superficial Deposits)

- 3.16. From an inspection of the Environment Agency's Source Protection Zones dataset the site does not lie within a Groundwater Source Protection Zone. Areas of SPZ1 and SPZ2 lie approximately 150m north of the site. SPZ1 corresponds to the 'inner protection zone' whilst SPZ2 corresponds to the 'outer protection zone'. A copy of the Source Protection Zone Map dataset information is reproduced in **Figure 3.3** below.

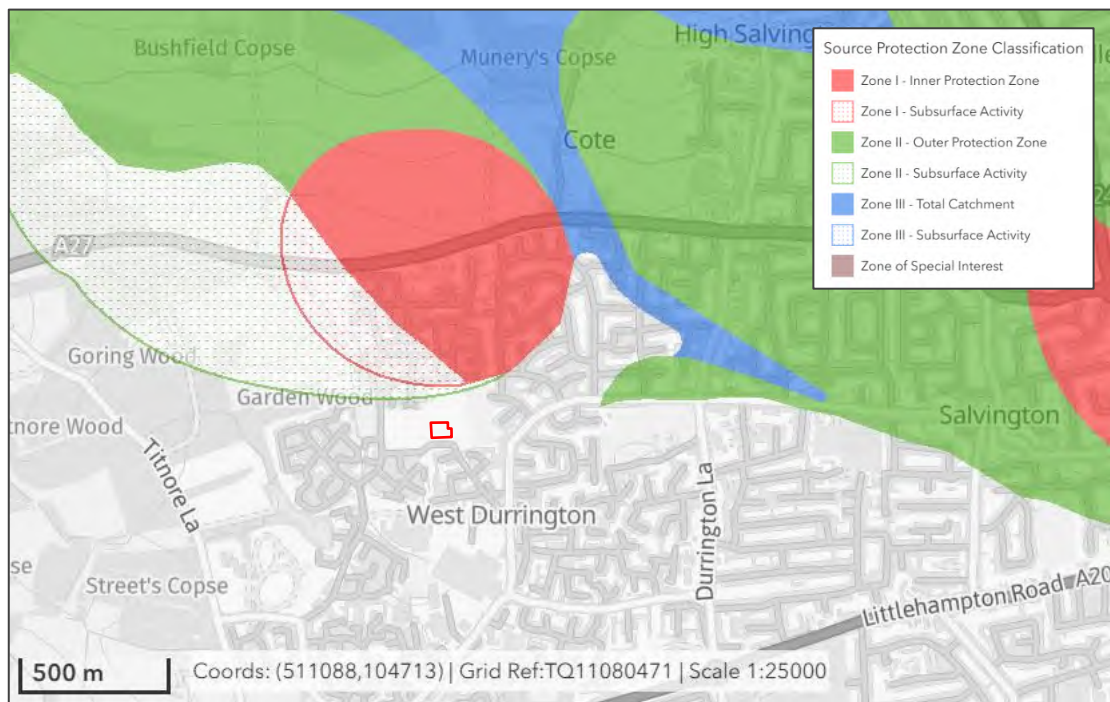


Figure 3.3: Groundwater Source Protection Zones

- 3.17. Inspection of the Environment Agency's Groundwater Vulnerability Map dataset is held on Natural England's MAGIC website and is reproduced on **Figure 3.4** below. The dataset shows the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within 1km². This indicates that the site lies within a 'Medium – High' vulnerability area, with a 'Soluble Rock Risk', indicating that there is a potential for rapid movement of pollutants.

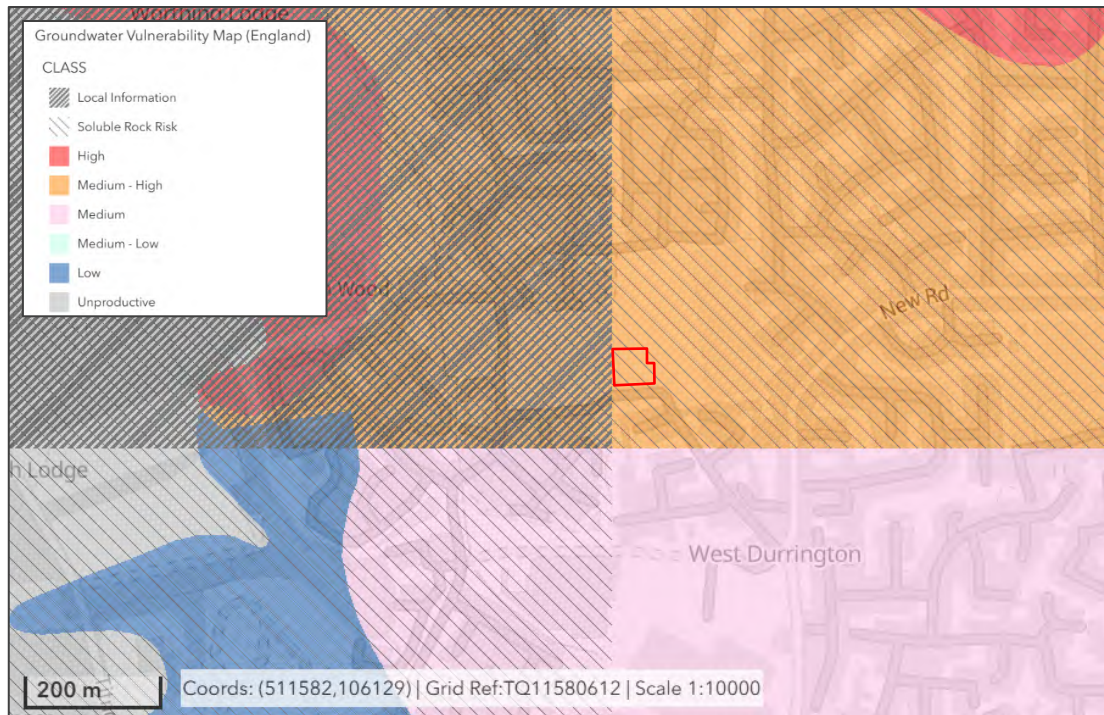


Figure 3.4 Groundwater Vulnerability Map

Ground Investigation

- 3.18. An intrusive ground investigation was undertaken on the site by Listers Geotechnical Ltd, in July 2026. An extract from the Infiltration Assessment is contained in **Appendix D**. The ground investigation identified the site is underlain by Superficial Head deposits and Lambeth Group bedrock. This is underlain by the White Chalk Subgroup.
- 3.19. As part of the site investigation, infiltration tests were carried out across the site in accordance with BRE Digest 365 methodology. Soil infiltration rates were recorded between 2.6×10^{-5} m/s and 2.3×10^{-4} m/s, which indicates good permeability.
- 3.20. The ground investigation identified the underlying Chalk bedrock as potentially highly susceptible to dissolution. It is recommended a geotechnical chalk dissolution risk assessment is conducted to classify the risk of dissolution at the site.
- 3.21. Groundwater was not encountered for the duration of testing.
- 3.22. It is recommended that groundwater monitoring is undertaken to establish the highest annual groundwater level to inform the detailed drainage design.
- 3.23. Based on the above, it is considered the use of infiltration devices is a suitable means of draining surface water runoff from the development subject to the results of the chalk dissolution risk assessment.

Summary of Ground Conditions

- 3.24. On the basis of the site investigation and infiltration tests, and with reference to the WRAP Map and Soilscales dataset, the underlying soils are freely draining.

Development Proposals

- 3.25. The development proposals comprise the development of a Community Building with associated infrastructure and landscaping, covering an area of approximately 0.21 Ha.
- 3.26. A copy of the Community Building – Site Layout, Drawing No. 423_PL_100, prepared by Persimmon, showing the development proposals, is reproduced in **Appendix E**.

Climate Change Allowances

- 3.27. The NPPF and its guidance requires development to take account of the impacts of climate change. The allowances to be made for climate change effects when assessing flood risk are related to the lifetime of the development.
- 3.28. Guidance on the lifetime of development is provided at paragraph 006 in the Flood Risk and Coastal Change Planning Practice Guidance. The lifetime of a non-residential development depends on the characteristics of that development. The development is assumed to have a lifetime of at least 100 years.
- 3.29. Paragraph 020 of the Guidance states site-specific flood risk assessments should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users.
- 3.30. The Environment Agency's Guidance entitled 'Flood risk assessments: climate change allowances' was last updated on 27 May 2022. This sets out the climate change allowances to be used for peak river flow, peak rainfall intensity, sea level rise, offshore wind speed and extreme wave height.
- 3.31. There are a range of climate change allowances for each river basin district and epoch for sea level rise, peak river flow and peak rainfall intensity. The allowances are based on percentiles. A percentile describes the proportion of possible scenarios that fall below an allowance level.
- 3.32. The:
- Central allowance is based on the 50th percentile (half of the possible fall below it, and half fall above it).
 - Higher central allowance is based on the 70th percentile (only 30% of projections would exceed this allowance).
 - Upper end allowance is based on the 95th percentile (only 5% of projections would exceed this allowance).

Peak Rainfall Intensity Allowance

- 3.33. With respect to the peak rainfall intensity allowance, the site lies in the Arun and Western Streams Management Catchment. The Guidance advises for development with a lifetime beyond 2100 assess the upper end allowance for the 2070s epoch (2061 to 2125) and design your development so that for the upper end allowance in the 1% annual exceedance probability event there is no increase in flood risk elsewhere and your development will be safe from surface water flooding. The total potential change anticipated for 2070s epoch (2061 to 2125) is +45% for the upper end allowance in the 1% AEP rainfall event.

Standard of Protection

- 3.34. In terms of providing an acceptable standard of protection against flooding for new development, where development is necessary in flood risk areas the development should be made safe for its lifetime without increasing flood risk elsewhere. The Site-specific flood risk assessment checklist makes reference to the assessment of the 'design flood'.
- 3.35. Paragraph 002 in the Flood Risk and Coastal Change Planning Practice Guidance defines a "design flood" as follows:
- 'This is a flood event of a given annual probability, which is generally taken as:**
- **river flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year);**
or
 - **tidal flooding with a 0.5% annual probability (1 in 200 chance each year); or**
 - **surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year),**
- plus an appropriate allowance for climate change.'**
- 3.36. Therefore, in terms of providing an acceptable standard of protection against flooding for new development, the development should be appropriately safe without increasing flood risk elsewhere in the 'design flood'.
- 3.37. The Government published its 'Non-statutory technical standards for sustainable drainage systems' in March 2015. They should be used in conjunction with the NPPF and planning practice guidance. Standard S7 states that the drainage system must be designed so that flooding does not occur on any part of the site for a 1 in 30 year rainfall event. Standard S8 goes on to state that the drainage system must be designed so that 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 within the development.

4. FLOOD RISK ASSESSMENT

- 4.1. In addition to flooding from rivers and the sea it is also necessary to consider the potential consequences of flooding from all other sources, which include directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.

Sources of Information

- 4.2. This assessment makes reference to the Adur and Worthing Level 1 SFRA, prepared by JBA Consulting, dated July 2024.
- 4.3. The Government's website contains 'Long Term Flood Risk Information' which includes interactive maps showing 'Flood risk from rivers or the sea' and 'Flood risk from surface water'. These maps show the chance of flooding in one of four risk categories:
- **High risk** means that each year this area has a chance of flooding of greater than 3.3% (1 in 30);
 - **Medium risk** between 1% and 3.3% (1 in 100 and 1 in 30);
 - **Low risk** between 0.1% and 1% (1 in 1000 and 1 in 100); and
 - **Very low risk** less than 0.1% (1 in 1000).
- 4.4. The 'Flood risk from surface water' map indicates the extent, depth and velocity of water for High, Medium and Low risk scenarios. The Long Term Flood Risk Information also includes a 'Flood risk from reservoirs' map.

Site Specific Flood Risk

Flooding from Watercourses

- 4.5. Flooding from watercourses is caused by high flows in rivers or streams exceeding the capacity of the river channel and spilling onto the floodplain, usually after periods of heavy rainfall across the catchment.
- 4.6. The nearest local watercourses in the vicinity of the site is an unnamed drainage ditch, located approximately 50m south west of the site. The nearest main river is the Ferring Rife, which runs from east to west approximately 1.2km south of the site

Flood Zones

- 4.7. A definition of each Flood Zone and probability of river or sea flooding is provided in Table 1 of the Flood Risk and Coastal Change Planning Practice Guidance.
- 4.8. The site lies entirely within Flood Zone 1, which is defined as the zone with the lowest probability of flooding from rivers and is defined as land having a less than a 1 in 1000 (0.1%) annual probability of river flooding.
- 4.9. The modelled flood extents presented on the Flood Map for Planning and used to define the extents of Flood Zones 1, 2 and 3 do not include an allowance for climate change. The extent of the 'design flood' including an appropriate allowance for climate change is discussed below.

Summary of Pre Development Flooding from Watercourses

- 4.10. In summary, risk of flooding from watercourse is assessed as 'very low'.

Flooding from Surface Water

- 4.11. The Environment Agency's Flood risk from surface water map indicates where surface water may be expected to flood or pond. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. The Government's website advises that flooding from surface water is difficult to predict as rainfall location and volumes are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. The information shown is a general indicator of an area's flood risk. A copy of the Environment Agency's Flood risk from surface water map is reproduced in **Figure 4.1** below.

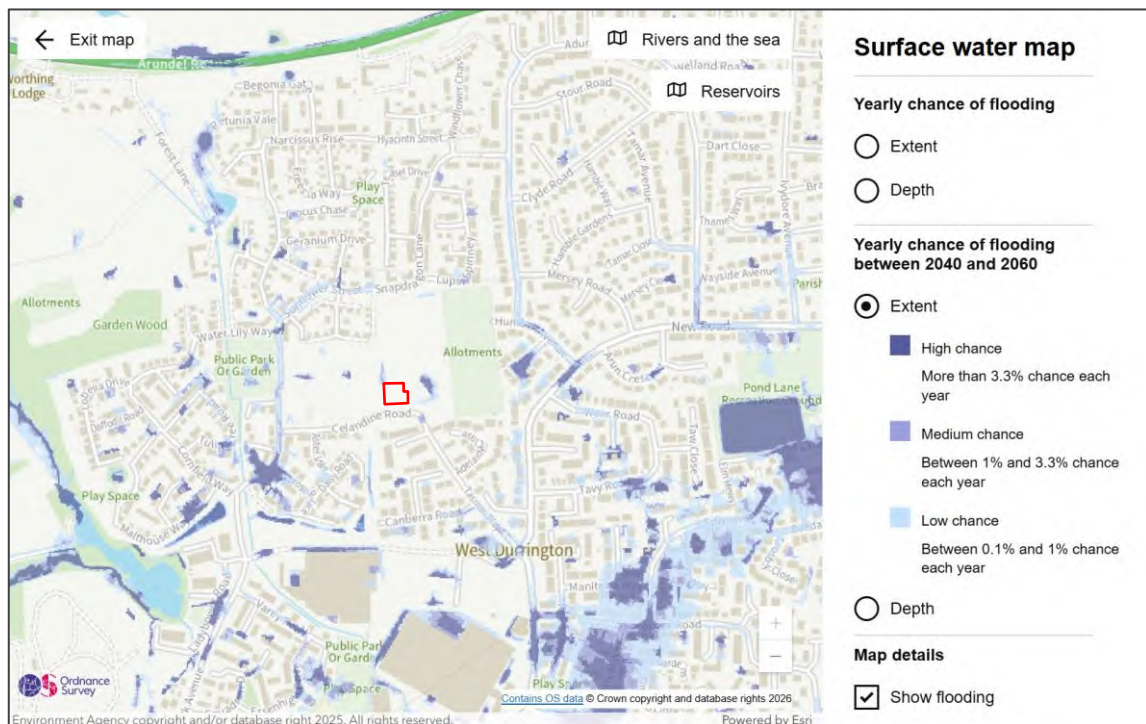


Figure 4.1: Flood risk from surface water map

- 4.12. The Environment Agency's Flood risk from surface water map shows that the site is at a very low (less than 0.1%) risk of flooding. An area at low risk (between 0.1% and 1%) and medium risk (between 1% and 3.3%) of surface water flooding is present at the north western boundary, associated with a swale located along the western boundary of the site.

- 4.13. The risk of flooding from surface water is assessed as 'very low'.

Historic Flooding

- 4.14. The SFRA and the Environment Agency's Historic Flood Map identifies no historic flooding across the site. The nearest recorded flood extent lies approximately 370m south east of the site.
- 4.15. No incidents of historical flooding in the vicinity of the development are identified within the West Sussex County Council's Flood Incident Database.
- 4.16. The EA's publicly available datasets 'Historic Flood Map' and 'Recorded Flood Outlines' are presented on **Figure 4.2** below.

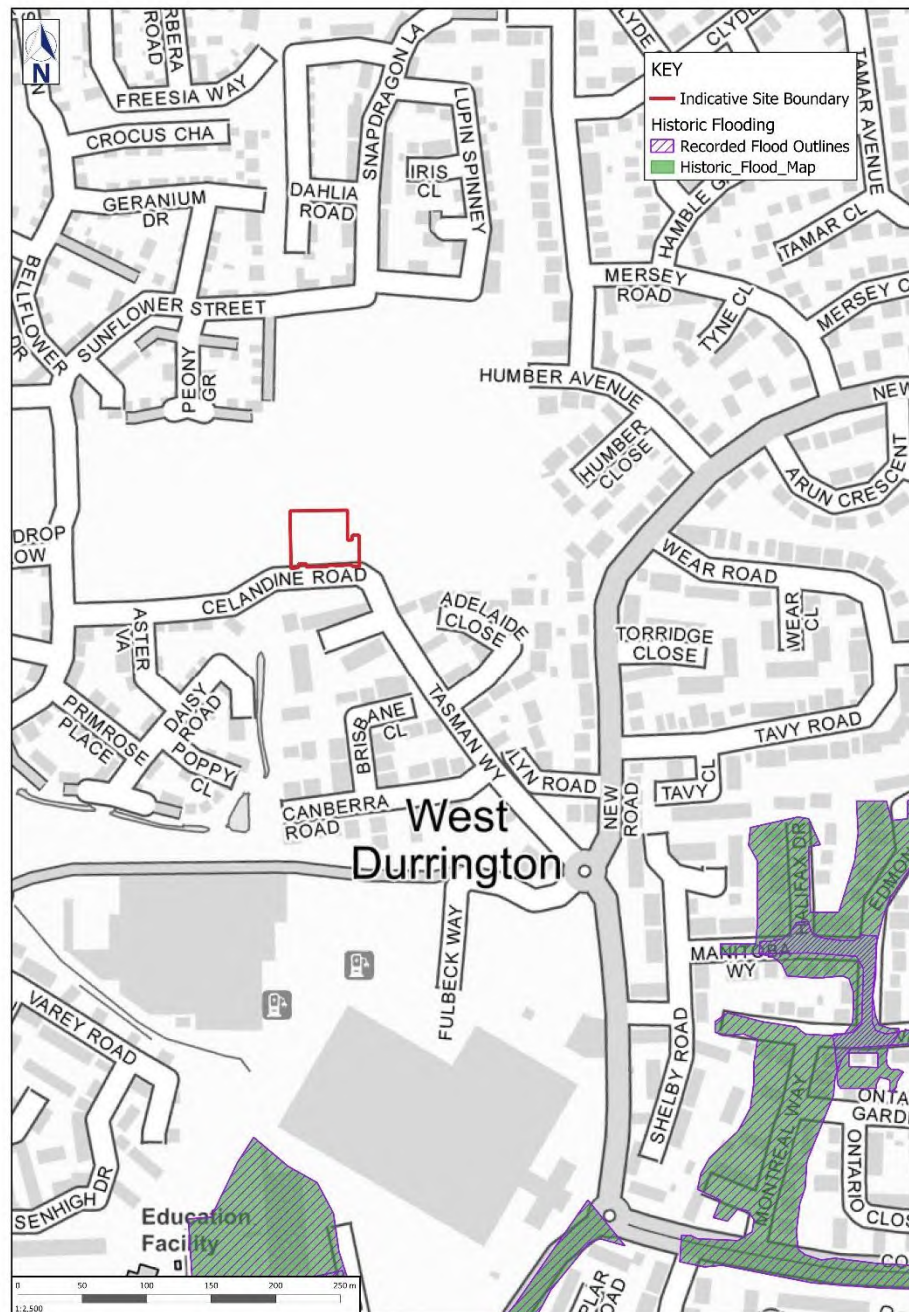


Figure 4.2: Environment Agency's Historic Flood Map

- 4.17. In summary, there are no recorded flood events within the site boundary, and the nearest flood extents lie approximately 370m south east of the site.

Flooding from Groundwater

- 4.18. Groundwater flooding is most likely to occur in low-lying areas underlain by water-bearing permeable rocks termed aquifers. These may be extensive regional aquifers in chalk or sandstone, or localised sands or river gravels in valley bottoms underlain by less permeable rock. Groundwater flooding occurs as a result of water rising from the underlying rocks or from water flowing from abnormal springs. This tends to occur after long periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. In low-lying areas the water table is usually at shallower depths, so during very wet periods, all the additional groundwater flowing towards these areas can cause the water table to rise to the surface causing groundwater flooding which may follow overland flow paths or pond at local topographic depressions. The rate of groundwater emergence depends upon the pressure head on the groundwater body, and the permeability of soils and near surface geology which can be locally variable.
- 4.19. In relation to groundwater flooding, the SFRA indicates the site falls within an area with a low likelihood of groundwater flooding.
- 4.20. The Level 1 SFRA uses the JBA 5m Groundwater Flood Map, which identifies the risk of emergence of groundwater based on estimated groundwater depth below the surface. This identifies that the site is not located within an area where groundwater is likely to emerge. The site also lies outside of areas of tidally influenced groundwater flood risk.
- 4.21. The SFRA identifies historic groundwater flooding within Durrington, however no recorded flood incidents lie within the immediate vicinity of the site.
- 4.22. Even if groundwater were to emerge on the site it would behave like surface water, emerging at low points. It is considered the 'Flood risk from surface water map' shown in **Figure 4.1** above would be an indication of where emergent groundwater could collect. If groundwater were to emerge it would behave like surface water flooding and collect at low spots of the site.
- 4.23. In summary, the risk of flooding from groundwater is assessed as low for the site based on the available information and underlying geological deposits which are not a significant source of groundwater.

Flooding from Overwhelmed Sewers and Drainage Systems

- 4.24. Flooding from sewers and drainage systems occurs when the sewer or drainage system is overwhelmed as a result of a blockage or excessive flow exceeding its capacity and/or when sewers cannot discharge properly to watercourses due to high water levels.
- 4.25. There are existing foul and surface water sewers located within Celandine Road to the south of the development. No sewers are identified crossing the site.
- 4.26. The SFRA utilises the Southern Water Sewer Incident Report Form (SIRF) dataset. This dataset is a snapshot in time and may become outdated following assets improvement works by the water and sewerage company and future rainfall events.
- 4.27. The SFRA identifies 2 recorded sewer flood incidents within the BN13 3 postcode area between 2013 – 2023.
- 4.28. Due to the absence of sewers crossing the site the flood risk posed by overwhelmed sewers to the site is therefore 'low'.

Flooding from Artificial Sources

- 4.29. Flooding from reservoirs may occur as a result of partial or complete failure of the control structure designed to retain water in the artificial storage area.
- 4.30. The raised reservoir Somerset Lake is located approximately 450m south west of the site. The flood risk caused by a potential breach of this reservoir is assessed within the SFRA and this identifies that the site lies outside of the flood extents.
- 4.31. Furthermore, the Environment Agency's Flood risk from reservoirs map indicates the site is unaffected by flooding from any reservoirs.
- 4.32. The SFRA does not identify any incident of flooding from Artificial Sources on the site.
- 4.33. In summary, the risk of flooding from artificial sources is assessed as 'low' due to the site lying outside of modelled flood extents, as shown in the SFRA.

Summary of Pre Development Flood Risk

- 4.34. A summary of the potential flood risk from all sources of flooding associated with existing pre-development conditions is shown in **Table A** below.

Table A: Pre-development Potential Flood Risk from All Sources of Flooding

Flood Source	Potential Risk	Description
Watercourses	Very Low	The site is located in Flood Zone 1, which indicates less than 1 in 1,000 annual probability of river flooding (<0.1%).
Surface Water	Very Low	The risk of flooding from surface water on the site is 'very low' with areas of elevated risk associated with swales located on the western boundary of the development.
Groundwater	Low	The underlying ground conditions suggest the risk of significant groundwater being present in the underlying geological deposits is low. If groundwater were to emerge it would behave like surface water flooding and collect at low spots of the site associated with ordinary watercourses.
Overwhelmed Sewers	Low	The SFRA indicates that there are two recorded sewer flood incidents within the BN13 3 postcode. However, no sewers are known to cross the site, therefore the risk of the site being affected by flooding from overwhelmed sewers and drainage systems is assessed as 'low'.
Artificial Sources	Low	The EA's flood risk from reservoirs mapping indicates the site is not at risk of flooding from artificial sources. The SFRA indicates the site lies outside of modelled flood extents in the event of a breach from Somerset Lake.

- 4.35. The pre-development potential flood risk to the site from majority of sources of flooding is considered to be 'Very low' to 'Low'.

Development and Flood Risk

- 4.36. This section summarises the site-specific flood risk from all sources of flooding when both the proposed development and mitigation measures are taken into account.

Flooding from Watercourses

- 4.37. With the proposed flood risk mitigation measures in place, the proposed community facilities are shown to be free from flooding during the 1 in 100 year, including an allowance for climate change flood event (+45%). The proposed flood risk mitigation measures therefore satisfy the requirements for the standard of protection for new developments.

Flooding from Surface Water

- 4.38. The provision of surface water drainage systems within the proposed development discussed in Section 5 below would intercept and manage any water that falls within the development areas. The surface water drainage systems would be designed to ensure that flooding would be minimal and safely managed during the 1 in 100 year event, including an allowance for climate change. The design of the site layout and levels will manage exceedance flow routes to ensure that water is directed into the Strategic SuDS Features.
- 4.39. As such the proposed mitigation measures would ensure the sustainable management of rainwater and reduce the risk of flooding from surface water on the site so that the proposed dwellings would be appropriately safe.
- 4.40. The post development risk of flooding from surface water is assessed as 'Very Low' to 'Low' taking into account the proposed mitigation measures.

Flooding from Groundwater

- 4.41. On the basis of the dataset discussed above there is a low risk of groundwater being close to the surface. If groundwater emergence were to occur it would likely follow the overland flow paths as indicated on the flooding from surface water map and be directed away from the development.
- 4.42. Raising finished flood levels are 300mm above the 1 in 100 year flood level (1% AEP) +45% climate change scenario or 300mm above existing ground levels whichever is the greater would ensure that the risk of shallow groundwater emergence would not affect the proposed buildings. Elevating development above the zone of flood risk would ensure that the proposed buildings would be appropriately safe.
- 4.43. The post development risk of flooding from groundwater is assessed as 'very low' taking into account the proposed mitigation measures.

Flooding from Overwhelmed Sewers and Drainage Systems

- 4.44. The proposed development would be served by new surface and foul water sewerage systems which will be designed to adoptable standards.
- 4.45. Compliance with those design standards would ensure that the proposed dwellings would be served by a drainage system that would not flood during the design event so that the dwellings will be appropriately safe.
- 4.46. The flood risk posed by overwhelmed sewers and drainage systems continues to be 'low' taking into account the mitigation measures.

Flooding from Artificial Sources

- 4.47. The proposed scheme would introduce new Strategic SuDS Features into the site. These would be appropriately designed to manage surface water on the development site and would not introduce a flood risk into the development site.
- 4.48. The risk of artificial flood hazards affecting the site continues to be 'low'.

Residual Risk

- 4.49. Residual risks are those remaining after applying the sequential approach to the location of development and after the flood risk management and mitigation measures are implemented. Examples of residual risk include:
- a breach of a raised flood defence, blockage of a surface water conveyance system or failure of a pumped drainage system;
 - failure of a reservoir; and
 - a flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot accommodate.
- 4.50. The site lies within Flood Zone 1 and so the proposed development is fully in accordance with the sequential approach to development set out in the NPPF, the aim of which is to steer new development to areas with the lowest probability of flooding.
- 4.51. The proposed drainage measures would ensure that there is little or no residual risk of property flooding occurring during events well in excess of the minimum acceptable standard of protection for new property, which requires that no flooding of property should occur as a result of a 1 in 100 year storm event including an appropriate allowance for climate change.
- 4.52. For extreme events it is considered that the proposed development would intercept any uncontrolled overland flow and direct it into the proposed drainage system. The proposed drainage measures would ensure the proposed development would have adequate flood protection for extreme events over the lifetime of the development.
- 4.53. A summary of the potential risk from all sources of flooding post-development with the various development flood mitigation measures incorporated is shown in **Table B** below.

Table B: Post-development Potential Flood Risk from All Sources of Flooding

Flood Source	Potential Risk	Description
Watercourses	Low	No change compared with pre-development risk. The site lies within Flood Zone 1, which has a low probability of river flooding.
Surface Water	Very Low – Low	No change compared with pre-development risk. Overland flows intercepted by proposed surface water drainage system providing a degree of betterment downstream.
Groundwater	Low	No change compared with pre-development risk. Any risk would be further mitigated by raising site and property levels.
Overwhelmed Sewers	Low	No change compared with pre-development risk. The proposed drainage system and SuDS Feature would further mitigate any potential off-site sewer flooding affecting the site.
Artificial Sources	Very Low	No change compared with pre-development risk.
Off-site Impacts	Betterment	Through provision of a surface water drainage system which reduces the rate of runoff and intercepts overland flows the proposed development would reduce flood risk overall.

- 4.54. Through the sequential approach to site design and incorporation of flood mitigation measures the proposed development would further reduce any risk from river, surface water, and groundwater flooding. Through provision of a surface water drainage system which reduces the rate of runoff and intercepts overland flows the proposed development would reduce flood risk overall.

Safe Access and Egress

- 4.55. Safe access and egress to and from the development is a route that is safe for use without the intervention of the emergency services or others.
- 4.56. Paragraph 047 in the Flood Risk and Coastal Change Planning Practice Guidance advises that access routes should allow occupants to safely access and exit their dwellings in design flood conditions. Wherever possible, safe access routes should be provided that are located above design flood levels and avoiding flow paths. Where this is not possible, limited depths of flooding may be acceptable.
- 4.57. The proposed built development is located entirely in Flood Zone 1 and so safe access and egress routes would be available for vehicles and pedestrians via the access road to the development.

Overland Flood Flow Paths

- 4.58. In event of the drainage system being overwhelmed by a rainfall event greater than the design standard or as a result of blockage or failure overland flood flow paths would follow the natural topography of the land towards the SuDS Features. These exceedance flow routes would minimise the risk to people and property on and off site.
- 4.59. The proposed drainage system would remove uncontrolled overland flows.

Off Site Impacts

- 4.60. The provision of a surface water drainage system with the disposal of surface water by infiltration would reduce the rate of runoff from the site, and would intercept and manage uncontrolled overland flows. These measures would contribute to reducing flood risk overall for the development site compared with the pre-development situation.
- 4.61. The proposed development would result in flood risk betterment on and off site.

Additional Consents

- 4.62. The planning application seeks to establish the principles of the proposed development which can be subject to planning conditions. Details of the proposals will be developed as part of future reserved matters applications, the discharge of planning conditions, and detailed design of the proposals and any supplementary technical approvals.

NPPF Planning Policy Flood Risk Tests

Flood Risk Vulnerability and Flood Zone 'Compatibility'

- 4.63. Annex F of the NPPF sets out the Flood Risk Vulnerability Classification of development and categorises different types of development according to their vulnerability to flood risk. Paragraphs 077-078 of the Flood Risk and Coastal Change Planning Practice Guidance refer to two Flood Zone and Flood Risk Tables. Table 1: Flood Zones provides a definition of each Flood Zone. Table 2: Flood risk vulnerability and flood zone 'compatibility' maps the vulnerability classes against the flood zones to indicate where development is appropriate and where development should not be permitted.
- 4.64. With reference to Annex F of the NPPF the proposed development falls into the 'Less Vulnerable' flood risk vulnerability classification, which includes buildings used for assembly and leisure.

- 4.65. The Environment Agency's Flood Map for Planning indicates that the majority of the site falls within Flood Zone 1. With reference to Table 2, all uses of land are appropriate in Flood Zone 1.
- 4.66. Notes to Table 2 state that the table does not show the application of the Sequential Test which should be applied first to guide development to the lowest flood risk areas.

Sequential Test

- 4.67. Policy F2 of the NPPF states:

'Development plans should take a risk-based approach when identifying suitable locations for development, taking into account all sources of flood risk and the current and future impacts of climate change. They should do this, and manage any residual risk, by:

a. Applying the sequential test in policy F5 and, where relevant, policy F6;'

- 4.68. Policy F5 of the NPPF goes onto state:

'1. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Where the test applies, development proposals should not be located in areas at risk of flooding where alternative sites, appropriate for the development, are reasonably available in areas with a lower risk of flooding. The area to which the test is applied should not be greater than the anticipated catchment of the development in terms of its likely occupiers or users.'

- 4.69. The site falls within Flood Zone 1 and is at a very low – low risk of flooding from all sources. On this basis the sequential test is passed.

5. DRAINAGE STRATEGY

Sustainable Drainage Systems Guidance

5.1. Policy F8 of the NPPF states:

‘1. Development proposals which could affect drainage on or around the development site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, in ways which are proportionate to the nature and scale of the proposal. The systems employed should provide multifunctional benefits where possible, facilitating improvements in water quality, biodiversity and amenity.

2. Sustainable Drainage Systems should:

a. Be designed in accordance with the National Standards for Sustainable Drainage Systems;

b. Have maintenance arrangements in place to ensure an acceptable standard of operation for the anticipated lifetime of the development; and

c. In the case of proposals for major development, take account of advice from the Lead Local Flood Authority.’

5.2. Paragraph 055 in the Flood Risk and Coastal Change planning practice guidance advises that sustainable drainage systems are designed to control surface water runoff close to where it falls and mimic natural drainage as closely as possible. Sustainable drainage systems can contribute to the causes and impacts of flooding and deliver a wider range of additional biodiversity and environmental net gains.

5.3. In terms of what sort of sustainable drainage system should be considered, paragraph 56 in the Guidance advises Where possible, preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the following hierarchy of drainage options:

1. into the ground (infiltration);
2. to a surface water body;
3. to a surface water sewer, highway drain, or another drainage system;
4. to a combined sewer.

5.4. The drainage hierarchy is also set out in Section 3.2 of Approved Document H of the Building Regulations.

5.5. As the proposed development is for less 1 hectare and has an additional floorspace less than 1,000m² the National Standards for Sustainable Drainage do not strictly apply. However, the technical standards are referenced in this Flood Risk Assessment in order to demonstrate compliance.

5.6. Guidance on the design and construction of SuDS is provided in Ciria C753 ‘The SuDS Manual’ as well as in the Design and Construction Guidance (DCG) published by Water UK.

5.7. There are a number of potential SuDS techniques that might be used on any particular site. These include rainwater harvesting systems, pervious pavements, infiltration devices such as soakaways and infiltration trenches, bioretention systems, as well as flow balancing methods including swales, ponds/detention basins, and underground storage facilities.

- 5.8. The use of soakaways, pervious pavements and infiltration devices to discharge surface water runoff to ground depends upon the underlying strata having a suitable permeability. In addition, the Environment Agency will seek to control discharges into underground strata from areas subject to contamination or where groundwater is judged to be at risk from pollution caused by possible contamination.
- 5.9. The SuDS Manual promote the use of a SuDS 'management train', which seeks to address the quality and quantity of runoff at all stages of a drainage system. It uses a hierarchy of techniques, namely: i) prevention, ii) source control, iii) site control and iv) regional control. The drainage strategy for the proposed development seeks to follow the concept of a SuDS management train.

Design Criteria

Infiltration Design Criteria

- 5.10. In relation to the hydraulic design of infiltration systems, The SuDS Manual (C753) makes reference to CIRIA Report 156 (Bettess 1996).
- 5.11. The SuDS Manual notes that infiltration devices are commonly designed for return periods up to 1:100 year, plus an allowance for climate change.
- 5.12. The SuDS Manual recommends using a factor of safety for the infiltration coefficient to account of the potential reduction of the infiltration rates over time as a result of siltation or ineffective maintenance. CIRIA Report 156 uses a factor of safety based on the consequences of failure. Table 4.6 in CIRIA 156 sets out factors of safety for various consequences of failure, which corresponds with Table 25.2 in The SuDS Manual 2015.
- 5.13. The SuDS Manual identifies the need to assess the capacity of an infiltration component to accept subsequent rainfall events. The SuDS Manual recommends that:
- 'The infiltration component should discharge from full to half-full within a reasonable time so that the risk of it not being able to manage subsequent rainfall event is minimised. Where components are designed to manage the 1:10 year or 1:30 year event, it is usual to specify that half emptying occurs within 24 hours. If components are designed to infiltrate events greater than the 1:30 year event, designing to half empty in 24 hours can result in very large storage requirements and, with agreement from the drainage approving body, it may be appropriate to allow longer half emptying times. This decision should be based on an assessment of the performance of the system and the consequences of consecutive rainfall events occurring.'**
- 5.14. The Building Regulations state that infiltration devices should not be built within 5 metres of a building. The ground investigation, contained in **Appendix D**, identifies that where dissolution features are known to be present, soakaway should be sited 20 m from foundations, structures or roads. To identify the risk of dissolution features and determine the required offset between buildings and infiltration systems at the site, a geotechnical chalk dissolution risk assessment is advised.

Surface Water Management

- 5.15. A sustainable drainage strategy, involving the implementation of SuDS, is proposed for managing the disposal of surface water runoff from the proposed development on the site.

- 5.16. A preliminary ground investigation, undertaken by Listers Geotechnical Ltd, in July 2026, indicates that the site is underlain by Superficial Head deposits and Lambeth Group bedrock, which is underlain by the White Chalk Subgroup. Infiltration tests, carried out in accordance with BRE Digest 365 methodology, demonstrate that infiltration drainage would be suitable. The relevant extract from the Site Investigation Report is reproduced in **Appendix D**.
- 5.17. It is recommended a geotechnical chalk dissolution risk assessment is conducted to identify the relevant buffer distance from structures, due to the risk of dissolution within the underlying Chalk.
- 5.18. In order to reduce the risk of dissolution features occurring, point infiltration features have been avoided, and infiltration will occur over a larger surface to more closely replicate the natural mechanism.
- 5.19. A surface water drainage strategy is shown on the Preliminary Surface Water Drainage Strategy Plan, Drawing No. W687/07 Rev B, a copy of which is contained in **Appendix F**. This indicates the location and sizes of the required storage facilities to serve the development area and is subject to detailed design. Option A and Option B are presented to account for uncertainties in the risk of dissolution at the site.
- 5.20. The proposed drainage strategy (Option A) involves draining surface water runoff from the developed site to ground via infiltration devices. The infiltration devices include the provision of permeable paving, to which runoff from roofs and the surrounding landscaping will be conveyed. Pollution control measures are also incorporated in the design of the drainage arrangements.
- 5.21. As a precaution, a buffer distance of 20m has been used from the community building to infiltration features. Within the 20m buffer, pervious paving is proposed to be lined with an impermeable liner to prevent infiltration to the underlying ground and provide attenuation.
- 5.22. Should the chalk dissolution risk assessment indicate that infiltration drainage as proposed in Option A is not appropriate then flow balancing techniques will be required to manage surface water drainage. Option B, as shown on Drawing Number W687/07 Rev B, involves attenuation storage within pervious paving, with discharge at a controlled rate to the swale located at the western boundary of the site.
- 5.23. The practicable minimum limit on the discharge rate from a flow attenuation device is dependent on the size of the hydraulic control unit while keeping the risk of blockage to an acceptable level. At this time vortex flow control devices are available which can achieve rates of 1 l/s with a shallow head design and still provide more than a 50mm orifice diameter. The practicable minimum limit on the discharge rate is therefore approximately 1 l/s.
- 5.24. The proposed drainage strategy would ensure that surface water arising from the developed site would be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.
- Pervious Pavement Design (Option A)**
- 5.25. Calculations have been undertaken for the design of pervious paving to drain surface water runoff from the proposed built development on the site. These calculations have been undertaken using Micro Drainage design software, based on the infiltration rates obtained by Listers Geotechnical Ltd in July 2026. Copies of the Micro Drainage output showing the pervious pavement calculations are reproduced in **Appendix G**.

- 5.26. CIRIA Report 156 uses a factor of safety based on the consequences of failure. Table 4.6 in CIRIA 156 sets out factors of safety for various consequences of failure, which corresponds with Table 25.2 in The SuDS Manual 2015. In this case the appropriate factor of safety is 5, corresponding to 'minor damage to external areas or inconvenience' for areas greater than 1000m².
- 5.27. CIRIA C582 'Source Control using Constructed Pervious Surfaces' advises, in paragraph 3.2.4, that pavements should half-empty within 24-48 hours. **Table C** below summarises the half-drain times, contributing areas, and depth of subbase of the proposed pervious paving.

Table C: Pervious Paving Results Summary

1:10 Year Return Period			1:30 + 45% CC Return Period			1:100 + 45% CC Return Period		
Max Water Depth (m)	Half Empty Time (mins)	Flood	Max Water Depth (m)	Half Empty Time (mins)	Flood	Max Water Depth (m)	Half Empty Time (mins)	Flood
0.199	230	No	0.431	499	No	0.559	657	No

- 5.28. From an inspection of **Table C** and the MicroDrainage results output in **Appendix G**, it can be seen that the half drain time across all modelled storm events is below 24 hours, and there is no flooding during these including an appropriate allowance for climate change, which accords with good practice advice. Therefore, on the basis of the calculations, pervious pavements would provide a suitable means of discharging surface water runoff to ground within the site.
- 5.29. In accordance with Policy DM20 of the Worthing Local Plan, it is shown at adequate capacity is provided for the 1 in 30 year plus climate change event.
- 5.30. The calculations assess a range of storm durations from 15 minute (high intensity thunderstorm) to 10080 minute (1 week storm, extended period of wet weather) and includes an appropriate allowance for climate change. It should be particularly noted that by modelling the responses of the infiltration components to a series of design storms the drainage system's response to 'follow on' or prolonged rainfall is modelled implicitly. The likelihood of two large storm events occurring within a certain duration has its own probability, this is termed 'joint probability'. Therefore by modelling up to the 1 in 100 year storm event (10080 minute duration) including a 45% allowance for climate change with an appropriate safety factor satisfies the need to test 'follow on' events and satisfies the standard of protection for new developments.

Discharge to an above ground surface water body (Option B)

- 5.31. Should the chalk dissolution risk assessment indicate that infiltration drainage as proposed in Option A is not appropriate then flow balancing techniques will be required to manage surface water drainage (Option B).
- 5.32. Calculations have been undertaken for the design of pervious pavements for the attenuation of surface water runoff from the proposed built development and discharge to the swale located at the western boundary of the site. These calculations have been undertaken using Micro Drainage design software. Copies of the Micro Drainage output showing the pervious pavement calculations are reproduced in **Appendix H**.

Management of Everyday Rainfall (Interception)

- 5.33. Requirement 2.1 of the National Standards for SuDS states:

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.

- 5.34. For the storage calculations, it is assumed that contributing areas include 100% of areas within the site boundary.
- 5.35. On this basis and a net development area of 0.21 ha, the total volume of rainfall generated in the first 5mm of a rainfall event is 10.53 m³.
- 5.36. To contain this volume generated in the very small rainfall events, it is proposed to depress the subbase of the permeable paving below the Permavoid outfall level.

Management of Extreme Rainfall and Flooding

- 5.37. Requirement 3.3 of the National Standards for SuDS states:

3.3 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.

- 5.38. Providing further detail with regards to runoff rates and volumes to surface waters or sewers, Requirements 3.18 and 3.19 state:

3.18 The peak allowable discharge rate from the development to surface waters or sewers for the 50% AEP event shall be limited to the equivalent 50% AEP greenfield runoff rate, or 3 l/s/ha, whichever is the greater.

3.19 Where the volume of runoff discharged from the development to surface waters or sewers for the 1% AEP, 6-hour rainfall event is greater than the volume of greenfield runoff for the same rainfall event, the peak allowable discharge rate from the development for the 1% AEP event shall be limited to the 50% AEP greenfield runoff rate or 3l/s/ha, whichever is the greater.

Greenfield Runoff Rate Assessment (FEH Statistical Method)

- 5.39. The FEH (Flood Estimation Handbook) Q_{MED} equation from the statistical method can be used to calculate greenfield runoff rates as updated in 2025¹. Q_{MED} is the median of the annual maximum flow peaks and is equivalent to approximately the 1 in 2 year flow rate (50% AEP).
- 5.40. Section 6.2.1 in the Environment Agency's 'Rainfall runoff management for developments' Report – SC030219 sets out the revised FEH statistical method correlation formula equation for Q_{MED} , which requires the user to input:
- Area - Catchment drainage area (km²)
 - Standard Annual Average Rainfall (SAAR). SAAR9120 are recommended to be used as extracted from the FEH Web Service² and updates the dataset to cover rainfall data between 1991 and 2020.

¹ UK CEH (2025) The FEH 2025 statistical Method Updated Issue No. 1.3 dated 22-07-2025.

² UK CEH (2025) Flood Estimate Handbook Webservice. Available from: <https://fehweb.ceh.ac.uk/Map>

- The Flood Attenuation by Reservoirs and Lakes (FARL) index gives an indication of the degree of flood attenuation attributable to reservoirs or lakes within the catchment. Values close to 1 indicate the absence of attenuation due to lakes and reservoirs.
- BFIHOST - the base flow index is a measure of catchment responsiveness derived using the 29-class Hydrology Of Soil Types (HOST) classification. This catchment descriptor has been updated to BFIHOST19SCALED³.

5.41. The 2025 FEH statistical method correlation formula is as follows:

$$Q_{MED} = 6.8247 \text{AREA}^{0.8499} \times 0.1780(1000/\text{SAAR}_{9120}) \times \text{FARL}_{2015}^{3.0450} \times 0.0321^{\text{BFIHOST19SCALED}^2} \times 1000/50$$

$$Q_{MED} = 6.8247 \times 6.3377^{0.8499} \times 0.1780(1000/736) \times 1^{3.0450} \times 0.0321^{0.676^2} \times 1000/50 = 9.6$$

5.42. The greenfield runoff rates for the development area are set out in **Table D** below.

Table D: Greenfield Runoff Rate

Area (ha)	Q _{MED} (l/s)	Q _{BAR} (l/s)	Q ₁ (l/s)	Q ₃₀ (l/s)	Q ₁₀₀ (l/s)	3 l/s/ha
0.21	0.4	0.4	0.4	1.0	1.4	0.63

Notes:

- Q_{BAR Rural} = 1.07 x Q_{MED Rural}
- Q₁ = 0.78 x Q_{BAR Rural}
- Q₃₀ = 1.98 x Q_{BAR Rural}
- Q₁₀₀ = 2.42 x Q_{BAR Rural}
- Scale factors based on UKSuDS Tool and growth curve factors as summarised in Table 24.2 SuDS Manual C753

5.43. As the additional runoff generated cannot be disposed of by infiltration, in the first instance it would be proposed that the outflow from the drainage system is constrained to 0.63 (3 l/s/ha) in accordance with Requirement 3.19 of the National Standards for Sustainable Drainage Systems. However, considering the minimum practicable outflow of approximately 1 l/s, outflow from the drainage system is proposed to be constrained to 1 l/s.

Surface Water Flow Balancing

5.44. **Table E** below shows the greenfield runoff rates and resulting discharge rates in the Option B post development situation.

Table E: Post-Development Runoff Rates

Contributing Area (ha)	Minimum Allowable Discharge Rate (l/s)	Post Development Runoff Rate (l/s)		
		1 in 10 Year	1 in 30 Year (+45%)	1 in 100 Year (+45%)
0.21	1.0	1.0	1.0	1.0

5.45. From an inspection of **Table E** it can be seen the peak runoff rate from the development never exceeds the minimum allowable discharge rate up to and including the design event.

Water Quality Assessment

5.46. The proposed Surface Water Drainage Strategy incorporating Strategic SuDS Features provides treatment of surface water runoff which in turn delivers water quality benefits.

³ Griffin et al. (2019) Revising the BFIHOST catchment descriptor to improve UK flood frequency estimates. Hydrology Research (2019) 50 (6): 1508–1519. Table 4 HOST coefficient for 'linear-equivalent' values for beta regression models.

- 5.47. The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect silt at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme encourages sedimentation, filtration and biological uptake throughout the site.
- 5.48. Ensuring that the principles of the Surface Water Drainage Strategy are taken forward into the future detailed design of the individual development parcels and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme.
- 5.49. With reference to Chapter 26 of the CIRIA SuDS Manual 2015 a water quality assessment of the proposed Surface Water Drainage Strategy has been undertaken using the simple index approach.
- 5.50. To deliver adequate treatment the SuDS components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard index (for each contaminant type):

Total SuDS mitigation index > pollution hazard index

- 5.51. Where the mitigation index of an individual component is insufficient, two components (or more) in series will be required, where:

Total SuDS mitigation Index = mitigation index₁ + 0.5(mitigation index₂) + etc

- 5.52. From Table 26.2 in the CIRIA SuDS Manual 2015 the pollution hazard indices for each contaminant type for the proposed land use comprising non-residential car parking and roofs are shown in **Table F** below.

Table F: Pollution hazard indices

Land Use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day	Low	0.5	0.4	0.4

- 5.53. From Table 26.4 in the CIRIA SuDS Manual 2015 the indicative SuDS mitigation indices for discharges to ground waters are shown in **Table G** below.

Table G: Indicative SuDS mitigation indices for discharges to groundwaters

Characteristics of the material overlying the proposed infiltration surface, through which the runoff percolates	TSS	Metals	Hydrocarbons
Constructed permeable pavement where a suitable filtration layer is included that provides treatment, and including a geotextile at the base separating the foundation from the subgrade) underlain by a soil with good contaminant attenuation potential of at least 300 mm in depth	0.7	0.6	0.7

- 5.54. With reference to **Tables F and G** above it can be seen that the total pollution mitigation equals or exceeds the pollution hazard index (for each contaminant type) for the majority of the proposed land uses and so the proposed surface water drainage scheme delivers adequate water quality treatment.

Foul Water Drainage

- 5.55. Existing foul water sewers are located within Celandine Road to the south of the development.
- 5.56. Under the provisions of Section 143 of the Water Industry Act 1991 (as amended), with effect from 1 April 2018 changes have been made to the charging arrangements for services provided by sewerage undertakers to those developing land and laying new water and sewerage infrastructure. In terms of wastewater connections, the developer is entitled to make a connection to the nearest practical point on the network where the existing sewer is at least the same diameter as the new sewer required to provide capacity for the development.
- 5.57. The proposed development would require a 150mm diameter connection. In terms of the adequate point of connection for foul flows from the proposed development to the public foul water sewer system, a connection is proposed to the existing foul water sewer in Celandine Road.
- 5.58. Under the provisions of the Water Industry Act 1991 (as amended), the developer will need to pay the sewerage undertaker the published sewer connection charges and infrastructure charge per dwelling, and the sewerage undertaker is responsible for any network reinforcement.
- 5.59. In terms of foul water drainage, it has been demonstrated that a suitable means of drainage can be provided to serve the proposed development.

Maintenance Strategy

- 5.60. Sections 7.1 and 7.2 of the National Standards for SuDS states:

7.1 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.

7.2 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.

Management of Runoff during Construction

- 5.61. The control of runoff, sediment and pollution will be managed during the construction stage in accordance with advice given in Chapter 31 of the SuDS Manual. To control runoff/erosion, it is recommended that construction is phased to minimise the total amount of soil exposed at any given time, and to establish cover as soon as possible.
- 5.62. During each phase of the development, any runoff from the construction phase should pass through sediment controls such as straw bale barriers or geotextile silt fences, which will prevent sediment entering offsite watercourses, drains or the proposed onsite infiltration devices. As the underground drainage systems are likely to be constructed first, care should be taken to prevent sediment entering these systems during construction. This could involve temporarily capping the road gullies and thoroughly jetting and inspecting before operation.
- 5.63. To control the risk of pollution, an environmental pollution protection plan will be put in place. This should include the foul and surface water drainage disposal routes, location of spillage kits, and an action plan in the event of an environmental incident. Good site practices should be encouraged to prevent oil and hydrocarbons becoming entrained in surface runoff, and sediment entering the drainage system.
- 5.64. Adopting best practice construction site management with adequate contingency planning, and following the principles of pollution prevention guidance would reduce the risk of water pollution during the construction phase.
- 5.65. Measures to be implemented to reduce the risk of water pollution include the proper supervision of construction activities using appropriately experienced and qualified staff and supervisors, and strict adherence to Health and Safety Regulations, Codes of Practice, and Consent Conditions. Other measures which could be implemented as necessary include:
- Contractors would employ best practice, good housekeeping and adopt the principles set out in the CIRIA Toolbox Talks: Environmental, CIRIA C532, CIRIA C741, and CIRIA C648;
 - The contractor would provide additional street cleaning facilities as necessary to keep highways leading to the site clear of mud and prevent sediment contaminating surface water runoff. Wheel cleaning facilities, appropriate stockpiling of topsoil, suitable timing of earthwork and earthmoving operations, and dust suppression measures would be used to prevent migration of sediment and other potentially polluting substances onto the highway and into watercourses;
 - Vehicle and plant washing would be carried out on designated areas at least 10m from any watercourse or surface water body (including proposed detention basin);
 - Contractors would use well maintained plant, but the likelihood of spills will be reduced through adoption of pollution prevention principles;
 - Effective contingency plans would be put in place to manage the risk associated with accidents and/or unforeseen circumstances. For example, information relating to the use and location of accidental spill kits would be relayed to the construction personnel;
 - All HGVs will be restricted to the temporary construction compound;
 - The significant storage of fuels, lubricants or chemicals on site is not expected. Any relevant materials would be stored in accordance with the appropriate pollution prevention principles to reduce the likelihood of spillage and with an impermeable base and suitable bunding or double skinned tanks; and

- A site maintenance plan would be implemented so that all construction plant is routinely checked and maintained to reduce the likelihood of leakages during the construction phase.
- Any temporary construction compound would be constructed of crushed stone permeable material (such as MOT Type 3 subbase or similar approved) to retain the runoff characteristics for the site. The construction compound would be on flat ground, temporary matting will be placed to support weight bearing plant and equipment. The construction compound would be removed after construction is finished.

5.66. The Site's drainage regime may be temporarily disrupted during the construction phase by construction activities such as storage of materials, movement of vehicles and trenching associated with construction of the development. This could cause minor increases in the runoff rates, minor disruption to overland flow routes and soil compaction.

Operation and Maintenance Requirements

5.67. It is proposed that the SuDS system, comprising of pervious paving would be maintained by the operators of the Community Building. Similarly, any source control features within the community centre would remain private and would be owned and maintained by the site user.

5.68. Guidance on the operation and maintenance requirements of sustainable drainage systems is contained in The SuDS Manual 2015 (CIRIA C753). There are three categories of maintenance: regular, occasional and remedial. The Management Company would be responsible for putting in place a suitable maintenance plan in accordance with the recommendations in CIRIA C753 'The SuDS Manual'.

5.69. Regular maintenance consists of basic tasks including litter and debris removal, grass cutting, and vegetation management, and includes inspections and monitoring to identify potential system failures such as blockages, silt and sediment build-up, eroded or damaged areas, and condition of inlets and outlets.

5.70. Occasional maintenance comprises tasks that are likely to be required periodically for example sediment removal.

5.71. Remedial maintenance comprises intermittent tasks to rectify faults and would comprise inlet/outlet repairs, erosion repairs and re-aeration of vegetated surfaces.

5.72. Maintenance inspections must be undertaken by personnel with the minimum health, experience, and where appropriate, qualification requirements for the particular inspection type. The results of the inspections shall be recorded in the Maintenance Plan Records. Any deficiencies shall be reported to the site owner for review and remediation.

5.73. In addition, remedial inspections should be undertaken as soon as possible as a result of notification of a defect by a third party. The purpose of remedial inspections is to identify obvious deficiencies which represent, or might lead to, a danger to the public and, therefore, require immediate or urgent attention.

5.74. The operation and maintenance procedures for the SuDS features including required actions are set out in **Table H** below.

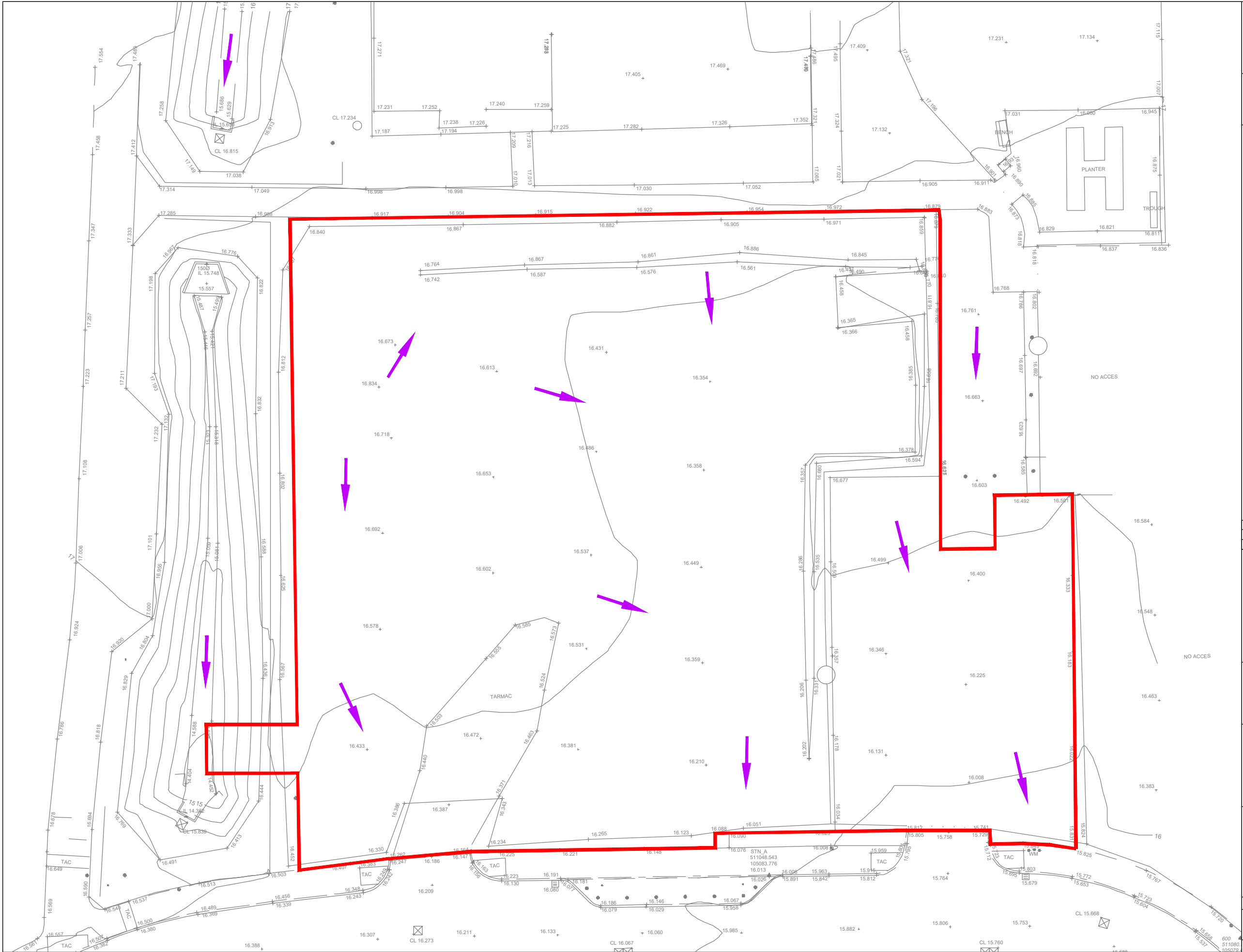
Table H: Permeable Surfaces Maintenance Procedures

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging
Occasional Maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Ever 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48hr after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually

6. CONCLUSIONS

- 6.1. This Flood Risk Assessment has been prepared in connection with proposals for a community building development on land at West Durrington.
- 6.2. The overall site comprises 0.21 hectares, and is located to the north of Celandine Road, West Durrington.
- 6.3. With reference to the Environment Agency's Flood Map for Planning, the site falls within Flood Zone 1, which has the lowest probability of flooding.
- 6.4. In relation to Flood Risk Vulnerability and Flood Zone 'Compatibility', the planning practice guidance to the NPPF advises that all uses of land are appropriate in Flood Zone 1. On this basis the sequential test is passed.
- 6.5. In addition to flooding from rivers and the sea, this Flood Risk Assessment has considered the potential consequences of flooding from all other sources, which include directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.
- 6.6. An assessment has been made of the potential risk from all sources of flooding to and from the development site, with reference to available flood risk information, for existing conditions pre-development, and post-development with the development mitigation measures incorporated.
- 6.7. The SFRA, and historic flood information, provides an assessment of the impact of all other sources of potential flooding. Based on the SFRA and available information, there are no historic flood incidents recorded on the site from all sources of potential flooding.
- 6.8. The pre-development potential flood risk to the site from all sources of flooding is considered to be 'very low' – 'low'.
- 6.9. In terms of providing an acceptable standard of protection against flooding for new development, no flooding of property should occur as a result of the 'design flood' corresponding to a 1 in 100 year fluvial flood event, taking account of climate change.
- 6.10. A drainage strategy, involving the implementation of SuDS, is proposed for managing the disposal of surface water runoff from the proposed development on the site.
- 6.11. The proposed drainage strategy would ensure that surface water arising from the developed site would be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.
- 6.12. A site investigation was undertaken by Listers Geotechnical in July 2026. As part of the site investigation, soakaway tests were carried out across the site in accordance with BRE Digest 365. The soil infiltration rate was recorded as 2.6×10^{-5} m/s, which indicates good permeability.
- 6.13. It is recommended a geotechnical chalk dissolution risk assessment is conducted to identify the relevant buffer distance from structures, due to the risk of dissolution within the underlying Chalk

- 6.14. Soakage tests undertaken on the site indicate that the underlying strata provide a good infiltration media, in accordance with CIRIA C753. The proposed drainage strategy therefore involves the use of permeable paving to discharge surface water runoff from roofs and the surrounding landscaping to ground. It is proposed that the parking areas and access would be constructed using pervious paving.
- 6.15. Alternatively, a secondary option is proposed to attenuate runoff within lined pervious paving and discharge at a controlled rate to a swale located at the western boundary of the site.
- 6.16. The proposed drainage strategy would ensure that surface water arising from the developed site would be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.
- 6.17. The proposed drainage measures would ensure that there is little or no residual risk of property flooding occurring during events well in excess of the minimum acceptable standard of protection for new property, which requires that no flooding of property should occur as a result of a one in 100 year storm event taking account of climate change.
- 6.18. For extreme events it is considered that the proposed development would intercept any uncontrolled overland flow and direct it into the proposed drainage system. The proposed drainage measures would therefore ensure the proposed development would have adequate flood protection for extreme events over the lifetime of the development.
- 6.19. The Micro Drainage calculations contained in this Flood Risk Assessment demonstrate that a suitable means of drainage can be provided to drain the developed site in terms of surface water runoff in accordance with the guidance and standards laid down.
- 6.20. The proposed development complies with the relevant standards of the Government's 'Non-statutory technical standards for sustainable drainage systems (SuDS)'.
- 6.21. A maintenance strategy for the proposed foul and surface water drainage measures to serve the development has been set out in this document.
- 6.22. This Flood Risk Assessment has demonstrated that the proposed development complies with the relevant requirements of the NPPF, the planning practice guidance checklist, Local Plan Policies, and guidance published by DEFRA/Environment Agency.
- 6.23. The overall conclusions drawn from this Flood Risk Assessment are that the development would be appropriately safe for its lifetime taking account of the vulnerability of its users, the development would not increase flood risk elsewhere.



Status

FOR INFORMATION

This drawing is produced for initial discussion and illustrative purposes only, and should not be relied upon for tender or pricing purposes.

NOT TO SCALE



NOTES

1. This drawing is based on the Topographical Survey undertaken by Countryside, dated February 2026.

KEY

Site Boundary

Indicative Overland Flow Direction

Rev	Date	Description	Drawn	Check
#	06.08.26	First Issue	EC	MWS
A	10.09.26	Redline boundary updated	EC	MWS



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Client

West Durrington Consortium

Project

Community Building - West Durrington

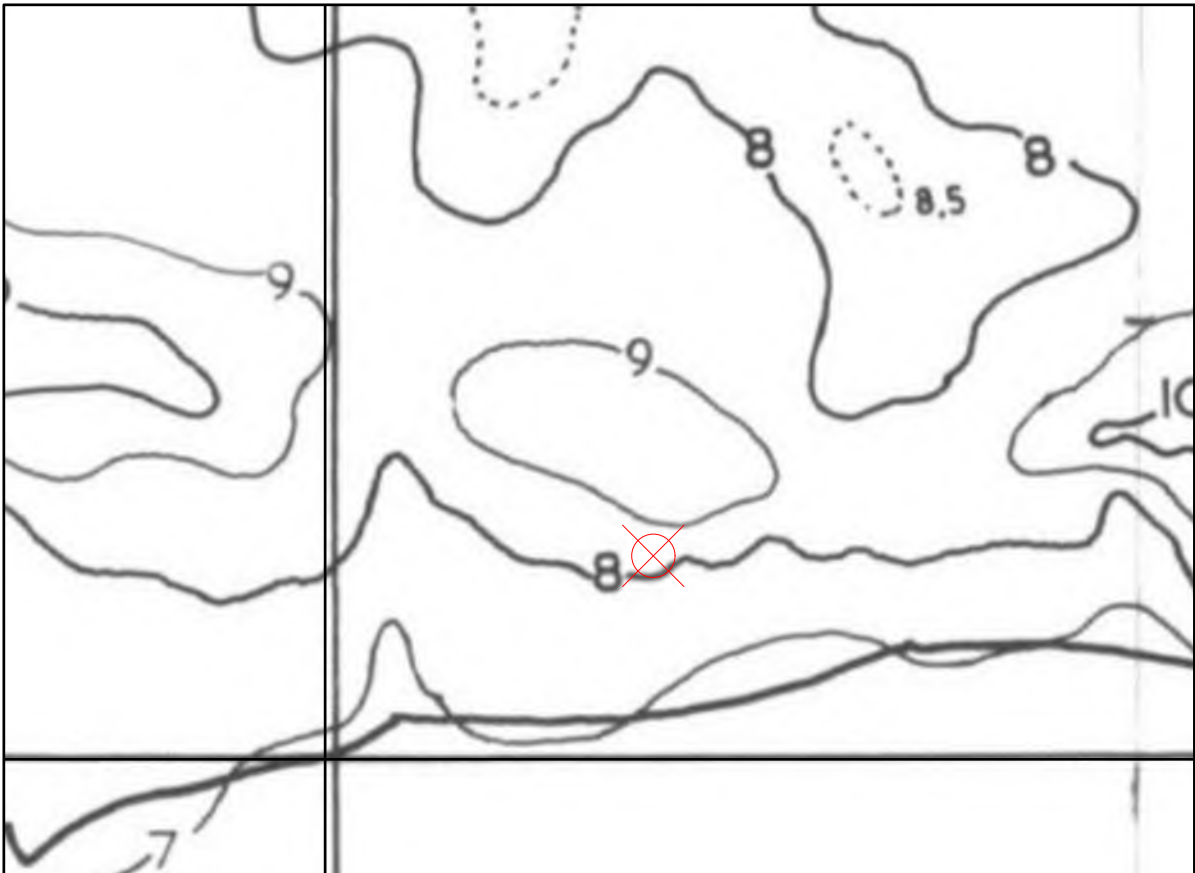
Drawing Title

Existing Surface Water Drainage Arrangements

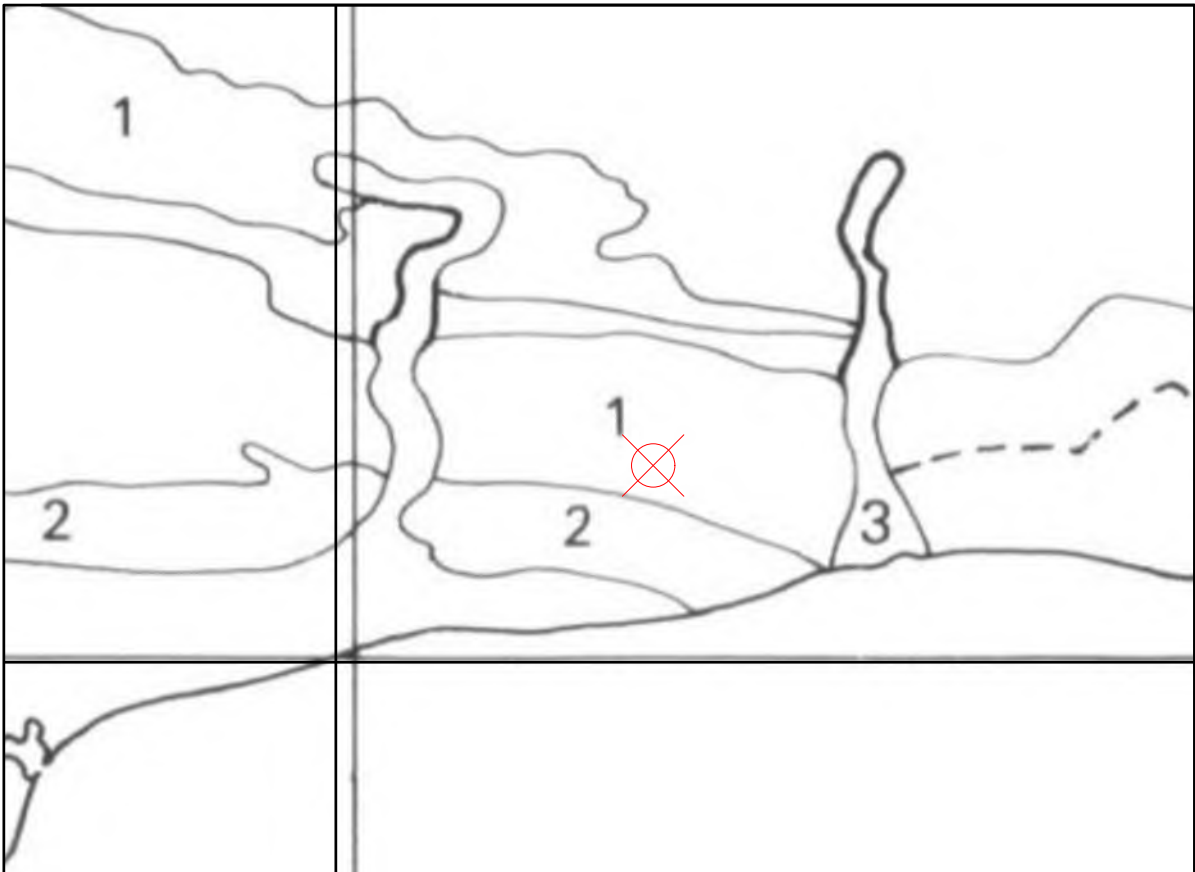
Sheet 1 of 1

Drawing No.	W687/06	Rev	A
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[illegible]



Standard Average Annual Rainfall (SAAR) (in hundreds of mm)



Winter Rain Acceptance Potential (WRAP)

Status

FOR PLANNING

This drawing is produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

NOT TO SCALE

NOTES

1. Standard Average Annual Rainfall (SAAR) and Winter Rain Acceptance Potential (WRAP) map extracts shown on this drawing are reproduced from the maps contained in Volume V of the Flood Studies Report - NERC:1975.

Soil Classification			
Soil Class (WRAP)	Soil Index (IoH)	SPR (FEH)	St (ADAS)
1	0.15	10	0.1
2	0.30	30	0.5
3	0.40	37	0.8
4	0.45	47	1.0
5	0.50	53	1.3

Rev	Date	Description	Drawn	Check
#	06.08.26	First Issue	EC	MWS

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Client

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Project

West Durrington Community Building

Drawing Title

SAAR and WRAP Maps

Sheet 1 of 1	
Drawing No.	Rev
W687/05	#
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15th July 2026

Our Ref: 26.06.027-dr01

PFA Consulting Ltd
Stratton Park House
Wanborough Road
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For the attention of Emma Congdon and Mark Skivington

Dear Emma and Mark,

Infiltration Assessment - West Durrington Community Building, Worthing, East Sussex, BN13 3NN

Introduction

We refer to your email of the 24th June 2026 in respect of the infiltration assessment at the above-mentioned site. We understand the proposals are for the development of a new community building located on land to the north of Celandine Road, Worthing, East Sussex, BN13 3NN. The Ordnance Survey National Grid reference for the approximate centre of the site is 511040, 105098.

This report has been prepared for the sole use of the client and their professional advisors. This report shall not be relied upon by third parties without the express written authority of ListersGeo. If an unauthorised third party comes into possession of this report, they must not rely on it and the authors owe them no duty of care and skill.

Geology

Reference to the British Geological Survey's onshore GeoIndex, and other published geological information on the area indicates that the site is underlain by quaternary-aged superficial Head deposits, which in turn overlie a bedrock of the late Palaeocene to early Eocene-age Lambeth Group.

Head Deposits

Superficial Head deposits comprise poorly sorted and poorly stratified deposits of angular rock debris and clayey hillwash formed by periglacial processes during the late Quaternary. The deposits typically comprise a heterogeneous mixture of clay, silt, sand and gravel, with variable proportions of angular to subangular fragments derived from the underlying bedrock.

It should be noted that superficial River Terrace Deposits are also mapped approximately 530m to the south of the site. The BGS does not map superficial deposits of less than 1m in thickness, and therefore, given the close proximity of the site, it cannot be ruled out that superficial River Terrace Deposits will be encountered during the intrusive investigation.

River Terrace Deposits comprise, in general, interbedded sands and gravels with variable proportions of silt and clay. The composition, grading and thickness can vary significantly both laterally and vertically, reflecting changes in depositional environment.

Lambeth Group

The bedrock Lambeth Group is generally represented by grey to light brown vertically and laterally variable sequences of clay, sometimes silty, with localised lenses of sands and gravels, minor limestones, lignites and occasional sandstone and conglomerate. The Lambeth Group was deposited in fluvial, estuarine, and proximal marine environments. Given the relative close proximity of the site to the mapped edge of the Lambeth Group, the deposits may be of reduced thickness beneath the site.

In the West Durrington area, the bedrock Lambeth Group is underlain by the White Chalk Subgroup. The thickness of the Lambeth Group is currently unknown, and the depth to the underlying chalk bedrock has not been ascertained. Determination of these parameters is outside the scope of the current project; however, a

CHAIRMAN - Dr Mark Cowley BSc, MSc, PhD, MCSM, FGS, CSci, CGeol • **MANAGING DIRECTOR** - Adam Jones MGeol(Hons), FGS, CGeol

DEPUTY MANAGING DIRECTOR - Ian Evetts HNC, MSc, FGS, CGeol RoGEP • **DIRECTORS** - Mark Thornton Laboratory Manager

Practice Manager - Kate Fountain

geotechnical chalk dissolution risk assessment is recommended to classify the potential risk of dissolution features being present at the site, particularly if a soakaway drainage solution is being pursued.

Exploration and Testing

As part of the investigation, a total of three trial pits (TP 01 to TP 03) were undertaken at the site on the 3rd July 2026. Co-ordinates of the trial pits were approximated from freely available georeferenced on-line information. The positions of all exploratory holes undertaken at the site as part of this investigation can be seen on the Exploratory Hole Location Plan enclosed.

The investigation was undertaken in accordance with the scope of works set out by our client, PFA Consulting Ltd. The positions of the exploratory holes were selected by our client and outlined in drawing reference and number 'Soakaway Test Location Plan, W687/01'.

Prior to commencement of excavation, and in order to minimise the dangers from/to buried services, the proposed locations were scanned using a Cable Avoidance Tool.

The trial pits were excavated with an 8-tonne tracked excavator to depths of 1.60m below ground level (bgl), as specified in the scope of works set out by our client, PFA Consulting Ltd. The excavations were undertaken with the supervision of a geotechnical engineer, who made a record of the arisings. Disturbed samples were taken at selected depths down to the base of the holes for subsequent inspection. Density of the material was assessed using the ease of digging and stability of the trial pit sides. On completion, all trial pits were carefully backfilled with arisings in thin layers, ensuring that excavated material was replaced in the same order as it had been removed. Water remaining in the trial pits from infiltration testing was bailed out prior to backfilling.

In-situ Testing

Infiltration testing was undertaken in the trial pits in general accord with BRE Digest 365 'Soakaway Design' using water discharged into the trial pits from a 1,000 litre water bowser.

Unexploded Ordnance

A Preliminary Unexploded Ordnance (UXO) Risk Review was undertaken for the site by MACC International Ltd. The report identified that there was a credible risk of encountering UXO at the site and a copy of the report is enclosed. As a result, the attendance of an Explosives Ordnance Supervisor (EOS) was required during the intrusive works. Prior to excavation, and at regular intervals during, excavations were scanned using a magnetometer to identify potential magnetic anomalies with similar characteristics to UXO.

During the fieldwork, no anomalies were detected to a maximum depth of 1.60m.

Ground Conditions

The intrusive investigation encountered the expected sequence of strata, comprising a layer of Made Ground overlying superficial Head deposits to the base of the trial pits. No deposits of the Bedrock Lambeth Group were encountered during the investigation. Further details of the relative disposition of each are provided below:

Made Ground

Made Ground was encountered in all three trial pit locations, from ground level down to depths of between 0.20m and 0.65m. The Made ground comprised, in general, brown to light brown, slightly clayey, sandy gravel. The gravel portion comprised, in general, fine to coarse, angular to sub-angular brick, concrete, wood, plastic and ceramic.

Head Deposits

Natural superficial Head Deposits were encountered in all of the three trial pit locations, directly underlying the Made Ground, from depths of between 0.20m and 0.65m, and extended beyond the base of the trial pits at 1.60m bgl. The Head deposits comprised, in general, orangish brown, slightly sandy to sandy, slightly to very clayey gravel (medium dense). The gravel portion comprised fine to coarse, angular to sub-rounded flint.

There is some potential for the above soils to in fact be River Terrace Deposits. However, their exact classification is not considered to be key to the findings of this report,

Groundwater

Groundwater was not encountered in any of the trial pit locations for the short time the holes were open.

However, it should be noted that the site works were undertaken during the summer/after a prolonged dry spell and subsequent monitoring has not been undertaken and hence the above may not have captured the full seasonal variations in groundwater level on the site. If this is key to design/construction, then further monitoring should be undertaken or a worst-case level used for design purposes.

Infiltration Testing

To assess the infiltration capacity of the soils, infiltration testing was carried out at the site in general accord with BRE Digest 365, Soakaway Design. The results of the infiltration testing are enclosed at the end of this report.

The results of the infiltration tests in the predominantly coarse soils of the superficial Head deposits are summarised below:

Location	Test Range (m)	Soil Infiltration Rate f (m/s)		
		Test 1	Test 2	Test 3
TP 01	0.90 - 1.60	2.3×10^{-4}	1.0×10^{-4}	7.2×10^{-5}
TP 02	0.84 - 1.60	2.8×10^{-5}	2.6×10^{-5}	-
TP 03	0.89 - 1.60	1.7×10^{-4}	1.5×10^{-4}	8.9×10^{-5}

It should be noted groundwater monitoring around and beneath the test zone has not been undertaken. The impact of seasonal groundwater variations will be required when assessing the application of the above results.

The underlying Chalk bedrock is recognised as being potentially highly susceptible to dissolution, resulting in the potential development of solution features such as enlarged fractures, fissures and dissolution cavities. This is of particular relevance where a soakaway drainage solution is proposed, as infiltration of surface water directed onto the upper chalk surface may alter the local groundwater regime and, over time, promote or accelerate dissolution along existing fractures or discontinuities. In accordance with the principles outlined in CIRIA C574, *Engineering in Chalk*, in areas where dissolution features are known to be prevalent, soakaways should be avoided if possible, but if unavoidable, should be sited at least 20m away from any foundations for structures, roads or railways. Where the chalk is of low density, or its density is not known, soakaways should be sited at least 10m away from any foundations for structures, roads or railways.

A full assessment of the potential for chalk dissolution features is outside the scope of this report. However, given the mapped geological setting and the potential for soluble chalk bedrock to be present at depth, it would be prudent to undertake a geotechnical chalk dissolution risk assessment to classify the risk of dissolution features being present at the site.

Conclusions and Recommendations

The ground is seldom homogeneous and variations, which affect our conclusions, may inevitably occur between and beyond the test locations. The risk of significant variations to our Ground Model is considered to be low however should ground conditions vary noticeably during construction, then we recommend further assessment by a suitably qualified person.

It is recommended that a dissolution feature risk assessment should be undertaken for the site to assess the potential risk of dissolution features, with particular consideration given to the proposed soakaway drainage solution. Following completion of the risk assessment, and if considered necessary, an intrusive ground investigation should be undertaken to determine the depth of the Lambeth Group/Chalk interface, characterise the nature and density of the underlying Chalk Subgroup, and assess the potential presence, extent and significance of any dissolution features beneath the site.

We trust this information is satisfactory. In the event of any queries please contact us.

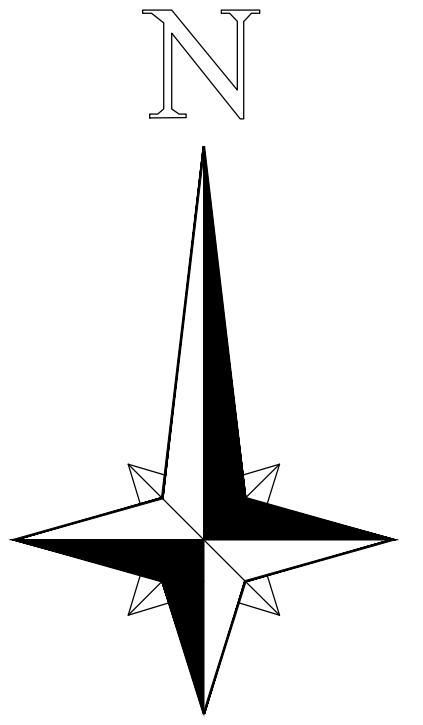
Yours sincerely,

Andrew Cooke
 Graduate Geotechnical Engineer
 LISTERS GEO

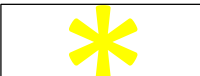
Enclosures:

- Site Plan
- Exploratory Hole Location Plan – Existing Site Layout
- Trial Pit logs
- Soil infiltration Test Results
- Preliminary Unexploded Ordnance Risk Assessment

DRAFT



KEY:

-  Application Boundary
-  Lighting from building facade towards path / seating area

A	Redline on southern boundary amended.	29.07.2026
Rev.	Description.	Date.
Drawing Revisions		



Persimmon House
Knoll Road, Camberley
Surrey
GU15 3TQ

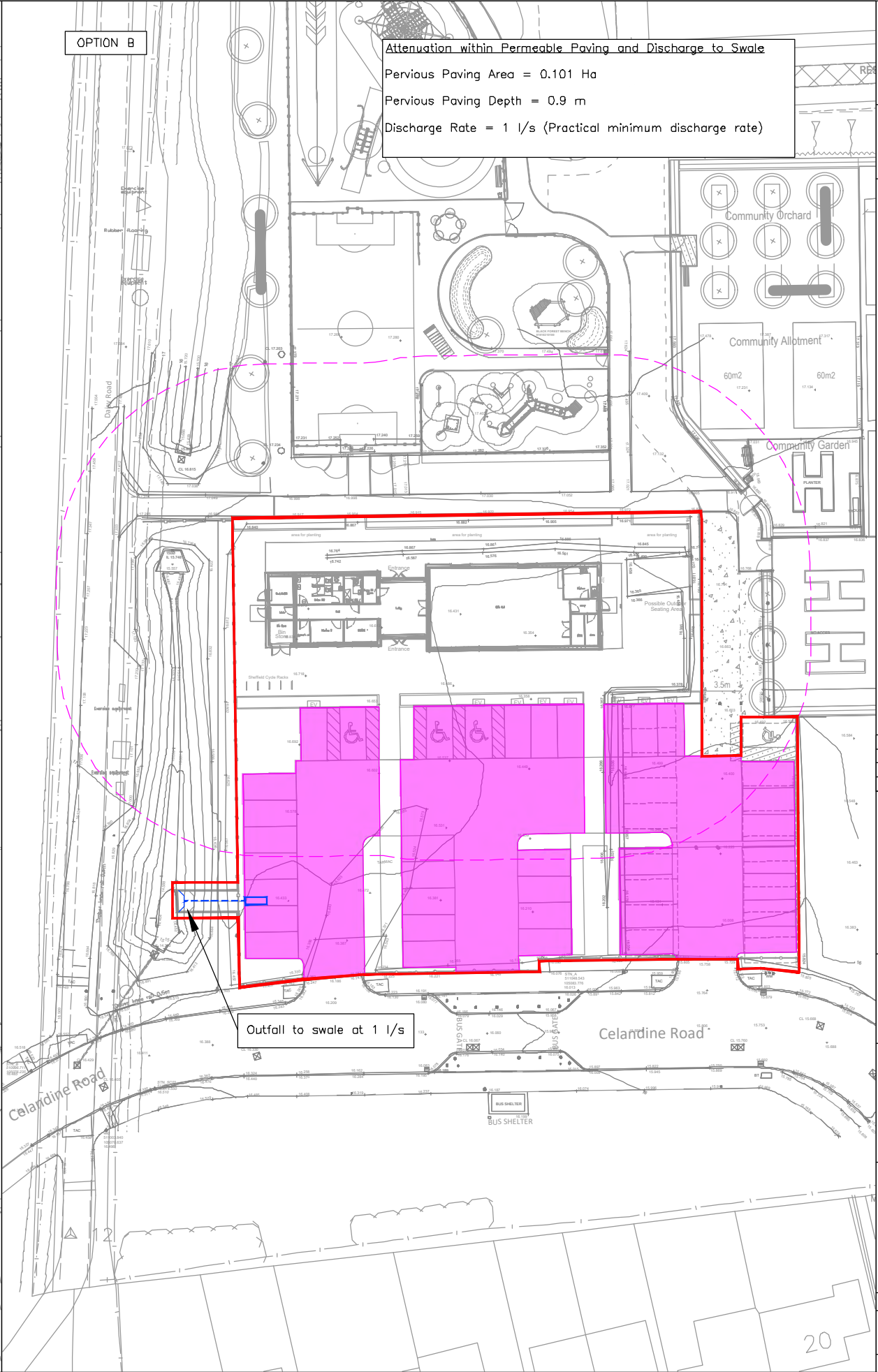
Development Title
Community Park
Phase 1B - West Durrington

Site Address
West Durrington,
Worthing
West Sussex

Drawing Title
Community Building - Site Layout

Date Feb. 2026	Scale 1:500 @A2P	Drawn AT
Drawing Status Planning	Dwg. Ref. 423_PL_100	Rev. A





Status

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0m 15m

Scale 1:500

NOTES

- This drawing is based on the Topographical Survey undertaken by Countryside, dated June 2026, Drawing Number SURV3711.
- This drawing is based on the Community Building - Site Layout by Persimmon, Reference 423_PL_100, Rev B, dated August 2026.
- The suitability of infiltration features within a 20m buffer of structures is subject to a Geotechnical Chalk Dissolution Risk Assessment.

KEY

- Site Boundary
- Pervious Paving (Infiltration)
- Pervious Paving (Attenuation)
- 20m Dissolution Risk Buffer
- Permavoid

Rev	Date	Description	Drawn	Check
#	30/07/26	First Issue	EC	MWS
A	20/08/26	Pervious paving and outfall updated	EC	MWS
B	10/09/26	Site boundary updated	EC	MWS

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Stratton Park House, Wanborough Road, Swindon, SN3 4HG

Client

West Durrington Consortium

Project

West Durrington Community Building

Drawing Title

Preliminary Drainage Strategy

Sheet 1 of 1

Drawing No.	Rev
W687/07	B
E-Mail: econgdon@pfaconsulting.co.uk	A3

PFA Consulting Limited				Page 1																																																																																																																																																																																																																			
Stratton Park House Wanborough Road Swindon SN3 4HG		W687 - West Durrington Option A - Permeable Paving 1 in 10 Year																																																																																																																																																																																																																					
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Summer</td><td>15.945</td><td>0.195</td><td>2.2</td><td>58.4</td><td>O K</td></tr><tr><td>600 min Summer</td><td>15.939</td><td>0.189</td><td>2.2</td><td>56.6</td><td>O K</td></tr><tr><td>720 min Summer</td><td>15.932</td><td>0.182</td><td>2.2</td><td>54.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>15.917</td><td>0.167</td><td>2.2</td><td>50.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>15.889</td><td>0.139</td><td>2.2</td><td>41.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>15.855</td><td>0.105</td><td>2.2</td><td>31.6</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>15.831</td><td>0.081</td><td>2.2</td><td>24.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>15.803</td><td>0.053</td><td>2.2</td><td>15.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>15.794</td><td>0.044</td><td>1.9</td><td>13.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>15.789</td><td>0.039</td><td>1.7</td><td>11.8</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>15.786</td><td>0.036</td><td>1.5</td><td>10.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>15.783</td><td>0.033</td><td>1.4</td><td>9.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>15.843</td><td>0.093</td><td>2.2</td><td>27.9</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>65.226</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>42.979</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>27.199</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>16.917</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>12.652</td><td>0.0</td><td>180</td></tr><tr><td>240 min Summer</td><td>10.238</td><td>0.0</td><td>220</td></tr><tr><td>360 min Summer</td><td>7.531</td><td>0.0</td><td>280</td></tr><tr><td>480 min Summer</td><td>6.022</td><td>0.0</td><td>342</td></tr><tr><td>600 min Summer</td><td>5.052</td><td>0.0</td><td>410</td></tr><tr><td>720 min Summer</td><td>4.372</td><td>0.0</td><td>478</td></tr><tr><td>960 min Summer</td><td>3.477</td><td>0.0</td><td>614</td></tr><tr><td>1440 min Summer</td><td>2.521</td><td>0.0</td><td>878</td></tr><tr><td>2160 min Summer</td><td>1.841</td><td>0.0</td><td>1252</td></tr><tr><td>2880 min Summer</td><td>1.484</td><td>0.0</td><td>1588</td></tr><tr><td>4320 min Summer</td><td>1.112</td><td>0.0</td><td>2248</td></tr><tr><td>5760 min Summer</td><td>0.917</td><td>0.0</td><td>2944</td></tr><tr><td>7200 min Summer</td><td>0.797</td><td>0.0</td><td>3680</td></tr><tr><td>8640 min Summer</td><td>0.715</td><td>0.0</td><td>4408</td></tr><tr><td>10080 min Summer</td><td>0.655</td><td>0.0</td><td>5144</td></tr><tr><td>15 min Winter</td><td>65.226</td><td>0.0</td><td>18</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	15.843	0.093	2.2	27.9	O K	30 min Summer	15.875	0.125	2.2	37.6	O K	60 min Summer	15.907	0.157	2.2	47.0	O K	120 min Summer	15.935	0.185	2.2	55.6	O K	180 min Summer	15.946	0.196	2.2	58.7	O K	240 min Summer	15.949	0.199	2.2	59.7	O K	360 min Summer	15.949	0.199	2.2	59.6	O K	480 min Summer	15.945	0.195	2.2	58.4	O K	600 min Summer	15.939	0.189	2.2	56.6	O K	720 min Summer	15.932	0.182	2.2	54.5	O K	960 min Summer	15.917	0.167	2.2	50.1	O K	1440 min Summer	15.889	0.139	2.2	41.7	O K	2160 min Summer	15.855	0.105	2.2	31.6	O K	2880 min Summer	15.831	0.081	2.2	24.2	O K	4320 min Summer	15.803	0.053	2.2	15.8	O K	5760 min Summer	15.794	0.044	1.9	13.3	O K	7200 min Summer	15.789	0.039	1.7	11.8	O K	8640 min Summer	15.786	0.036	1.5	10.7	O K	10080 min Summer	15.783	0.033	1.4	9.9	O K	15 min Winter	15.843	0.093	2.2	27.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	65.226	0.0	18	30 min Summer	42.979	0.0	33	60 min Summer	27.199	0.0	62	120 min Summer	16.917	0.0	122	180 min Summer	12.652	0.0	180	240 min Summer	10.238	0.0	220	360 min Summer	7.531	0.0	280	480 min Summer	6.022	0.0	342	600 min Summer	5.052	0.0	410	720 min Summer	4.372	0.0	478	960 min Summer	3.477	0.0	614	1440 min Summer	2.521	0.0	878	2160 min Summer	1.841	0.0	1252	2880 min Summer	1.484	0.0	1588	4320 min Summer	1.112	0.0	2248	5760 min Summer	0.917	0.0	2944	7200 min Summer	0.797	0.0	3680	8640 min Summer	0.715	0.0	4408	10080 min Summer	0.655	0.0	5144	15 min Winter	65.226	0.0	18
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Stratton Park House Wanborough Road Swindon SN3 4HG		W687 - West Durrington Option A - Permeable Paving 1 in 10 Year			
Date 19/08/2026 09:42 File W687 - PERMEABLE PAVING...		Designed by EC Checked by MWS			
XP Solutions		Source Control 2020.1.3			
Summary of Results for 10 year Return Period					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	15.875	0.125	2.2	37.5	O K
60 min Winter	15.906	0.156	2.2	46.9	O K
120 min Winter	15.935	0.185	2.2	55.5	O K
180 min Winter	15.946	0.196	2.2	58.8	O K
240 min Winter	15.949	0.199	2.2	59.7	O K
360 min Winter	15.946	0.196	2.2	58.8	O K
480 min Winter	15.939	0.189	2.2	56.8	O K
600 min Winter	15.930	0.180	2.2	54.1	O K
720 min Winter	15.920	0.170	2.2	51.0	O K
960 min Winter	15.898	0.148	2.2	44.5	O K
1440 min Winter	15.859	0.109	2.2	32.6	O K
2160 min Winter	15.815	0.065	2.2	19.6	O K
2880 min Winter	15.797	0.047	2.0	14.2	O K
4320 min Winter	15.786	0.036	1.6	10.8	O K
5760 min Winter	15.780	0.030	1.3	9.0	O K
7200 min Winter	15.776	0.026	1.1	7.8	O K
8640 min Winter	15.773	0.023	1.0	7.0	O K
10080 min Winter	15.771	0.021	0.9	6.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	42.979	0.0	32		
60 min Winter	27.199	0.0	62		
120 min Winter	16.917	0.0	118		
180 min Winter	12.652	0.0	174		
240 min Winter	10.238	0.0	228		
360 min Winter	7.531	0.0	286		
480 min Winter	6.022	0.0	362		
600 min Winter	5.052	0.0	438		
720 min Winter	4.372	0.0	512		
960 min Winter	3.477	0.0	654		
1440 min Winter	2.521	0.0	912		
2160 min Winter	1.841	0.0	1252		
2880 min Winter	1.484	0.0	1532		
4320 min Winter	1.112	0.0	2248		
5760 min Winter	0.917	0.0	2992		
7200 min Winter	0.797	0.0	3672		
8640 min Winter	0.715	0.0	4488		
10080 min Winter	0.655	0.0	5152		
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<u>Summary of Results for 30 year Return Period (+45%)</u> Half Drain Time : 499 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>15.946</td><td>0.196</td><td>2.2</td><td>58.7</td><td>O K</td></tr><tr><td>30 min Summer</td><td>16.012</td><td>0.262</td><td>2.2</td><td>78.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>16.081</td><td>0.331</td><td>2.2</td><td>99.2</td><td>O K</td></tr><tr><td>120 min Summer</td><td>16.135</td><td>0.385</td><td>2.2</td><td>115.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>16.160</td><td>0.410</td><td>2.2</td><td>123.0</td><td>O K</td></tr><tr><td>240 min Summer</td><td>16.173</td><td>0.423</td><td>2.2</td><td>126.8</td><td>O K</td></tr><tr><td>360 min Summer</td><td>16.178</td><td>0.428</td><td>2.2</td><td>128.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>16.172</td><td>0.422</td><td>2.2</td><td>126.5</td><td>O K</td></tr><tr><td>600 min Summer</td><td>16.163</td><td>0.413</td><td>2.2</td><td>123.8</td><td>O K</td></tr><tr><td>720 min Summer</td><td>16.153</td><td>0.403</td><td>2.2</td><td>121.0</td><td>O K</td></tr><tr><td>960 min Summer</td><td>16.135</td><td>0.385</td><td>2.2</td><td>115.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>16.099</td><td>0.349</td><td>2.2</td><td>104.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>16.053</td><td>0.303</td><td>2.2</td><td>90.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>16.013</td><td>0.263</td><td>2.2</td><td>78.9</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>15.947</td><td>0.197</td><td>2.2</td><td>59.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>15.898</td><td>0.148</td><td>2.2</td><td>44.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>15.860</td><td>0.110</td><td>2.2</td><td>33.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>15.834</td><td>0.084</td><td>2.2</td><td>25.2</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>15.815</td><td>0.065</td><td>2.2</td><td>19.6</td><td>O K</td></tr><tr><td>15 min Winter</td><td>15.945</td><td>0.195</td><td>2.2</td><td>58.6</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>124.318</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>82.583</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>52.513</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>31.574</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>23.263</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>18.654</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>13.574</td><td>0.0</td><td>360</td></tr><tr><td>480 min Summer</td><td>10.794</td><td>0.0</td><td>456</td></tr><tr><td>600 min Summer</td><td>9.025</td><td>0.0</td><td>506</td></tr><tr><td>720 min Summer</td><td>7.793</td><td>0.0</td><td>564</td></tr><tr><td>960 min Summer</td><td>6.181</td><td>0.0</td><td>690</td></tr><tr><td>1440 min Summer</td><td>4.464</td><td>0.0</td><td>956</td></tr><tr><td>2160 min Summer</td><td>3.249</td><td>0.0</td><td>1364</td></tr><tr><td>2880 min Summer</td><td>2.609</td><td>0.0</td><td>1760</td></tr><tr><td>4320 min Summer</td><td>1.939</td><td>0.0</td><td>2508</td></tr><tr><td>5760 min Summer</td><td>1.587</td><td>0.0</td><td>3232</td></tr><tr><td>7200 min Summer</td><td>1.368</td><td>0.0</td><td>3896</td></tr><tr><td>8640 min Summer</td><td>1.218</td><td>0.0</td><td>4584</td></tr><tr><td>10080 min Summer</td><td>1.107</td><td>0.0</td><td>5248</td></tr><tr><td>15 min Winter</td><td>124.318</td><td>0.0</td><td>18</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	15.946	0.196	2.2	58.7	O K	30 min Summer	16.012	0.262	2.2	78.7	O K	60 min Summer	16.081	0.331	2.2	99.2	O K	120 min Summer	16.135	0.385	2.2	115.4	O K	180 min Summer	16.160	0.410	2.2	123.0	O K	240 min Summer	16.173	0.423	2.2	126.8	O K	360 min Summer	16.178	0.428	2.2	128.5	O K	480 min Summer	16.172	0.422	2.2	126.5	O K	600 min Summer	16.163	0.413	2.2	123.8	O K	720 min Summer	16.153	0.403	2.2	121.0	O K	960 min Summer	16.135	0.385	2.2	115.4	O K	1440 min Summer	16.099	0.349	2.2	104.7	O K	2160 min Summer	16.053	0.303	2.2	90.8	O K	2880 min Summer	16.013	0.263	2.2	78.9	O K	4320 min Summer	15.947	0.197	2.2	59.2	O K	5760 min Summer	15.898	0.148	2.2	44.3	O K	7200 min Summer	15.860	0.110	2.2	33.1	O K	8640 min Summer	15.834	0.084	2.2	25.2	O K	10080 min Summer	15.815	0.065	2.2	19.6	O K	15 min Winter	15.945	0.195	2.2	58.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	124.318	0.0	19	30 min Summer	82.583	0.0	33	60 min Summer	52.513	0.0	64	120 min Summer	31.574	0.0	122	180 min Summer	23.263	0.0	182	240 min Summer	18.654	0.0	242	360 min Summer	13.574	0.0	360	480 min Summer	10.794	0.0	456	600 min Summer	9.025	0.0	506	720 min Summer	7.793	0.0	564	960 min Summer	6.181	0.0	690	1440 min Summer	4.464	0.0	956	2160 min Summer	3.249	0.0	1364	2880 min Summer	2.609	0.0	1760	4320 min Summer	1.939	0.0	2508	5760 min Summer	1.587	0.0	3232	7200 min Summer	1.368	0.0	3896	8640 min Summer	1.218	0.0	4584	10080 min Summer	1.107	0.0	5248	15 min Winter	124.318	0.0	18
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PFA Consulting Limited				Page 2	
Stratton Park House Wanborough Road Swindon SN3 4HG		W687 - West Durrington Option A - Permeable Paving 1 in 30 year + CC			
Date 19/08/2026 09:39 File W687 - PERMEABLE PAVING...		Designed by EC Checked by MWS			
XP Solutions		Source Control 2020.1.3			
<u>Summary of Results for 30 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	16.012	0.262	2.2	78.7	O K
60 min Winter	16.081	0.331	2.2	99.2	O K
120 min Winter	16.135	0.385	2.2	115.5	O K
180 min Winter	16.161	0.411	2.2	123.2	O K
240 min Winter	16.174	0.424	2.2	127.2	O K
360 min Winter	16.181	0.431	2.2	129.2	O K
480 min Winter	16.175	0.425	2.2	127.4	O K
600 min Winter	16.163	0.413	2.2	123.9	O K
720 min Winter	16.151	0.401	2.2	120.2	O K
960 min Winter	16.127	0.377	2.2	113.2	O K
1440 min Winter	16.077	0.327	2.2	98.2	O K
2160 min Winter	16.008	0.258	2.2	77.4	O K
2880 min Winter	15.949	0.199	2.2	59.6	O K
4320 min Winter	15.858	0.108	2.2	32.4	O K
5760 min Winter	15.806	0.056	2.2	16.9	O K
7200 min Winter	15.795	0.045	2.0	13.6	O K
8640 min Winter	15.790	0.040	1.7	12.1	O K
10080 min Winter	15.787	0.037	1.6	11.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	82.583	0.0	33		
60 min Winter	52.513	0.0	62		
120 min Winter	31.574	0.0	120		
180 min Winter	23.263	0.0	178		
240 min Winter	18.654	0.0	236		
360 min Winter	13.574	0.0	348		
480 min Winter	10.794	0.0	458		
600 min Winter	9.025	0.0	556		
720 min Winter	7.793	0.0	578		
960 min Winter	6.181	0.0	724		
1440 min Winter	4.464	0.0	1024		
2160 min Winter	3.249	0.0	1448		
2880 min Winter	2.609	0.0	1844		
4320 min Winter	1.939	0.0	2548		
5760 min Winter	1.587	0.0	3112		
7200 min Winter	1.368	0.0	3744		
8640 min Winter	1.218	0.0	4416		
10080 min Winter	1.107	0.0	5144		
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Stratton Park House Wanborough Road Swindon SN3 4HG		W687 - West Durrington Option A - Permeable Paving 1 in 100 year + CC																																																																																																																																																																																																																					
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<u>Summary of Results for 100 year Return Period (+45%)</u> Half Drain Time : 657 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>16.003</td><td>0.253</td><td>2.2</td><td>75.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>16.091</td><td>0.341</td><td>2.2</td><td>102.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>16.185</td><td>0.435</td><td>2.2</td><td>130.4</td><td>O K</td></tr><tr><td>120 min Summer</td><td>16.247</td><td>0.497</td><td>2.2</td><td>149.0</td><td>O K</td></tr><tr><td>180 min Summer</td><td>16.277</td><td>0.527</td><td>2.2</td><td>158.2</td><td>O K</td></tr><tr><td>240 min Summer</td><td>16.294</td><td>0.544</td><td>2.2</td><td>163.2</td><td>O K</td></tr><tr><td>360 min Summer</td><td>16.306</td><td>0.556</td><td>2.2</td><td>166.9</td><td>O K</td></tr><tr><td>480 min Summer</td><td>16.304</td><td>0.554</td><td>2.2</td><td>166.1</td><td>O K</td></tr><tr><td>600 min Summer</td><td>16.294</td><td>0.544</td><td>2.2</td><td>163.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>16.283</td><td>0.533</td><td>2.2</td><td>159.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>16.263</td><td>0.513</td><td>2.2</td><td>153.8</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>16.225</td><td>0.475</td><td>2.2</td><td>142.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>16.177</td><td>0.427</td><td>2.2</td><td>128.0</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>16.133</td><td>0.383</td><td>2.2</td><td>115.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>16.057</td><td>0.307</td><td>2.2</td><td>92.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>15.992</td><td>0.242</td><td>2.2</td><td>72.7</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>15.940</td><td>0.190</td><td>2.2</td><td>57.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>15.898</td><td>0.148</td><td>2.2</td><td>44.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>15.864</td><td>0.114</td><td>2.2</td><td>34.3</td><td>O K</td></tr><tr><td>15 min Winter</td><td>16.003</td><td>0.253</td><td>2.2</td><td>75.8</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>157.115</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>105.317</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>67.542</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>39.741</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>28.987</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>23.119</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>16.753</td><td>0.0</td><td>362</td></tr><tr><td>480 min Summer</td><td>13.297</td><td>0.0</td><td>480</td></tr><tr><td>600 min Summer</td><td>11.109</td><td>0.0</td><td>582</td></tr><tr><td>720 min Summer</td><td>9.591</td><td>0.0</td><td>622</td></tr><tr><td>960 min Summer</td><td>7.613</td><td>0.0</td><td>742</td></tr><tr><td>1440 min Summer</td><td>5.506</td><td>0.0</td><td>998</td></tr><tr><td>2160 min Summer</td><td>4.005</td><td>0.0</td><td>1408</td></tr><tr><td>2880 min Summer</td><td>3.209</td><td>0.0</td><td>1816</td></tr><tr><td>4320 min Summer</td><td>2.364</td><td>0.0</td><td>2596</td></tr><tr><td>5760 min Summer</td><td>1.916</td><td>0.0</td><td>3344</td></tr><tr><td>7200 min Summer</td><td>1.636</td><td>0.0</td><td>4040</td></tr><tr><td>8640 min Summer</td><td>1.443</td><td>0.0</td><td>4760</td></tr><tr><td>10080 min Summer</td><td>1.300</td><td>0.0</td><td>5448</td></tr><tr><td>15 min Winter</td><td>157.115</td><td>0.0</td><td>19</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	16.003	0.253	2.2	75.8	O K	30 min Summer	16.091	0.341	2.2	102.4	O K	60 min Summer	16.185	0.435	2.2	130.4	O K	120 min Summer	16.247	0.497	2.2	149.0	O K	180 min Summer	16.277	0.527	2.2	158.2	O K	240 min Summer	16.294	0.544	2.2	163.2	O K	360 min Summer	16.306	0.556	2.2	166.9	O K	480 min Summer	16.304	0.554	2.2	166.1	O K	600 min Summer	16.294	0.544	2.2	163.1	O K	720 min Summer	16.283	0.533	2.2	159.9	O K	960 min Summer	16.263	0.513	2.2	153.8	O K	1440 min Summer	16.225	0.475	2.2	142.6	O K	2160 min Summer	16.177	0.427	2.2	128.0	O K	2880 min Summer	16.133	0.383	2.2	115.0	O K	4320 min Summer	16.057	0.307	2.2	92.1	O K	5760 min Summer	15.992	0.242	2.2	72.7	O K	7200 min Summer	15.940	0.190	2.2	57.0	O K	8640 min Summer	15.898	0.148	2.2	44.3	O K	10080 min Summer	15.864	0.114	2.2	34.3	O K	15 min Winter	16.003	0.253	2.2	75.8	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	157.115	0.0	19	30 min Summer	105.317	0.0	34	60 min Summer	67.542	0.0	64	120 min Summer	39.741	0.0	122	180 min Summer	28.987	0.0	182	240 min Summer	23.119	0.0	242	360 min Summer	16.753	0.0	362	480 min Summer	13.297	0.0	480	600 min Summer	11.109	0.0	582	720 min Summer	9.591	0.0	622	960 min Summer	7.613	0.0	742	1440 min Summer	5.506	0.0	998	2160 min Summer	4.005	0.0	1408	2880 min Summer	3.209	0.0	1816	4320 min Summer	2.364	0.0	2596	5760 min Summer	1.916	0.0	3344	7200 min Summer	1.636	0.0	4040	8640 min Summer	1.443	0.0	4760	10080 min Summer	1.300	0.0	5448	15 min Winter	157.115	0.0	19
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
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Stratton Park House Wanborough Road Swindon SN3 4HG		W687 - West Durrington Option A - Permeable Paving 1 in 100 year + CC			
Date 19/08/2026 09:37 File W687 - PERMEABLE PAVING...		Designed by EC Checked by MWS			
XP Solutions		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	16.091	0.341	2.2	102.4	O K
60 min Winter	16.185	0.435	2.2	130.5	O K
120 min Winter	16.247	0.497	2.2	149.2	O K
180 min Winter	16.278	0.528	2.2	158.5	O K
240 min Winter	16.295	0.545	2.2	163.6	O K
360 min Winter	16.309	0.559	2.2	167.6	O K
480 min Winter	16.308	0.558	2.2	167.3	O K
600 min Winter	16.299	0.549	2.2	164.7	O K
720 min Winter	16.286	0.536	2.2	160.9	O K
960 min Winter	16.260	0.510	2.2	153.1	O K
1440 min Winter	16.211	0.461	2.2	138.4	O K
2160 min Winter	16.139	0.389	2.2	116.8	O K
2880 min Winter	16.073	0.323	2.2	96.9	O K
4320 min Winter	15.959	0.209	2.2	62.8	O K
5760 min Winter	15.873	0.123	2.2	36.9	O K
7200 min Winter	15.817	0.067	2.2	20.1	O K
8640 min Winter	15.798	0.048	2.1	14.4	O K
10080 min Winter	15.793	0.043	1.9	13.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	105.317	0.0	33		
60 min Winter	67.542	0.0	62		
120 min Winter	39.741	0.0	120		
180 min Winter	28.987	0.0	180		
240 min Winter	23.119	0.0	238		
360 min Winter	16.753	0.0	352		
480 min Winter	13.297	0.0	464		
600 min Winter	11.109	0.0	572		
720 min Winter	9.591	0.0	676		
960 min Winter	7.613	0.0	762		
1440 min Winter	5.506	0.0	1066		
2160 min Winter	4.005	0.0	1512		
2880 min Winter	3.209	0.0	1932		
4320 min Winter	2.364	0.0	2684		
5760 min Winter	1.916	0.0	3400		
7200 min Winter	1.636	0.0	3960		
8640 min Winter	1.443	0.0	4408		
10080 min Winter	1.300	0.0	5144		
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File W687 - Outfall to swale...

XP Solutions

W687 - West Durrington
Option B - Permeable Paving
1 in 10 Year

Designed by EC
Checked by MWS

Source Control 2020.1.3

Page 1



Summary of Results for 10 year Return Period

Half Drain Time : 693 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	15.696	0.096	0.0	0.9	0.9	28.7	O K
30 min Summer	15.730	0.130	0.0	0.9	0.9	39.1	O K
60 min Summer	15.767	0.167	0.0	0.9	0.9	50.0	O K
120 min Summer	15.805	0.205	0.0	1.0	1.0	61.6	O K
180 min Summer	15.827	0.227	0.0	1.0	1.0	68.0	O K
240 min Summer	15.840	0.240	0.0	1.0	1.0	71.9	O K
360 min Summer	15.854	0.254	0.0	1.0	1.0	76.1	O K
480 min Summer	15.859	0.259	0.0	1.0	1.0	77.6	O K
600 min Summer	15.859	0.259	0.0	1.0	1.0	77.7	O K
720 min Summer	15.858	0.258	0.0	1.0	1.0	77.5	O K
960 min Summer	15.855	0.255	0.0	1.0	1.0	76.6	O K
1440 min Summer	15.848	0.248	0.0	1.0	1.0	74.3	O K
2160 min Summer	15.834	0.234	0.0	1.0	1.0	70.2	O K
2880 min Summer	15.820	0.220	0.0	1.0	1.0	66.1	O K
4320 min Summer	15.796	0.196	0.0	1.0	1.0	58.8	O K
5760 min Summer	15.776	0.176	0.0	1.0	1.0	52.8	O K
7200 min Summer	15.760	0.160	0.0	0.9	0.9	47.9	O K
8640 min Summer	15.747	0.147	0.0	0.9	0.9	44.0	O K
10080 min Summer	15.735	0.135	0.0	0.9	0.9	40.6	O K
15 min Winter	15.696	0.096	0.0	0.9	0.9	28.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	65.226	0.0	26.1	19
30 min Summer	42.979	0.0	36.4	34
60 min Summer	27.199	0.0	50.3	64
120 min Summer	16.917	0.0	63.9	122
180 min Summer	12.652	0.0	72.2	182
240 min Summer	10.238	0.0	78.2	242
360 min Summer	7.531	0.0	86.6	362
480 min Summer	6.022	0.0	92.3	480
600 min Summer	5.052	0.0	96.7	584
720 min Summer	4.372	0.0	100.3	626
960 min Summer	3.477	0.0	105.8	748
1440 min Summer	2.521	0.0	113.0	1008
2160 min Summer	1.841	0.0	128.5	1408
2880 min Summer	1.484	0.0	137.2	1816
4320 min Summer	1.112	0.0	151.9	2596
5760 min Summer	0.917	0.0	167.3	3400
7200 min Summer	0.797	0.0	180.2	4112
8640 min Summer	0.715	0.0	192.2	4848
10080 min Summer	0.655	0.0	203.3	5552
15 min Winter	65.226	0.0	26.1	19

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Stratton Park House Wanborough Road Swindon SN3 4HG			W687 - West Durrington Option B - Permeable Paving 1 in 10 Year				
Date 19/08/2026 10:51 File W687 - Outfall to swale...			Designed by EC Checked by MWS				
XP Solutions			Source Control 2020.1.3				
<u>Summary of Results for 10 year Return Period</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	15.730	0.130	0.0	0.9	0.9	39.1	O K
60 min Winter	15.767	0.167	0.0	0.9	0.9	50.0	O K
120 min Winter	15.805	0.205	0.0	1.0	1.0	61.6	O K
180 min Winter	15.826	0.226	0.0	1.0	1.0	67.9	O K
240 min Winter	15.840	0.240	0.0	1.0	1.0	71.9	O K
360 min Winter	15.853	0.253	0.0	1.0	1.0	76.0	O K
480 min Winter	15.859	0.259	0.0	1.0	1.0	77.6	O K
600 min Winter	15.859	0.259	0.0	1.0	1.0	77.8	O K
720 min Winter	15.858	0.258	0.0	1.0	1.0	77.3	O K
960 min Winter	15.852	0.252	0.0	1.0	1.0	75.7	O K
1440 min Winter	15.840	0.240	0.0	1.0	1.0	72.0	O K
2160 min Winter	15.818	0.218	0.0	1.0	1.0	65.4	O K
2880 min Winter	15.797	0.197	0.0	1.0	1.0	59.0	O K
4320 min Winter	15.760	0.160	0.0	0.9	0.9	47.9	O K
5760 min Winter	15.731	0.131	0.0	0.9	0.9	39.3	O K
7200 min Winter	15.710	0.110	0.0	0.9	0.9	33.0	O K
8640 min Winter	15.694	0.094	0.0	0.9	0.9	28.3	O K
10080 min Winter	15.683	0.083	0.0	0.8	0.8	24.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	42.979	0.0	36.4	33			
60 min Winter	27.199	0.0	50.3	62			
120 min Winter	16.917	0.0	63.9	120			
180 min Winter	12.652	0.0	72.2	180			
240 min Winter	10.238	0.0	78.2	238			
360 min Winter	7.531	0.0	86.6	352			
480 min Winter	6.022	0.0	92.3	464			
600 min Winter	5.052	0.0	96.7	572			
720 min Winter	4.372	0.0	100.3	676			
960 min Winter	3.477	0.0	105.8	762			
1440 min Winter	2.521	0.0	113.3	1068			
2160 min Winter	1.841	0.0	128.5	1512			
2880 min Winter	1.484	0.0	137.2	1932			
4320 min Winter	1.112	0.0	152.1	2724			
5760 min Winter	0.917	0.0	167.4	3464			
7200 min Winter	0.797	0.0	180.3	4184			
8640 min Winter	0.715	0.0	192.4	4928			
10080 min Winter	0.655	0.0	203.7	5552			
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Page 1

Micro Drainage

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1838 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	15.856	0.256	0.0	1.0	1.0	76.8	O K
30 min Summer	15.948	0.348	0.0	1.0	1.0	104.3	O K
60 min Summer	16.048	0.448	0.0	1.0	1.0	134.3	O K
120 min Summer	16.123	0.523	0.0	1.0	1.0	156.9	O K
180 min Summer	16.167	0.567	0.0	1.0	1.0	170.0	O K
240 min Summer	16.196	0.596	0.0	1.0	1.0	178.8	O K
360 min Summer	16.234	0.634	0.0	1.0	1.0	190.2	O K
480 min Summer	16.256	0.656	0.0	1.0	1.0	196.9	O K
600 min Summer	16.270	0.670	0.0	1.0	1.0	201.1	O K
720 min Summer	16.280	0.680	0.0	1.0	1.0	203.9	O K
960 min Summer	16.289	0.689	0.0	1.0	1.0	206.6	O K
1440 min Summer	16.286	0.686	0.0	1.0	1.0	205.7	O K
2160 min Summer	16.269	0.669	0.0	1.0	1.0	200.8	O K
2880 min Summer	16.254	0.654	0.0	1.0	1.0	196.3	O K
4320 min Summer	16.226	0.626	0.0	1.0	1.0	187.9	O K
5760 min Summer	16.201	0.601	0.0	1.0	1.0	180.2	O K
7200 min Summer	16.178	0.578	0.0	1.0	1.0	173.4	O K
8640 min Summer	16.156	0.556	0.0	1.0	1.0	166.9	O K
10080 min Summer	16.135	0.535	0.0	1.0	1.0	160.6	O K
15 min Winter	15.856	0.256	0.0	1.0	1.0	76.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	157.115	0.0	68.9	19
30 min Summer	105.317	0.0	80.2	34
60 min Summer	67.542	0.0	131.5	64
120 min Summer	39.741	0.0	149.1	124
180 min Summer	28.987	0.0	152.2	184
240 min Summer	23.119	0.0	151.9	244
360 min Summer	16.753	0.0	150.2	362
480 min Summer	13.297	0.0	148.5	482
600 min Summer	11.109	0.0	146.9	602
720 min Summer	9.591	0.0	145.5	722
960 min Summer	7.613	0.0	143.0	962
1440 min Summer	5.506	0.0	139.2	1440
2160 min Summer	4.005	0.0	282.8	1796
2880 min Summer	3.209	0.0	280.9	2164
4320 min Summer	2.364	0.0	257.1	2984
5760 min Summer	1.916	0.0	368.2	3816
7200 min Summer	1.636	0.0	391.0	4680
8640 min Summer	1.443	0.0	411.3	5528
10080 min Summer	1.300	0.0	428.9	6352
15 min Winter	157.115	0.0	68.9	19

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W687 - West Durrington
Option B - Permeable Paving
1 in 100 year + CC

Designed by EC
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Source Control 2020.1.3

Page 2



Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	15.947	0.347	0.0	1.0	1.0	104.2	O K
60 min Winter	16.048	0.448	0.0	1.0	1.0	134.3	O K
120 min Winter	16.123	0.523	0.0	1.0	1.0	156.9	O K
180 min Winter	16.167	0.567	0.0	1.0	1.0	170.0	O K
240 min Winter	16.196	0.596	0.0	1.0	1.0	178.9	O K
360 min Winter	16.234	0.634	0.0	1.0	1.0	190.3	O K
480 min Winter	16.257	0.657	0.0	1.0	1.0	197.0	O K
600 min Winter	16.271	0.671	0.0	1.0	1.0	201.4	O K
720 min Winter	16.281	0.681	0.0	1.0	1.0	204.3	O K
960 min Winter	16.291	0.691	0.0	1.0	1.0	207.3	O K
1440 min Winter	16.291	0.691	0.0	1.0	1.0	207.2	O K
2160 min Winter	16.271	0.671	0.0	1.0	1.0	201.2	O K
2880 min Winter	16.251	0.651	0.0	1.0	1.0	195.2	O K
4320 min Winter	16.210	0.610	0.0	1.0	1.0	182.9	O K
5760 min Winter	16.167	0.567	0.0	1.0	1.0	170.0	O K
7200 min Winter	16.125	0.525	0.0	1.0	1.0	157.6	O K
8640 min Winter	16.083	0.483	0.0	1.0	1.0	145.0	O K
10080 min Winter	16.035	0.435	0.0	1.0	1.0	130.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	105.317	0.0	80.2	34
60 min Winter	67.542	0.0	131.5	64
120 min Winter	39.741	0.0	149.2	122
180 min Winter	28.987	0.0	152.3	182
240 min Winter	23.119	0.0	152.0	240
360 min Winter	16.753	0.0	150.3	358
480 min Winter	13.297	0.0	148.6	474
600 min Winter	11.109	0.0	147.0	590
720 min Winter	9.591	0.0	145.6	708
960 min Winter	7.613	0.0	143.1	934
1440 min Winter	5.506	0.0	139.4	1384
2160 min Winter	4.005	0.0	282.9	1988
2880 min Winter	3.209	0.0	281.7	2248
4320 min Winter	2.364	0.0	259.6	3196
5760 min Winter	1.916	0.0	368.2	4096
7200 min Winter	1.636	0.0	391.1	5040
8640 min Winter	1.443	0.0	411.6	5960
10080 min Winter	1.300	0.0	430.0	6760

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