

Technical Note 36: Phase 3 Attenuation Basin and Swale

Site: Billingshurst – Phase 3 Proposed Attenuation Basins and Swale
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Date: 31/03/2026

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1.0 Introduction

- 1.1 This Drainage Statement has been prepared by Motion on behalf of Dunmoore Group Ltd to support a planning application for an extension to the consented mixed used development in Billingshurst, West Sussex. This development will make up Phase 3 of the development site and is located to the south of the existing Phase 1 and 2 developments. The application consists of two new basins and a swale to provide attenuation for the new access road and the workshop/storage unit known as the EVM site as part of the Phase 3 development. The site plan can be found in **Appendix A**.
- 1.2 A Drainage Strategy and SuDS Assessment for the Phase 1 and 2 development was undertaken by Motion in January 2019, as part of the original consented hybrid application. As this report is for two new attenuation basins and a swale, it is intended to be a standalone report, however where necessary it takes into account the various applications and variations to the original consented hybrid application.
- 1.3 The site is located approximately to the north of Billingshurst Village centre within the administrative boundaries of Horsham District Council (HDC) and West Sussex County Council (WSCC). The site is currently undeveloped agricultural land.
- 1.4 This technical note will discuss the risks to the proposed development from all sources of flooding. This report will also define how the site will manage surface water so that the development does not increase flood risk in the area or to neighbouring properties.
- 1.5 This FRA and drainage strategy follows the guidance set out in:
 - ▶ 2024 National Planning Policy Framework (NPPF)
 - ▶ Technical Guidance to the National Planning Policy Framework
 - ▶ CIRIA SuDS Manual 2015 (C753)
 - ▶ Environment Agency Rainfall Runoff Management for Developments.
- 1.6 This report does not provide information on how the drainage infrastructure will be protected during the construction phase of the project. The provision of this information is the responsibility of the appointed contractor.

2.0 Site Description

Table 2.1 – Site Summary

Site Name	Phase 3 Billingshurst – Proposed Attenuation Basins and Swale
Location	Phase 3 Billingshurst Trade Park, Stane Street, West Sussex, RH14 9HN
Grid Reference	E 509253 N 126594
Site Area	0.475ha
Development Type	Construction of two new basins and swale to provide attenuation for the new access road and the commercial unit.
Environment Agency (EA) Flood Zone	The site is located wholly within Flood Zone 1 (less than 1 in 1,000 annual probability of flooding from rivers or the sea).
Surface Water Flood Risk	The Jeremy Benn Associates (JBA) Comprehensive Flood Maps (CFM's) and the EA's Risk of Flooding from Surface Water (RoFSW) map show that the whole site is in an area of low risk of surface water flooding.
Ground Water Flood Risk	The Envirocheck report shows that the site has not got geological and hydrogeological indicators for groundwater flooding to occur. According to the BGS Groundwater Flooding Susceptibility maps and the GeoSmart Information, the site is in an area of negligible risk.
Local Water Authority	Southern Water (SW)
Local Planning Authority	Horsham District Council (HDC)
Lead Local Flood Authority	West Sussex County Council (WSCC)

Site Location and Description

- 2.1 The site is located in the village of Billingshurst in the District of Horsham and County of West Sussex. The nearest post code is RH14 9HN and the site co-ordinates are 509253, 126594. The application site is approximately 0.475 hectare (ha). The site is made up of mostly agricultural land with some trees and can be described as Greenfield. A copy of the location plan can be found in **Appendix B**.
- 2.2 The proposal is for two new basin and a swale to provide attenuation for the new access road and the workshop/storage unit known as the EVM site as part of the Phase 3 development. An extract of the illustrative masterplan is illustrated in Figure 2.1 and can be found in full in **Appendix A**.

Topography

- 2.3 A topographical survey of the existing site was undertaken by Hollis in November 2019 which is provided in **Appendix C** of this report. The site generally falls from northeast to west with ground levels ranging from approximately 56.05 metres Above Ordnance Datum (mAOD) to 51.94mAOD.

Geology

- 2.4 The British Geological Survey (BGS) online Geoindex Mapping indicates that the site is underlain by Weald Clay Formation, which is made up of clay, silt and sand with no superficial deposits of Head. Borehole records from the surrounding area have been obtained from the BGS online index and these can be found in **Appendix D**. These Borehole records support the findings of the BGS mapping and confirm that the site is underlain by clay, silt and sand.

- 2.5 The Department for the Environment, Food and Rural Affairs (Defra's) Magic Map states that soils in the area are 'Slowly Permeable Seasonally Wet Slightly Acid But Base-Rich Loamy and Clayey Soils'.
- 2.6 Intrusive ground investigations were carried out at the site in December 2025, and several exploratory holes were excavated up to a maximum depth of 4m. The exploratory hole logs confirmed that the ground comprises Weald Clay Formation, with coarse soils and weathered sandstone encountered across the south-eastern half of the site, and fine/cohesive soils and mudstone across the north-west. A copy of the exploratory hole logs taken from Soiltechnics Ground Investigation report can be found in **Appendix E**.
- 2.7 The intrusive investigations also confirmed that the use of infiltration techniques at the site are unlikely to be feasible as groundwater prevented permeability testing from being carried out.

Hydrogeology

- 2.8 Defra's Magic Map indicates that the site is not located in a Groundwater Source Protection Zone (SPZ) or in an Aquifer designation. A flood screening report has been obtained from Envirocheck Landmark Information Group Ltd and this can be found in **Appendix F**. The report shows that the site has not got geological and hydrogeological indicators for groundwater flooding to occur. According to the BGS Groundwater Flooding Susceptibility maps and the GeoSmart Information, the site is in an area of negligible risk.

Existing Drainage Regime

- 2.9 The site is existing agricultural land made up of open fields. Therefore, the existing site can be described as greenfield.
- 2.10 The field is currently drained via a below ground land drainage system of perforated pipes, which outfalls into Phase 1 of Billingshurst Trade Park. The water is routed through Phase 1 in a separate system and outfalls to a culvert that drains under Stane Street (A29) into a ditch to the west of road.
- 2.11 The nearest watercourse to the site is an unnamed ditch (a tributary of the River Arun) which flows in an easterly direction along the site's southern boundary. The nearest main river to the site is the River Adur which is located 1km east of the site.
- 2.12 Asset location plans were obtained from Southern Water (see **Appendix G**), and these indicate there are no surface water sewers which currently serve the site.

3.0 The New National Standards for SuDS

- 3.1 On 19 June 2025 the UK government published its new National Standards for Sustainable Drainage Systems (SuDS). The new standards are an evolution of industry standards and current best practice, many of which practitioners and design engineers have already been actively incorporating in their drainage strategies. Therefore, while the new National Standards do not fundamentally change current standards, they are a welcome step in clarifying points that had previously been uncertain and has enshrined them in a single piece of guidance.
- 3.2 The standards emphasise how sustainable drainage and flood risk should be considered in developments, and the importance of site appraisal and early, integrated design with the site's natural features and proposed infrastructure. However, the Planning Balance and other technical factors/policy requirements must always be considered.
- 3.3 The new National Standards for SuDS outline that;
 - ▶ SuDS are mandatory for major developments and drainage strategies must conform with the new national criteria and LLFA guidance.
 - ▶ There is a stronger emphasis on the 'four pillars' of SuDS. Drainage strategies must demonstrate benefits for water quantity and quality as well as amenity, and biodiversity. This pushes designers to incorporate more surface level SuDS and rely less on below-ground attenuation.
 - ▶ There is also greater emphasis on using water recycling within developments, especially in water-stressed areas.
 - ▶ There is more clarity on long-term adoption & maintenance of SuDS system and LPA's will expect clearer maintenance and management strategies for drainage systems and require stronger evidence of deliverability.
- 3.4 As stated before, this is a minor evolution of the current approach to drainage design, but there are subtle differences in the design factors, which could lead to an increase in size of attenuation features. In addition to the above overarching principles of the New National Standards for SuDS, the below specific points should be borne in mind by designers and included in any drainage strategies:
 - ▶ Standard 2 provides explicit guidance on the management of everyday rainfall. The first 5mm of rainfall (the 'first flush') must be managed by interception and should not leave the site. Instead, it should either collected for reuse, infiltrated into the ground, or else captured, conveyed, and stored within SuDS features (but there are specific criteria that make this last point acceptable).
 - ▶ The latest standards now formalise that the minimum permissible infiltration rate for discharging surface water via a 'System A' (Total Infiltration) solution. The minimum infiltration coefficient that can support an infiltration-based drainage solution is 1.0×10^{-6} m/sec. Additionally, the standards now add that the half drain in the 3.3% AEP event should be less than 24 hours.
 - ▶ A 'relaxation factor' should instead be applied to the target greenfield runoff rates on brownfield site. It defines that the maximum relaxation factor for runoff rates should be no greater than five times the greenfield rates. This allows for easier implementation on heavily developed urban sites, especially where LLFA's previously demanded greenfield runoff rates.
 - ▶ The new National Standards confirm a previous 'grey area' by stating that SuDS features should be included in the contributing catchment area. It also notes that there is no requirement to provide attenuation for external overland flows entering the site, but these flows should be considered for capacity of the pipe network.
 - ▶ Standard 3 of the new National Standards for SuDS clarifies the expectations with regards to urban creep. It says "*within developments an urban creep uplift factor shall be applied by adding a*

percentage increase to the calculated area of the impermeable area within the property curtilages. This shall be 10% for all developments unless there are no external private permeable spaces, for example, flats and apartments, when it shall be 0%."

- 3.5 There are also other specific technical calculations and approaches that need to be balanced in site design (such as the allowable ratio of contributing areas to permeable pavements when discharging via infiltration, as one such example) that also must be taken into account. These should be assessed and balanced on a site-by-site basis.

4.0 Attenuation Basins and Swale

Proposed Attenuation Basins and Swale

- 4.1 The proposed attenuation basin and the swale surface water strategy can be found in **Appendix H**.
- 4.2 Current planning policy and EA guidance requires developments to employ SuDS (Sustainable Drainage Systems) techniques wherever feasible. Careful design of SuDS features can ensure that a development's surface water drainage closely reflects the natural hydrology of the pre-developed site.
- 4.3 SuDS will attenuate and treat surface water run-off quantities at the source (source control) in line with NPPF and EA policies.
- 4.4 Source control systems treat surface water close to the point of origin, in features such as soakaways, permeable paving and swales, to name a few.
- 4.5 The existing and proposed impermeable areas for the development site are summarised in Table 6.1 below. This demonstrates that the proposed development will increase the hardstanding area of the site. An impermeable area plan is detailed in **Appendix I**.

Table 6.1 – Existing and Proposed Surface Cover

Land Use	Impermeable Area		Gardens and Landscaping	
	Area (ha)	% Cover	Area (ha)	% Cover
Existing	0.00	0	0.475	100
Proposed	0.19	40	0.285	60

- 4.6 Including the workshop and storage unit (EVM site), the total impermeable area is 1.35 (ha)

Greenfield Runoff Rate

- 4.7 The greenfield runoff rates have been calculated for the proposed impermeable area using HR Wallingford's UKSuDS online calculator and a summary of these are presented in Table 6.2, and can be seen in full in **Appendix J**.

Table 6.2 – Greenfield Runoff Rate

Return Period	1 in 2	1 in 30	1 in 100	QBar
Discharge Rate (l/s/ha)	7.4	19.2	26.7	8.4
Discharge Rate (l/s)	1.4	3.6	5.1	1.6

- 4.8 A total discharge rate, including the EVM site for QBar of 11.4 l/s will be applied to the drainage strategy for all return periods up to and including the 1 in 100-year storm event with an allowance for climate change.

The Drainage Hierarchy

- 4.9 The drainage hierarchy is a sequential check that intends to ensure that all practical and reasonable measures are taken to manage surface water as high up the hierarchy (with '1' being the highest) as possible, and that the amount of surface water managed at the bottom of the hierarchy is minimised.

The PPG to the NPPF) states that “Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable”.

- 4.10 The drainage hierarchy presented in the NPPF presents only four tiers of drainage options. This has been expanded on and adopted by others and now can be viewed as the following:
1. Store rainwater for later use.
 2. Use infiltration techniques, such as porous surfaces in non-clay areas.
 3. Attenuate rainwater in ponds or open water features for gradual release.
 4. Attenuate rainwater by storing in tanks or sealed water features for gradual release.
 5. Discharge rainwater direct to a watercourse.
 6. Discharge rainwater to a surface water sewer/drain.
 7. Discharge rainwater to the combined sewer.
 8. Discharge rainwater to the foul sewer.
- 4.11 The first two tiers of the drainage hierarchy ensure that surface water is retained within the site boundary and does not increase flood risk to others. This is always the most preferable method of surface water management.
- 4.12 The next six tiers of the hierarchy provide regional control, but with decreasing levels of pollution removal and reduced potential for amenity and habitat creation with each tier of the drainage hierarchy.
- 4.13 Within the lower six tiers of the drainage hierarchy, there must be some form of flow restriction, so that off-site surface water discharge resembles greenfield runoff rates, as much as is reasonably practicable. This requires on-site storage facilities, which may include ponds, swales, subsurface storage tanks and System C (non-infiltration) permeable pavements with flow control devices. Again, methods that provide the most potential for amenity and pollution removal should be favoured.
- 4.14 Each tier of the drainage hierarchy has been considered for the surface water drainage for the development. In order of preference, the outcome of these considerations is below.

Tier 1 - Store rainwater for later use

- 4.15 As this application only applies to the access road therefore this tier of the drainage hierarchy will not be applicable for surface water discharge. However, Rainwater harvesting is being proposed as part of the workshop and storage unit (EVM site) application.

Tier 2 - Use Infiltration techniques, such as porous surfaces in non-clay areas

- 4.16 As detailed in Chapter 2, intrusive ground investigations were carried out in December 2025 and failed permeability testing indicates that the use of infiltration techniques at the site would not be possible.

Tier 3 - Attenuate rainwater in ponds or open water features for gradual release

- 4.17 Due to the site layout and nature of proposed use of the site, it is proposed to provide two detention basins, one to the southeast of the planning application boundary which will provide attenuation for the workshop and storage unit (EVM site) and one to the northwest of the planning application boundary attenuating the access road and the controlled discharge from the EVM site. The basin would be constructed as follows:

Southeast basin

- ▶ Basin invert / base level: 52.00 mAOD.
- ▶ Basin storage depth: 1.2 m.
- ▶ Basin freeboard: 0.3m.
- ▶ Side slopes: 1:3 gradient.
- ▶ Storage volume: 251m³

Northwest basin

- ▶ Basin invert / base level: 47.650 mAOD.
- ▶ Basin storage depth: 1.2 m.
- ▶ Basin freeboard: 0.3m.
- ▶ Side slopes: 1:3 gradient.
- ▶ Storage volume: 207m³

- 4.18 The south-eastern basin would discharge at 10.8 l/s via a flow control manhole within the EVM site into the proposed access road drainage network. This would then discharge into the constructed Phase 1 network restricting the flow to the QBar greenfield run-off rate of 11.4 l/s which includes the EVM site via a flow control chamber before eventually reaching the existing watercourse to the west of Stane Street.
- 4.19 The basins have been sized to accommodate surface water run-off for the access road and the EVM site, with an available storage volume of 458m³. Details of the basin size, shape and location are provided on the drainage strategy layout included in **Appendix H**.
- 4.20 Details for the proposed workshop and storage unit (EVM) site drainage under a separate planning application.
- 4.21 The strategy also includes a swale to the southwest of the access road. The swale will be designed to freely discharge into the northwest basin. The swale would be constructed as follows:
- ▶ Swale length/width: 45 x 0.6m
 - ▶ Swale invert / base level: 49.100 mAOD.
 - ▶ Swale storage depth: 0.9m.
 - ▶ Swale freeboard: 0.3m.
 - ▶ Side slopes: 1:3 gradient.
- 4.22 A hydraulic model has been produced by PTA using Causeway Flow software for the two new attenuation basin and the swale, and the model results can be found in **Appendix K**. The model was run for a number of events and return periods. They are as follows:
- ▶ 1 in 2-year rainfall for 15, 30, 60, 120, 240, 360, 480, 960 and 1440-minute storm durations
 - ▶ 1 in 30-year (plus 40% increase for climate change) rainfall for 15, 30, 60, 120, 240, 360, 480, 960 and 1440-minute storm durations
 - ▶ 1 in 100-year (plus 45% increase for climate change) rainfall for 15, 30, 60, 120, 240, 360, 480, 960 and 1440-minute storm durations.

- 4.23 Causeway Flow software was used to determine the size of the required attenuation for storm events up to and including the 1 in 100-year storm (+ 45% increase for climate change).
- 4.24 A Cv value of 1 for summer and winter storms was used. In addition, FEH 2022 rainfall data was used.
- 4.25 The Causeway Flow network model has shown that the proposed attenuation basin and the swale can accommodate the surface water run-off from the access road and the EVM site with no flooding for the 1 in 30-year storm event (+40% allowance for climate change) and 1 in 100-year storm event (+45% allowance for climate change). Therefore, the proposed basins can be considered as appropriate and suitable for the proposed development.

Tier 4 - Attenuate rainwater by storing in tanks or sealed water features for gradual release

- 4.26 As the strategy includes open water features. This tier of the drainage hierarchy will not be needed for surface water discharge.

Tier 5 - Discharge rainwater direct to a watercourse

- 4.27 As discussed above, it is proposed to discharge surface water through the Phase 1 development and into the ordinary watercourse to the west of Stane Street.

Tier 6 - Discharge rainwater to a surface water sewer/drain

- 4.28 This tier of the drainage hierarchy will not be needed for surface water discharge.

Tier 7 - Discharge rainwater to the combined sewer

- 4.29 This tier of the drainage hierarchy will not be needed for surface water discharge.

Tier 8 - Discharge rainwater to the foul sewer

- 4.30 This tier of the drainage hierarchy will not be needed for surface water discharge.

Exceedance Event

- 4.31 An Exceedance Routing Plan for surface water is found in **Appendix L**. This details where surface water would flow to on Site and where it would be stored in an extreme event.

Urban Creep

- 4.32 Urban Creep can be described as future urban expansion within a development such as extensions to buildings and paved gardens as the development matures. These activities increase the impermeable area of a site and often sit outside of the development control process. As the development of the access road and the EVM site is a commercial site, and future urban expansion is unlikely therefore the urban creep sensitivity has not been applied to accommodate the additional storage into the attenuation basin and the swale.

New National Standards for SuDS

- 4.33 The following provides a summary of how the proposed surface water drainage strategy and SuDS meet the requirements of the new National Standards for SuDS.

Standard 1 – Runoff Destinations

- 4.34 As this drainage statement consists of an access road, rainwater harvesting is not applicable however, the EVM site drainage strategy under a separate planning application which merges with the access road will incorporate rainwater harvesting systems therefore the site meets priority 1 of standard 1.

Standard 2 – Management of Everyday Rainfall (Interception)

- 4.35 Although no interception is provided for the access road, the EVM site drainage strategy under a separate planning application which merges with the access road will provide interception by utilising the following SuDS features :

- Rainwater Harvesting; and
- Permeable Paving.

Therefore, the site meets the requirements of Standard 2.

Standard 3 – Management of Extreme Rainfall and Flooding

- 4.36 The proposed drainage system will control runoff from the site to QBar, which is equivalent to the 1 in 2-year event (50%AEP), and therefore the surface water drainage strategy is compliant with Standard 3.

Standard 4 – Water Quality

- 4.37 The proposed SuDS will ensure that any surface water discharging to the watercourse will meet the necessary water quality standards. Therefore, the proposals meet the requirements of Standard 4.

Standard 5 – Amenity

- 4.38 The surface drainage system works with the wider landscape proposals for the site to provide opportunities for amenity. Therefore, the proposals meet standard 5.

Standard 6 – Biodiversity

- 4.39 The SuDS maximise the biodiversity benefits of the site by utilising open SuDS where possible. Therefore, the proposal meets the requirements of Standard 6.

Standard 7 – Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity

- 4.40 The drainage strategy has been designed to ensure that the drainage system can be easily and safely constructed, operated and maintained. Section 5 sets out the proposed maintenance regime for the SuDS. At the detailed design stage, a full Management and Maintenance Plan will be developed for the site. Therefore, the site will meet Standard 7.

5.0 SuDS Maintenance Regime

- 5.1 This section describes the proposed management and schedules for the maintenance to reduce the risk of the proposed network flooding due to poor maintenance.

Piped Network Maintenance

- 5.2 The piped network shall be maintained by either Southern Water or an approved maintenance company in accordance with DCG and the manufacturer's guidance.
- 5.3 This maintenance schedule should include; clearing gullies, removing any large obstructions within the pipes and cleaning catchpits at regular intervals to ensure the correct operation of the sewer network.

Detention Basin and Swale Maintenance Regime

- 5.4 The proposed SuDS features are to have a routine maintenance schedule that conforms to CIRIA SuDS Manual (C753) 2015 guidance. An approved maintenance company is to adhere to the maintenance schedule provided in Tables 7.1, for permeable paving, and Table 7.2, for attenuation basins, to ensure the correct operation and maintenance of the drainage system.

Table 5.1- Operation and maintenance Schedule for Attenuation Basins and Swale

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris.	Monthly, or as required.
	Cut grass – to retain grass height within specified design range.	Monthly (during growing season), or as required,
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required).
	Inspect inlets, outlets, and overflows for blockages, and clear if required.	Monthly.
	Inspect vegetation coverage.	Monthly for 6 months, quarterly for 2 years, then half-yearly.
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies.	Half-yearly, or as required.
Occasional Maintenance	Re-seed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the treatment area.
Remedial Actions	Repair erosion or other damage by re-seeding or re-turfing.	As required.
	Re-level uneven surface and reinstate design levels.	As required.
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface.	As required.
	Remove and dispose of oils or petrol residues using safe standard practices.	As required.

6.0 Summary and Conclusion

- 6.1 This Drainage Statement has been prepared by Motion on behalf of Dunmoore Group Ltd to support a planning application for an extension to the consented mixed used development in Billingshurst, West Sussex. This development will make up Phase 3 of the development site and is located to the south of the existing Phase 1 and 2 developments. The application consists of two new basins and a swale to provide attenuation for the new access road and the workshop/storage unit known as the EVM site as part of the Phase 3 development.
- 6.2 A Drainage Strategy and SuDS Assessment for the Phase 1 and 2 development was undertaken by Motion in January 2019, as part of the original consented hybrid application. As this report is for two new attenuation basin and a swale, it is intended to be a standalone report, however where necessary it takes into account the various applications and variations to the original consented hybrid application.
- 6.3 The site is existing agricultural land site made up of open fields. Therefore, the existing site can be described as greenfield.
- 6.4 The nearest watercourse to the site is an unnamed ditch (a tributary of the River Arun) which flows in a easterly direction along the site's southern boundary. The nearest main river to the site is the River Adur which is located 1km east of the site.
- 6.5 The approximately 0.475 ha site is located within Flood Zone 1 (less than 1 in 1000 annual probability of flooding from rivers or the sea) according to the Environment Agency's (EA's) Flood Map for Planning.
- 6.6 The site is at low risk of groundwater flooding, infrastructure failure and of flooding from artificial sources. Both the JBA Comprehensive Flood Maps (CFM's) and the EA's Risk of Flooding from Surface Water maps show that the Site is not affected by surface water flooding.
- 6.7 Intrusive ground investigations were carried out in December 2025 and failed permeability testing due to groundwater demonstrates that infiltration techniques are not considered possible on this site.
- 6.8 It is proposed that the surface water runoff will be managed via the attenuation basin before discharging at a restricted rate of 11.4 l/s QBAR Greenfield runoff rate for the impermeable areas on site including the EVM site and conveyed through Phase 1 to the existing watercourse to the west of Stane Street.
- 6.9 The basins have been sized to accommodate surface water run-off from the access road and the EVM site, with an available storage volume of 458m³.
- 6.10 Details for the proposed access road and the workshop/storage unit (EVM) site drainage under a separate planning application.
- 6.11 The drainage strategy also includes swale to the south-west of the access road. The swale will be designed to freely discharge into the north-western basin.
- 6.12 The hydraulic modelling results demonstrate that the proposed attenuation basin and the swale can accommodate the surface water run-off from the access road and the EVM site with no flooding for the 1 in 30-year storm event (+40% allowance for climate change) and 1 in 100-year storm event (+45% allowance for climate change). Therefore, the proposed basins can be considered as appropriate and suitable for the proposed development.
- 6.13 This report demonstrates that the proposed development will not result in an increased risk of flooding on site or to neighbouring areas. Therefore, it can be concluded that the development fulfils the requirements of the PPG and the NPPF.

Appendix A

Proposed Site Layout



Notes: This drawing is the sole copyright of IAN C KING Associates and no part may be reproduced without their written consent.	Drawn	Checked	CDM	P - Preliminary		Job Title		Billingshurst Trade Park Dunmore Group	Date	6-2025	
	Rev A:					A - for Approval			Scale	1:2500 (A3)	
	Rev B:					T - Tender			Job No	D-101-Ph 3	
	Rev C:					C - Construction			Drg No	U1-SLP-01-C	
	Rev D:										
						Drg Title		Phase III Unit 1 Site Location Plan			
						ASSOCIATES ARCHITECTS					
						45 Buxton Drive, New Malden - - Surrey KT3 3UX - - Tel: 07554 653 444 E-mail: iccka@iancking.co.uk					

Appendix B

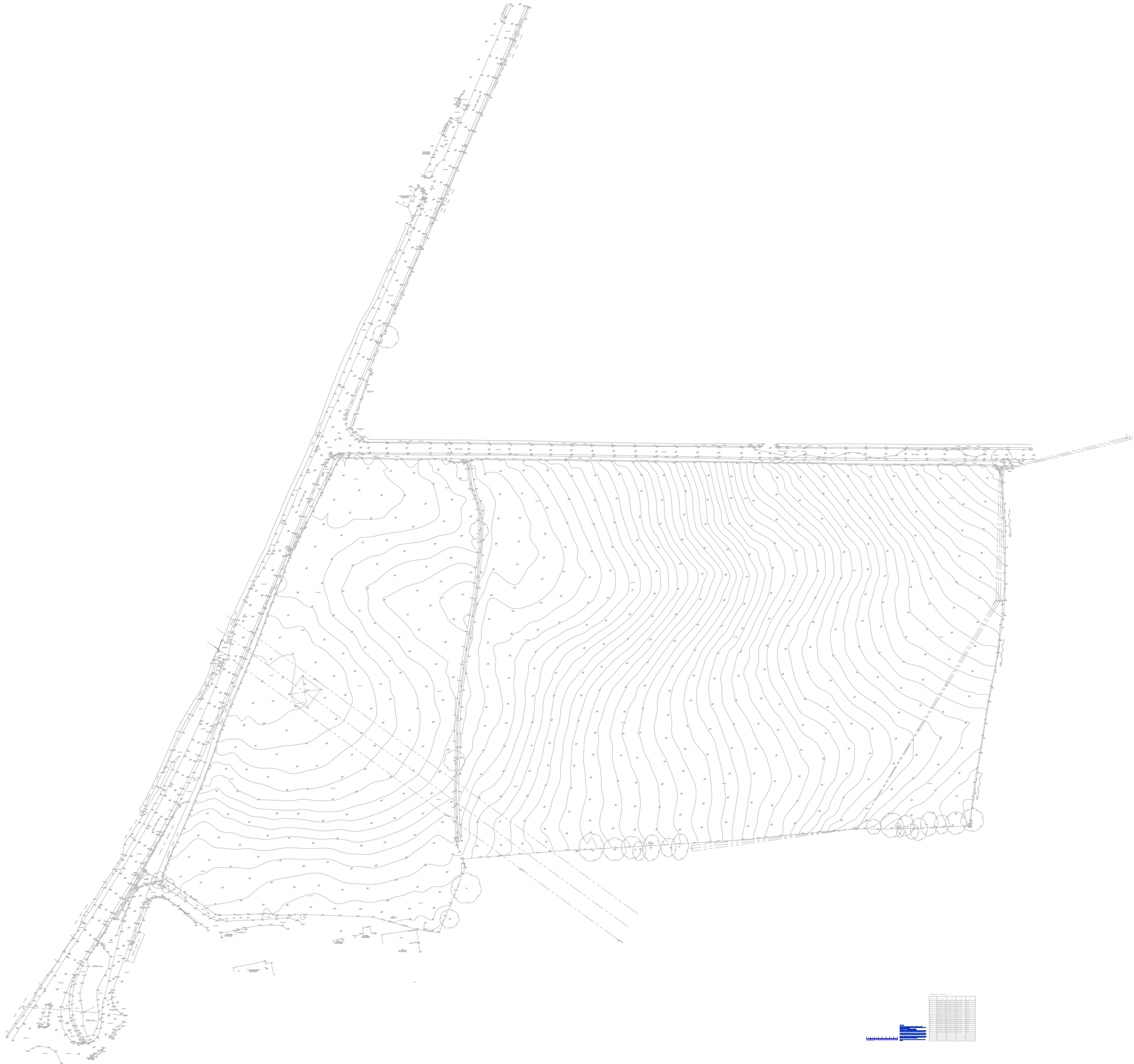
Site Location Plan



Project:	Land off Stane Street, Billingshurst			Title	Site Location Plan	
Client:	Dunmoore (West London) Limited & EG Group			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	 Geo-Environmental	
Ref No:	GE18159	Revision:	0			
Drawn:	KOD	Date:	07/06/2019			
Figure:	1	Scale:	Not To Scale			

Appendix C

Topographic Survey



Surveyed by: 8 Smith

Plotted by: 8 Brown

Drawn by: Acad

Legend

ACU Air Conditioning Unit
AV Air Valve
BC Barrier Control
BOL Bollard
BTB British Telecom Junction Box
BTM British Telecom Manhole
CL Cover Level
CTV Cable TV
ECP Electricity Cable Pit
EM Electricity Cable Marker
EP Electricity Pole
ER Earth Rod
FH Fire Hydrant
FP Flag Pole
G Gully
GV Gas Valve
IB Illuminated Bollard
IL Invert Level
JB Junction Box
LB Letter Box
LC Lamp Column
MH Manhole
MOK Concrete Marker
O/F Outfall
PM Parking Meter
RE Rodding Eye
RWP Rainwater Pipe
SC Stop Cock
SP Sign Post
SV Sluice Valve
TCK Telephone Kiosk
TL Traffic Light
TLC Traffic Light Cover
TM Ticket Machine
TP Telegraph Pole
UTR Unable To Raise
UTS Unable To Survey
VC Vent Column
WM Water Meter
WO Wash Out
WMP Waste Water Pipe

Data

1) Trees shown this 8/6/200 indicates
8/6 in metres/800 dia in metres
Trunk dia in millimetres

11) Trees shown this 8/6/200 indicates
8/6 in metres/800 dia in metres
Trunk dia in millimetres

111) Grid - Metric and oriented to
North

111) Levels : Metric and based on OS GPS DATA
Sited on Survey station 1

Value: 47.355m

N

Client

MOTION

Site

HILLAND FARM
STANE STREET
BILLINGSHURST

AP

Marvin & Partners
Limited
Plestor House
Farnham Road
West Liss
Hampshire GU33 6JQ
Tel : 01428 751888
Email: paul@maplimited.com

Date

JULY 2018

Scale

1/200 @ A0

Dwg/Job No.

18/5131

Checked By

Appendix D

BGS Borehole Records

301

N/S

TQ02/24

301/115

BILLINGSHURST.

Sussex 23NE

From Topleys notes, where it is given as Billingshurst

W.S.S.x.II, p. 159. 1911

From notes and specimens sent by Messrs. Topley

water at first stood $15\frac{1}{2}$ feet down. Started falling when the boring was $60\frac{1}{2}$ feet down and fell 19 feet down. When the hole was 80 feet deep stood at 52 feet down.

Weald Clay

	Thickness	Depth.
Sand	15	15
Red clay	5	20
Bluish sand clay	4	24
Brown & red clay	10	34
Bluish clay	6	40
Yellow sandy clay	5	45
Stiff yellow clay	5	50
Blue clay	17	67
Sandstone	$\frac{1}{2}$	$67\frac{1}{2}$
Blue clay	$32\frac{1}{2}$	100.

? Sussex 6in. 23 N.E. (E.) Site not traced in field survey.

S.E.G.H. 20.3.41.

301/115 Billingshurst. Site not determined

N/S TQ 02 NE/19
TQ 02/24

W.S.Sx.II, p. 159. When bore less than 60%, R.W.L. 15% down; bore 60%, R.W.L. 19 down;
bore 80, R.W.L. 52 down. Tilley, 1911.

WC

100

100

301/115		Thickness	Depth.
Weald Clay 100	Sand	15	15
	Red clay	5	20
	Bluish sand clay	4	24
	Brown & red clay	10	34
	Bluish clay	6	40
	Yellow sandy clay	5	45
	Stiff yellow clay	5	50
	Blue clay	17	67
	Sandstone	$\frac{1}{2}$	$67\frac{1}{2}$
	Blue clay	$32\frac{1}{2}$	100.

301/115 Billingshurst. Site not determined

N/S TQ 02 NE/
TQ 02/25

W.S.Sx.II, p. 159. When bore less than 60%, R.W.L. 15½ down; bore 60%, R.W.L. 19 d
bore 80, R.W.L. 52 down. Tilley, 1911.

WC

100

100

301/115		Thickness	Depth.
Weald Clay 100	Sand	15	15
	Red clay	5	20
	Bluish sand clay	14	24
	Brown & red clay	10	34
	Bluish clay	6	40
	Yellow sandy clay	5	45
	stiff yellow clay	5	50
	Blue clay	17	67
	Sandstone	$\frac{1}{2}$	$67\frac{1}{2}$
	Blue clay	$32\frac{1}{2}$	100.

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British Geological Survey

British Geological Survey

N/S

301

TQ02/24

301/115

115

BILLINGSHURST.

Sussex 23NE/E

British Geological Survey

British Geological Survey

British Geological Survey

From Topleys notes, where it is given as Billingshurst.

W.S.S. II, p. 159. 1911

British Geological Survey

British Geological Survey

British Geological Survey

From notes and specimens sent by Messrs. Tilley.

Water at first stood $15\frac{1}{2}$ feet down. Started falling when the boring was $60\frac{1}{2}$ feet down and fell to 19 feet down. When the hole was 80 feet deep it stood at 52 feet down.

	Thickness	Depth.
Sand	15	15
Red clay	5	20
Bluish sand clay	4	24
Brown & red clay	10	34
Bluish clay	6	40
Yellow sandy clay	5	45
Stiff yellow clay	5	50
Blue clay	17	67
Sandstone	$\frac{1}{2}$	$67\frac{1}{2}$
Blue clay	$32\frac{1}{2}$	100.

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Weald Clay

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British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

? Sussex 6 in. 23 NE. (E.) Site not traced in field survey.

British Geological Survey

British Geological Survey

S.E. 4. 20. 3. 41.

British Geological Survey

? Possibly connected with old water-work - see notes of MS notes on records

Appendix E

Exploratory Hole Logs



Key:

- Phase 1 Works area
- Phase 2 Works area (site boundary)
- Phase 3 Works area
- Stockpile
- Photos
- Dynamic Cone Penetrometer Test
- Trial Pit
- Windowless Sampling Borehole
- Monitoring Installation
- Infiltration Test

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

Contains OS data © Crown copyright [and database right] [2024]
Map data © 2024 Google

A	Dec 2025	First issue
REV	DATE	COMMENT ON VARIATION

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PROJECT
Hilland Road, Billingshurst

TITLE
Exploratory Hole Location Plan

DRAWING No.
STX7305-D01-A

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Chalk
					Concrete
					Peat

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		Sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	From (m) To (m)	Records depth of sampling
	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m ²) by applying a factor of 50.		D Disturbed sample
			B Bulk disturbed sample
			ES Environmental sample
Result	SV – Hand held shear vane result reported as an undrained shear strength (kN/m ²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.	Type	W Water sample
			U Undisturbed thick-walled sample 100mm diameter sampler
			UT Undisturbed thin walled sample 100mm diameter sampler
			UTF Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

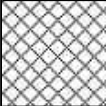
∇ Water strike

Density

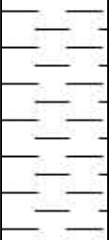
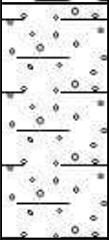
Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto firm to stiff brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded mudstone and brick. (MADE GROUND)	0.60						0.50		ES
TRIAL PIT TERMINATED AT 0.60m									

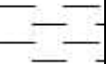
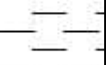
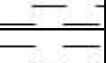
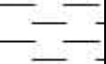
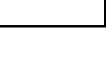
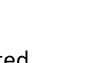
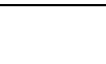
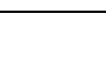
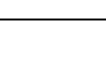
Notes Hand pit for environmental sampling.	Groundwater observations		Title	Dimensions (w x l)	Date(s)
	Strike (m)	Comments	Trial pit record	0.20m x 0.20m	15/12/2025
			Method	Plant used	Sheet number
			Hand excavated	Hand tools	Sheet 1 of 1
			Level (m OD)	Logged by	Revision
			-	OW	A
No groundwater strike recorded		Co-ordinates	Status	HP01	
		Not surveyed	FINAL		

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto firm to stiff reddish brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded mudstone. (MADE GROUND)	0.50						0.40		ES
TRIAL PIT TERMINATED AT 0.50m									

Notes Hand pit for environmental sampling.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.20m x 0.20m	Date(s) 15/12/2025 - 15/02/2026
	Strike (m)	Comments	Method Hand excavated	Plant used Hand tools	Sheet number Sheet 1 of 1
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	HP02
	No groundwater strike recorded				

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy organic CLAY. (TOPSOIL)	0.50				PP 0.60	PP 75	0.70		D
Firm light greyish brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)									
Dense greyish brown clayey fine to coarse angular to subrounded GRAVEL. (WEALD CLAY FORMATION - MUDSTONE)									
TRIAL PIT TERMINATED AT 2.80m	2.80								

Notes Trial pit side remained upright and stable. Terminated due to competency of strata.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP01
	No groundwater strike recorded				

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy CLAY. (TOPSOIL)	0.30				PP 0.80	PP 75	0.20		D
Firm light greyish brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)							0.50		D
							1.10		D
							1.70		D
Stiff reddish brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded mudstone. (WEALD CLAY FORMATION - MUDSTONE)	1.60				PP 1.30	PP 88			
					PP 1.80	PP 129			
...at 2.5m depth, becoming slightly sandy	2.60								
TRIAL PIT TERMINATED AT 2.60m									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									

Notes Trial pit side remained upright and stable. Terminated due to competency of strata.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP02
	No groundwater strike recorded				

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular brick. (TOPSOIL - MADE GROUND)	0.40						0.10		ES
Firm light greyish brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)							0.80		D
Stiff red gravelly CLAY. Gravel is fine to coarse subangular mudstone. (WEALD CLAY FORMATION - MUDSTONE)	1.50						1.70		D
Stiff grey gravelly CLAY. Gravel is fine to coarse subangular mudstone. (WEALD CLAY FORMATION - MUDSTONE)	2.40						2.50		D
TRIAL PIT TERMINATED AT 2.70m	2.70								

Notes Trial pit side remained upright and stable. Terminated due to competency of strata.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP03
	No groundwater strike recorded				

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy organic CLAY. (TOPSOIL)	0.40								
Firm light greyish brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)									
Stiff reddish brown gravelly CLAY. Gravel is fine to coarse subangular mudstone. (WEALD CLAY FORMATION - MUDSTONE)	1.40						1.00		D
Stiff grey gravelly CLAY. Gravel is fine to coarse subangular mudstone. (WEALD CLAY FORMATION - MUDSTONE)	2.00						1.50		D
	2.30						2.20		D
TRIAL PIT TERMINATED AT 2.30m									

Notes Trial pit side remained upright and stable. Terminated due to competency of strata.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP04
	No groundwater strike recorded				

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy organic CLAY. (TOPSOIL)	0.30						0.60	1.00	B
[Medium dense] greyish brown fine to coarse SAND. (WEALD CLAY FORMATION - SANDSTONE)									
[Medium dense] dark yellowish brown mottled grey sandy fine to coarse subangular to subrounded GRAVEL of mudstone. (WEALD CLAY FORMATION - SANDSTONE)	1.80						1.60	2.20	D
							1.80		B
TRIAL PIT TERMINATED AT 2.50m	2.50								

Notes Trial pit collapsed to 1.8m bgl. Terminated due to instability/collapse.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
	0.90	Slight seepage			
	2.20	Fast flow, caused collapse	Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP05

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy organic CLAY. (TOPSOIL)	0.30								
[Medium dense] dark yellowish brown slightly gravelly SAND. Gravel is fine to coarse subangular to subrounded sandstone. (WEALD CLAY FORMATION - SANDSTONE)									
Stiff grey CLAY. (WEALD CLAY FORMATION - MUDSTONE)	2.50				PP 2.70	PP 134	2.30	1.30	D
	2.80						2.60		D
TRIAL PIT TERMINATED AT 2.80m									

Notes Trial pit side remained upright and stable. Terminated at scheduled depth.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
	2.40	Filling base of pit by 50mm in 5 minutes			
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP06

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy organic CLAY. (TOPSOIL)	0.15								
Firm light greyish brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)					PP 0.50	PP 67	0.50		D
	1.30				PP 0.90	PP 75	1.20		D
Stiff red gravelly CLAY. Gravel is fine to coarse subangular mudstone. (WEALD CLAY FORMATION - MUDSTONE)					PP 1.60	PP 138	1.80		D
	2.50								
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit side remained upright and stable. Terminated at scheduled depth.	Groundwater observations		Title Trial pit record	Dimensions (w x l) 0.60m x 2.00m	Date(s) 15/12/2025
	Strike (m)	Comments	Method Machine excavated	Plant used 5T tracked excavator	Sheet number Sheet 1 of 1
			Level (m OD) -	Logged by OW	Revision A
			Co-ordinates Not surveyed	Status FINAL	TP07
	No groundwater strike recorded				

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Peat
					Concrete
					Chalk

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		From (m) To (m)	Records depth of sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)		D	Disturbed sample
			B	Bulk disturbed sample
			ES	Environmental sample
			SPTLS	SPT liner sample
		Type	W	Water sample
			U	Undisturbed thick-walled sample 100mm diameter sampler
			UT	Undisturbed thin walled sample 100mm diameter sampler
			UTF	Failed undisturbed sample
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached. SPT – Standard Penetration Test result (N value uncorrected)^{1,2,3} SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected)^{1,2,3} * Signifies that the test was terminated before full penetration was achieved. UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample			
Sampling				

Note 1: Total seating blows recorded in brackets.

Note 2: Casing depth records depth of casing when SPT or SPT(c) was carried out.

Note 3: Water depth records depth of water when SPT or SPT(c) was carried out.

Water observations

Described at foot of log and shown in the 'water strike' column.

 Water level observed after specified delay in drilling

 Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

Installation details

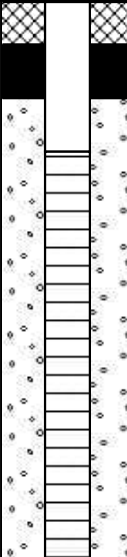
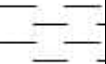
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	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

STX7305

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[illegible]

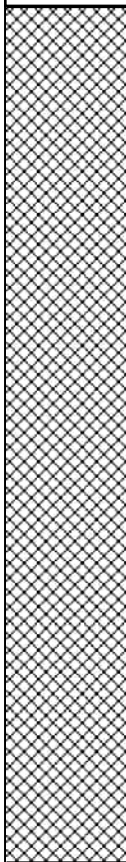
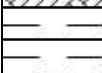
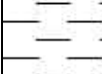
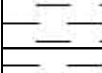
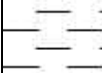
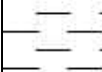
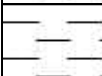
Notes Terminated due to competency of strata.	Groundwater observations						Recovery details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv	Dynamic windowless sampling record		15/12/2025
							1.00 - 2.00 2.00 - 3.00	100 100	Method	Plant used	Sheet number
									Windowless Sampling	Dando Terrier	Sheet 1 of 1
									Level (m OD)	Logged by	Revision
	-	ML	A								
No groundwater strike recorded								Co-ordinates	Status	WLS01	
								Not surveyed	FINAL		

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy organic CLAY. (TOPSOIL)	0.40										0.30		ES
	Soft light brown slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)													
	Firm light grey mottled orange CLAY. (WEALD CLAY FORMATION - MUDSTONE)	1.50				C 1.20	(2) 10					1.50		D
	Firm reddish brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone. (WEALD CLAY FORMATION - MUDSTONE)	1.74				C 2.00	(9) 33							
	Stiff light grey slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	2.45				C 2.60	(17) 83*					2.30		D
BOREHOLE TERMINATED AT 2.60m		2.60												

Notes Terminated due to competency of strata.	Groundwater observations						Recovery details		Title Dynamic windowless sampling record		Date(s) 15/12/2025
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv			
							1.00 - 2.00 2.00 - 2.60	100 100	Method	Plant used	Sheet number
									Windowless Sampling	Dando Terrier	Sheet 1 of 1
									Level (m OD)	Logged by	Revision
	-	ML	A								
No groundwater strike recorded								Co-ordinates	Status	WLS02	
								Not surveyed	FINAL		

STX7305

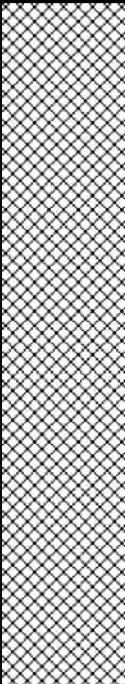
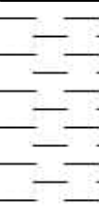
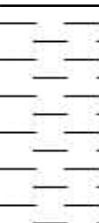
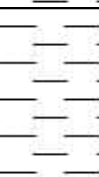
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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy organic CLAY. (TOPSOIL)													
	Firm light grey mottled orange CLAY. (WEALD CLAY FORMATION - MUDSTONE)	0.40									0.50		ES	
	Firm light brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)													
	...between 1.4m and 1.6m depth, becoming reddish brown													
	Stiff light grey slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	1.60												
	Stiff reddish brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone. (WEALD CLAY FORMATION - MUDSTONE)	2.40									2.70		D	
	Stiff grey mottled purple CLAY. (WEALD CLAY FORMATION - MUDSTONE)	3.30									3.70		D	
	BOREHOLE TERMINATED AT 4.00m	4.00												

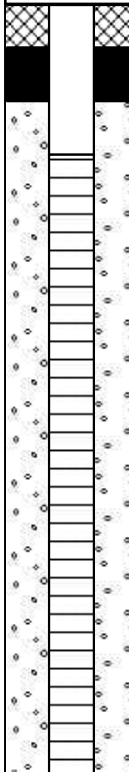
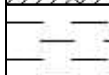
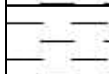
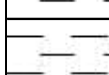
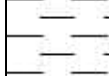
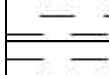
Notes Terminated due to competency of strata.	Groundwater observations						Recovery details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv	Dynamic windowless sampling record		15/12/2025
							1.00 - 2.00	100	Method	Plant used	Sheet number
							2.00 - 3.00	100	Windowless Sampling	Dando Terrier	Sheet 1 of 1
							3.00 - 4.00	100	Level (m OD)	Logged by	Revision
									-	ML	A
No groundwater strike recorded								Co-ordinates	Status	WLS03	
								Not surveyed	FINAL		

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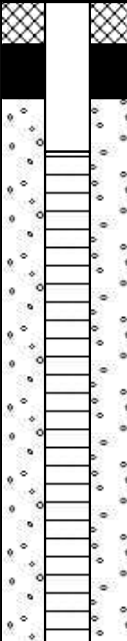
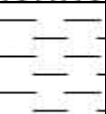
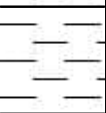
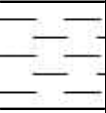
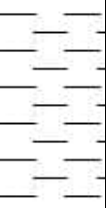
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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (MOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy organic CLAY. (TOPSOIL)	0.35				C 1.20	(5) 15					0.35		ES
	Firm light grey mottled orange CLAY. (WEALD CLAY FORMATION - MUDSTONE)													
	Stiff reddish brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)	1.35												
	Stiff grey slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	2.40												
	BOREHOLE TERMINATED AT 3.20m	3.20				C 3.20	(18) 78*					3.20		D

Notes Terminated due to competency of strata.	Groundwater observations						Recovery details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv	Dynamic windowless sampling record		15/12/2025
							1.20 - 2.20 2.20 - 3.20	100 100	Method	Plant used	Sheet number
									Windowless Sampling	Dando Terrier	Sheet 1 of 1
									Level (m OD)	Logged by	Revision
	-	ML	A								
No groundwater strike recorded								Co-ordinates	Status	WLS04	
								Not surveyed	FINAL		

INSTALL		STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING					
		DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE			
		Grass onto brown slightly sandy organic CLAY. (TOPSOIL)	0.35			C 1.20	(3) 10					0.25		ES				
		Firm light brown CLAY. (WEALD CLAY FORMATION - MUDSTONE)																
		Firm light grey mottled orange CLAY. (WEALD CLAY FORMATION - MUDSTONE)	0.70															
						C 2.00	(10) 25					2.25		D				
		Firm light brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone. (WEALD CLAY FORMATION - MUDSTONE)	1.80															
		Stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone. (WEALD CLAY FORMATION - MUDSTONE)	2.60															
	Firm grey slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	3.00			C 3.00	(9) 43						3.30		D				
																		
		BOREHOLE TERMINATED AT 3.60m	3.60															

Notes Terminated due to competency of strata.	Groundwater observations						Recovery details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv	Dynamic windowless sampling record		15/12/2025
	2.10	2.10	2.10	2.10	2.10	No rise recorded	1.00 - 2.00	100	Method Windowless Sampling	Plant used Dando Terrier	Sheet number Sheet 1 of 1
							2.00 - 3.00	100			
							3.00 - 3.60	100	Level (m OD) -	Logged by ML	Revision A
									Co-ordinates Not surveyed	Status FINAL	WLS05

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy organic CLAY. (TOPSOIL)	0.45			 	C 1.20	(6) 14					0.45		ES
	Soft creamy orange very sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)													
	Firm light grey very sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	1.00										1.20		D
	Stiff multicoloured slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	1.50												
	Stiff purplish red CLAY. (WEALD CLAY FORMATION - MUDSTONE) ...between 2m and 2.25m depth, band of grey fine sand.	2.00										2.80		D
	BOREHOLE TERMINATED AT 3.00m	3.00				C 3.00	(9) 73*							

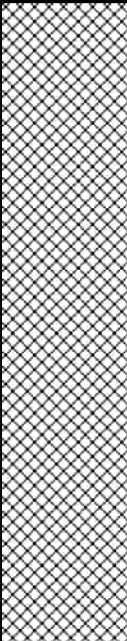
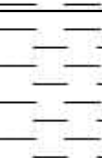
Notes Terminated due to competency of strata.	Groundwater observations						Recovery details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv	Dynamic windowless sampling record		16/12/2025
	1.40	1.34	1.25	1.2	1.15	Rose to 0.7m in 2hrs	1.00 - 2.00	100	Method Windowless Sampling	Plant used Dando Terrier	Sheet number Sheet 1 of 1
							2.00 - 3.00	100			
									Level (m OD) -	Logged by ML	Revision A
									Co-ordinates Not surveyed	Status FINAL	WLS06

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[illegible]

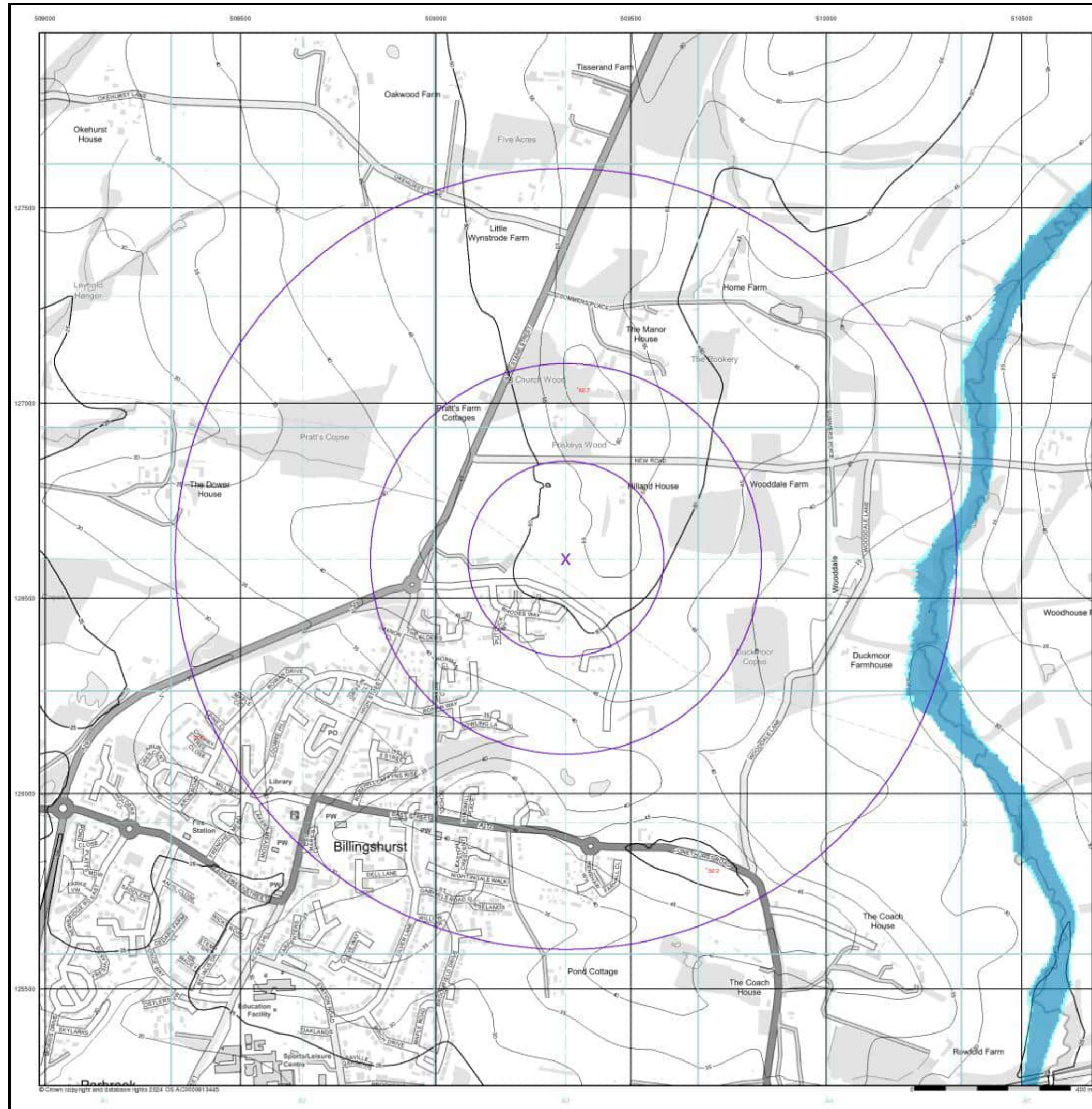
Notes Terminated due to SPT refusal.	Groundwater observations						Recovery details		Title		Date(s)
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv	Dynamic windowless sampling record		16/12/2025
							1.00 - 1.40	100	Method Windowless Sampling	Plant used Dando Terrier	Sheet number Sheet 1 of 1
									Level (m OD) -	Logged by ML	Revision A
									Co-ordinates Not surveyed	Status FINAL	WLS07
No groundwater strike recorded											

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy organic CLAY. (TOPSOIL)	0.60										0.50		ES
	Soft brown slightly sandy slightly gravelly CLAY. Gravel is coarse angular brick and concrete. (MADE GROUND)													
	[Medium dense] multicoloured slightly clayey fine SAND. (WEALD CLAY FORMATION - SANDSTONE)	1.00				C 1.20	(10) 24					1.10		D
	Stiff light grey slightly sandy CLAY. (WEALD CLAY FORMATION - MUDSTONE)	1.50				C 2.00	(5) 24							
	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone. (WEALD CLAY FORMATION - MUDSTONE)	2.30				C 3.00	(18) 80*					2.40		D
	BOREHOLE TERMINATED AT 3.00m	3.00												

Notes Terminated due to SPT refusal.	Groundwater observations						Recovery details		Title Dynamic windowless sampling record		Date(s) 16/12/2025
	Strike (m)	5mins	10mins	15mins	20mins	Comments	Range (m)	% Recv			
							1.00 - 2.00 2.00 - 3.00	100 100	Method	Plant used	Sheet number
									Windowless Sampling	Dando Terrier	Sheet 1 of 1
									Level (m OD)	Logged by	Revision
	-	ML	A								
No groundwater strike recorded								Co-ordinates	Status	WLS08	
								Not surveyed	FINAL		

Appendix F

Envirocheck Flood Screening Report



motion

EANRW Flood Data Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

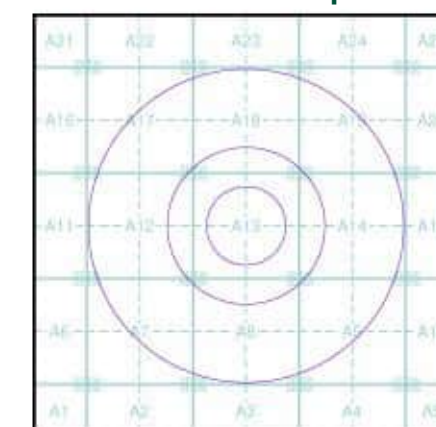
Flood Data

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- MLW Mean Low Water
- MHW Mean High Water

EANRW Flood Data Map - Slice A



Order Details

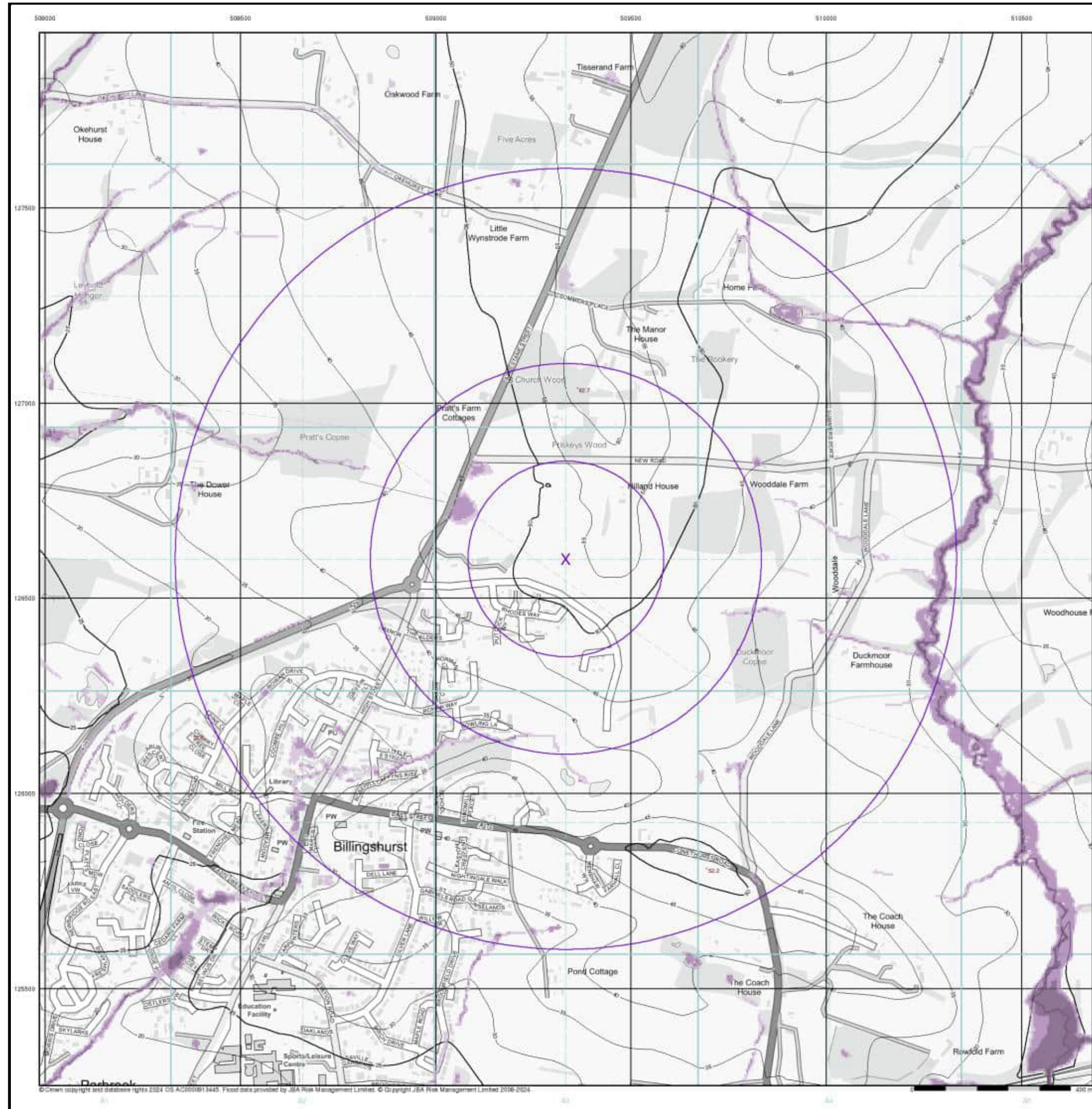
Order Number: 360250553_1_1
 Customer Ref: 1dubil 1904029
 National Grid Reference: 509330, 126600
 Slice: A
 Site Area (Ha): 0.01
 Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

Landmark
 INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



JBA 75 Year Return Flood Map (Un defended) (1:10,000)

General

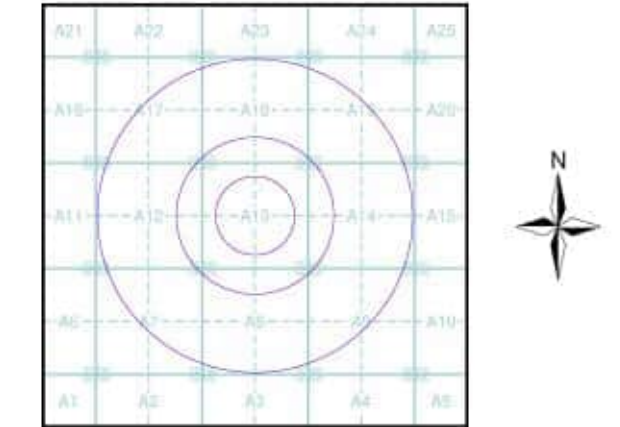
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m



JBA 75 Year Return Flood Map (Un defended) - Slice A

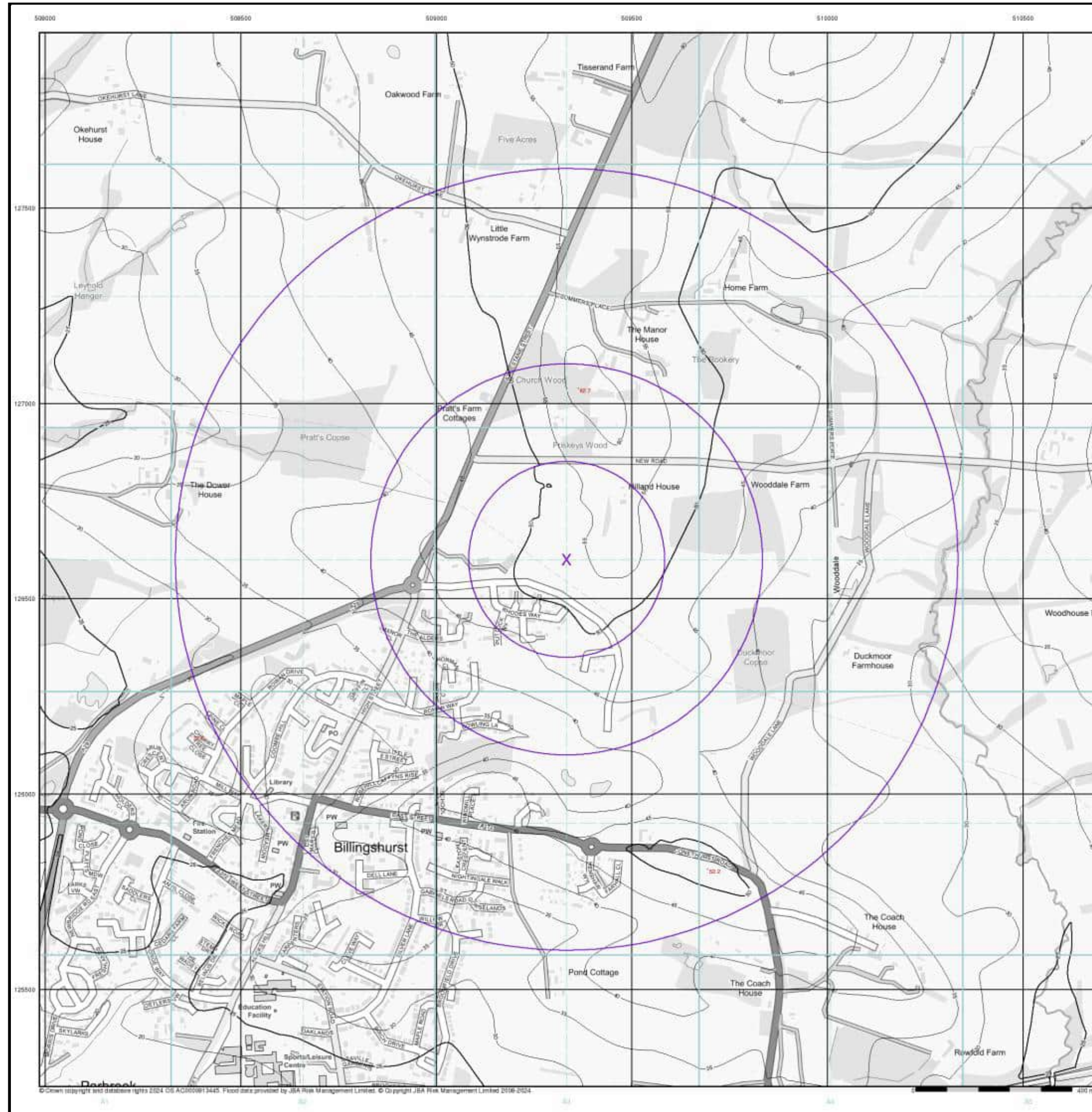


Order Details

Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN



motion

JBA 100 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

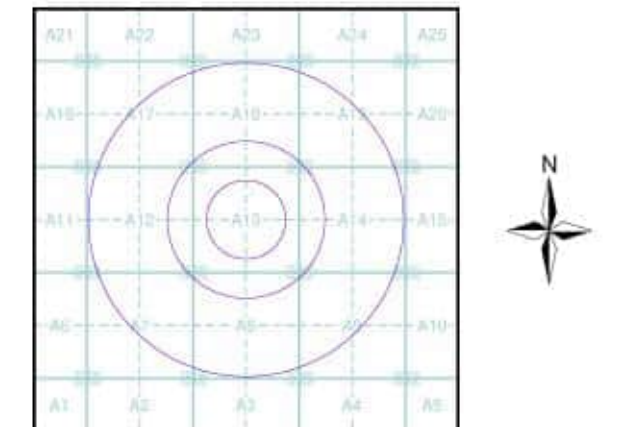
Modelled Flood Depth

Fluvial Depth	Coastal Depth
0.01m - 0.05m	0.01m - 0.05m
0.05m - 0.1m	0.05m - 0.1m
0.1m - 0.3m	0.1m - 0.3m
0.3m - 1m	0.3m - 1m
>1m	>1m

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- Mean Low Water
- Mean High Water

JBA 100 Year Return Flood Map (Undefended) - Slice A



Order Details

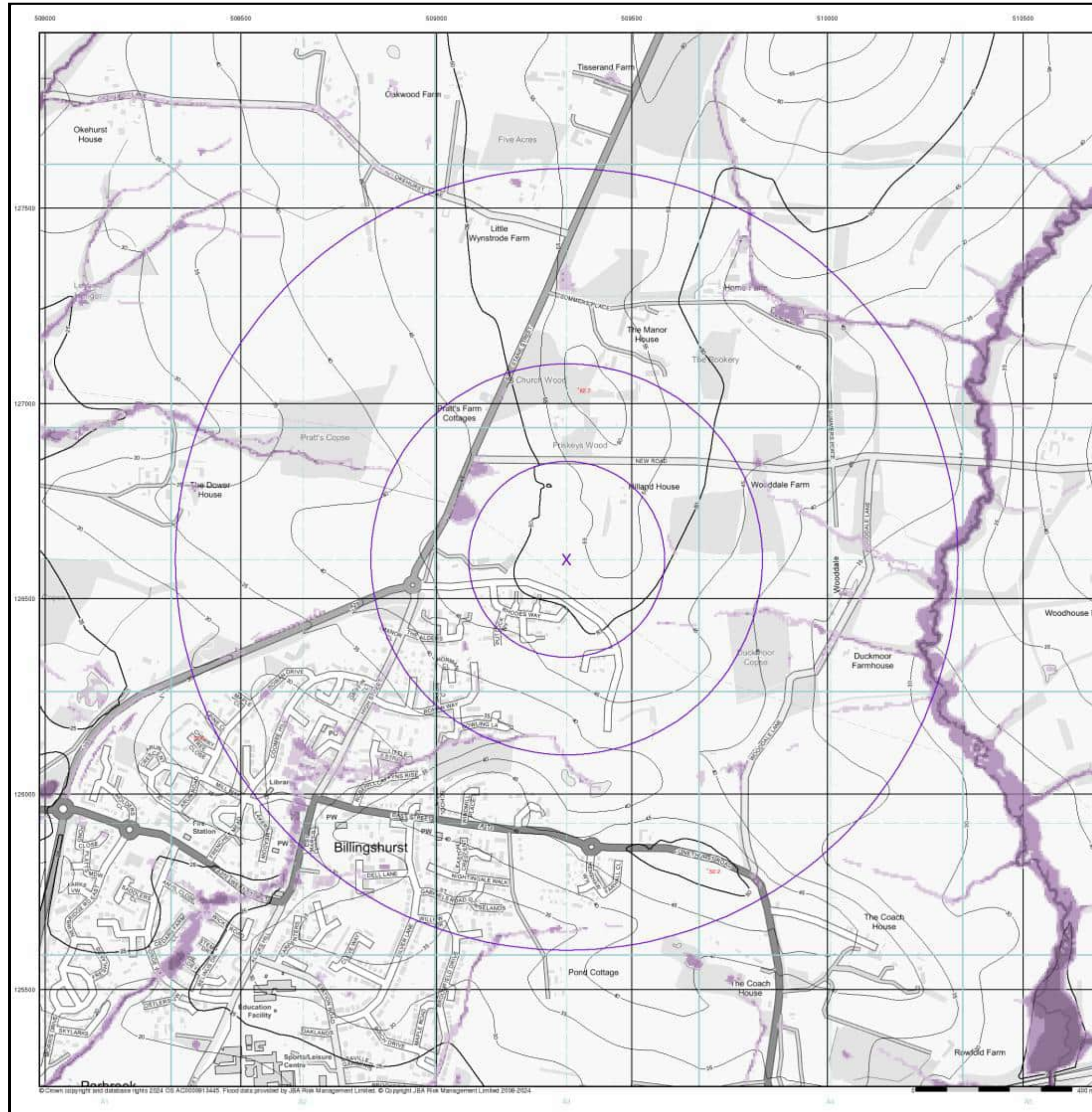
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

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JBA 200 Year Return Flood Map (Un defended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

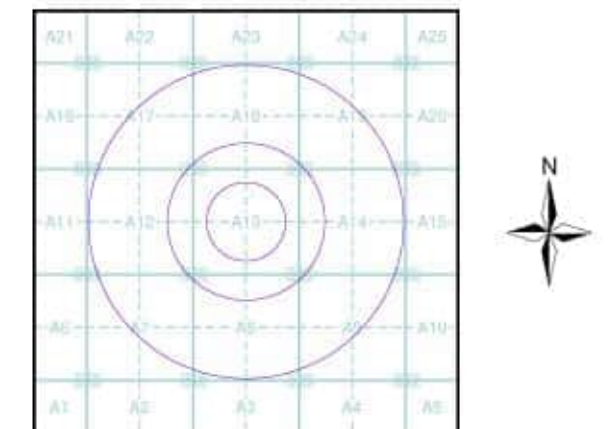
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- Mean Low Water
- Mean High Water

JBA 200 Year Return Flood Map (Un defended) - Slice A



Order Details

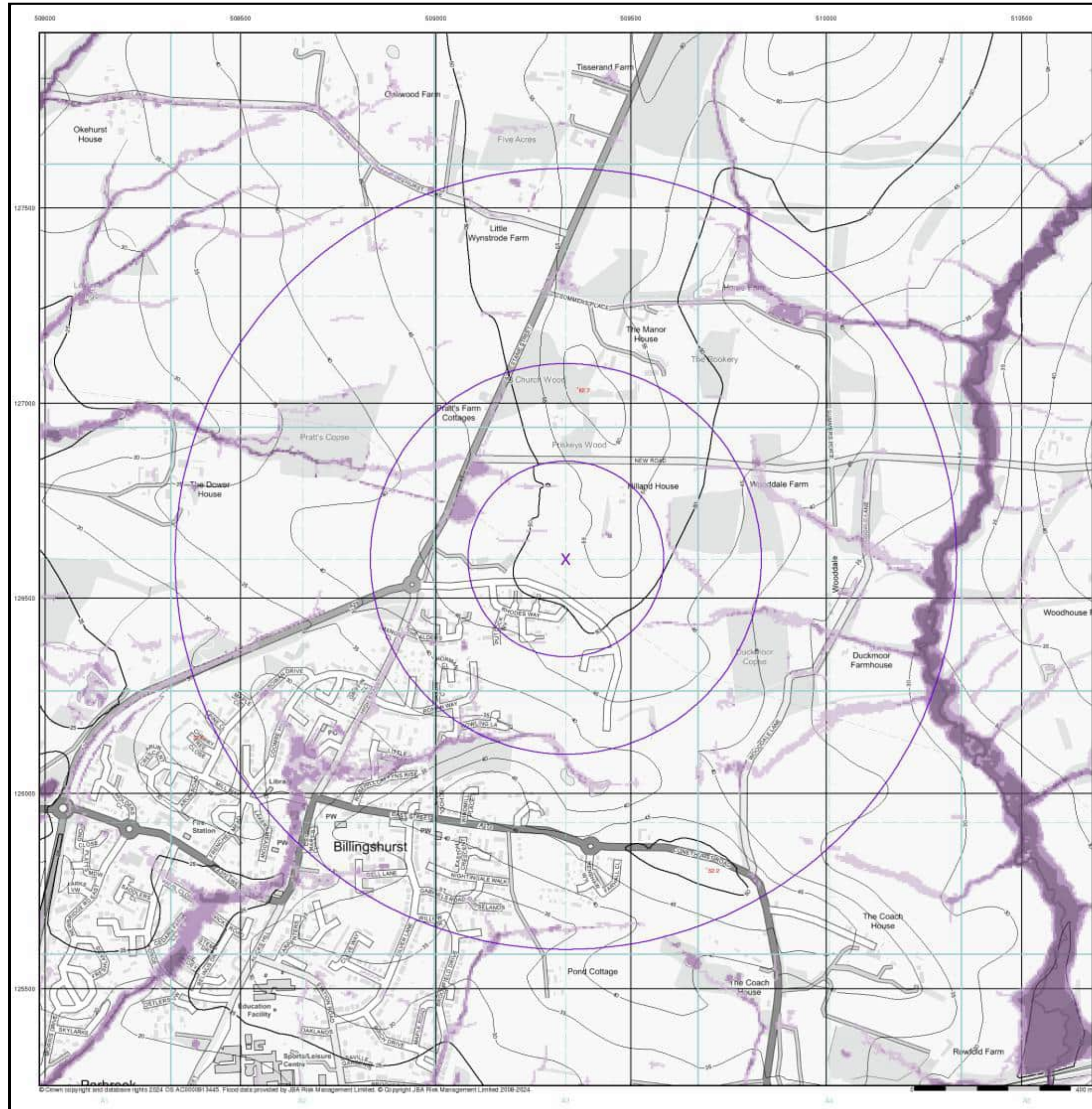
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

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JBA 1000 Year Return Flood Map (Un defended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

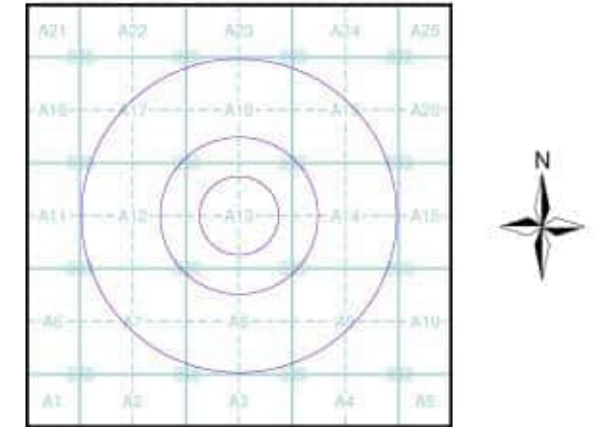
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- Mean Low Water
- Mean High Water

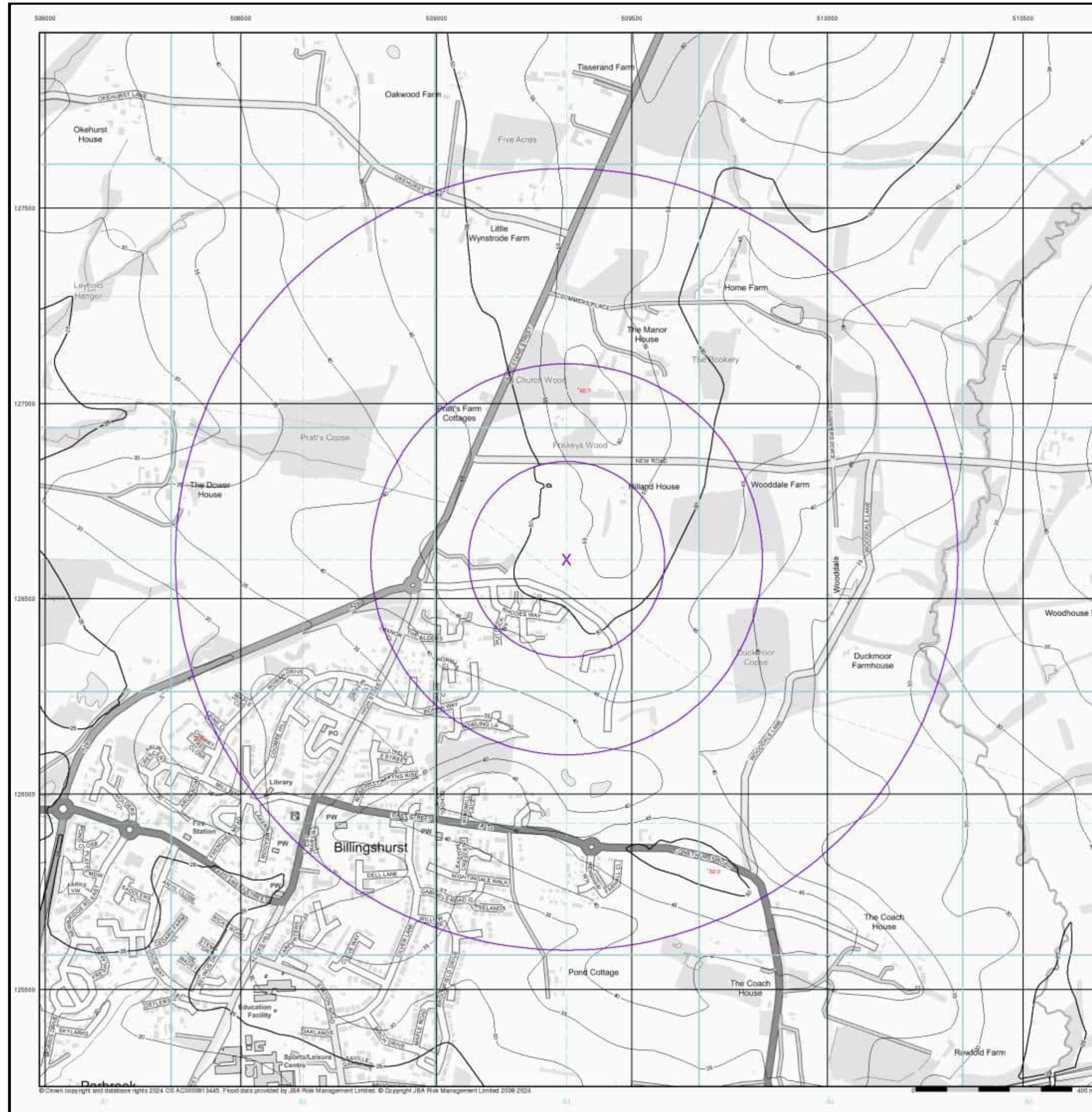
JBA 1000 Year Return Flood Map (Un defended) - Slice A



Order Details

Order Number: 360250553_1_1
 Customer Ref: 1dubil 1904029
 National Grid Reference: 509330, 126600
 Slice: A
 Site Area (Ha): 0.01
 Search Buffer (m): 1000

Site Details
 2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

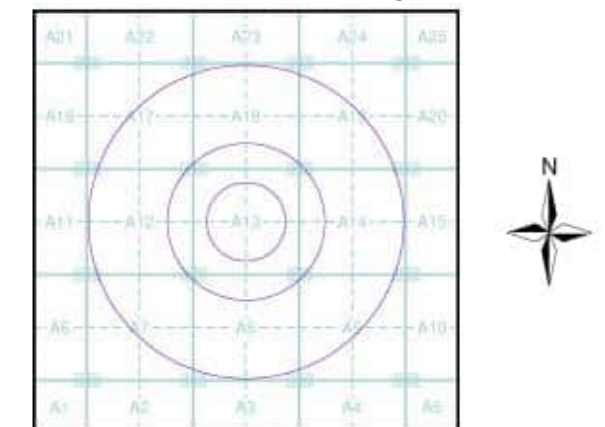
Flood Data

- Canal Failure
- Coverage

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- Mean Low Water
- Mean High Water

JBA Canal Failure Flood Map - Slice A

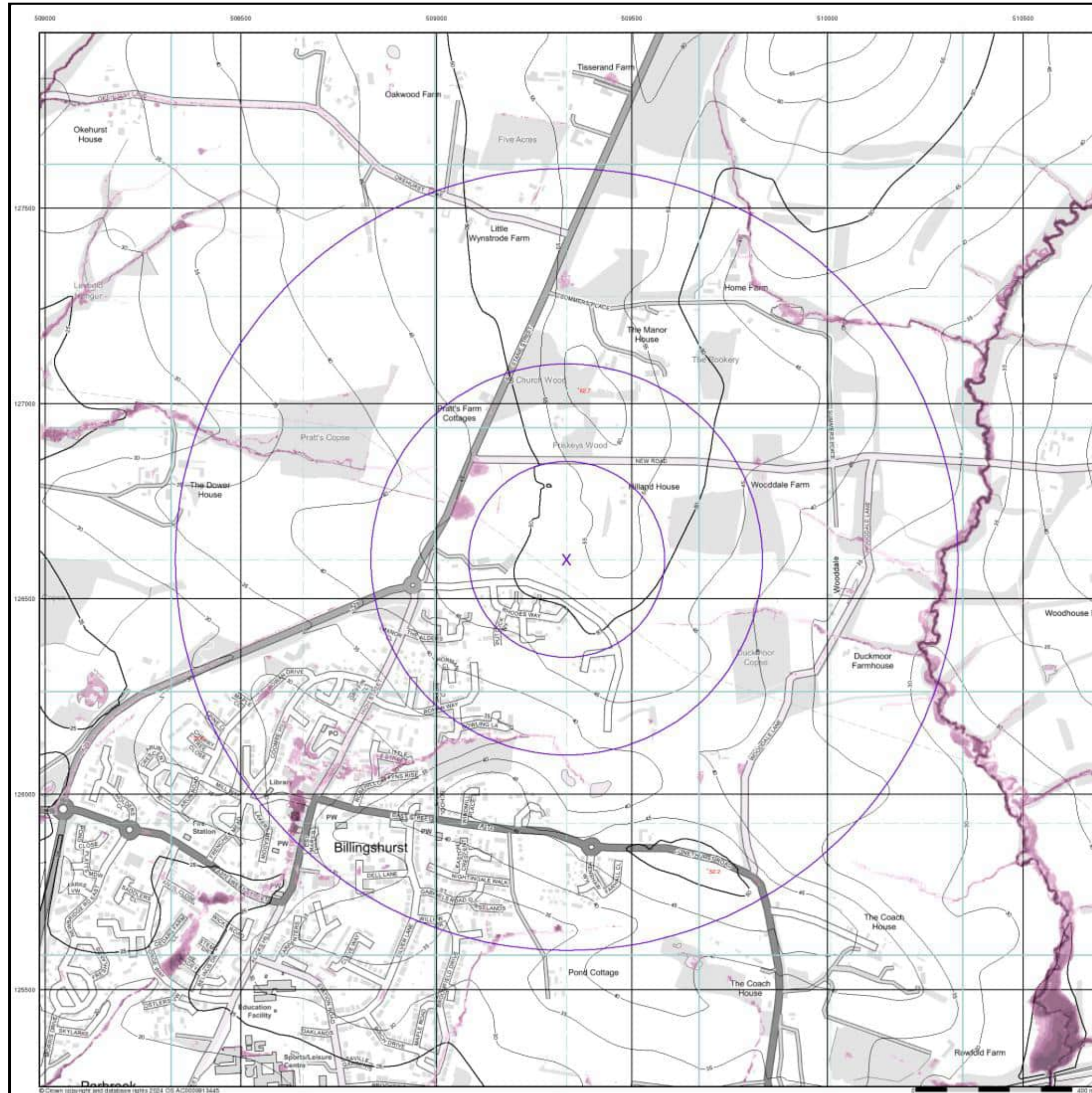


Order Details

Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN



EA/NRW Surface Water 30 Year Return Depth Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.50m
- 0.50 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

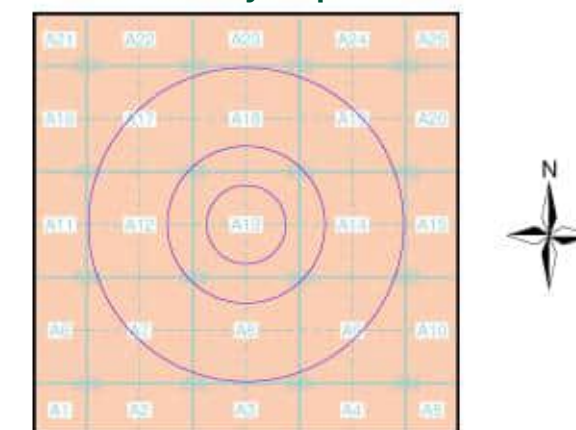
- Standard Contour
- Master Contour
- Spot Height

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

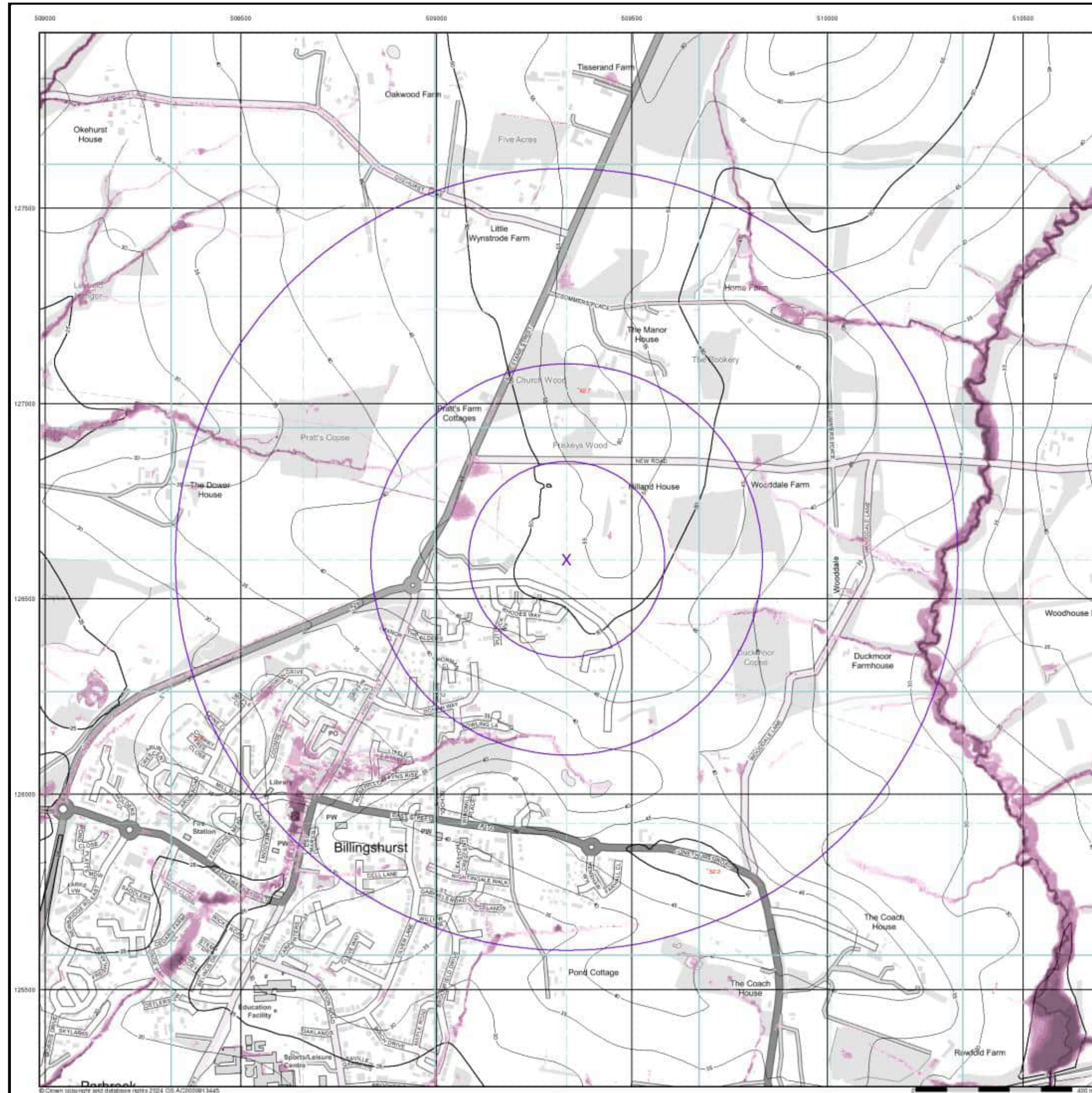
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

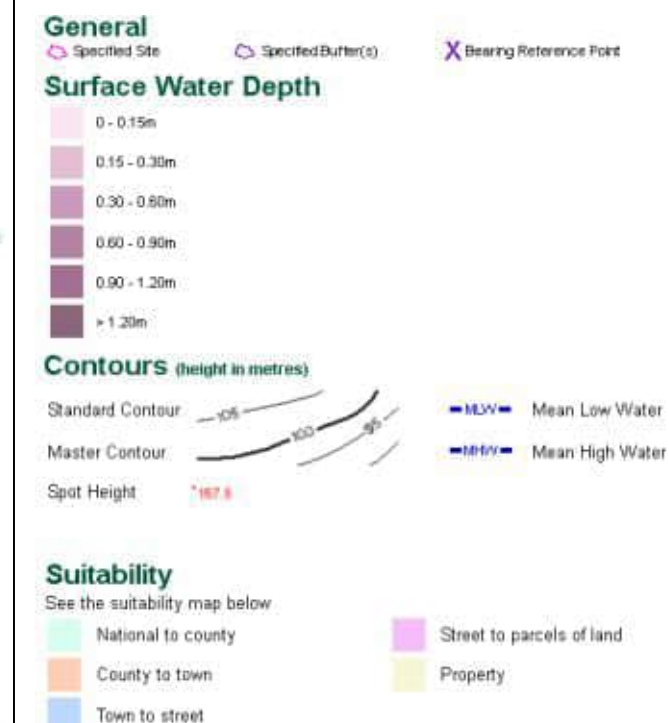
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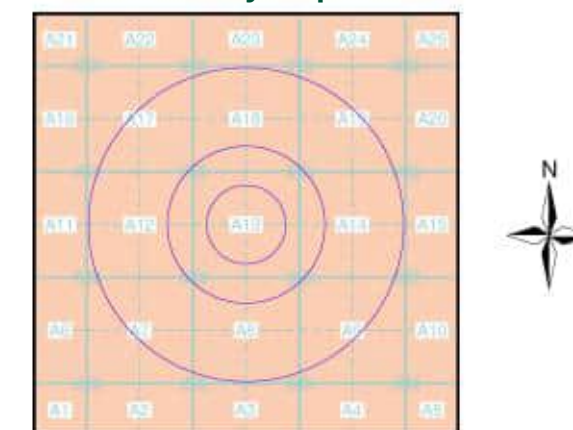


motion

EA/NRW Surface Water 100 Year Return Depth Map



EA/NRW Suitability Map - Slice A



Order Details

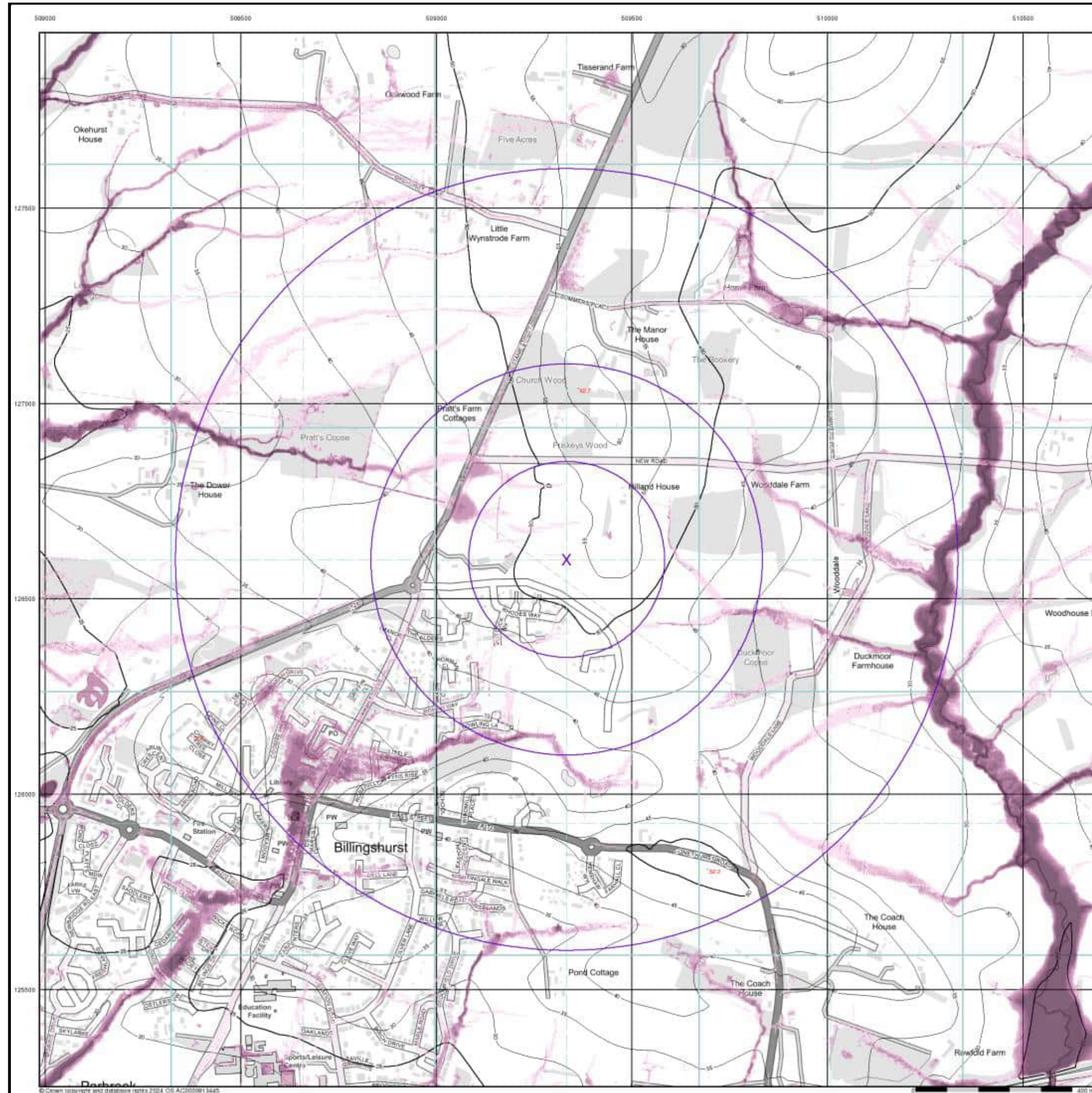
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Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

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Web: www.envirocheck.co.uk



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EA/NRW Surface Water 1000 Year Return Depth Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.50m
- 0.50 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

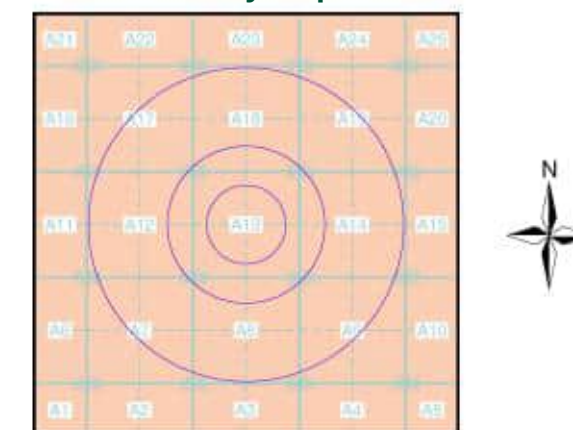
- Standard Contour
- Master Contour
- Spot Height

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

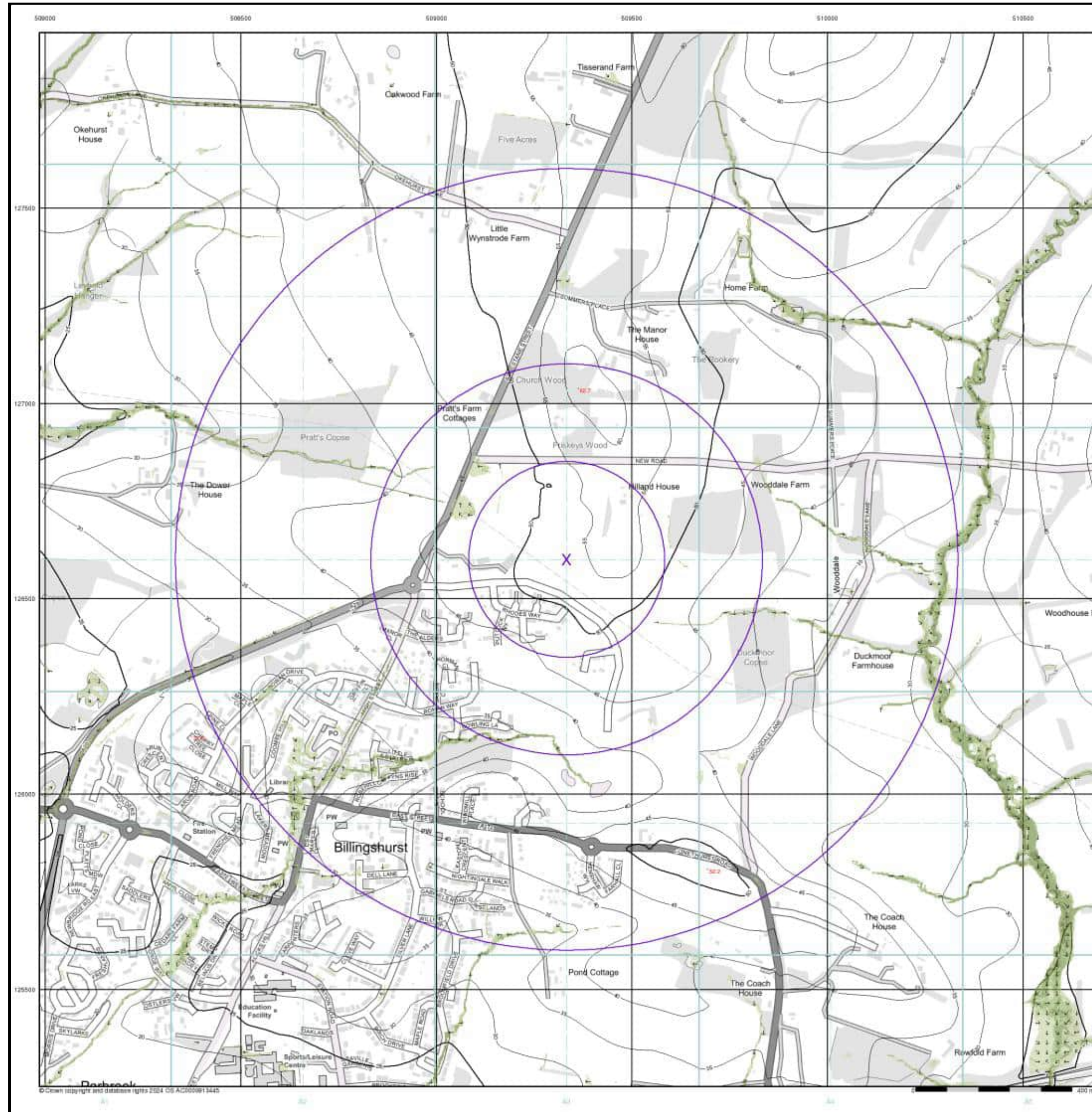
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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EA/NRW Surface Water 30 Year Return Velocity and Flow Direction Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Surface Water Velocity and Direction

- 0.00 - 0.25 m/s
- 0.25 - 0.50 m/s
- 0.50 - 1.00 m/s
- 1.00 - 2.00 m/s
- > 2.00 m/s

Flow Direction at maximum velocity

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height

Mean Low Water (MLW)

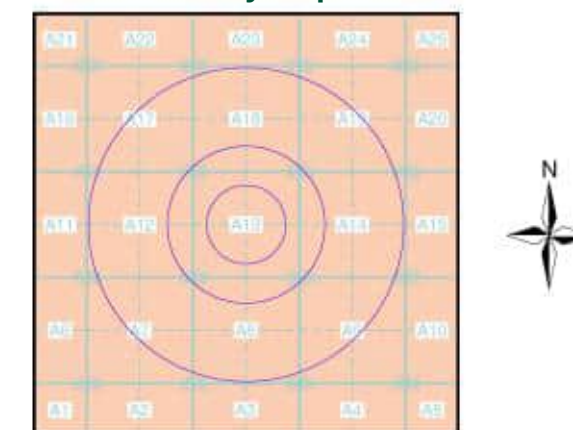
Mean High Water (MHW)

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

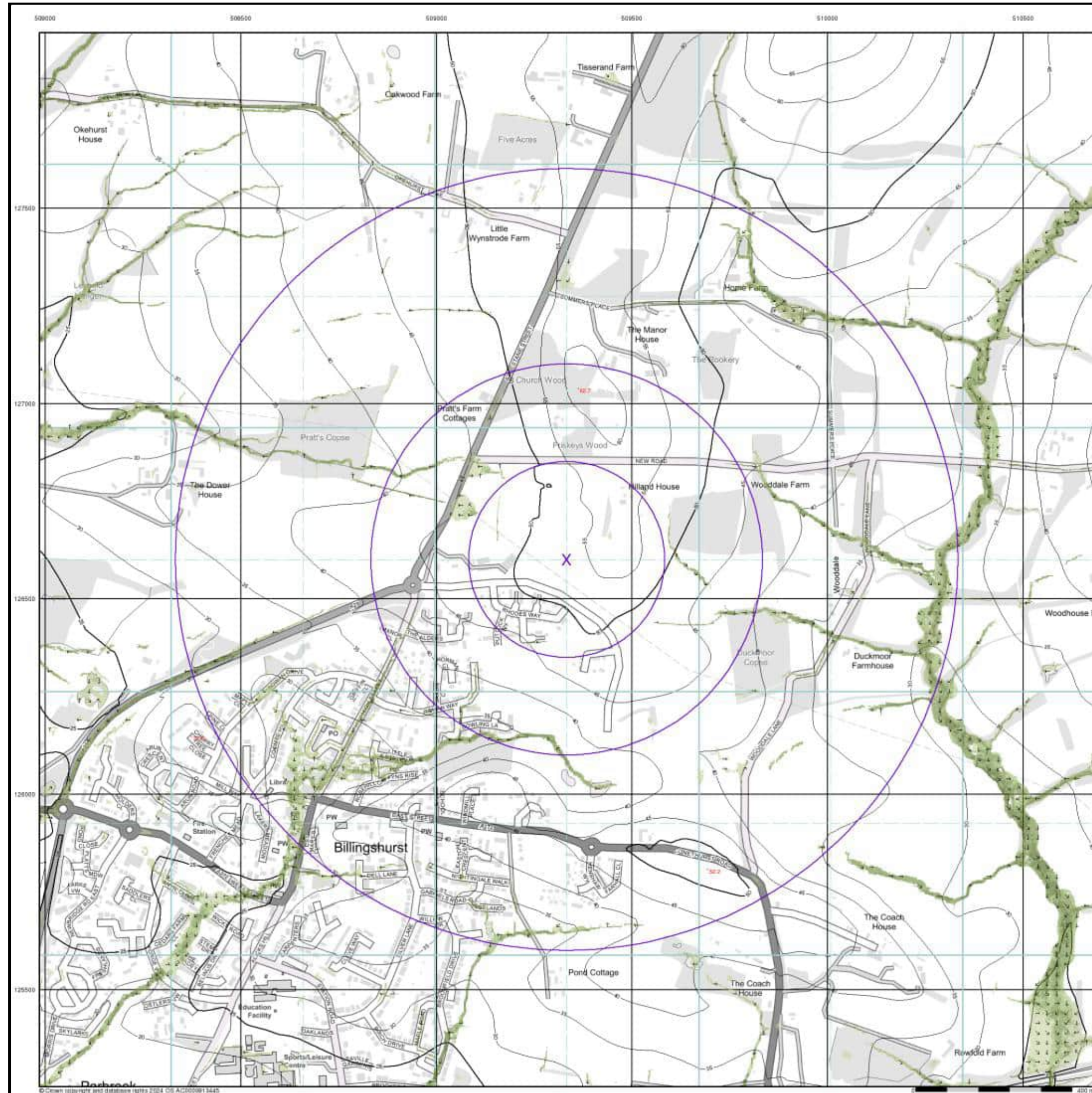
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

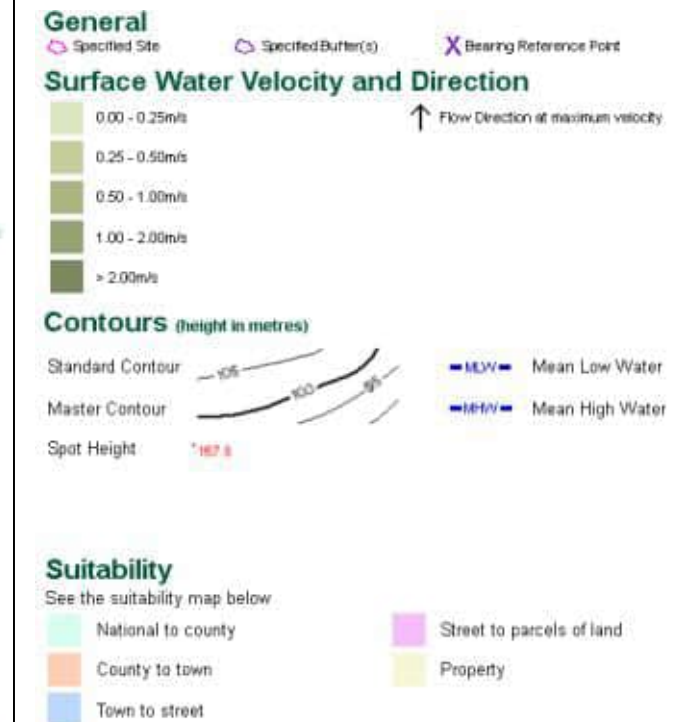
Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

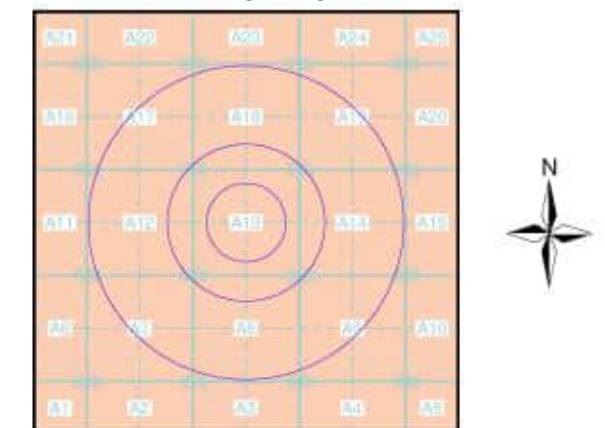


motion

EA/NRW Surface Water 100 Year Return Velocity and Flow Direction Map (1:10,000)



EA/NRW Suitability Map - Slice A



Order Details

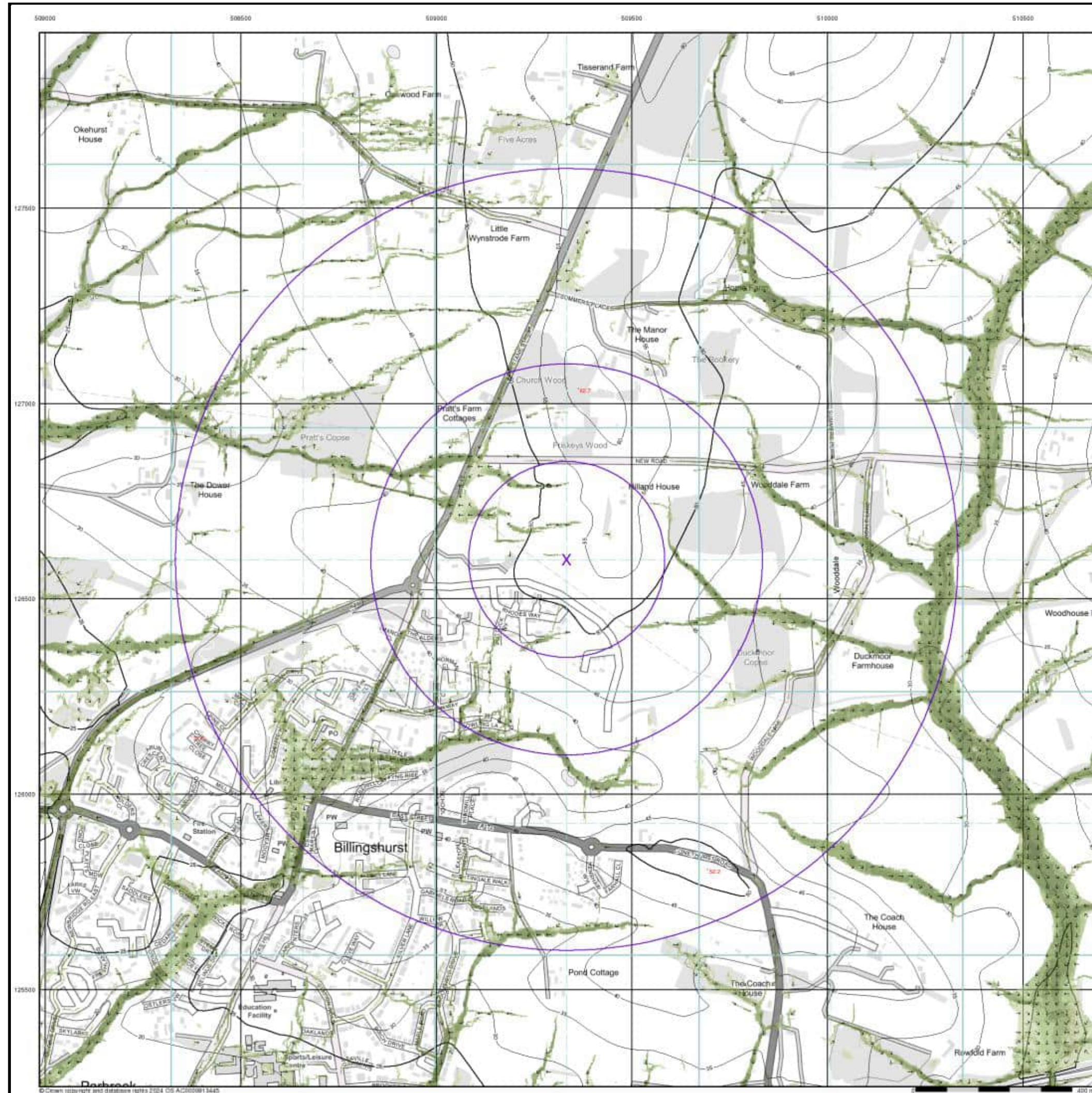
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Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

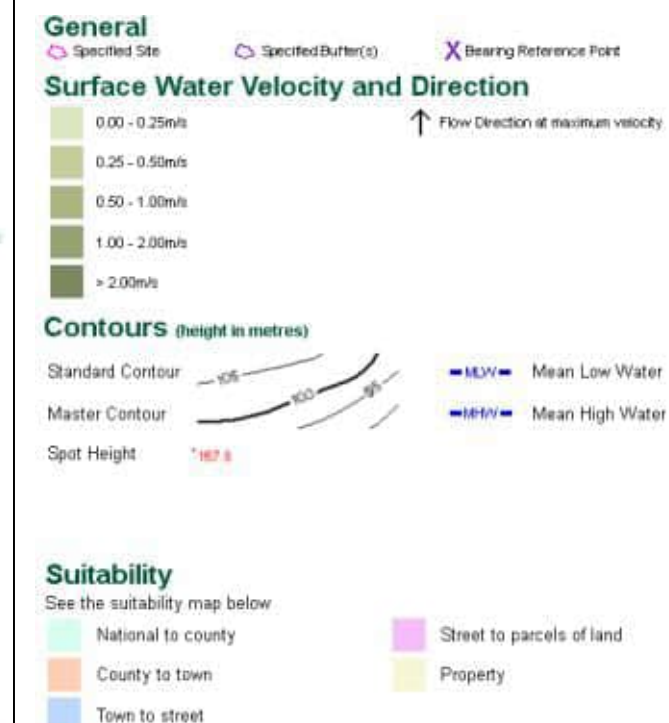
Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

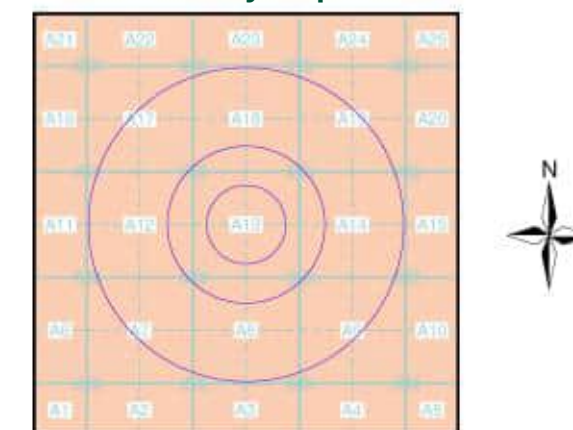


motion

EA/NRW Surface Water 1000 Year Return Velocity and Flow Direction Map (1:10,000)



EA/NRW Suitability Map - Slice A



Order Details

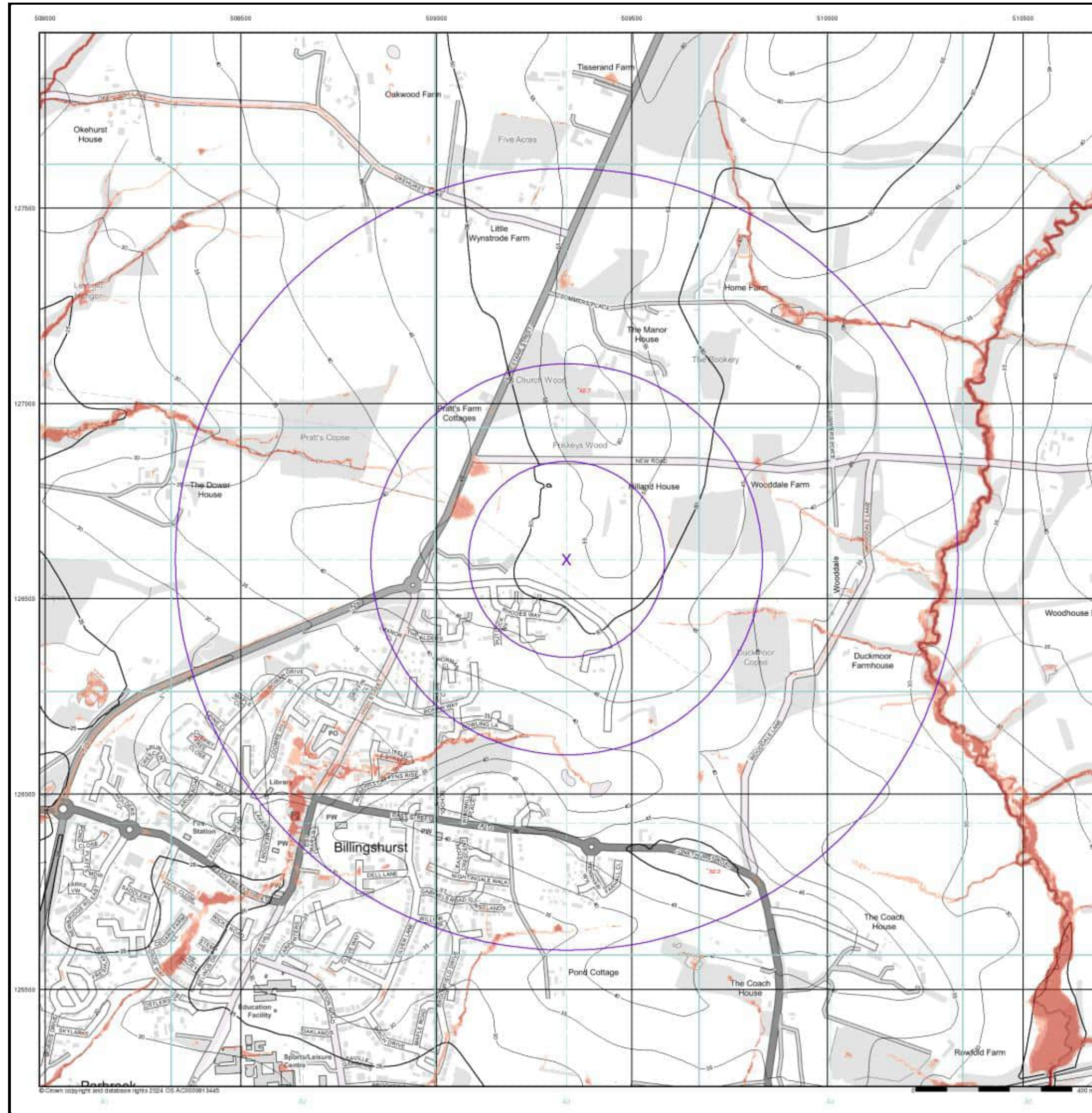
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

Landmark
INFORMATION GROUP

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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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EA/NRW Surface Water 30 Year Return Hazard Rating Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Surface Water Hazard Rating

- Low (0.5 – 0.75)
- Moderate (0.75 – 1.25)
- Significant (1.25 – 2.0)
- Extreme (>2.0)

Contours (height in metres)

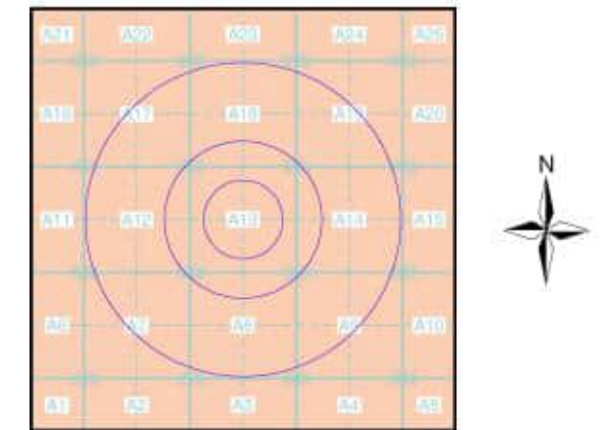
- Standard Contour
- Master Contour
- Spot Height

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A

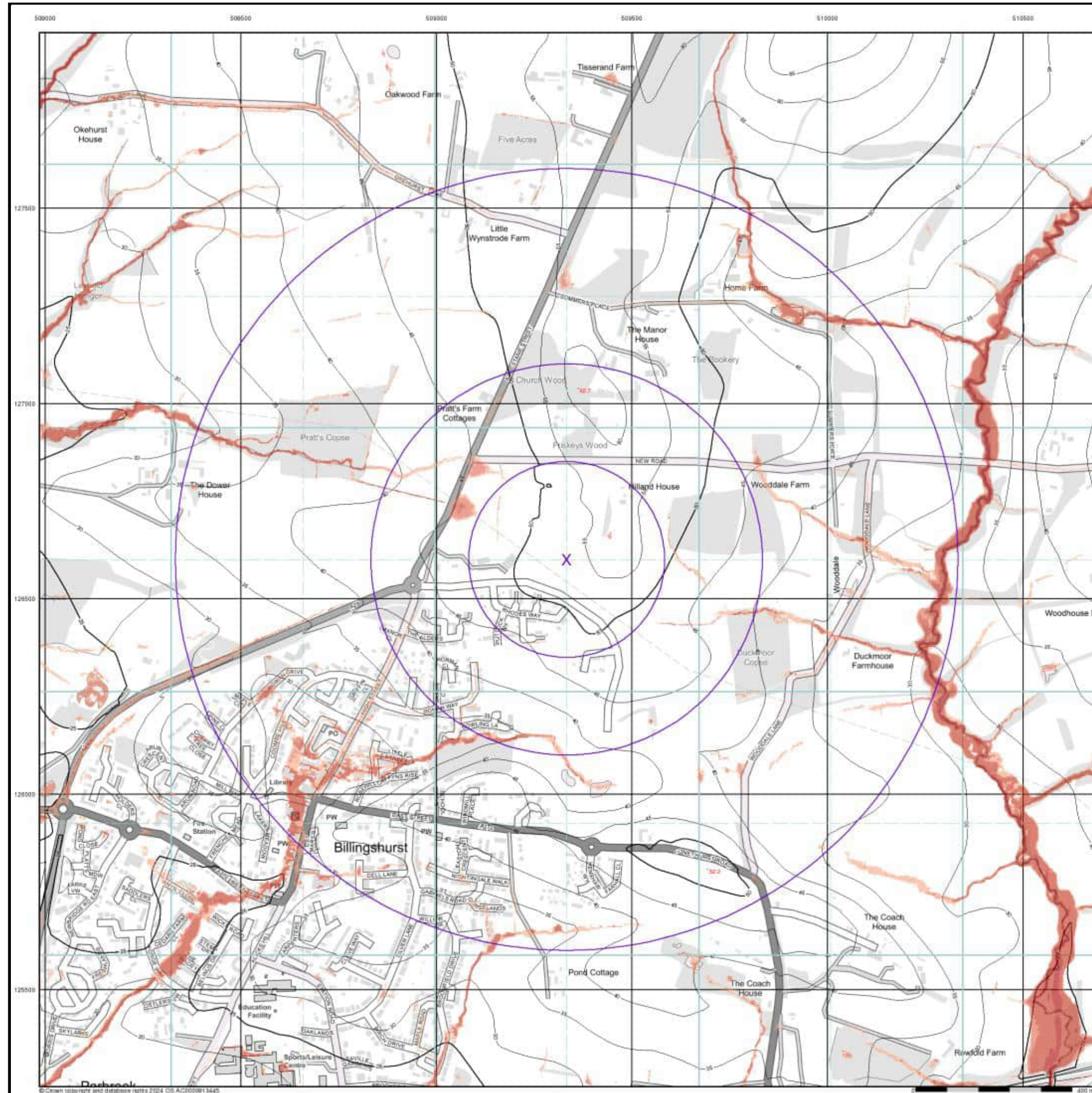


Order Details

Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

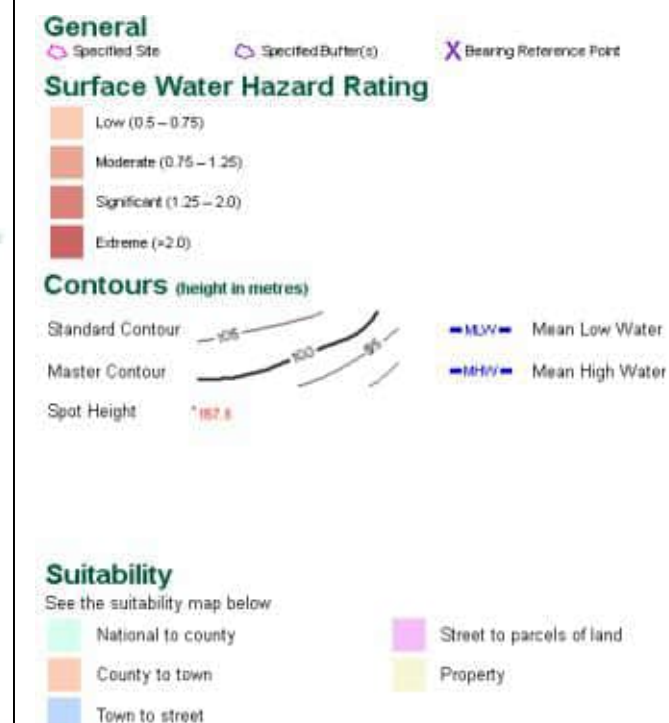
Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

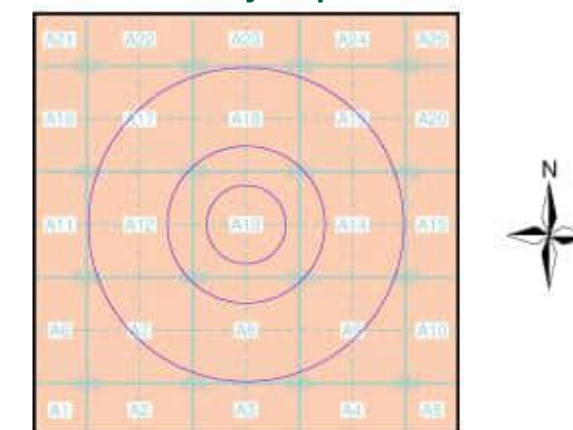


motion

EA/NRW Surface Water 100 Year Return Hazard Rating Map (1:10,000)



EA/NRW Suitability Map - Slice A



Order Details

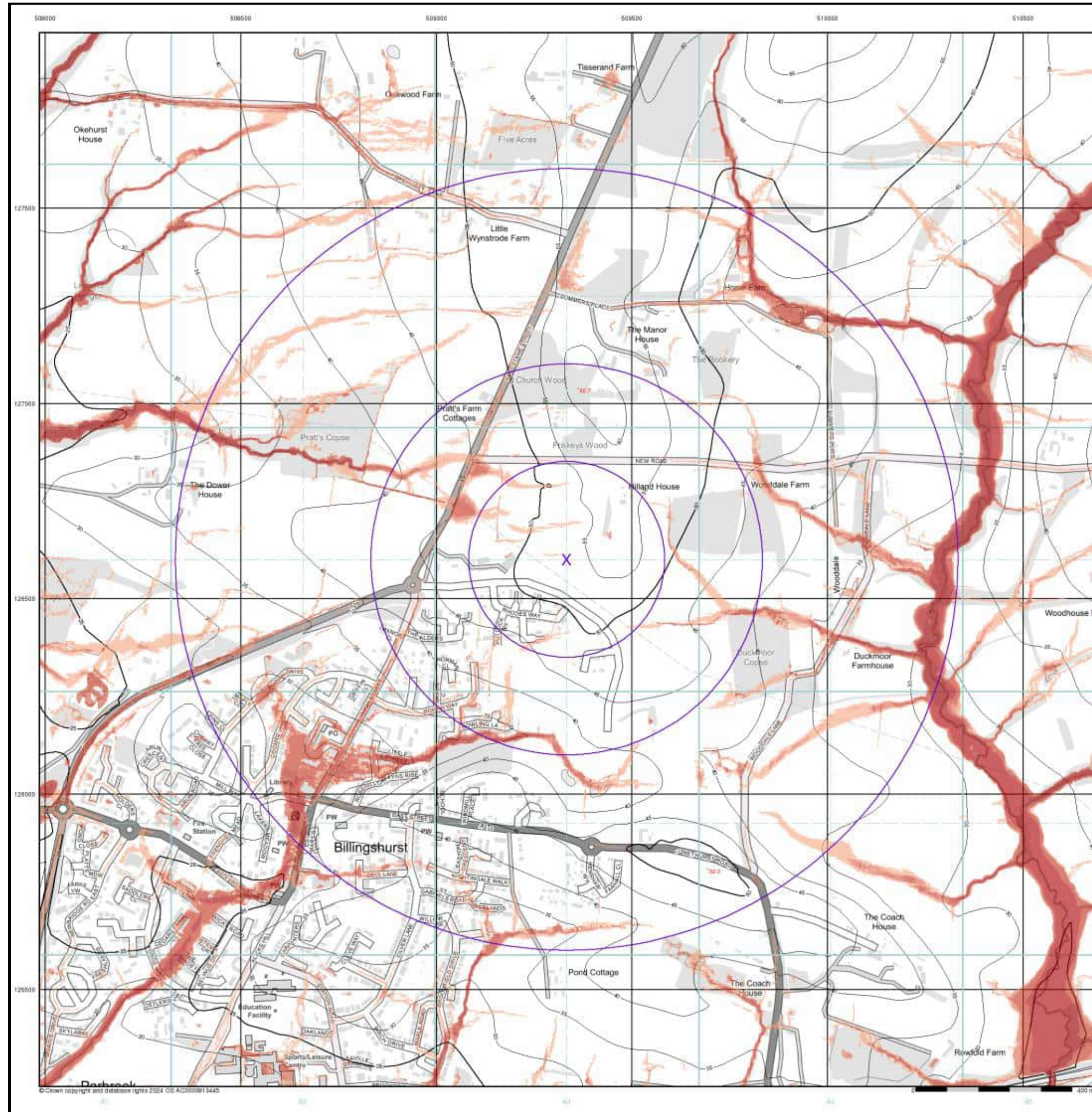
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

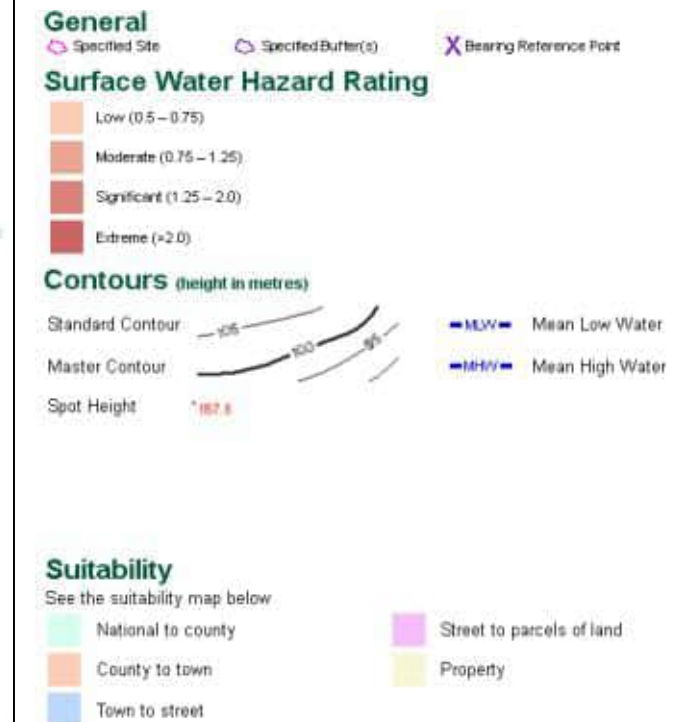
Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

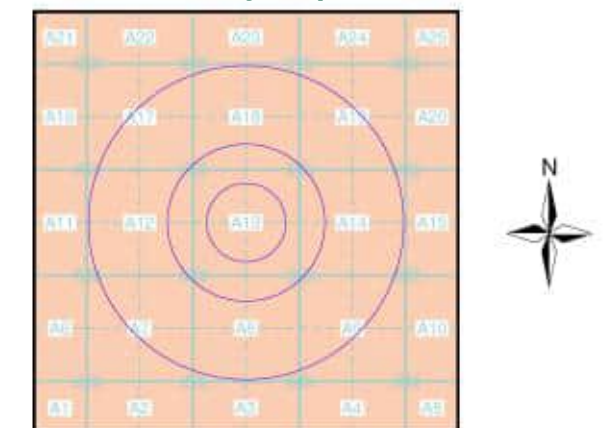


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EA/NRW Surface Water 1000 Year Return Hazard Rating Map (1:10,000)



EA/NRW Suitability Map - Slice A



Order Details

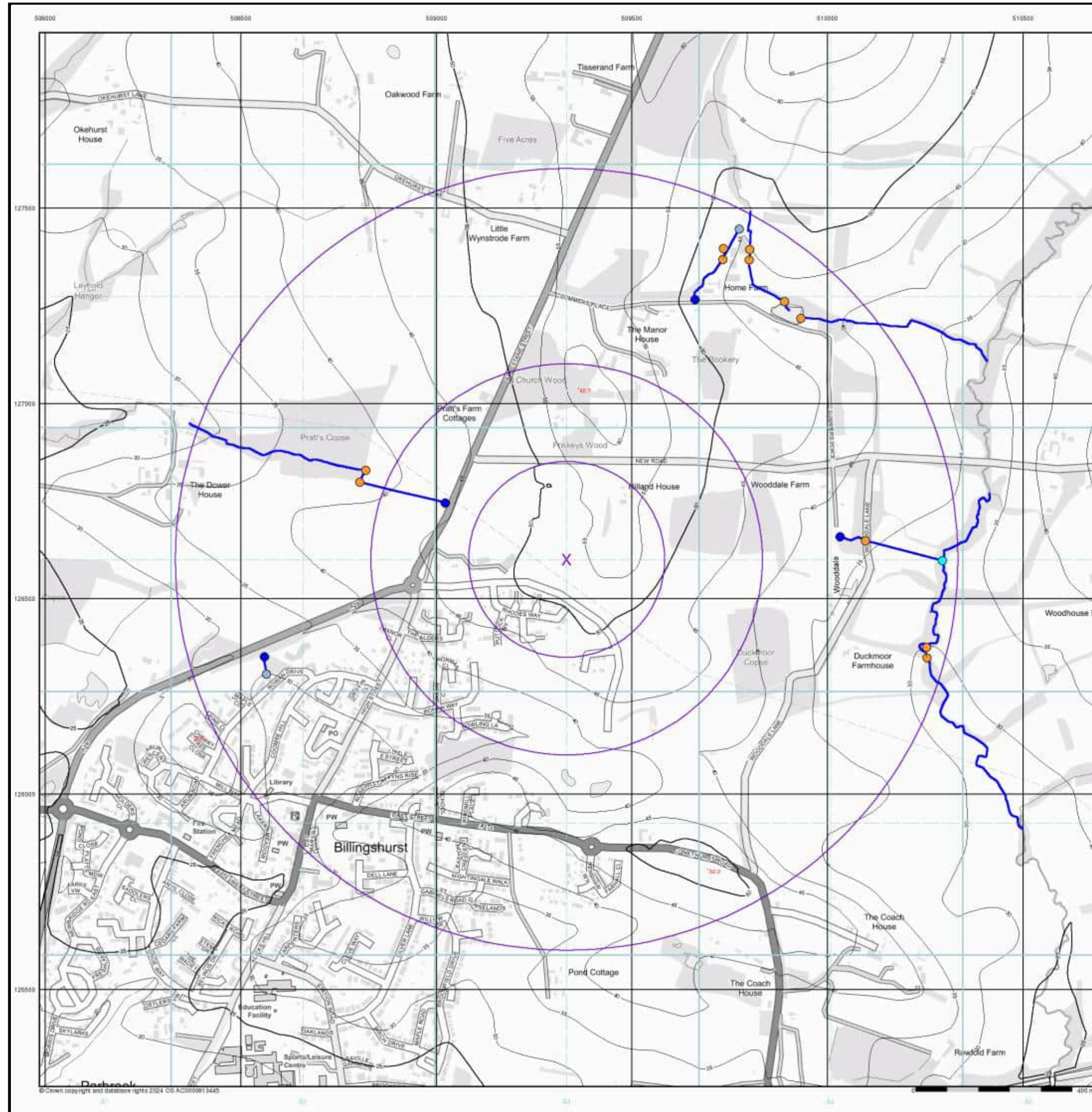
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

Landmark
INFORMATION GROUP

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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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OS Water Network Lines Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

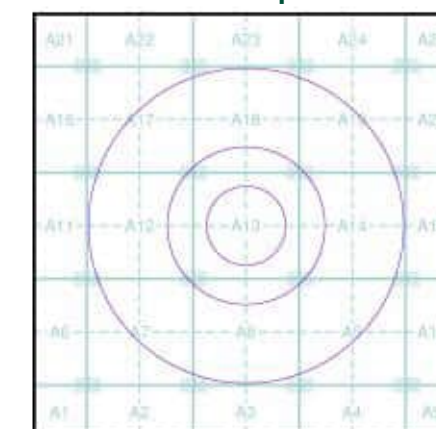
OS Water Network Data

- | | |
|--------------|-------------------------|
| Canal | Drain |
| Reservoir | Other |
| Foreshore | Lake |
| Marsh | Transfer |
| Tidal River | Lock Or Flight Of Locks |
| Inland River | Sea |
| Junction | Source |
| Outlet | Other |
| Pseudo | |

Contours (height in meters)

- Standard Contour 1:25
- Master Contour 1:100
- Spot Height 167.3
- MSW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



Order Details

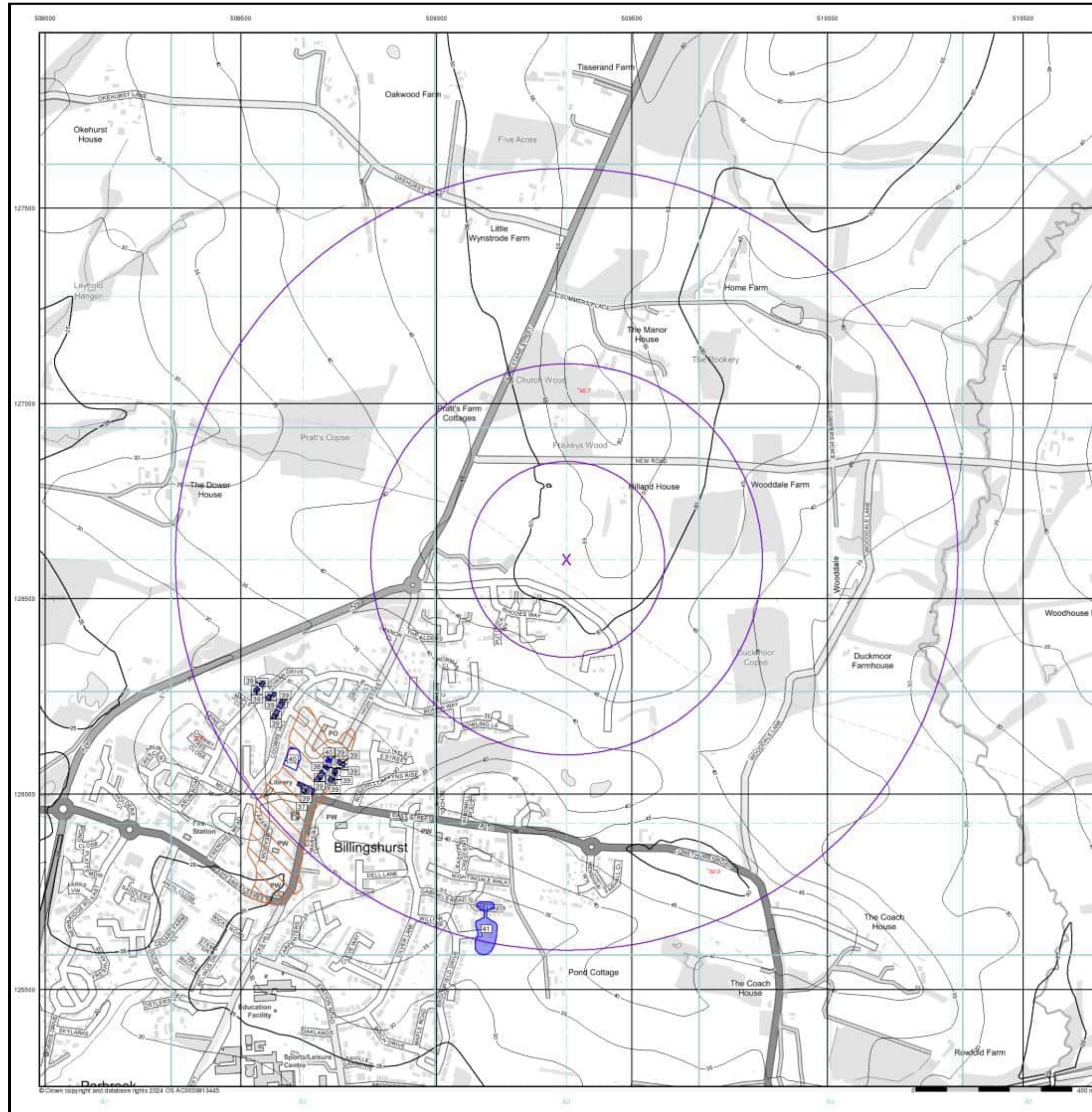
Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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EANRW Historic Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID

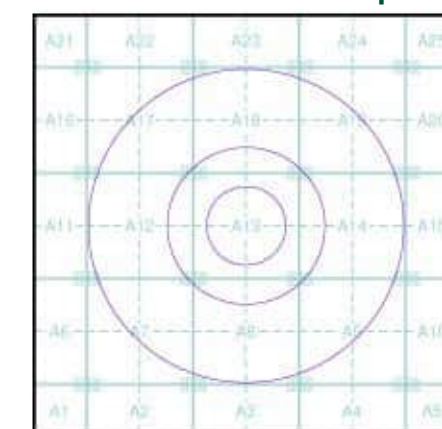
Historic Flood Events Data

- | | |
|--|--|
| Channel Capacity Exceeded (no raised defences) | Obstruction/Blockage - Culvert |
| Channel Capacity Exceeded / Surface Water | Obstruction/Blockage - Debris Screen |
| Groundwater/High Water Table | Operational Failure/ Breach of Defence |
| Local Drainage/Surface Water | Other |
| Mechanical Failure | Overtopping of Defences |
| Obstruction/Blockage - Bridge | Surface Water |
| Obstruction/Blockage - Channel | Unknown |
| Historical Flood Liabilities | |

Contours (height in metres)

- Standard Contour 105
- Master Contour 100
- Spot Height 167.8
- MSW Mean Low Water
- MSW Mean High Water

EANRW Historic Flood Map - Slice A



Order Details

Order Number: 360250553_1_1
Customer Ref: 1dubil 1904029
National Grid Reference: 509330, 126600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

2 Old Hilland, Hilland Road, BILLINGSHURST, RH14 9HN

Landmark
INFORMATION GROUP

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Web: www.envirocheck.co.uk

Appendix G

Southern Water Asset Records



(c) Crown copyright and database rights 2021 Ordnance Survey 100031673

Date: 25/01/21

Scale: 1:1000

Map Centre: 509230.126590

Data updated: 18/01/21

Our Ref: 487518 - 1

Wastewater Plan A1

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2020 Ordnance Survey 100031673. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

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

vhldo@motion.co.uk

Billingshurst



Appendix H

Drainage Strategy

Plot 15

15

12 Apts

70

45

55

65

61

9 Apts

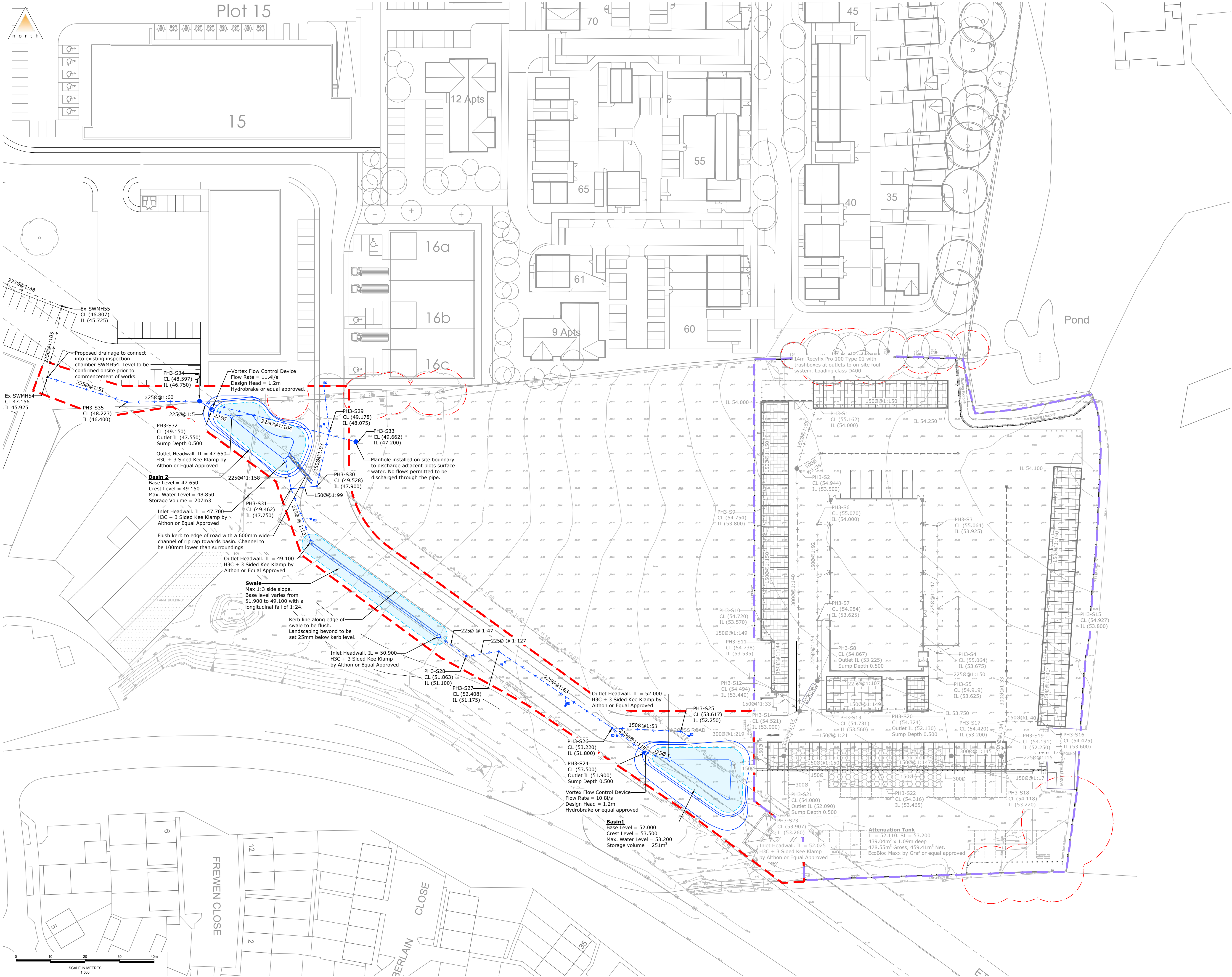
60

16a

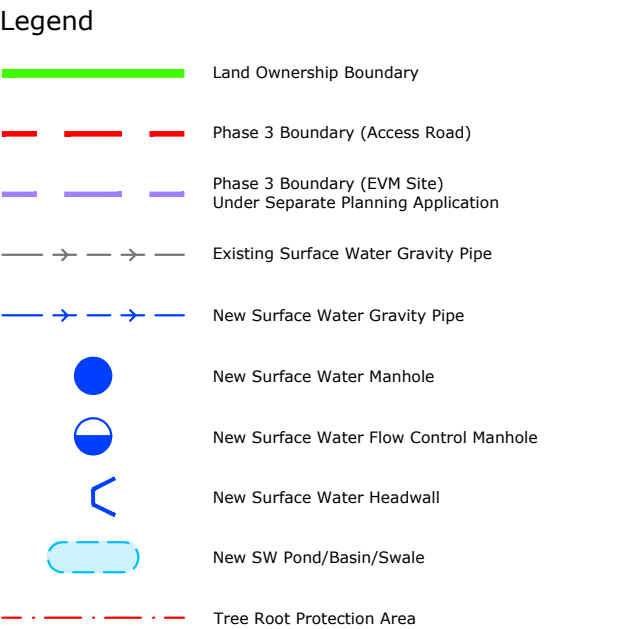
16b

16c

Pond



- Notes**
- All levels and dimensions are to be checked on site before any work commences. All dimensions are in metres unless stated otherwise.
 - This drawing has been based upon survey information supplied by Marvin & Partners Ltd and Motion cannot guarantee the accuracy of the data provided.
 - Any discrepancies should be reported to the architect and/or engineer immediately, so that clarification can be sought prior to the commencement of works.
 - This drawing should be read in conjunction with all other relevant architect and engineering details, drawings and specification.
 - Land ownership boundary has been taken from Ian C King Associates drawing U1-SLP-01-D.
 - All works to adopted system are to be carried out in accordance with Water UK - Design and Construction Guidance and Thames Water Local practice.
 - All private rainwater pipes and internal foul soil pipes are to be set out in accordance with the architect layout.
 - Pipes and channels constructed within private drainage to be either:
 - Concrete to BS EN 1916 & BS 5911
 - Extra Strength Vitrified Clay to BS EN 295
 - Unplasticised PVC to BS EN 1401 (Not to be used in adoptable drainage and beneath basement slab)
 - Ductile Iron to BS EN 598. Ductile Iron to BS EN 598. For use within pile caps and ground beams. Ductile iron pipes to have a cement mortar lining.
 - All private drainage is to be 100mmØ laid at a minimum gradient of 1 in 80, or 1 in 40 where no toilets are connected, for foul drains and 1 in 100 for surface water, unless otherwise stated.
 - 350mm minimum cover is to be provided for pipes laid in soft/paved areas, and 900mm minimum cover is to be provided for pipes laid beneath roads/driveways unless not practical. This is based on a uPVC system for private surface water and foul drainage.
 - All pipes shall be laid soffit to soffit with outgoing pipes unless otherwise stated.
 - All private drainage to be in accordance with the Building Regulations Approved Document 'H' (2010 edition). It is the contractors responsibility to ensure compliance with these regulations.
 - Shallow private drainage may require protection using concrete surround or paving slabs bridging the trench, subject to NHC Inspector's requirements. In areas where 450mm cover to private sewer is not achievable, protective measures should be undertaken as above.



Drainage updated to reflect PTA detailed drainage layout	AU	AU	NJ	31/03/2026
P01 First Issue	AU	SG	NJ	10/03/2026
Rev. Description	Drm	Chk	App	Date

Drawing Status: **FOR PLANNING**
NOT FOR CONSTRUCTION



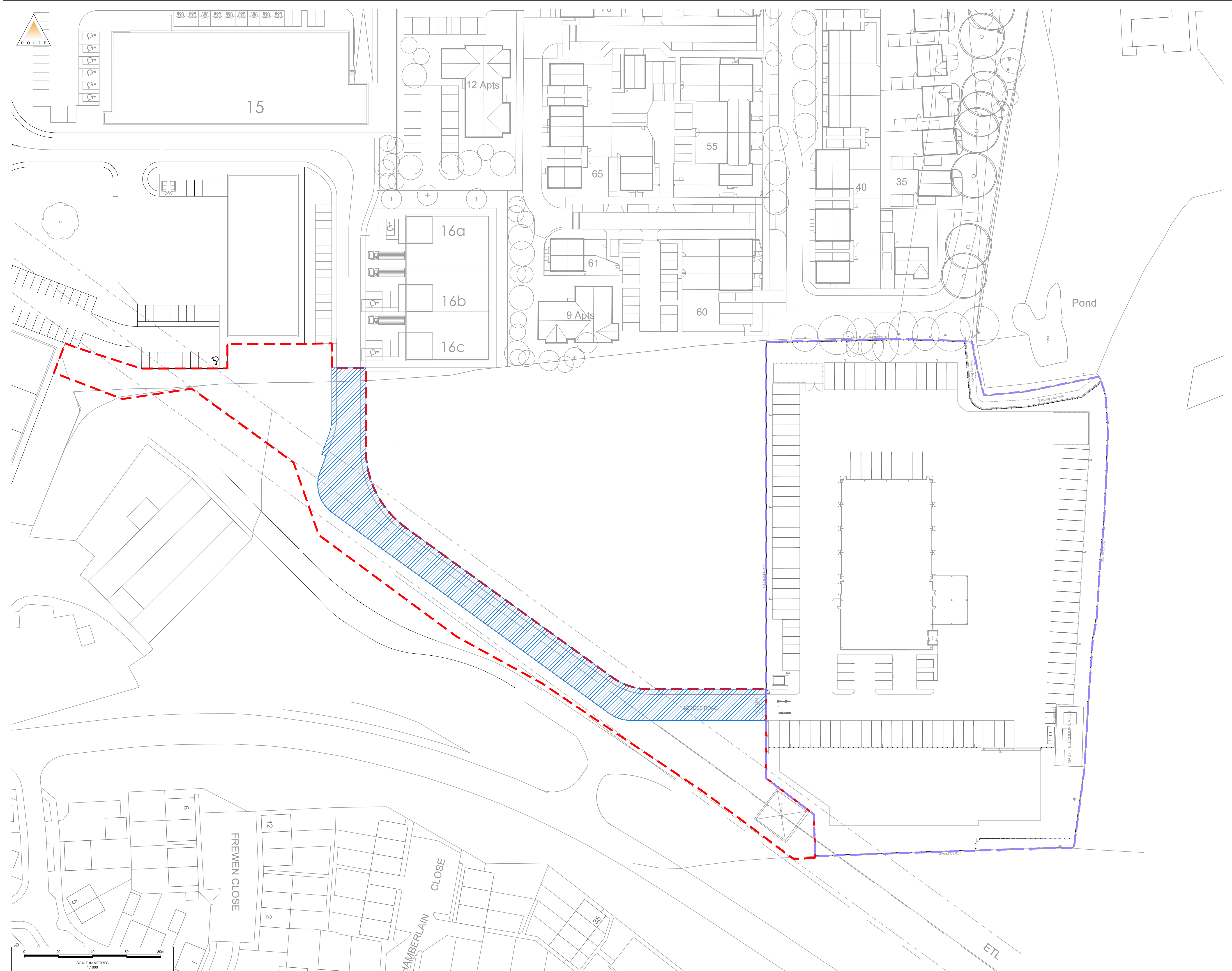
Project: Trade Park Billingshurst
Stane Street, Billingshurst
Title: Phase 3 Works
Attenuation Basin and Swale

Scale: 1:500 (@ A1)
Drawing: 1904029-P3-0506
Revision: P02

Appendix I

Impermeable Area Plan

C:\Users\audin\Motion\StartSite - 1.dwg 1904029 Drawings\1904029-P3-9010-P01 [Phase 3 Access Road - Impermeable Areas].dwg



- Legend**
- Phase 3 Boundary (Access Road)
 - Phase 3 Boundary (EVM Site) Under Separate Planning Application
 - Impermeable Areas - Roads/Paving
Total Area - 1900m² [0.19 ha]

P01	First Issue	AU	AU	N3	02/03/2026
Rev.	Description	Drm	Chk	App	Date

Drawing Status: **FOR PLANNING**
NOT FOR CONSTRUCTION



Project:
Trade Park Billingshurst
Stane Street, Billingshurst

Title:
Phase 3 Works - Access Road
Impermeable Areas Plan

Scale: 1:500 (@ A1)

Drawing:
1904029-P3-9010

Revision:
P01

Appendix J

UKSuDS Greenfield Runoff Calculations

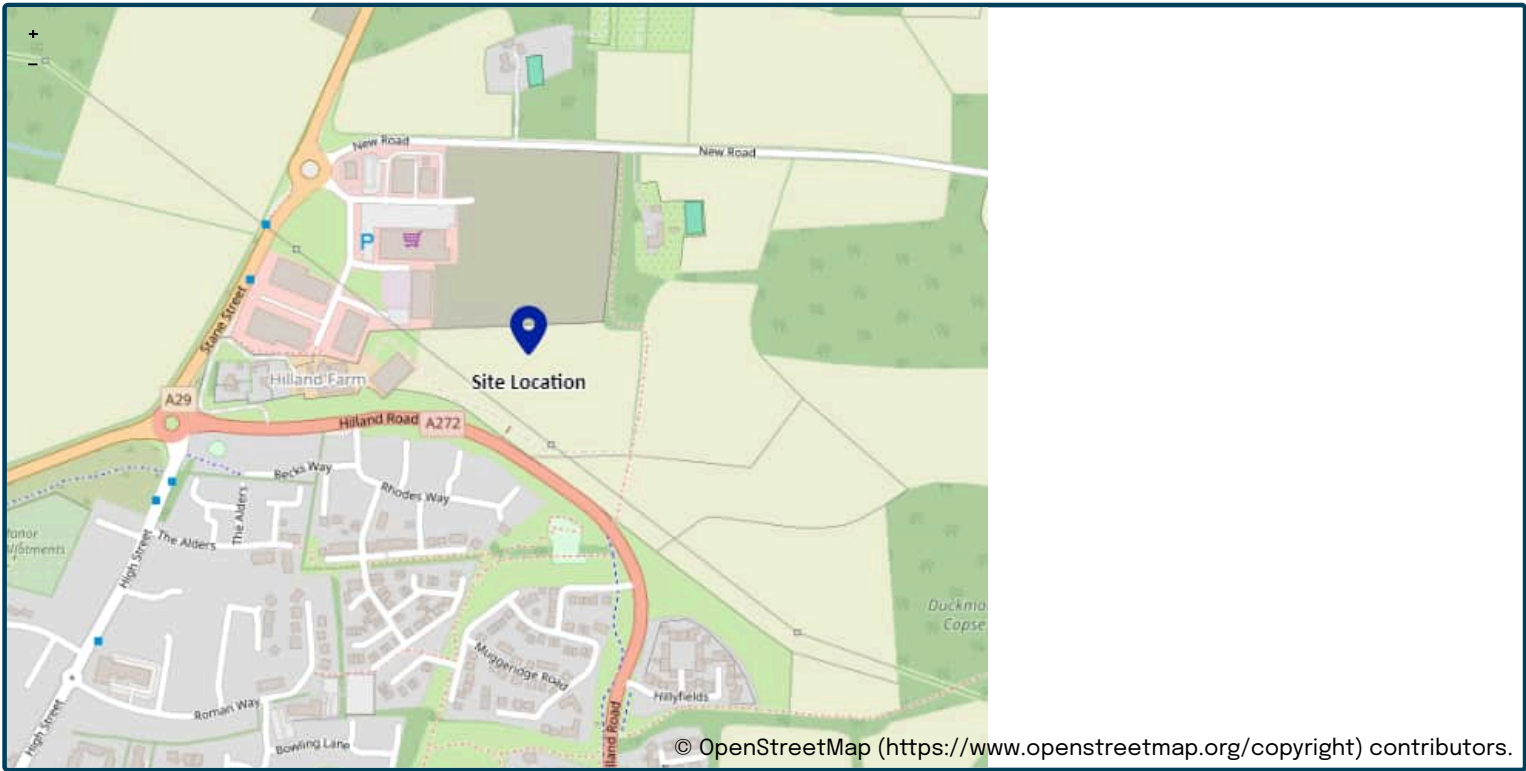
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	03/03/2026
Calculated by	
Reference	
Model version	2.2.3

Location

Site name	Phase 3 - Access Road
Site location	Billingshurst



Site easting (British National Grid)	509338
Site northing (British National Grid)	126594

Site details

Total site area (ha)	0.5 ha
----------------------	------------------------------

Greenfield runoff

Method

Method	FEH statistical (2025)
--------	-----------------------------------

FEH statistical (2025)

	<u>My value</u>	<u>Map value</u>
SAAR9120 (mm)	824 mm	
BFIHOST19scaled	0.262	
QMed-QBar conversion	1.136	1.136
QMed (l/s)	3.7 l/s	
QBar (FEH statistical 2025) (l/s)	4.2 l/s	

Growth curve factors

	<u>My value</u>	<u>Map value</u>
Hydrological region	7	7
1 year growth factor	0.85	
2 year growth factor	0.88	
10 year growth factor	1.62	
30 year growth factor	2.3	
100 year growth factor	3.19	
200 year growth factor	3.74	

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	3.6 l/s
Flow rate 2 year (l/s)	3.7 l/s
Flow rate 10 years (l/s)	6.8 l/s
Flow rate 30 years (l/s)	9.6 l/s
Flow rate 100 years (l/s)	13.3 l/s
Flow rate 200 years (l/s)	15.6 l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix K

Causeway Flow Results



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

HiCap 5200 Link Type

Template	Freeform Carrier	Preferred Cover (m)	0.200
Shape	Rectangular	Follow Ground	x
Barrels	1	Velocity	Colebrook-White
Height (mm)	400	ks (mm) / n	0.600
Auto Increment (mm)	100		

Available Diameters (mm)

200

Circular Link Type

Template	Freeform Carrier	Auto Increment (mm)	75
Shape	Circular	Follow Ground	x
Barrels	1		

Available Diameters (mm)

100 | 150

1:3 Swale Link Type

Template	Freeform Carrier	Preferred Cover (m)	0.010
Shape	Trapezoidal	Steep Slope (1:X)	350
Barrels	1	Follow Ground	✓
Width (mm)	600	Velocity	Manning
Side Slope (1:X)	3.0	ks (mm) / n	0.030
Auto Increment (mm)	100		

Available Diameters (mm)

300



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
TB1		5.00	54.925	Manhole	600	509420.900	126630.322	0.625	54.300
TB2	0.139	5.00	54.925	Manhole	600	509381.335	126630.322	1.125	53.800
RE1	0.014	5.00	55.162	Manhole	150	509417.440	126644.320	0.912	54.250
PH3-S1	0.017	5.00	55.162	Manhole	450	509379.952	126644.306	1.162	54.000
PH3-S2			54.940	Manhole	1200	509373.239	126625.897	1.440	53.500
RE2	0.012	5.00	54.915	Manhole	150	509364.603	126644.320	0.915	54.000
PH3-S9	0.052	5.00	54.755	Manhole	450	509364.615	126614.362	0.955	53.800
PH3-S10	0.046	5.00	54.720	Manhole	450	509364.593	126579.930	1.150	53.570
PH3-S11			54.737	Manhole	450	509367.623	126575.593	1.202	53.535
PH3-S12	0.023	5.00	54.494	Manhole	450	509367.681	126562.064	1.054	53.440
PH3-S3	0.034	5.00	55.064	Manhole	450	509414.840	126609.242	1.139	53.925
PH3-S4	0.034	5.00	55.065	Manhole	600	509414.829	126572.529	1.390	53.675
PH3-S5			54.918	Manhole	600	509414.786	126564.990	1.293	53.625
PH3-S6	0.034	5.00	55.070	Manhole	450	509380.110	126609.689	1.070	54.000
PH3-S7	0.034	5.00	54.982	Manhole	600	509380.110	126581.914	1.357	53.625
PH3-S8			54.884	Manhole	1200	509380.130	126565.166	1.659	53.225
RE3	0.006	5.00	54.732	Manhole	150	509411.518	126556.423	0.982	53.750
PH3-S13	0.016	5.00	54.736	Manhole	450	509383.689	126556.409	1.176	53.560
PH3-S14	0.028	5.00	54.492	Manhole	1200	509374.120	126555.485	1.492	53.000
RE4	0.019	5.00	55.004	Manhole	150	509449.625	126625.818	0.904	54.100
PH3-S15	0.026	5.00	54.927	Manhole	450	509446.720	126580.836	1.127	53.800
PH3-S16	0.014	5.00	54.425	Manhole	450	509444.964	126552.639	0.825	53.600
TB3		5.00	54.730	Manhole	600	509434.900	126620.699	0.630	54.100
TB4	0.250	5.00	54.730	Manhole	600	509434.900	126567.188	1.100	53.630
PH3-S17			54.420	Manhole	600	509434.875	126552.832	1.220	53.200
SU	0.033	5.00	54.089	Junction		509434.835	126538.689	0.789	53.300
PH3-S18	0.037	5.00	54.118	Manhole	450	509433.415	126539.732	0.818	53.300
PH3-S19			54.192	Manhole	1200	509433.456	126542.699	1.292	52.900
PH3-S20			54.316	Manhole	1200	509419.842	126542.688	1.816	52.500
Tank			54.124	Junction		509372.230	126542.688	2.014	52.110
PH3-S22	0.054	5.00	54.316	Manhole	450	509397.803	126539.613	0.851	53.465
PH3-S23	0.014	5.00	53.913	Manhole	450	509366.863	126539.599	0.653	53.260
PH3-S21			54.080	Manhole	1200	509370.448	126542.684	1.990	52.090
Basin 1 Inlet			53.500	Manhole	1200	509356.351	126540.592	1.500	52.000
PH3-S25	0.020	5.00	53.616	Manhole	1200	509340.552	126549.791	1.366	52.250
Basin 1	0.043	5.00	53.500	Manhole	1200	509336.854	126541.778	1.500	52.000
PH3-S24			53.500	Manhole	1500	509330.336	126543.609	1.600	51.900
PH3-S26	0.027	5.00	53.220	Manhole	1200	509320.826	126550.746	1.420	51.800
PH3-S27	0.017	5.00	52.409	Manhole	1200	509287.968	126572.913	1.234	51.175
PH3-S28			51.862	Manhole	1200	509278.498	126571.533	0.762	51.100
Swale Inlet	0.045	5.00	51.500	Junction		509270.099	126577.608	1.300	50.200
Swale Outlet			50.000	Junction		509233.665	126604.253	0.900	49.100
PH3-S29	0.025	5.00	49.179	Manhole	1200	509238.873	126636.569	1.104	48.075
PH3-S30			49.529	Manhole	1200	509235.191	126620.789	1.629	47.900
PH3-S31	0.009	5.00	49.463	Manhole	1500	509227.840	126619.970	1.713	47.750
Basin 2 Inlet	0.011		49.150	Junction		509226.388	126626.169	1.500	47.650
Basin 2	0.033	5.00	49.150	Manhole	1200	509210.105	126641.073	1.500	47.650
PH3-S32			49.150	Manhole	1500	509204.805	126643.011	1.600	47.550
PH3-S34			48.600	Manhole	1200	509201.279	126645.422	1.850	46.750
PH3-S35			48.350	Manhole	1200	509180.373	126645.095	1.950	46.400



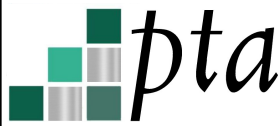
Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
SWMH54			47.150	Manhole	1200	509157.247	126652.312	1.225	45.925

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	Design Flow (l/s)
1.000	TB1	TB2	39.565	0.600	54.300	54.299	0.001	39565.0	200	HiCap 5200	
1.001	TB2	PH3-S2	9.226	0.600	53.800	53.500	0.300	30.8	300	Circular	
2.000	RE1	PH3-S1	37.488	0.600	54.250	54.000	0.250	150.0	150	Circular	
2.001	PH3-S1	PH3-S2	5.577	0.600	54.000	53.650	0.350	15.9	150	Circular	
1.002	PH3-S2	PH3-S14	70.418	0.600	53.500	53.000	0.500	140.8	300	Circular	
3.000	RE2	PH3-S9	29.958	0.600	54.000	53.800	0.200	149.8	150	Circular	
3.001	PH3-S9	PH3-S10	34.432	0.600	53.800	53.570	0.230	149.7	150	Circular	
3.002	PH3-S10	PH3-S11	5.291	0.600	53.570	53.535	0.035	151.2	150	Circular	
3.003	PH3-S11	PH3-S12	13.603	0.600	53.535	53.440	0.095	143.2	150	Circular	
3.004	PH3-S12	PH3-S14	9.153	0.600	53.440	53.150	0.290	31.6	150	Circular	
5.000	PH3-S3	PH3-S4	36.713	0.600	53.925	53.675	0.250	146.9	225	Circular	
5.001	PH3-S4	PH3-S5	7.539	0.600	53.675	53.625	0.050	150.8	225	Circular	
5.002	PH3-S5	PH3-S8	34.656	0.600	53.625	53.300	0.325	106.6	225	Circular	
6.000	PH3-S6	PH3-S7	27.775	0.600	54.000	53.700	0.300	92.6	150	Circular	
6.001	PH3-S7	PH3-S8	16.748	0.600	53.625	53.300	0.325	51.5	225	Circular	
5.003	PH3-S8	PH3-S14	11.395	0.600	53.225	53.000	0.225	50.6	300	Circular	
4.000	RE3	PH3-S13	27.829	0.600	53.750	53.560	0.190	146.5	150	Circular	
4.001	PH3-S13	PH3-S14	9.614	0.600	53.560	53.000	0.560	17.2	150	Circular	
1.003	PH3-S14	PH3-S21	13.317	0.600	53.000	52.090	0.910	14.6	300	Circular	

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Minimum Depth (m)	Maximum Depth (m)	Σ Area (ha)	Pro Velocity (m/s)
1.000	TB1	TB2	0.074	5.9	0.0	0.225	0.226	0.225	0.226	0.000	0.000
1.001	TB2	PH3-S2	2.845	201.1	25.2	0.825	1.140	0.825	1.140	0.139	1.962
2.000	RE1	PH3-S1	0.818	14.5	2.6	0.762	1.012	0.762	1.012	0.014	0.621
2.001	PH3-S1	PH3-S2	2.536	44.8	5.7	1.012	1.140	1.012	1.140	0.031	1.746
1.002	PH3-S2	PH3-S14	1.323	93.5	30.8	1.140	1.192	1.140	1.474	0.171	1.189
3.000	RE2	PH3-S9	0.819	14.5	2.2	0.765	0.805	0.691	0.805	0.012	0.587
3.001	PH3-S9	PH3-S10	0.819	14.5	11.5	0.805	1.000	0.805	1.018	0.064	0.908
3.002	PH3-S10	PH3-S11	0.815	14.4	0.4	1.000	1.052	1.000	1.052	0.110	0.353
3.003	PH3-S11	PH3-S12	0.838	14.8	0.4	1.052	0.904	0.904	1.052	0.110	0.363
3.004	PH3-S12	PH3-S14	1.798	31.8	0.5	0.904	1.192	0.904	1.192	0.133	0.658
5.000	PH3-S3	PH3-S4	1.076	42.8	6.2	0.914	1.165	0.914	1.165	0.034	0.770
5.001	PH3-S4	PH3-S5	1.062	42.2	12.3	1.165	1.068	1.068	1.200	0.068	0.924
5.002	PH3-S5	PH3-S8	1.265	50.3	12.3	1.068	1.359	1.068	1.396	0.068	1.053
6.000	PH3-S6	PH3-S7	1.045	18.5	6.2	0.920	1.132	0.920	1.203	0.034	0.940
6.001	PH3-S7	PH3-S8	1.826	72.6	12.3	1.132	1.359	1.119	1.371	0.068	1.373
5.003	PH3-S8	PH3-S14	2.214	156.5	24.7	1.359	1.192	1.192	1.359	0.137	1.628
4.000	RE3	PH3-S13	0.828	14.6	1.1	0.832	1.026	0.832	1.026	0.006	0.486
4.001	PH3-S13	PH3-S14	2.443	43.2	4.0	1.026	1.342	1.026	1.342	0.022	1.533
1.003	PH3-S14	PH3-S21	4.130	291.9	88.6	1.192	1.690	1.192	1.690	0.491	3.634



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	Design Flow (l/s)
8.000	RE4	PH3-S15	45.076	0.600	54.100	53.800	0.300	150.3	150	Circular	
8.001	PH3-S15	PH3-S16	28.252	0.600	53.800	53.600	0.200	141.3	150	Circular	
8.002	PH3-S16	PH3-S17	10.091	0.600	53.600	53.350	0.250	40.4	150	Circular	
7.000	TB3	TB4	53.000	0.600	54.100	54.099	0.001	53000.0	200	HiCap 5200	
7.001	TB4	PH3-S17	14.356	0.600	53.630	53.200	0.430	33.4	300	Circular	
7.002	PH3-S17	PH3-S19	10.232	0.600	53.200	52.900	0.300	34.1	300	Circular	
9.000	SU	PH3-S19	4.241	0.600	53.300	53.050	0.250	17.0	150	Circular	
10.000	PH3-S18	PH3-S19	2.968	0.600	53.300	53.050	0.250	11.9	150	Circular	
7.003	PH3-S19	PH3-S20	13.614	0.600	52.900	52.500	0.400	34.0	300	Circular	
7.004	PH3-S20	Tank	1.500	0.600	52.500	52.450	0.050	30.0	300	Circular	
7.006	Tank	PH3-S21	1.782	0.600	52.110	52.090	0.020	89.1	300	Circular	
11.000	PH3-S22	PH3-S23	17.940	0.600	53.465	53.260	0.205	87.5	150	Circular	
11.001	PH3-S23	PH3-S21	4.730	0.600	53.260	52.260	1.000	4.7	150	Circular	
1.004	PH3-S21	Basin 1 Inlet	14.251	0.600	52.090	52.025	0.065	219.3	300	Circular	8.0
12.000	PH3-S25	PH3-S26	19.749	0.600	52.250	51.875	0.375	52.7	150	Circular	
1.005	Basin 1	PH3-S24	6.770	0.600	52.000	51.900	0.100	67.7	225	Circular	
1.006	PH3-S24	PH3-S26	11.890	0.600	51.900	51.800	0.100	118.9	225	Circular	9.8
1.007	PH3-S26	PH3-S27	39.637	0.600	51.800	51.175	0.625	63.4	225	Circular	
1.008	PH3-S27	PH3-S28	9.570	0.600	51.175	51.100	0.075	127.6	225	Circular	
1.009	PH3-S28	Swale Inlet	10.366	0.600	51.100	50.900	0.200	51.8	225	Circular	
1.010	Swale Inlet	Swale Outlet	38.640	0.030	50.200	49.100	1.100	35.1	900	1:3 Swale	
1.011	Swale Outlet	PH3-S31	15.489	0.030	49.100	47.750	1.350	11.5	225	Circular	
13.000	PH3-S29	PH3-S30	16.203	0.600	48.075	47.900	0.175	92.6	150	Circular	

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Minimum Depth (m)	Maximum Depth (m)	Σ Area (ha)	Pro Velocity (m/s)
8.000	RE4	PH3-S15	0.817	14.4	3.5	0.754	0.977	0.736	0.977	0.019	0.673
8.001	PH3-S15	PH3-S16	0.843	14.9	8.2	0.977	0.675	0.675	1.020	0.046	0.863
8.002	PH3-S16	PH3-S17	1.588	28.1	10.8	0.675	0.920	0.675	0.920	0.060	1.489
7.000	TB3	TB4	0.063	5.1	0.0	0.230	0.231	0.230	0.231	0.000	0.000
7.001	TB4	PH3-S17	2.730	193.0	45.1	0.800	0.920	0.800	0.920	0.250	2.240
7.002	PH3-S17	PH3-S19	2.701	190.9	56.0	0.920	0.992	0.920	0.992	0.310	2.358
9.000	SU	PH3-S19	2.457	43.4	6.0	0.639	0.992	0.639	0.992	0.033	1.739
10.000	PH3-S18	PH3-S19	2.940	52.0	6.7	0.668	0.992	0.668	0.992	0.037	2.025
7.003	PH3-S19	PH3-S20	2.704	191.1	68.7	0.992	1.516	0.992	1.516	0.380	2.487
7.004	PH3-S20	Tank	2.881	203.6	68.7	1.516	1.374	1.374	1.516	0.380	2.609
7.006	Tank	PH3-S21	1.666	117.8	68.7	1.714	1.690	1.690	1.714	0.380	1.728
11.000	PH3-S22	PH3-S23	1.075	19.0	9.8	0.701	0.503	0.503	0.714	0.054	1.083
11.001	PH3-S23	PH3-S21	4.665	82.4	12.4	0.503	1.670	0.503	1.670	0.069	3.362
1.004	PH3-S21	Basin 1 Inlet	1.058	74.8	8.0	1.690	1.175	1.175	1.690	0.939	0.696
12.000	PH3-S25	PH3-S26	1.389	24.5	3.6	1.216	1.195	1.195	1.222	0.020	0.999
1.005	Basin 1	PH3-S24	1.591	63.3	7.7	1.275	1.375	1.039	1.375	0.043	1.079
1.006	PH3-S24	PH3-S26	1.198	47.6	9.8	1.375	1.195	0.981	1.381	0.043	0.947
1.007	PH3-S26	PH3-S27	1.645	65.4	16.2	1.195	1.009	1.009	1.206	0.089	1.369
1.008	PH3-S27	PH3-S28	1.156	46.0	19.2	1.009	0.537	0.537	1.009	0.106	1.106
1.009	PH3-S28	Swale Inlet	1.821	72.4	19.2	0.537	0.375	0.375	0.537	0.106	1.542
1.010	Swale Inlet	Swale Outlet	3.410	10126.4	27.3	0.400	0.000	-0.873	0.400	0.151	0.685
1.011	Swale Outlet	PH3-S31	1.445	57.4	0.5	0.675	1.488	0.675	1.488	0.151	0.454
13.000	PH3-S29	PH3-S30	1.045	18.5	4.4	0.954	1.479	0.954	1.479	0.025	0.861



Links

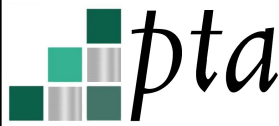
Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	Design Flow (l/s)
13.001	PH3-S30	PH3-S31	7.396	0.600	47.900	47.825	0.075	98.6	150	Circular	
1.012	PH3-S31	Basin 2 Inlet	6.367	0.030	47.750	47.700	0.050	127.3	225	Circular	
1.013	Basin 2	PH3-S32	5.642	0.600	47.650	47.550	0.100	56.4	150	Circular	
1.014	PH3-S32	PH3-S34	4.271	0.600	47.550	46.750	0.800	5.3	225	Circular	
1.015	PH3-S34	PH3-S35	20.958	0.600	46.750	46.400	0.350	59.9	225	Circular	
1.016	PH3-S35	SWMH54	24.179	0.600	46.400	45.925	0.475	50.9	225	Circular	

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Minimum Depth (m)	Maximum Depth (m)	Σ Area (ha)	Pro Velocity (m/s)
13.001	PH3-S30	PH3-S31	1.012	17.9	4.4	1.479	1.488	1.443	1.513	0.025	0.839
1.012	PH3-S31	Basin 2 Inlet	0.434	17.2	0.7	1.488	1.225	0.943	1.488	0.185	0.210
1.013	Basin 2	PH3-S32	1.342	23.7	5.9	1.350	1.450	1.120	1.450	0.033	1.113
1.014	PH3-S32	PH3-S34	5.700	226.6	5.9	1.375	1.625	1.276	1.625	0.033	2.486
1.015	PH3-S34	PH3-S35	1.693	67.3	5.9	1.625	1.725	1.625	1.725	0.033	1.044
1.016	PH3-S35	SWMH54	1.837	73.0	5.9	1.725	1.000	1.000	1.725	0.033	1.107

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	39.565	39565.0	200	HiCap 5200	54.925	54.300	0.225	54.925	54.299	0.226
1.001	9.226	30.8	300	Circular	54.925	53.800	0.825	54.940	53.500	1.140
2.000	37.488	150.0	150	Circular	55.162	54.250	0.762	55.162	54.000	1.012
2.001	5.577	15.9	150	Circular	55.162	54.000	1.012	54.940	53.650	1.140
1.002	70.418	140.8	300	Circular	54.940	53.500	1.140	54.492	53.000	1.192
3.000	29.958	149.8	150	Circular	54.915	54.000	0.765	54.755	53.800	0.805
3.001	34.432	149.7	150	Circular	54.755	53.800	0.805	54.720	53.570	1.000
3.002	5.291	151.2	150	Circular	54.720	53.570	1.000	54.737	53.535	1.052
3.003	13.603	143.2	150	Circular	54.737	53.535	1.052	54.494	53.440	0.904
3.004	9.153	31.6	150	Circular	54.494	53.440	0.904	54.492	53.150	1.192
5.000	36.713	146.9	225	Circular	55.064	53.925	0.914	55.065	53.675	1.165
5.001	7.539	150.8	225	Circular	55.065	53.675	1.165	54.918	53.625	1.068
5.002	34.656	106.6	225	Circular	54.918	53.625	1.068	54.884	53.300	1.359

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	TB1	600	Manhole	Adoptable	TB2	600	Manhole	Adoptable
1.001	TB2	600	Manhole	Adoptable	PH3-S2	1200	Manhole	Adoptable
2.000	RE1	150	Manhole	Adoptable	PH3-S1	450	Manhole	Adoptable
2.001	PH3-S1	450	Manhole	Adoptable	PH3-S2	1200	Manhole	Adoptable
1.002	PH3-S2	1200	Manhole	Adoptable	PH3-S14	1200	Manhole	Adoptable
3.000	RE2	150	Manhole	Adoptable	PH3-S9	450	Manhole	Adoptable
3.001	PH3-S9	450	Manhole	Adoptable	PH3-S10	450	Manhole	Adoptable
3.002	PH3-S10	450	Manhole	Adoptable	PH3-S11	450	Manhole	Adoptable
3.003	PH3-S11	450	Manhole	Adoptable	PH3-S12	450	Manhole	Adoptable
3.004	PH3-S12	450	Manhole	Adoptable	PH3-S14	1200	Manhole	Adoptable
5.000	PH3-S3	450	Manhole	Adoptable	PH3-S4	600	Manhole	Adoptable
5.001	PH3-S4	600	Manhole	Adoptable	PH3-S5	600	Manhole	Adoptable
5.002	PH3-S5	600	Manhole	Adoptable	PH3-S8	1200	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
6.000	27.775	92.6	150	Circular	55.070	54.000	0.920	54.982	53.700	1.132
6.001	16.748	51.5	225	Circular	54.982	53.625	1.132	54.884	53.300	1.359
5.003	11.395	50.6	300	Circular	54.884	53.225	1.359	54.492	53.000	1.192
4.000	27.829	146.5	150	Circular	54.732	53.750	0.832	54.736	53.560	1.026
4.001	9.614	17.2	150	Circular	54.736	53.560	1.026	54.492	53.000	1.342
1.003	13.317	14.6	300	Circular	54.492	53.000	1.192	54.080	52.090	1.690
8.000	45.076	150.3	150	Circular	55.004	54.100	0.754	54.927	53.800	0.977
8.001	28.252	141.3	150	Circular	54.927	53.800	0.977	54.425	53.600	0.675
8.002	10.091	40.4	150	Circular	54.425	53.600	0.675	54.420	53.350	0.920
7.000	53.000	53000.0	200	HiCap 5200	54.730	54.100	0.230	54.730	54.099	0.231
7.001	14.356	33.4	300	Circular	54.730	53.630	0.800	54.420	53.200	0.920
7.002	10.232	34.1	300	Circular	54.420	53.200	0.920	54.192	52.900	0.992
9.000	4.241	17.0	150	Circular	54.089	53.300	0.639	54.192	53.050	0.992
10.000	2.968	11.9	150	Circular	54.118	53.300	0.668	54.192	53.050	0.992
7.003	13.614	34.0	300	Circular	54.192	52.900	0.992	54.316	52.500	1.516
7.004	1.500	30.0	300	Circular	54.316	52.500	1.516	54.124	52.450	1.374
7.006	1.782	89.1	300	Circular	54.124	52.110	1.714	54.080	52.090	1.690
11.000	17.940	87.5	150	Circular	54.316	53.465	0.701	53.913	53.260	0.503
11.001	4.730	4.7	150	Circular	53.913	53.260	0.503	54.080	52.260	1.670
1.004	14.251	219.3	300	Circular	54.080	52.090	1.690	53.500	52.025	1.175
12.000	19.749	52.7	150	Circular	53.616	52.250	1.216	53.220	51.875	1.195
1.005	6.770	67.7	225	Circular	53.500	52.000	1.275	53.500	51.900	1.375
1.006	11.890	118.9	225	Circular	53.500	51.900	1.375	53.220	51.800	1.195
1.007	39.637	63.4	225	Circular	53.220	51.800	1.195	52.409	51.175	1.009

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
6.000	PH3-S6	450	Manhole	Adoptable	PH3-S7	600	Manhole	Adoptable
6.001	PH3-S7	600	Manhole	Adoptable	PH3-S8	1200	Manhole	Adoptable
5.003	PH3-S8	1200	Manhole	Adoptable	PH3-S14	1200	Manhole	Adoptable
4.000	RE3	150	Manhole	Adoptable	PH3-S13	450	Manhole	Adoptable
4.001	PH3-S13	450	Manhole	Adoptable	PH3-S14	1200	Manhole	Adoptable
1.003	PH3-S14	1200	Manhole	Adoptable	PH3-S21	1200	Manhole	Adoptable
8.000	RE4	150	Manhole	Adoptable	PH3-S15	450	Manhole	Adoptable
8.001	PH3-S15	450	Manhole	Adoptable	PH3-S16	450	Manhole	Adoptable
8.002	PH3-S16	450	Manhole	Adoptable	PH3-S17	600	Manhole	Adoptable
7.000	TB3	600	Manhole	Adoptable	TB4	600	Manhole	Adoptable
7.001	TB4	600	Manhole	Adoptable	PH3-S17	600	Manhole	Adoptable
7.002	PH3-S17	600	Manhole	Adoptable	PH3-S19	1200	Manhole	Adoptable
9.000	SU		Junction		PH3-S19	1200	Manhole	Adoptable
10.000	PH3-S18	450	Manhole	Adoptable	PH3-S19	1200	Manhole	Adoptable
7.003	PH3-S19	1200	Manhole	Adoptable	PH3-S20	1200	Manhole	Adoptable
7.004	PH3-S20	1200	Manhole	Adoptable	Tank		Junction	
7.006	Tank		Junction		PH3-S21	1200	Manhole	Adoptable
11.000	PH3-S22	450	Manhole	Adoptable	PH3-S23	450	Manhole	Adoptable
11.001	PH3-S23	450	Manhole	Adoptable	PH3-S21	1200	Manhole	Adoptable
1.004	PH3-S21	1200	Manhole	Adoptable	Basin 1 Inlet	1200	Manhole	Adoptable
12.000	PH3-S25	1200	Manhole	Adoptable	PH3-S26	1200	Manhole	Adoptable
1.005	Basin 1	1200	Manhole	Adoptable	PH3-S24	1500	Manhole	Adoptable
1.006	PH3-S24	1500	Manhole	Adoptable	PH3-S26	1200	Manhole	Adoptable
1.007	PH3-S26	1200	Manhole	Adoptable	PH3-S27	1200	Manhole	Adoptable

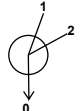


Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.008	9.570	127.6	225	Circular	52.409	51.175	1.009	51.862	51.100	0.537
1.009	10.366	51.8	225	Circular	51.862	51.100	0.537	51.500	50.900	0.375
1.010	38.640	35.1	900	1:3 Swale	51.500	50.200	0.400	50.000	49.100	0.000
1.011	15.489	11.5	225	Circular	50.000	49.100	0.675	49.463	47.750	1.488
13.000	16.203	92.6	150	Circular	49.179	48.075	0.954	49.529	47.900	1.479
13.001	7.396	98.6	150	Circular	49.529	47.900	1.479	49.463	47.825	1.488
1.012	6.367	127.3	225	Circular	49.463	47.750	1.488	49.150	47.700	1.225
1.013	5.642	56.4	150	Circular	49.150	47.650	1.350	49.150	47.550	1.450
1.014	4.271	5.3	225	Circular	49.150	47.550	1.375	48.600	46.750	1.625
1.015	20.958	59.9	225	Circular	48.600	46.750	1.625	48.350	46.400	1.725
1.016	24.179	50.9	225	Circular	48.350	46.400	1.725	47.150	45.925	1.000

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.008	PH3-S27	1200	Manhole	Adoptable	PH3-S28	1200	Manhole	Adoptable
1.009	PH3-S28	1200	Manhole	Adoptable	Swale Inlet		Junction	
1.010	Swale Inlet		Junction		Swale Outlet		Junction	
1.011	Swale Outlet		Junction		PH3-S31	1500	Manhole	Adoptable
13.000	PH3-S29	1200	Manhole	Adoptable	PH3-S30	1200	Manhole	Adoptable
13.001	PH3-S30	1200	Manhole	Adoptable	PH3-S31	1500	Manhole	Adoptable
1.012	PH3-S31	1500	Manhole	Adoptable	Basin 2 Inlet		Junction	
1.013	Basin 2	1200	Manhole	Adoptable	PH3-S32	1500	Manhole	Adoptable
1.014	PH3-S32	1500	Manhole	Adoptable	PH3-S34	1200	Manhole	Adoptable
1.015	PH3-S34	1200	Manhole	Adoptable	PH3-S35	1200	Manhole	Adoptable
1.016	PH3-S35	1200	Manhole	Adoptable	SWMH54	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	
TB1	509420.900	126630.322	54.925	0.625	600	Adoptable		0	1.000	54.300	200
TB2	509381.335	126630.322	54.925	1.125	600	Adoptable		1	1.000	54.299	200
							0	1.001	53.800	300	
RE1	509417.440	126644.320	55.162	0.912	150	Adoptable		0	2.000	54.250	150
PH3-S1	509379.952	126644.306	55.162	1.162	450	Adoptable		1	2.000	54.000	150
							0	2.001	54.000	150	
PH3-S2	509373.239	126625.897	54.940	1.440	1200	Adoptable		1	2.001	53.650	150
							2	1.001	53.500	300	
							0	1.002	53.500	300	

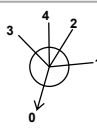
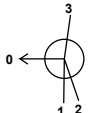
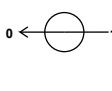
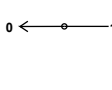


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)
RE2	509364.603	126644.320	54.915	0.915	150	Adoptable				
PH3-S9	509364.615	126614.362	54.755	0.955	450	Adoptable		0	3.000	54.000
PH3-S10	509364.593	126579.930	54.720	1.150	450	Adoptable		1	3.000	53.800
PH3-S11	509367.623	126575.593	54.737	1.202	450	Adoptable		0	3.001	53.800
PH3-S12	509367.681	126562.064	54.494	1.054	450	Adoptable		1	3.001	53.570
PH3-S3	509414.840	126609.242	55.064	1.139	450	Adoptable		0	3.002	53.570
PH3-S4	509414.829	126572.529	55.065	1.390	600	Adoptable		1	3.002	53.535
PH3-S5	509414.786	126564.990	54.918	1.293	600	Adoptable		0	3.003	53.535
PH3-S6	509380.110	126609.689	55.070	1.070	450	Adoptable		1	3.003	53.440
PH3-S7	509380.110	126581.914	54.982	1.357	600	Adoptable		0	3.004	53.440
PH3-S8	509380.130	126565.166	54.884	1.659	1200	Adoptable		0	5.000	53.925
RE3	509411.518	126556.423	54.732	0.982	150	Adoptable		1	5.000	53.675
PH3-S13	509383.689	126556.409	54.736	1.176	450	Adoptable		0	5.001	53.675
								1	5.001	53.625
								0	5.002	53.625
								1	5.002	53.625
								0	5.003	53.225
								1	4.000	53.750
								0	4.000	53.560
								1	4.001	53.560

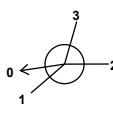
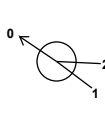


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	
PH3-S14	509374.120	126555.485	54.492	1.492	1200	Adoptable		1 2 3 4 0	4.001 5.003 3.004 1.002 1.003	53.000 53.000 53.150 53.000 53.000	150 300 150 300 300
RE4	509449.625	126625.818	55.004	0.904	150	Adoptable		0	8.000	54.100	150
PH3-S15	509446.720	126580.836	54.927	1.127	450	Adoptable		1 0	8.000 8.001	53.800 53.800	150 150
PH3-S16	509444.964	126552.639	54.425	0.825	450	Adoptable		1 0	8.001 8.002	53.600 53.600	150 150
TB3	509434.900	126620.699	54.730	0.630	600	Adoptable		0	7.000	54.100	200
TB4	509434.900	126567.188	54.730	1.100	600	Adoptable		1 0	7.000 7.001	54.099 53.630	200 300
PH3-S17	509434.875	126552.832	54.420	1.220	600	Adoptable		1 2 0	7.001 8.002 7.002	53.200 53.350 53.200	300 150 300
SU	509434.835	126538.689	54.089	0.789				0	9.000	53.300	150
PH3-S18	509433.415	126539.732	54.118	0.818	450	Adoptable		0	10.000	53.300	150
PH3-S19	509433.456	126542.699	54.192	1.292	1200	Adoptable		1 2 3 0	10.000 9.000 7.002 7.003	53.050 53.050 52.900 52.900	150 150 300 300
PH3-S20	509419.842	126542.688	54.316	1.816	1200	Adoptable		1 0	7.003 7.004	52.500 52.500	300 300
Tank	509372.230	126542.688	54.124	2.014				1 0	7.004 7.006	52.450 52.110	300 300
PH3-S22	509397.803	126539.613	54.316	0.851	450	Adoptable		0	11.000	53.465	150

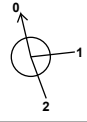
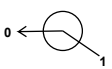
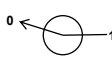


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	
PH3-S23	509366.863	126539.599	53.913	0.653	450	Adoptable		1 11.000	53.260	150	
							0	11.001	53.260	150	
PH3-S21	509370.448	126542.684	54.080	1.990	1200	Adoptable		1 11.001	52.260	150	
							2	7.006	52.090	300	
							3	1.003	52.090	300	
							0	1.004	52.090	300	
Basin 1 Inlet	509356.351	126540.592	53.500	1.500	1200	Adoptable		1 1.004	52.025	300	
PH3-S25	509340.552	126549.791	53.616	1.366	1200	Adoptable		0	12.000	52.250	150
Basin 1	509336.854	126541.778	53.500	1.500	1200	Adoptable		0	1.005	52.000	225
PH3-S24	509330.336	126543.609	53.500	1.600	1500	Adoptable		1 1.005	51.900	225	
							0	1.006	51.900	225	
PH3-S26	509320.826	126550.746	53.220	1.420	1200	Adoptable		1 1.006	51.800	225	
							2	12.000	51.875	150	
							0	1.007	51.800	225	
PH3-S27	509287.968	126572.913	52.409	1.234	1200	Adoptable		1 1.007	51.175	225	
							0	1.008	51.175	225	
PH3-S28	509278.498	126571.533	51.862	0.762	1200	Adoptable		1 1.008	51.100	225	
							0	1.009	51.100	225	
Swale Inlet	509270.099	126577.608	51.500	1.300				1 1.009	50.900	225	
							0	1.010	50.200	900	
Swale Outlet	509233.665	126604.253	50.000	0.900				1 1.010	49.100	900	
							0	1.011	49.100	225	
PH3-S29	509238.873	126636.569	49.179	1.104	1200	Adoptable		0	13.000	48.075	150
PH3-S30	509235.191	126620.789	49.529	1.629	1200	Adoptable		1 13.000	47.900	150	
							0	13.001	47.900	150	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)
PH3-S31	509227.840	126619.970	49.463	1.713	1500	Adoptable		1 13.001 2 1.011	47.825 47.750	150 225
Basin 2 Inlet	509226.388	126626.169	49.150	1.500				0 1.012	47.750	225
Basin 2	509210.105	126641.073	49.150	1.500	1200	Adoptable		0 1.013	47.650	150
PH3-S32	509204.805	126643.011	49.150	1.600	1500	Adoptable		1 1.013	47.550	150
PH3-S34	509201.279	126645.422	48.600	1.850	1200	Adoptable		1 1.014	47.550	225
PH3-S35	509180.373	126645.095	48.350	1.950	1200	Adoptable		1 1.015	46.750	225
SWMH54	509157.247	126652.312	47.150	1.225	1200	Adoptable		1 1.016	46.400	225

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume x
Winter CV	1.000	Additional Storage (m³/ha)	0.0	

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	40	0	0
100	45	0	0

Node PH3-S24 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	51.900	Product Number	CTL-SHE-0148-1080-1200-1080
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	10.8	Min Node Diameter (mm)	1500



Node PH3-S32 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	47.550	Product Number	CTL-SHE-0152-1140-1200-1140
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	11.4	Min Node Diameter (mm)	1500

Node Basin 1 Pond Storage Structure

Invert Level (m)	52.000	Time to half empty (mins)	Analyse flow through structure	x
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Inlets

Basin 1 Inlet

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	105.3	0.300	153.6	0.600	208.2	0.900	267.9	1.200	332.6	1.500	402.5

Node Basin 2 Pond Storage Structure

Invert Level (m)	47.650	Time to half empty (mins)	360	Analyse flow through structure	x
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Inlets

Basin 2 Inlet

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	75.6	0.300	121.6	0.600	172.5	0.900	228.4	1.200	289.4	1.500	355.5

Node Tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	52.110
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.96	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	439.0	439.0	1.090	439.0	520.0	1.091	0.0	520.0

Node RE1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.600	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.350
Safety Factor	2.0	Width (m)	19.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.600	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.350
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		



Node RE2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.250	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	8	Depth (m)	0.350
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S9 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.250	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	15	Depth (m)	0.350
Safety Factor	2.0	Width (m)	30.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.100	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.350
Safety Factor	2.0	Width (m)	24.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S12 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	53.960	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.350
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	5.000		

Node RE3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.225	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.350
Safety Factor	2.0	Width (m)	6.200	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PH3-S13 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.225	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.350
Safety Factor	2.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node RE4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.500	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.350
Safety Factor	2.0	Width (m)	24.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S15 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.500	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.350
Safety Factor	2.0	Width (m)	33.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		



Node PH3-S16 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	53.825	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Depth (m)	0.350
Safety Factor	2.0	Width (m)	18.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S23 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	53.420	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.350
Safety Factor	2.0	Width (m)	18.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S22 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	53.800	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	2	Depth (m)	0.350
Safety Factor	2.0	Width (m)	27.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node PH3-S18 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	53.600	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.350
Safety Factor	2.0	Width (m)	24.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	73.507	20.800
1 year 15 minute winter	51.584	20.800
1 year 30 minute summer	48.769	13.800
1 year 30 minute winter	34.224	13.800
1 year 60 minute summer	32.542	8.600
1 year 60 minute winter	21.620	8.600
1 year 120 minute summer	24.028	6.350
1 year 120 minute winter	15.964	6.350
1 year 180 minute summer	19.903	5.122
1 year 180 minute winter	12.937	5.122
1 year 240 minute summer	16.435	4.343
1 year 240 minute winter	10.919	4.343
1 year 360 minute summer	13.182	3.392
1 year 360 minute winter	8.569	3.392
1 year 480 minute summer	10.653	2.815
1 year 480 minute winter	7.078	2.815
1 year 600 minute summer	8.870	2.426
1 year 600 minute winter	6.060	2.426
1 year 720 minute summer	7.999	2.144
1 year 720 minute winter	5.376	2.144
1 year 960 minute summer	6.681	1.759
1 year 960 minute winter	4.426	1.759
1 year 1440 minute summer	4.971	1.332
1 year 1440 minute winter	3.341	1.332



Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 2160 minute summer	3.667	1.014
1 year 2160 minute winter	2.527	1.014
1 year 2880 minute summer	3.137	0.841
1 year 2880 minute winter	2.109	0.841
1 year 4320 minute summer	2.520	0.659
1 year 4320 minute winter	1.660	0.659
1 year 5760 minute summer	2.194	0.562
1 year 5760 minute winter	1.420	0.562
1 year 7200 minute summer	1.961	0.500
1 year 7200 minute winter	1.266	0.500
1 year 8640 minute summer	1.794	0.458
1 year 8640 minute winter	1.158	0.458
1 year 10080 minute summer	1.672	0.426
1 year 10080 minute winter	1.079	0.426
30 year +40% CC 15 minute summer	398.429	112.742
30 year +40% CC 15 minute winter	279.599	112.742
30 year +40% CC 30 minute summer	264.210	74.762
30 year +40% CC 30 minute winter	185.411	74.762
30 year +40% CC 60 minute summer	179.654	47.477
30 year +40% CC 60 minute winter	119.358	47.477
30 year +40% CC 120 minute summer	106.663	28.188
30 year +40% CC 120 minute winter	70.865	28.188
30 year +40% CC 180 minute summer	80.411	20.692
30 year +40% CC 180 minute winter	52.269	20.692
30 year +40% CC 240 minute summer	62.743	16.581
30 year +40% CC 240 minute winter	41.685	16.581
30 year +40% CC 360 minute summer	46.980	12.090
30 year +40% CC 360 minute winter	30.539	12.090
30 year +40% CC 480 minute summer	36.497	9.645
30 year +40% CC 480 minute winter	24.248	9.645
30 year +40% CC 600 minute summer	29.591	8.094
30 year +40% CC 600 minute winter	20.218	8.094
30 year +40% CC 720 minute summer	26.174	7.015
30 year +40% CC 720 minute winter	17.590	7.015
30 year +40% CC 960 minute summer	21.285	5.605
30 year +40% CC 960 minute winter	14.100	5.605
30 year +40% CC 1440 minute summer	15.299	4.100
30 year +40% CC 1440 minute winter	10.282	4.100
30 year +40% CC 2160 minute summer	10.953	3.027
30 year +40% CC 2160 minute winter	7.547	3.027
30 year +40% CC 2880 minute summer	9.154	2.453
30 year +40% CC 2880 minute winter	6.152	2.453
30 year +40% CC 4320 minute summer	7.025	1.837
30 year +40% CC 4320 minute winter	4.627	1.837
30 year +40% CC 5760 minute summer	5.879	1.505
30 year +40% CC 5760 minute winter	3.805	1.505
30 year +40% CC 7200 minute summer	5.079	1.296
30 year +40% CC 7200 minute winter	3.278	1.296
30 year +40% CC 8640 minute summer	4.506	1.150
30 year +40% CC 8640 minute winter	2.909	1.150
30 year +40% CC 10080 minute summer	4.082	1.041
30 year +40% CC 10080 minute winter	2.634	1.041

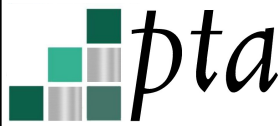
Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +45% CC 15 minute summer	525.069	148.577
100 year +45% CC 15 minute winter	368.470	148.577
100 year +45% CC 30 minute summer	350.895	99.291
100 year +45% CC 30 minute winter	246.242	99.291
100 year +45% CC 60 minute summer	239.837	63.382
100 year +45% CC 60 minute winter	159.342	63.382
100 year +45% CC 120 minute summer	139.543	36.877
100 year +45% CC 120 minute winter	92.709	36.877
100 year +45% CC 180 minute summer	104.332	26.848
100 year +45% CC 180 minute winter	67.819	26.848
100 year +45% CC 240 minute summer	81.065	21.423
100 year +45% CC 240 minute winter	53.858	21.423
100 year +45% CC 360 minute summer	60.482	15.564
100 year +45% CC 360 minute winter	39.315	15.564
100 year +45% CC 480 minute summer	46.958	12.410
100 year +45% CC 480 minute winter	31.198	12.410
100 year +45% CC 600 minute summer	38.088	10.418
100 year +45% CC 600 minute winter	26.024	10.418
100 year +45% CC 720 minute summer	33.716	9.036
100 year +45% CC 720 minute winter	22.659	9.036
100 year +45% CC 960 minute summer	27.469	7.233
100 year +45% CC 960 minute winter	18.196	7.233
100 year +45% CC 1440 minute summer	19.842	5.318
100 year +45% CC 1440 minute winter	13.335	5.318
100 year +45% CC 2160 minute summer	14.247	3.937
100 year +45% CC 2160 minute winter	9.817	3.937
100 year +45% CC 2880 minute summer	11.896	3.188
100 year +45% CC 2880 minute winter	7.995	3.188
100 year +45% CC 4320 minute summer	9.063	2.369
100 year +45% CC 4320 minute winter	5.968	2.369
100 year +45% CC 5760 minute summer	7.507	1.922
100 year +45% CC 5760 minute winter	4.859	1.922
100 year +45% CC 7200 minute summer	6.409	1.635
100 year +45% CC 7200 minute winter	4.137	1.635
100 year +45% CC 8640 minute summer	5.619	1.433
100 year +45% CC 8640 minute winter	3.627	1.433
100 year +45% CC 10080 minute summer	5.029	1.283
100 year +45% CC 10080 minute winter	3.246	1.283



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	TB1	1	54.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	TB2	10	53.858	0.058	16.7	0.0164	0.0000	OK
15 minute summer	RE1	10	54.285	0.035	1.7	0.0006	0.0000	OK
15 minute summer	PH3-S1	10	54.030	0.030	3.7	0.0048	0.0000	OK
15 minute summer	PH3-S2	10	53.595	0.095	20.3	0.1080	0.0000	OK
15 minute summer	RE2	11	54.031	0.031	1.4	0.0006	0.0000	OK
15 minute summer	PH3-S9	11	53.876	0.076	7.6	0.0120	0.0000	OK
15 minute summer	PH3-S10	11	53.697	0.127	12.9	0.0202	0.0000	OK
15 minute summer	PH3-S11	11	53.647	0.112	12.8	0.0178	0.0000	OK
15 minute summer	PH3-S12	11	53.521	0.081	15.4	0.0128	0.0000	OK
15 minute summer	PH3-S3	10	53.971	0.046	4.1	0.0074	0.0000	OK
15 minute summer	PH3-S4	11	53.745	0.070	8.1	0.0198	0.0000	OK
15 minute summer	PH3-S5	11	53.686	0.061	8.0	0.0174	0.0000	OK
15 minute summer	PH3-S6	10	54.048	0.048	4.1	0.0077	0.0000	OK
15 minute summer	PH3-S7	10	53.677	0.052	8.1	0.0147	0.0000	OK
15 minute summer	PH3-S8	11	53.291	0.066	15.9	0.0744	0.0000	OK
15 minute summer	RE3	11	53.772	0.022	0.7	0.0004	0.0000	OK
15 minute summer	PH3-S13	10	53.585	0.025	2.6	0.0040	0.0000	OK
15 minute summer	PH3-S14	11	53.089	0.089	57.1	0.1011	0.0000	OK
15 minute summer	RE4	11	54.140	0.040	2.3	0.0007	0.0000	OK
15 minute summer	PH3-S15	11	53.864	0.064	5.4	0.0102	0.0000	OK
15 minute summer	PH3-S16	11	53.653	0.053	6.9	0.0085	0.0000	OK
15 minute summer	TB3	1	54.100	0.000	0.0	0.0000	0.0000	OK
15 minute summer	TB4	10	53.712	0.082	30.0	0.0233	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	TB1	1.000	TB2	0.0	0.000	0.000	0.0002	
15 minute summer	TB2	1.001	PH3-S2	16.7	1.188	0.083	0.1328	
15 minute summer	RE1	2.000	PH3-S1	1.7	0.584	0.114	0.1065	
15 minute summer	PH3-S1	2.001	PH3-S2	3.6	1.473	0.080	0.0137	
15 minute summer	PH3-S2	1.002	PH3-S14	20.0	1.087	0.214	1.2943	
15 minute summer	RE2	3.000	PH3-S9	1.4	0.250	0.097	0.1732	
15 minute summer	PH3-S9	3.001	PH3-S10	7.4	0.590	0.511	0.4264	
15 minute summer	PH3-S10	3.002	PH3-S11	12.8	0.851	0.889	0.0793	
15 minute summer	PH3-S11	3.003	PH3-S12	12.8	1.074	0.867	0.1615	
15 minute summer	PH3-S12	3.004	PH3-S14	15.4	1.692	0.486	0.0836	
15 minute summer	PH3-S3	5.000	PH3-S4	4.0	0.497	0.094	0.2999	
15 minute summer	PH3-S4	5.001	PH3-S5	8.0	0.841	0.189	0.0726	
15 minute summer	PH3-S5	5.002	PH3-S8	8.0	0.923	0.158	0.2990	
15 minute summer	PH3-S6	6.000	PH3-S7	4.0	0.830	0.217	0.1341	
15 minute summer	PH3-S7	6.001	PH3-S8	8.0	1.185	0.110	0.1132	
15 minute summer	PH3-S8	5.003	PH3-S14	15.9	1.105	0.102	0.1652	
15 minute summer	RE3	4.000	PH3-S13	0.7	0.399	0.048	0.0492	
15 minute summer	PH3-S13	4.001	PH3-S14	2.6	0.451	0.060	0.0616	
15 minute summer	PH3-S14	1.003	PH3-S21	57.1	2.330	0.196	0.3285	
15 minute summer	RE4	8.000	PH3-S15	2.2	0.419	0.155	0.2456	
15 minute summer	PH3-S15	8.001	PH3-S16	5.3	0.831	0.356	0.1807	
15 minute summer	PH3-S16	8.002	PH3-S17	6.9	1.275	0.247	0.0549	
15 minute summer	TB3	7.000	TB4	0.0	0.000	0.000	0.0003	
15 minute summer	TB4	7.001	PH3-S17	29.9	1.712	0.155	0.2512	



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PH3-S17	10	53.296	0.096	36.5	0.0270	0.0000	OK
15 minute summer	SU	10	53.332	0.032	4.0	0.0000	0.0000	OK
15 minute summer	PH3-S18	10	53.333	0.033	4.5	0.0052	0.0000	OK
15 minute summer	PH3-S19	10	53.005	0.105	44.8	0.1186	0.0000	OK
15 minute summer	PH3-S20	10	52.614	0.114	44.5	0.1287	0.0000	OK
360 minute summer	Tank	232	52.257	0.147	13.7	61.9559	0.0000	OK
15 minute summer	PH3-S22	10	53.532	0.067	6.5	0.0106	0.0000	OK
15 minute summer	PH3-S23	10	53.294	0.034	8.2	0.0054	0.0000	OK
360 minute summer	PH3-S21	232	52.257	0.167	20.6	0.1889	0.0000	OK
360 minute summer	Basin 1 Inlet	232	52.256	0.255	20.5	0.0000	0.0000	OK
15 minute summer	PH3-S25	10	52.282	0.032	2.4	0.0361	0.0000	OK
360 minute summer	Basin 1	232	52.246	0.246	16.1	32.0219	0.0000	SURCHARGED
360 minute summer	PH3-S24	232	52.241	0.341	12.5	0.6027	0.0000	SURCHARGED
30 minute summer	PH3-S26	19	51.866	0.066	12.1	0.0744	0.0000	OK
30 minute summer	PH3-S27	19	51.264	0.089	14.0	0.1005	0.0000	OK
30 minute summer	PH3-S28	20	51.167	0.067	13.4	0.0759	0.0000	OK
30 minute summer	Swale Inlet	19	50.241	0.041	17.7	0.0000	0.0000	OK
30 minute summer	Swale Outlet	20	49.184	0.084	17.7	0.0000	0.0000	OK
15 minute summer	PH3-S29	10	48.116	0.041	2.9	0.0460	0.0000	OK
15 minute summer	PH3-S30	10	47.942	0.042	2.9	0.0476	0.0000	OK
30 minute summer	PH3-S31	20	47.938	0.188	20.0	0.3330	0.0000	OK
480 minute winter	Basin 2 Inlet	368	47.906	0.256	13.2	0.0000	0.0000	OK
480 minute winter	Basin 2	368	47.895	0.245	12.3	24.0119	0.0000	SURCHARGED
480 minute winter	PH3-S32	368	47.861	0.311	11.2	0.5487	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PH3-S17	7.002	PH3-S19	36.3	1.763	0.190	0.2108	
15 minute summer	SU	9.000	PH3-S19	4.0	1.498	0.092	0.0113	
15 minute summer	PH3-S18	10.000	PH3-S19	4.5	1.688	0.086	0.0079	
15 minute summer	PH3-S19	7.003	PH3-S20	44.5	1.918	0.233	0.3159	
15 minute summer	PH3-S20	7.004	Tank	44.2	2.043	0.217	0.0326	
360 minute summer	Tank	7.006	PH3-S21	10.7	0.632	0.091	0.0665	
15 minute summer	PH3-S22	11.000	PH3-S23	6.5	1.241	0.340	0.0950	
15 minute summer	PH3-S23	11.001	PH3-S21	8.1	2.846	0.099	0.0135	
360 minute summer	PH3-S21	1.004	Basin 1 Inlet	20.5	0.782	0.274	0.7010	
15 minute summer	PH3-S25	12.000	PH3-S26	2.3	0.871	0.096	0.0533	
360 minute summer	Basin 1	1.005	PH3-S24	12.5	0.391	0.198	0.2693	
360 minute summer	PH3-S24	1.006	PH3-S26	10.6	1.030	0.223	0.1250	
30 minute summer	PH3-S26	1.007	PH3-S27	12.3	1.021	0.188	0.4798	
30 minute summer	PH3-S27	1.008	PH3-S28	13.4	1.100	0.292	0.1171	
30 minute summer	PH3-S28	1.009	Swale Inlet	13.2	1.366	0.182	0.1003	
30 minute summer	Swale Inlet	1.010	Swale Outlet	17.7	0.378	0.002	1.9520	
30 minute summer	Swale Outlet	1.011	PH3-S31	17.1	0.680	0.298	0.3802	
15 minute summer	PH3-S29	13.000	PH3-S30	2.9	0.736	0.156	0.0640	
15 minute summer	PH3-S30	13.001	PH3-S31	2.9	0.682	0.161	0.0570	
30 minute summer	PH3-S31	1.012	Basin 2 Inlet	19.9	0.692	1.151	0.1793	
480 minute winter	Basin 2	1.013	PH3-S32	11.2	0.638	0.474	0.0993	
480 minute winter	PH3-S32	1.014	PH3-S34	11.2	1.766	0.050	0.0279	



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	PH3-S34	368	46.814	0.064	11.2	0.0725	0.0000	OK
480 minute winter	PH3-S35	368	46.461	0.061	11.2	0.0691	0.0000	OK
480 minute winter	SWMH54	368	45.984	0.059	11.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
480 minute winter	PH3-S34	1.015	PH3-S35	11.2	1.249	0.167	0.1886	
480 minute winter	PH3-S35	1.016	SWMH54	11.2	1.318	0.154	0.2061	257.4



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	TB1	1	54.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	TB2	11	54.182	0.382	90.6	0.1081	0.0000	SURCHARGED
15 minute summer	RE1	10	54.340	0.090	9.4	0.0016	0.0000	OK
15 minute summer	PH3-S1	11	54.147	0.147	20.3	0.0234	0.0000	OK
15 minute summer	PH3-S2	11	54.085	0.585	105.7	0.6619	0.0000	SURCHARGED
30 minute summer	RE2	23	54.433	0.433	9.0	3.0376	0.0000	SURCHARGED
30 minute summer	PH3-S9	23	54.427	0.627	30.7	5.7361	0.0000	SURCHARGED
15 minute summer	PH3-S10	13	54.276	0.706	41.1	4.6027	0.0000	SURCHARGED
15 minute summer	PH3-S11	12	54.147	0.612	27.3	0.0974	0.0000	SURCHARGED
15 minute summer	PH3-S12	12	53.898	0.458	37.2	0.0728	0.0000	SURCHARGED
15 minute summer	PH3-S3	10	54.038	0.113	22.2	0.0180	0.0000	OK
15 minute summer	PH3-S4	11	53.886	0.211	44.2	0.0598	0.0000	OK
15 minute summer	PH3-S5	11	53.793	0.168	43.2	0.0476	0.0000	OK
15 minute summer	PH3-S6	11	54.258	0.257	22.2	0.0409	0.0000	SURCHARGED
15 minute summer	PH3-S7	10	53.761	0.136	43.3	0.0385	0.0000	OK
15 minute summer	PH3-S8	12	53.549	0.324	86.5	0.3663	0.0000	SURCHARGED
15 minute summer	RE3	10	53.804	0.054	4.0	0.0010	0.0000	OK
15 minute summer	PH3-S13	11	53.623	0.063	14.3	0.0100	0.0000	OK
15 minute summer	PH3-S14	12	53.451	0.451	251.7	0.5098	0.0000	SURCHARGED
15 minute summer	RE4	12	54.554	0.454	12.5	0.6491	0.0000	SURCHARGED
15 minute summer	PH3-S15	11	54.477	0.677	25.1	0.1076	0.0000	SURCHARGED
15 minute summer	PH3-S16	13	53.975	0.375	31.6	3.6835	0.0000	SURCHARGED
15 minute summer	TB3	12	54.271	0.171	10.9	0.0484	0.0000	OK
15 minute summer	TB4	11	54.252	0.622	162.4	0.1761	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	TB1	1.000	TB2	0.0	0.000	0.000	0.0002	
15 minute summer	TB2	1.001	PH3-S2	87.5	1.619	0.435	0.6497	
15 minute summer	RE1	2.000	PH3-S1	9.3	0.898	0.645	0.5232	
15 minute summer	PH3-S1	2.001	PH3-S2	19.6	2.024	0.438	0.0979	
15 minute summer	PH3-S2	1.002	PH3-S14	100.9	1.485	1.079	4.9588	
30 minute summer	RE2	3.000	PH3-S9	13.4	0.763	0.929	0.5274	
30 minute summer	PH3-S9	3.001	PH3-S10	18.8	1.070	1.302	0.6062	
15 minute summer	PH3-S10	3.002	PH3-S11	27.3	1.550	1.895	0.0931	
15 minute summer	PH3-S11	3.003	PH3-S12	27.8	1.579	1.878	0.2395	
15 minute summer	PH3-S12	3.004	PH3-S14	35.6	2.024	1.121	0.1611	
15 minute summer	PH3-S3	5.000	PH3-S4	22.0	0.745	0.514	1.0719	
15 minute summer	PH3-S4	5.001	PH3-S5	43.2	1.243	1.022	0.2661	
15 minute summer	PH3-S5	5.002	PH3-S8	43.9	1.381	0.872	1.2133	
15 minute summer	PH3-S6	6.000	PH3-S7	21.5	1.224	1.166	0.4735	
15 minute summer	PH3-S7	6.001	PH3-S8	42.9	1.812	0.591	0.5250	
15 minute summer	PH3-S8	5.003	PH3-S14	85.6	1.423	0.547	0.8024	
15 minute summer	RE3	4.000	PH3-S13	3.9	0.652	0.270	0.1735	
15 minute summer	PH3-S13	4.001	PH3-S14	14.2	1.003	0.328	0.1183	
15 minute summer	PH3-S14	1.003	PH3-S21	242.5	3.445	0.831	0.9378	
15 minute summer	RE4	8.000	PH3-S15	11.7	0.667	0.813	0.7936	
15 minute summer	PH3-S15	8.001	PH3-S16	22.6	1.282	1.514	0.4974	
15 minute summer	PH3-S16	8.002	PH3-S17	33.7	1.914	1.201	0.1777	
15 minute summer	TB3	7.000	TB4	-10.9	-0.392	-2.156	1.4770	
15 minute summer	TB4	7.001	PH3-S17	147.9	2.142	0.766	1.0109	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PH3-S17	11	53.885	0.685	159.3	0.1938	0.0000	SURCHARGED
15 minute summer	SU	11	53.620	0.320	21.5	0.0000	0.0000	SURCHARGED
15 minute summer	PH3-S18	11	53.629	0.329	24.2	0.1740	0.0000	SURCHARGED
15 minute summer	PH3-S19	11	53.541	0.641	200.7	0.7251	0.0000	SURCHARGED
240 minute winter	PH3-S20	236	52.936	0.436	44.0	0.4934	0.0000	SURCHARGED
240 minute winter	Tank	236	52.936	0.826	70.9	348.1828	0.0000	SURCHARGED
15 minute summer	PH3-S22	12	53.904	0.439	35.4	1.8347	0.0000	SURCHARGED
15 minute summer	PH3-S23	8	53.330	0.070	34.5	0.0111	0.0000	OK
240 minute winter	PH3-S21	236	52.936	0.846	64.7	0.9570	0.0000	SURCHARGED
240 minute winter	Basin 1 Inlet	240	52.935	0.935	38.1	0.0000	0.0000	OK
15 minute summer	PH3-S25	10	52.331	0.081	13.0	0.0912	0.0000	OK
240 minute winter	Basin 1	240	52.923	0.923	26.6	174.3889	0.0000	SURCHARGED
240 minute winter	PH3-S24	240	52.919	1.019	12.3	1.8000	0.0000	SURCHARGED
15 minute summer	PH3-S26	10	51.926	0.126	40.4	0.1426	0.0000	OK
15 minute summer	PH3-S27	11	51.387	0.212	51.0	0.2400	0.0000	OK
15 minute summer	PH3-S28	11	51.248	0.148	50.8	0.1679	0.0000	OK
15 minute summer	Swale Inlet	11	50.294	0.094	78.7	0.0000	0.0000	OK
30 minute summer	Swale Outlet	22	49.460	0.360	74.1	0.0000	0.0000	SURCHARGED
30 minute summer	PH3-S29	19	48.717	0.642	14.5	0.7257	0.0000	SURCHARGED
2160 minute winter	PH3-S30	2100	48.702	0.802	0.5	0.9072	0.0000	SURCHARGED
2160 minute winter	PH3-S31	2100	48.702	0.952	13.7	1.6824	0.0000	SURCHARGED
2160 minute winter	Basin 2 Inlet	2100	48.680	1.030	13.8	0.0000	0.0000	OK
2160 minute winter	Basin 2	2100	48.667	1.017	12.9	164.7277	0.0000	SURCHARGED
2160 minute winter	PH3-S32	2100	48.635	1.085	11.4	1.9174	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PH3-S17	7.002	PH3-S19	158.2	2.247	0.829	0.7205	
15 minute summer	SU	9.000	PH3-S19	20.6	1.916	0.474	0.0747	
15 minute summer	PH3-S18	10.000	PH3-S19	23.1	2.108	0.445	0.0523	
15 minute summer	PH3-S19	7.003	PH3-S20	200.3	2.844	1.048	0.9587	
240 minute winter	PH3-S20	7.004	Tank	43.8	2.029	0.215	0.1056	
240 minute winter	Tank	7.006	PH3-S21	-27.2	-0.795	-0.231	0.1255	
15 minute summer	PH3-S22	11.000	PH3-S23	25.8	1.767	1.357	0.2298	
15 minute summer	PH3-S23	11.001	PH3-S21	34.4	3.584	0.418	0.0602	
240 minute winter	PH3-S21	1.004	Basin 1 Inlet	38.1	0.782	0.510	1.0035	
15 minute summer	PH3-S25	12.000	PH3-S26	12.8	1.370	0.523	0.1850	
240 minute winter	Basin 1	1.005	PH3-S24	12.3	0.582	0.195	0.2693	
240 minute winter	PH3-S24	1.006	PH3-S26	10.8	1.010	0.226	0.1394	
15 minute summer	PH3-S26	1.007	PH3-S27	40.0	1.274	0.611	1.2229	
15 minute summer	PH3-S27	1.008	PH3-S28	50.8	1.489	1.105	0.3188	
15 minute summer	PH3-S28	1.009	Swale Inlet	50.9	1.909	0.703	0.2762	
15 minute summer	Swale Inlet	1.010	Swale Outlet	78.8	0.572	0.008	12.3274	
30 minute summer	Swale Outlet	1.011	PH3-S31	48.1	1.264	0.837	0.6160	
30 minute summer	PH3-S29	13.000	PH3-S30	13.4	0.808	0.725	0.2853	
2160 minute winter	PH3-S30	13.001	PH3-S31	0.5	0.271	0.026	0.1302	
2160 minute winter	PH3-S31	1.012	Basin 2 Inlet	13.6	0.558	0.791	0.2532	
2160 minute winter	Basin 2	1.013	PH3-S32	11.4	0.648	0.481	0.0993	
2160 minute winter	PH3-S32	1.014	PH3-S34	11.4	1.771	0.050	0.0281	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute winter	PH3-S34	21	46.815	0.065	11.4	0.0730	0.0000	OK
10080 minute summer	PH3-S35	5580	46.461	0.061	11.4	0.0695	0.0000	OK
2880 minute winter	SWMH54	2760	45.985	0.060	11.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
30 minute winter	PH3-S34	1.015	PH3-S35	11.4	1.253	0.169	0.1902	
10080 minute summer	PH3-S35	1.016	SWMH54	11.4	1.323	0.156	0.2078	1876.1



Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	TB1	12	54.715	0.415	18.7	0.1174	0.0000	FLOOD RISK
15 minute summer	TB2	12	54.682	0.882	119.4	0.2496	0.0000	FLOOD RISK
15 minute summer	RE1	13	54.668	0.418	12.4	0.7983	0.0000	SURCHARGED
15 minute summer	PH3-S1	12	54.630	0.630	25.4	0.2652	0.0000	SURCHARGED
15 minute summer	PH3-S2	12	54.565	1.065	111.5	1.2047	0.0000	SURCHARGED
30 minute summer	RE2	25	54.492	0.492	12.3	5.1250	0.0000	SURCHARGED
30 minute summer	PH3-S9	25	54.486	0.686	40.8	9.8767	0.0000	FLOOD RISK
30 minute summer	PH3-S10	23	54.362	0.792	47.2	9.4626	0.0000	SURCHARGED
30 minute summer	PH3-S11	22	54.261	0.726	28.2	0.1154	0.0000	SURCHARGED
15 minute summer	PH3-S12	13	54.078	0.638	37.9	1.3520	0.0000	SURCHARGED
15 minute summer	PH3-S3	12	54.495	0.570	29.3	0.0907	0.0000	SURCHARGED
15 minute summer	PH3-S4	12	54.403	0.728	55.0	0.2061	0.0000	SURCHARGED
15 minute summer	PH3-S5	12	54.297	0.672	52.3	0.1902	0.0000	SURCHARGED
15 minute summer	PH3-S6	11	54.808	0.808	29.3	0.1285	0.0000	FLOOD RISK
15 minute summer	PH3-S7	12	54.126	0.501	54.1	0.1417	0.0000	SURCHARGED
15 minute summer	PH3-S8	12	53.930	0.705	100.4	0.7971	0.0000	SURCHARGED
15 minute summer	RE3	12	53.898	0.148	5.3	0.0027	0.0000	OK
15 minute summer	PH3-S13	12	53.877	0.317	18.9	0.0505	0.0000	SURCHARGED
15 minute summer	PH3-S14	12	53.785	0.785	271.6	0.8875	0.0000	SURCHARGED
15 minute summer	RE4	14	54.605	0.504	16.5	2.3742	0.0000	SURCHARGED
15 minute summer	PH3-S15	12	54.548	0.747	28.0	0.7929	0.0000	SURCHARGED
15 minute summer	PH3-S16	14	54.136	0.536	45.3	10.6148	0.0000	FLOOD RISK
15 minute summer	TB3	12	54.688	0.588	24.7	0.1665	0.0000	FLOOD RISK
15 minute summer	TB4	12	54.699	1.069	214.1	0.3025	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	TB1	1.000	TB2	-18.7	-0.605	-3.156	3.1561	
15 minute summer	TB2	1.001	PH3-S2	101.8	1.634	0.506	0.6497	
15 minute summer	RE1	2.000	PH3-S1	15.4	1.005	1.067	0.6600	
15 minute summer	PH3-S1	2.001	PH3-S2	27.8	2.142	0.620	0.0982	
15 minute summer	PH3-S2	1.002	PH3-S14	110.0	1.562	1.176	4.9588	
30 minute summer	RE2	3.000	PH3-S9	14.3	0.810	0.985	0.5274	
30 minute summer	PH3-S9	3.001	PH3-S10	20.0	1.137	1.383	0.6062	
30 minute summer	PH3-S10	3.002	PH3-S11	28.2	1.604	1.961	0.0931	
30 minute summer	PH3-S11	3.003	PH3-S12	28.6	1.627	1.933	0.2395	
15 minute summer	PH3-S12	3.004	PH3-S14	39.9	2.266	1.255	0.1611	
15 minute summer	PH3-S3	5.000	PH3-S4	27.0	0.766	0.631	1.4601	
15 minute summer	PH3-S4	5.001	PH3-S5	52.3	1.325	1.238	0.2998	
15 minute summer	PH3-S5	5.002	PH3-S8	49.5	1.292	0.984	1.3783	
15 minute summer	PH3-S6	6.000	PH3-S7	25.9	1.473	1.405	0.4890	
15 minute summer	PH3-S7	6.001	PH3-S8	52.2	1.764	0.719	0.6661	
15 minute summer	PH3-S8	5.003	PH3-S14	99.5	1.422	0.636	0.8024	
15 minute summer	RE3	4.000	PH3-S13	5.7	0.632	0.388	0.4890	
15 minute summer	PH3-S13	4.001	PH3-S14	16.4	1.072	0.380	0.1693	
15 minute summer	PH3-S14	1.003	PH3-S21	270.4	3.840	0.926	0.9378	
15 minute summer	RE4	8.000	PH3-S15	13.0	0.737	0.898	0.7936	
15 minute summer	PH3-S15	8.001	PH3-S16	23.2	1.319	1.557	0.4974	
15 minute summer	PH3-S16	8.002	PH3-S17	38.9	2.209	1.385	0.1777	
15 minute summer	TB3	7.000	TB4	28.0	-0.653	5.533	6.2990	
15 minute summer	TB4	7.001	PH3-S17	184.9	2.626	0.958	1.0109	



Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PH3-S17	12	54.118	0.918	184.9	0.2598	0.0000	SURCHARGED
15 minute summer	SU	11	53.811	0.511	28.4	0.0000	0.0000	FLOOD RISK
15 minute summer	PH3-S18	13	53.738	0.438	31.9	2.8315	0.0000	SURCHARGED
15 minute summer	PH3-S19	12	53.691	0.791	214.6	0.8942	0.0000	SURCHARGED
360 minute winter	PH3-S20	352	53.193	0.693	41.5	0.7835	0.0000	SURCHARGED
360 minute winter	Tank	352	53.193	1.083	63.6	456.3036	0.0000	SURCHARGED
15 minute summer	PH3-S22	13	53.964	0.499	46.7	4.4214	0.0000	SURCHARGED
30 minute summer	PH3-S23	19	53.342	0.082	38.1	0.0130	0.0000	OK
360 minute winter	PH3-S21	352	53.193	1.103	60.8	1.2471	0.0000	SURCHARGED
360 minute winter	Basin 1 Inlet	352	53.191	1.191	38.8	0.0000	0.0000	OK
15 minute summer	PH3-S25	10	52.347	0.097	17.2	0.1099	0.0000	OK
360 minute winter	Basin 1	352	53.177	1.177	26.2	251.9385	0.0000	SURCHARGED
360 minute winter	PH3-S24	352	53.172	1.272	13.8	2.2479	0.0000	SURCHARGED
15 minute summer	PH3-S26	11	51.948	0.148	50.4	0.1670	0.0000	OK
15 minute summer	PH3-S27	11	51.506	0.331	64.1	0.3745	0.0000	SURCHARGED
15 minute summer	PH3-S28	11	51.278	0.178	64.0	0.2018	0.0000	OK
15 minute summer	Swale Inlet	11	50.307	0.107	100.7	0.0000	0.0000	OK
30 minute summer	Swale Outlet	23	49.624	0.524	94.9	0.0000	0.0000	SURCHARGED
30 minute summer	PH3-S29	19	49.003	0.928	19.3	1.0495	0.0000	FLOOD RISK
30 minute summer	PH3-S30	20	48.843	0.943	17.2	1.0666	0.0000	SURCHARGED
4320 minute winter	PH3-S31	3360	48.806	1.056	12.9	1.8662	0.0000	SURCHARGED
4320 minute winter	Basin 2 Inlet	3420	48.782	1.132	13.1	0.0000	0.0000	OK
4320 minute winter	Basin 2	3420	48.768	1.118	12.4	191.7090	0.0000	SURCHARGED
4320 minute winter	PH3-S32	3420	48.734	1.184	11.4	2.0920	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PH3-S17	7.002	PH3-S19	176.1	2.501	0.923	0.7205	
15 minute summer	SU	9.000	PH3-S19	27.4	1.825	0.631	0.0747	
15 minute summer	PH3-S18	10.000	PH3-S19	37.0	2.166	0.712	0.0523	
15 minute summer	PH3-S19	7.003	PH3-S20	214.8	3.050	1.124	0.9587	
360 minute winter	PH3-S20	7.004	Tank	41.1	1.926	0.202	0.1056	
360 minute winter	Tank	7.006	PH3-S21	-22.8	-0.726	-0.194	0.1255	
15 minute summer	PH3-S22	11.000	PH3-S23	27.5	1.827	1.448	0.2430	
30 minute summer	PH3-S23	11.001	PH3-S21	38.0	3.565	0.460	0.0648	
360 minute winter	PH3-S21	1.004	Basin 1 Inlet	38.8	0.760	0.519	1.0035	
15 minute summer	PH3-S25	12.000	PH3-S26	17.0	1.455	0.692	0.2304	
360 minute winter	Basin 1	1.005	PH3-S24	13.8	0.565	0.218	0.2693	
360 minute winter	PH3-S24	1.006	PH3-S26	10.8	1.041	0.227	0.1363	
15 minute summer	PH3-S26	1.007	PH3-S27	49.7	1.344	0.761	1.3354	
15 minute summer	PH3-S27	1.008	PH3-S28	64.0	1.643	1.392	0.3519	
15 minute summer	PH3-S28	1.009	Swale Inlet	64.1	1.983	0.885	0.3346	
15 minute summer	Swale Inlet	1.010	Swale Outlet	100.9	0.591	0.010	21.3372	
30 minute summer	Swale Outlet	1.011	PH3-S31	47.6	1.265	0.828	0.6160	
30 minute summer	PH3-S29	13.000	PH3-S30	17.2	0.977	0.932	0.2853	
30 minute summer	PH3-S30	13.001	PH3-S31	16.0	0.910	0.896	0.1302	
4320 minute winter	PH3-S31	1.012	Basin 2 Inlet	12.9	0.560	0.748	0.2532	
4320 minute winter	Basin 2	1.013	PH3-S32	11.4	0.647	0.480	0.0993	
4320 minute winter	PH3-S32	1.014	PH3-S34	11.4	1.771	0.050	0.0281	



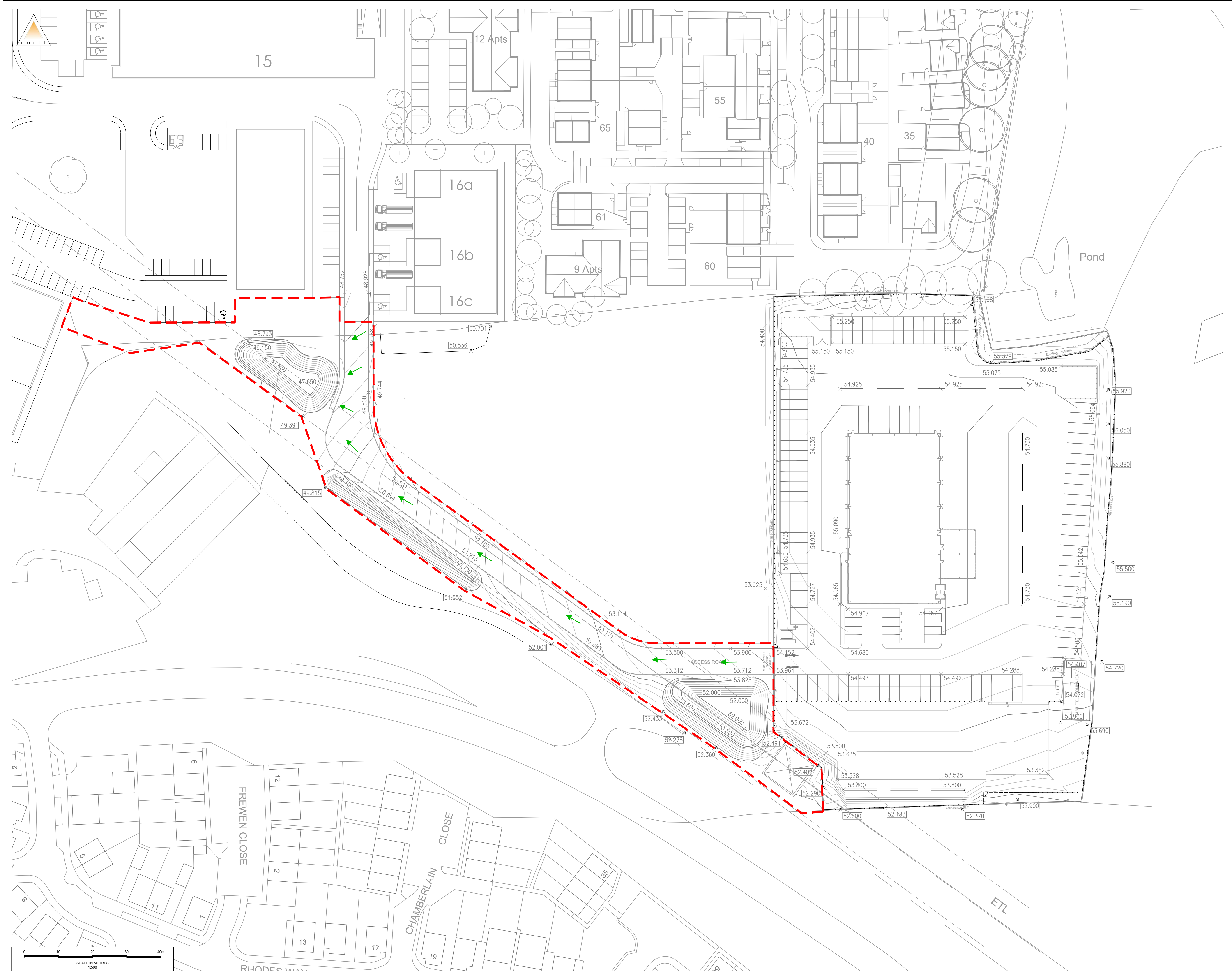
Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute winter	PH3-S34	14	46.815	0.065	11.4	0.0730	0.0000	OK
120 minute winter	PH3-S35	54	46.461	0.061	11.4	0.0695	0.0000	OK
120 minute winter	SWMH54	54	45.985	0.060	11.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute winter	PH3-S34	1.015	PH3-S35	11.4	1.253	0.169	0.1902	
120 minute winter	PH3-S35	1.016	SWMH54	11.4	1.323	0.156	0.2078	205.7

Appendix L

Exceedance Plan



Notes

1. Proposed levels taken from PTA Preliminary Levels Strategy drawing 9950-PTA-XX-XX-DR-C-SK05

Legend

Phase 3 Boundary (Access Road)

Exceedance Flow Direction Arrow

P01 First Issue AU AU N3 03/03/2026

Rev. Description Dm Chk App Date

Drawing Status:

FOR PLANNING
NOT FOR CONSTRUCTION



Project:

Trade Park Billingshurst
Stane Street, Billingshurst

Title:

Phase 3 Works - Access Road
Exceedance Flows Plan

Scale: 1:500 (@ A1)

Drawing:

1904029-P3-0510

Revision:

P01

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