



FloodSmart Pro

Site address	Weavings Farm 101 Abingdon Road Standlake OX29 7QN
Site coordinates	439052, 203139
Report prepared for	Mr. Simon Booth Weavings Farm 101 Abingdon Road Standlake OX29 7QN
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1. Executive summary

The National Planning Policy Framework (2021) and Planning Practice Guidance (2022) require that flood risk assessments review flooding from all potential sources. A review has been undertaken of national environmental data sets to assess the potential flood risk to the Site. The review is provided within this concise interpretative report written by an experienced GeoSmart flood risk consultant.

Site analysis

Source of Flood risk	Baseline	After Mitigation
River and coastal	Low	Low
Surface water / pluvial flooding	Very Low	N/A
Groundwater flooding	Moderate	Low
Other flood risk factors present	Yes	n/a
Is any other further work recommended?	Yes	Yes (please see below)

The Site is currently used to park private vehicles and for the care and grazing of privately owned horses and includes a stable and store building within the central area of the Site. The proposed development is to construct a new residential dwelling approximately 12 m north west of the existing development. According to the Flood Map for Planning, the Site including the area proposed for development, is partly located within the Environment Agency's fluvial Flood Zone 3 and according to the West Oxfordshire District Council Strategic Flood Risk Assessment (AECOM, 2016), the area proposed for development is partially located within Flood Zone 3a; whilst the access track and part of the western Site area are located within Flood Zone 1. However, an analysis of modelled flood extent confirms that the area proposed for development is not within the 1 in 100 year + climate change flood extent and thus is located entirely within Flood Zone 1.

According to the Environment Agency's modelled flood extent mapping, the Site is also located partly within the extent of the 1 in 20 year (5% AEP) flood outline, however the area proposed for development is located entirely outside of the 1 in 20 year flood outline.

However, an analysis of modelled flood extent confirms that the area proposed for development is not within the 1 in 100 year + climate change flood extent and thus is located entirely outside of Flood Zone 3.

The application is for the construction of new dwelling house, which according to Table 2 of the National Planning Policy Framework means the Site is moving from Water Compatible Development to More Vulnerable. Table 3 of the NPPF confirms that 'More Vulnerable' development within Flood Zones 1-2 would be acceptable according to national policy.

Modelled flood level data obtained from the Environment Agency have been assessed against the updated guidance on climate change, indicates the 1 in 100 year modelled flood level plus 30% climate change allowance would be 65.53 mAOD. During this event, the area proposed for development would not be impacted, however finished floor levels should be raised to at least 65.83 mAOD to provide sufficient freeboard above the modelled flood level.

The Site is at Moderate risk of groundwater flooding, but is at low to very low risk of surface water (pluvial) flooding. The Site is not considered to be at risk of flooding from reservoirs.

Next steps

- The Site is located on a flow path during the 1 in 20 year (5% AEP) and 1 in 100 year (1% AEP) + climate change flood events, however the proposed development is not modelled to be impacted during these events.
- 'More Vulnerable' developments within Flood Zone 2 are permitted by national policy.
- In consideration of the Environment Agency's preliminary consultation response (Appendix C), the letter provided does not offer bespoke comments to the Site, therefore we would recommend that a pre-application request is made to the Environment Agency (at their chargeable rate), so they can review the Flood Risk Assessment and Site plans and confirm whether they would accept the development including the recommendations for mitigation.
- It is recommended that minimum floor levels for the proposed development are set no lower than 65.83 mAOD¹.
- It is recommended that residents of the Site are signed up to receive the Environment Agency's Flood Warnings through the Flood Warning Direct (FWD) service.
- Specific groundwater measures listed in Section 7 as well as non-return flap valves on the sewer lines should be considered to reduce the risk of flooding from both groundwater and the local sewer network.

¹ 300mm above the 1 in 100 year plus a 30% allowance of climate change flood level of 65.53 mAOD

2. Introduction

Background and purpose

This assessment has been undertaken by firstly compiling information concerning the Site and the surrounding area. The information which is gathered is then used to construct a 'conceptual site model', including an understanding of the appropriateness of the development as defined in the NPPF (2021) and the source(s) of any flood risk present. Finally, a preliminary assessment of the steps that can be taken to manage any flood risk to the development is undertaken.

This report has been prepared with reference to the National Planning Policy Framework (NPPF, 2021).

"The National Planning Policy Framework set out the Government's planning policies for England and how these are expected to be applied" (NPPF, 2021).

The National Planning Policy Framework promotes a sequential, risk based approach to the location of development.

"This general approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. The aim should be to keep development out of medium and high risk flood areas (Flood Zones 2 and 3) and other areas affected by other sources of flooding where possible" (NPPG, 2022).

The purpose of this report is to provide clear and pragmatic advice regarding the nature and potential significance of flood hazards which may be present at the Site.

Report scope

A thorough review of a commercially available flood risk report and Environment Agency supplied data indicating potential sources of flood risk to the Site from rivers and coastal sources, surface run-off (pluvial), groundwater and reservoirs, including historical flood information and modelled flood extent. Appropriate measures are recommended to manage and mitigate the flood risk to the Site.

Local rainfall data for the 1 in 100 year rainfall event is used to support site run-off calculations if there is an increase in impermeable area as a result of the development. The effects of climate change will also be included in these calculations, using industry standard advice. An indication of potential flood risk from the Site to downstream receptors is provided where the proposed development increases run-off from the Site, above the Greenfield run-off rates.

Information obtained from the Environment Agency and a review of the Cherwell and West Oxfordshire Strategic Flood Risk Assessment (SFRA)(2009), the Oxfordshire County Council Preliminary Flood Risk Assessment Preliminary Assessment Report (PRFA)(2011) and the West Oxfordshire District Parish Flood Report: Standlake (2008) have been used to ascertain local flooding issues and, where appropriate, identify information to support a Sequential and/or Exception test required as part of the National Planning Policy Framework (NPPF, 2021).

Using the available data the existing and future flood risks to and from the Site from all flood sources have been assessed in line with current best practice.

Report limitations

It is noted that the findings presented in this report are based on a desk study of information supplied by third parties. Whilst we assume that all information is representative of past and present conditions we can offer no guarantee as to its validity and a proportionate program of site investigations would be required to fully verify these findings.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

Datasets

The following table shows the sources of information that have been consulted as part of this report:

Source of flooding	Datasets consulted				
	Landmark Flood Report (Appendix B)	SFRA, PFRA and Flood Report*	Environment Agency (Appendix C)	Thames Water (Appendix E)	OS Data
Historical	X	X	X		
Fluvial/tidal	X	X	X		
Surface water (pluvial)	X	X	X		
Groundwater	X	X			
Sewer		X		X	
Culvert/bridges		X			X
Reservoir		X	X		

*West Oxfordshire District Council Strategic Flood Risk Assessment (SFRA)(AECOM, 2016), Oxfordshire County Council's Preliminary Flood Risk Assessment Report (PRFA)(2011) and the West Oxfordshire District Parish Flood Report: Standlake (2008).

3. Site analysis

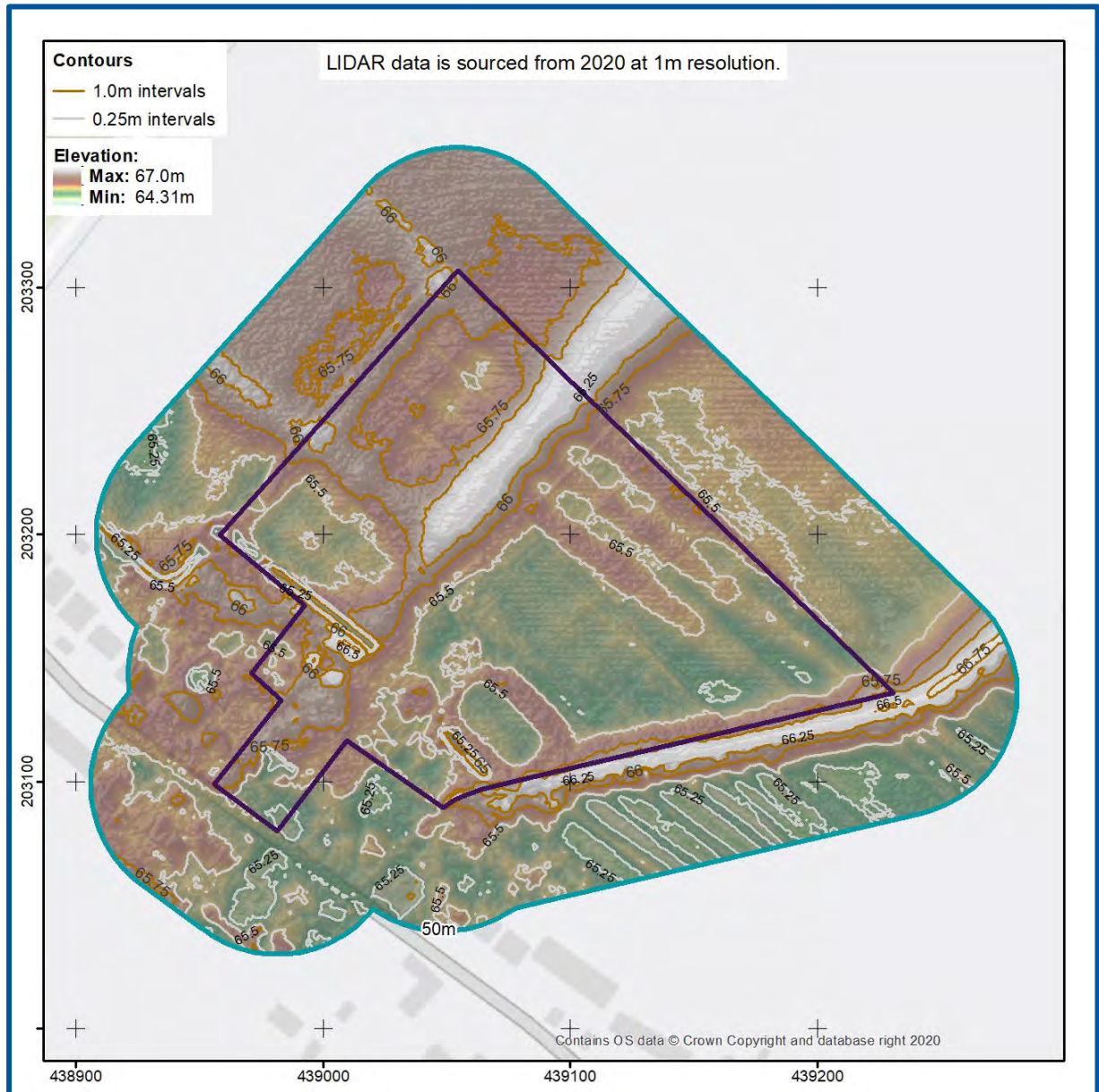


Site information

The Site is located in Standlake in a setting of agricultural and residential land use, National Grid Reference SP 39052 03139 (see Figure 1). According to OS data the immediate area surrounding the Site is relatively flat (between 65 mAOD and 70 mAOD). Using a 1 km buffer around the Site, it is noted that to the north the land rises to between 70 m and 75 mAOD. To the east, the land remains between 65 m and 70 mAOD and to the west and to the south the land falls to between 60 m and 65 mAOD.

The elevation of the Site is between 65.38 and 67.76 mAOD with the Site falling gradually in an easterly direction, whilst the area proposed for development is between 65.57 and 65.92 mAOD. This is based on a site-specific topographic survey undertaken by Midland Survey Ltd in September 2017. Site plans and drawings are provided in Appendix A.

Figure 1. Site Location and Elevation (OS & EA, 2023)



Development

The proposed development is to construct a new residential dwelling, approximately 20 m to the west of the existing stable and store building (see Appendix A). The effect of the development will result in the overall increase in number of occupants and/or users of the building and will result in the change of use, nature or times of occupation. The estimated lifespan of the development is 100 years.



Hydrological features

Watercourses/surface water features within 1km of the Site:

There are seven minor drainage channels within 1km of the Site. The closest is a secondary drainage channel which is approximately 410m south east of the Site.

The River Windrush is approximately 860m north east of the Site.

The Brighthampton Cut is approximately 970m south west of the Site.

There is a small water feature (pond) adjacent to the norther boundary of the Site.

A larger water feature is located approximately 450m north west of the Site.

There are also seven water features south of the Site which are associated with Brighthampton Cut. The closest is approximately 510m south west of the Site.

Potential overland flow routes to the Site could exist from the north and east.

Potential overland flow routes from the Site could exist to the east.



Proximity to relevant infrastructure:

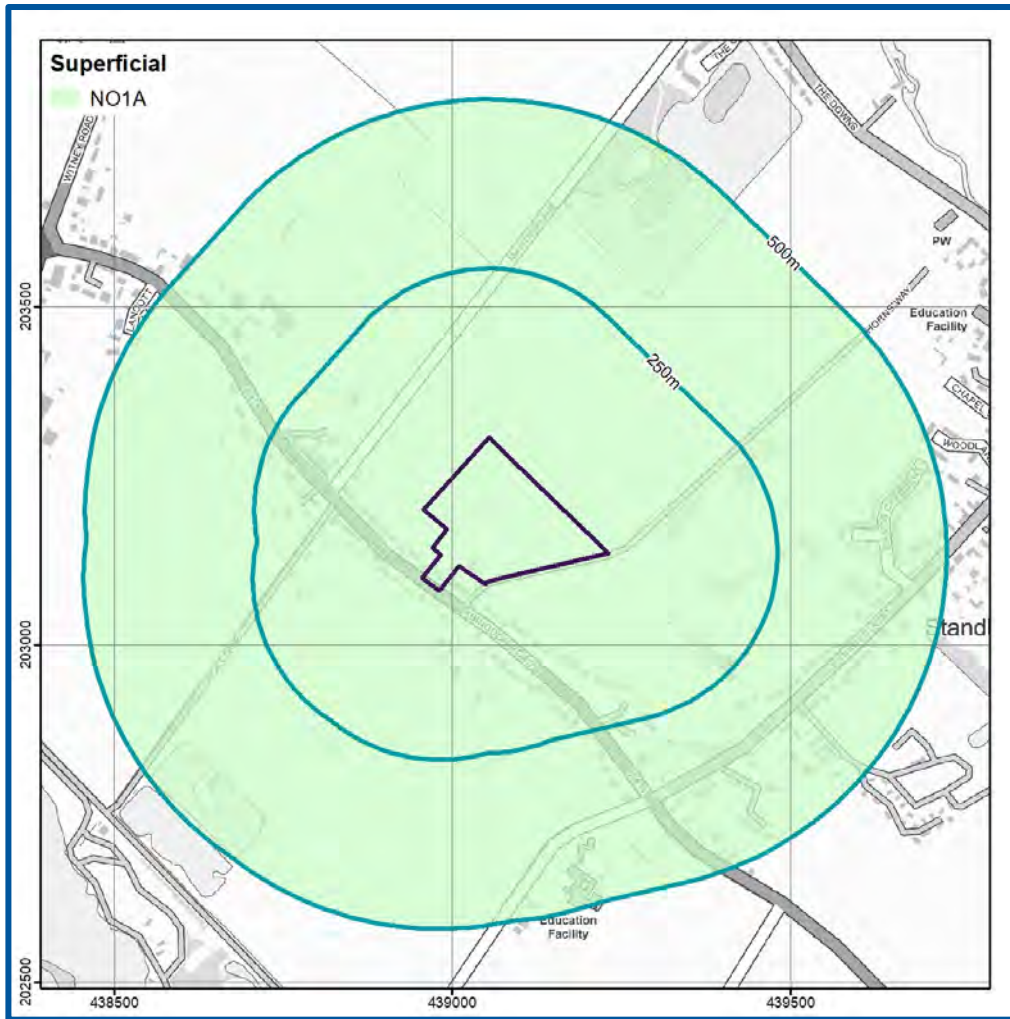
Two culverts are within 1km of the Site. There is a culvert along a drainage ditch approximately 880m to the north east of the Site and another is 980m east of the Site.



Hydrogeological features

British Geological Survey mapping (Figure 2) indicates that the underlying superficial geology consists of the Northmoor Sand and Gravel Member, Lower Facet (Sand and Gravel) (BGS, 2023) which is classified as a Secondary A Aquifer (EA, 2023).

Figure 2. Superficial Geology (BGS, 2023)

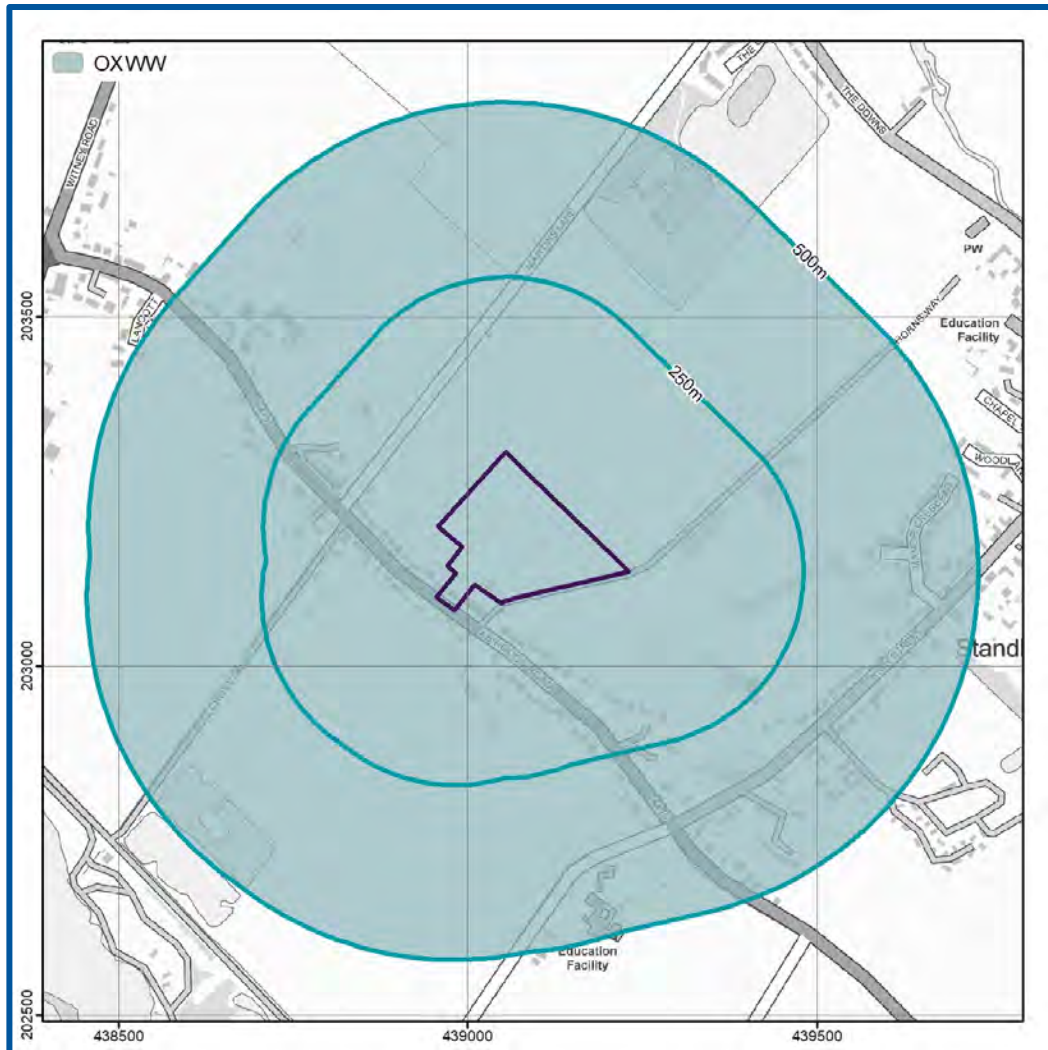


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Contains British Geological Survey materials © NERC 2023

British Geological Survey mapping (Figure 3) indicates that the underlying bedrock geology consists of the Oxford Clay Formation and West Walton Formation (undifferentiated) (Mudstone) (BGS, 2023) which is classified as an unproductive strata (EA, 2023).

The Site is not located within a groundwater Source Protection Zone (EA, 2023).

Figure 3. Bedrock Geology (BGS, 2023)



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4. Flood risk to the development

Historical flood events

Four historical flood events have been recorded at the Site (EA, 2023); these occurred in 1947, 1992, 2000 and 2007. Additional information regarding the timing, source and duration of these flooding events, as supplied by the EA, is detailed below.

Flood Event Code	Flood Event Name	Start Date	End Date	Source of Flooding	Cause of Flooding
EA0619470300057	06MarchSpring1947	01/01/1947	12/12/1947	main river	channel capacity exceeded (no raised defences)
EA0619920900351	06SeptemberAutumn1992	01/01/1992	12/12/1992	main river	channel capacity exceeded (no raised defences)
EA0620001200430	06DecemberWinter2000	01/01/2000	12/12/2000	main river	channel capacity exceeded (no raised defences)
ea061102259	Standlake CP_Fluvial Water	19/07/2007	29/07/2007	main river	channel capacity exceeded (no raised defences)

Guidance

The purpose of historical flood data is to provide information on where and why flooding may have occurred in the past. The absence of any recorded events does not mean that flooding has never occurred on Site or that flooding will never occur at the Site.

Fluvial/coastal flood risk

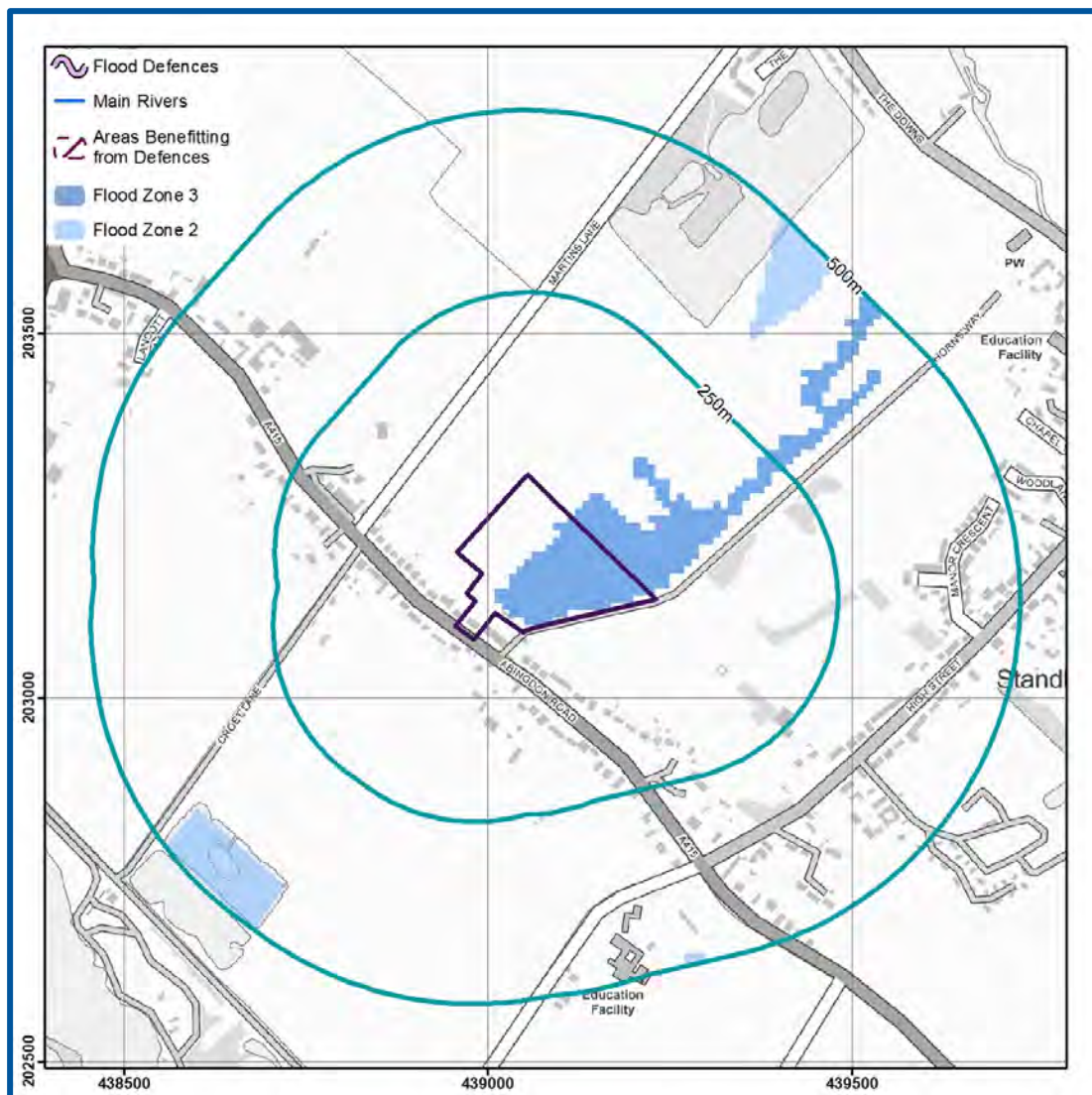
According to mapping and data provided by the Environment Agency (Figure 4), the Site is located within the Environment Agency's (EA's) (undefended) Flood Zones 1 and 3 and is therefore classified as being at low - high risk of fluvial flooding from the River Windrush, whilst the area proposed for development is located entirely within Flood Zone 1. The Site is not protected by flood defences and is partly located within an area considered as the functional floodplain.

As defined in the NPPF (2021):

Ignoring the presence of any defences, land located in a Flood Zone 3 is considered to be at high risk of flooding with a 1 in 100 year or greater annual probability of fluvial flooding or a 1 in 200 or greater annual probability of coastal flooding in any one year.

The site is located in a functional flood plain therefore only development of “Water-Compatible” and “Essential Infrastructure” land uses are suitable for this zone (see glossary for terminology).

Figure 4. EA Flood Map for Planning Purposes (EA, 2023)



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Model data

As the Site is located within the EA's modelled fluvial flood plain, EA flood elevation data were obtained. The provided flood data comprised of in-channel node points and floodplain levels for the Site.

Model Flood Levels – In the vicinity of the Site

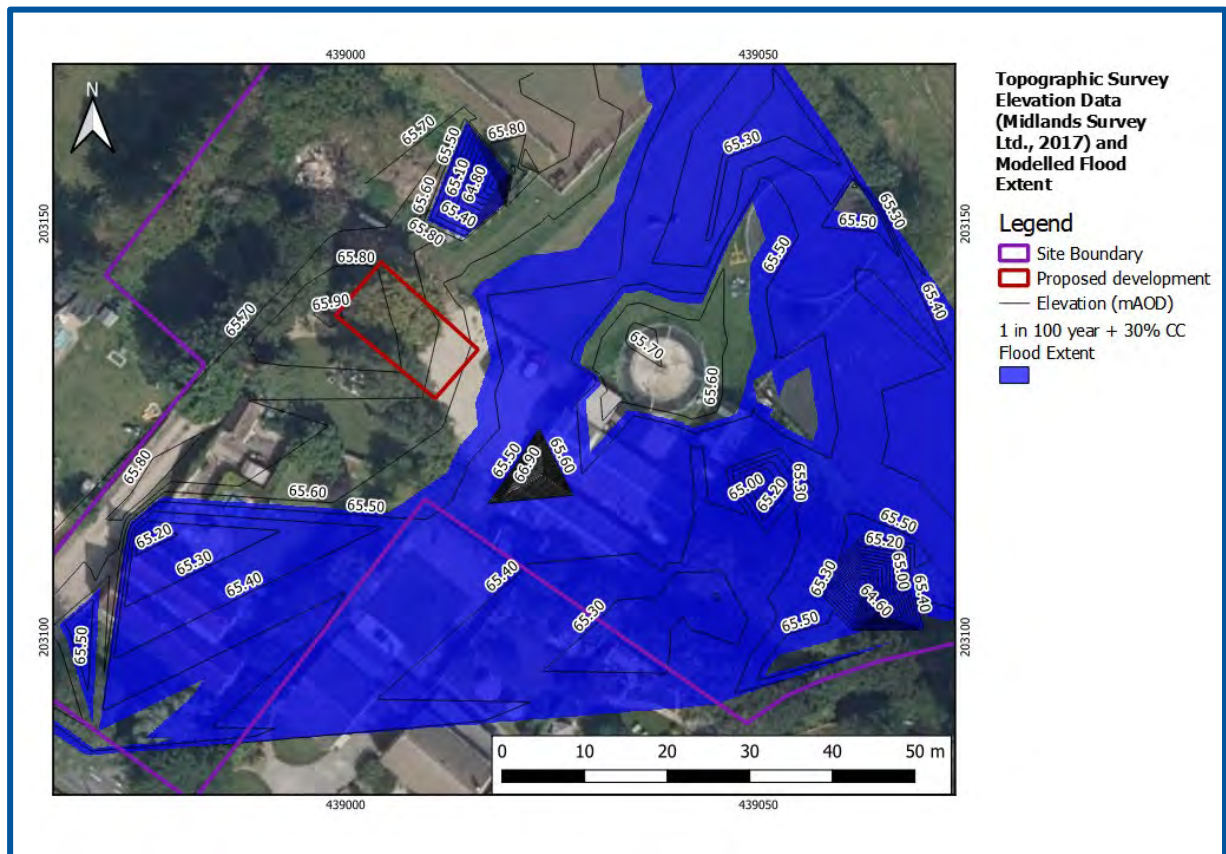
- 1 in 20 year (5% AEP) modelled flood level: 65.45 mAOD.
- 1 in 100 year (1% AEP) modelled flood level: 65.56 mAOD.
- 1 in 100 year (1% AEP) modelled flood level plus 30% climate change allowance: 65.53 mAOD.
- 1 in 1000 year (0.1% AEP) modelled flood level: 65.5 mAOD.

Assessment of model data provided by the EA confirm flood levels vary across the floodplain. The EA was contacted to confirm whether or not the data provided are correct and a response was received on the 16th of February 2017. The 1 in 1000 year flood event for example normally produces higher flows within the watercourse than the 1 in 100 year event, although it has a lower flood level. This is likely to be as a result of the wider floodplain interactions.

It should also be noted the mapped flood extents confirm that there would be flooding on the Site in the 1 in 20 year event, however the area proposed for development is not modelled to be impacted up to and including the 1 in 100 year + climate change event.

A site specific topographic survey undertaken by Midland Survey Ltd in 2017 confirms that Site elevations are comparable to EA LiDAR data (Appendix A). The survey shows that the area proposed for development is at a higher elevation than the 1 in 100 year + climate change modelled flood event and is therefore located entirely outside of Flood Zone 3 (Figure 5).

Figure 5. Topographic Survey Elevation Data (Midlands Survey Ltd, 2017) and Modelled 1 in 100 Year + 30% Climate Change Flood Extent



Climate Change factors

The EA's Flood risk assessments: climate change allowances guidance (Published on 19 February 2016 and updated on May, 2022) has been used to inform a suitable increase in peak river flows for the proposed development. The updated guidance confirms 'More Vulnerable' developments are required to undertake a Basic assessment approach. As the Site is located within the Cotswolds Management Catchment, within the Thames River Basin and the proposed development is classed as More Vulnerable, where the proposed lifespan is approximately 100 years, the Central (30%) allowance has been used to determine a suitable climate change factor to apply to river data.

The effect the climate change increase has on flood levels is based on a stage / discharge relationship graph (Appendix C) (EA, 2016). The stage / discharge relationship graph is based on flood depths only as flood flows were not modelled for the given node points.

Node point 5 (located within the Site)

- 1 in 100 year modelled flood level plus 20% climate change allowance: 65.54 mAOD
- 1 in 100 year modelled flood level plus 30% climate change allowance: 65.53 mAOD

These levels relate to in channel modelled levels. The flood level information is taken from the Thames (St Johns to Eynsham) including Windrush (Worsham to Thames confluence) 2011 Detailed Mapping project. The study was carried out using 1D-2D modelling software (ISIS-Tuflow). Data received from the EA is shown in Appendix C.

Flood Defences:

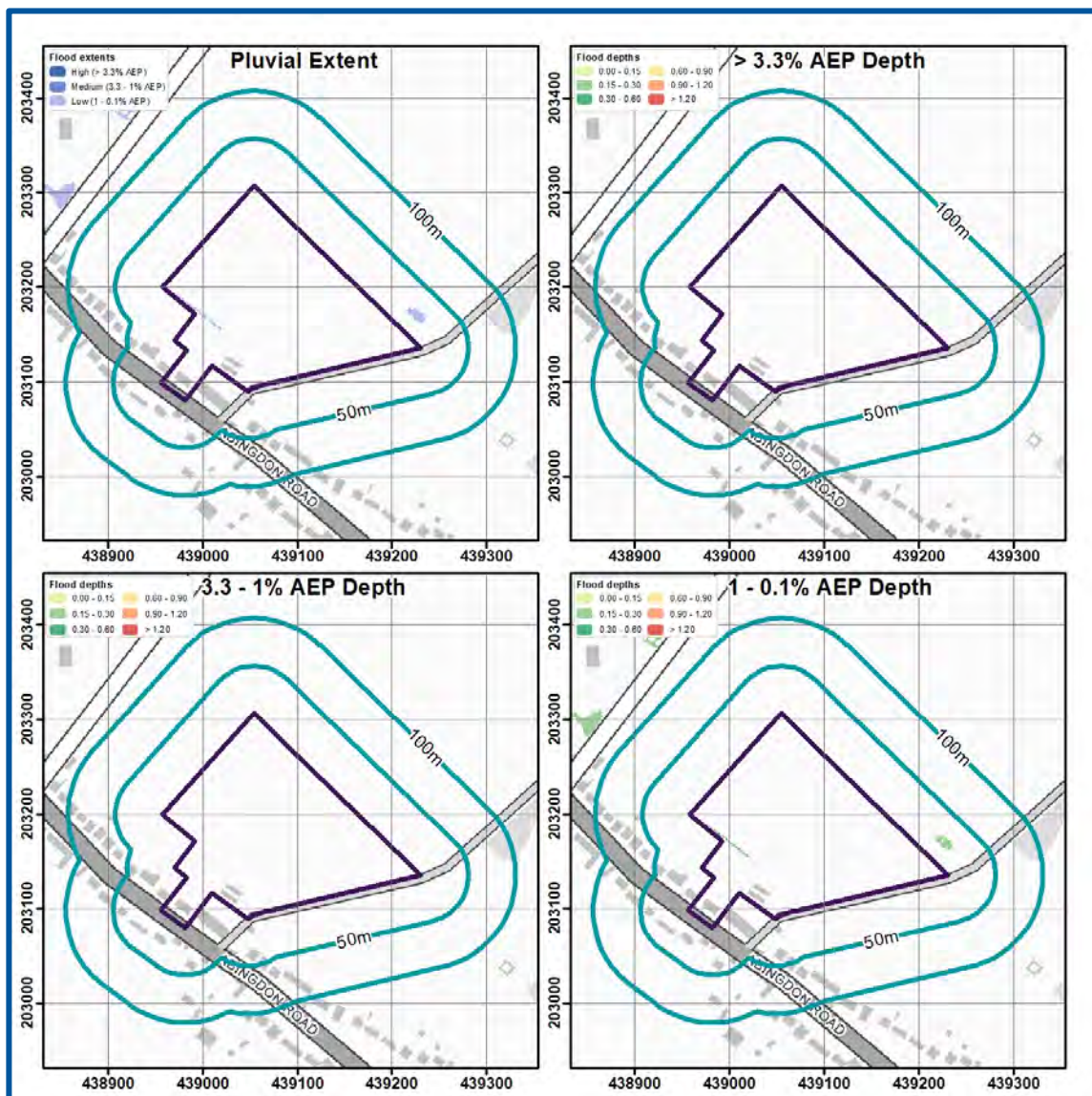
- There are no areas benefiting from flood defences within 250 m from the centre of the study Site.
- There are no formal flood defences within 250 m of the Site.
- There are no proposed flood defences within 250 m of the Site

Sites that are located close to flood defences are likely to be zones where rapid inundation will occur in the event of the flood defences being overtopped or breached. A Site located close to flood defences (within 250m) may require a more detailed FRA subject to local topography.

Surface water (pluvial) flooding

The Site is considered to be at Very Low risk of surface water / pluvial flooding (Figure 6) (EA, 2023). As the 1 in 100 year surface water mapping does not consider climate change, the 1 in 1000 year mapping has been used to assess flood risk from surface water to reflect the potential increase in risk due to climate change. Based on inspection of OS data, the Site is not located on a potential overland flow route although it contains some areas of low topography in relation to the surrounding area. A review of the site plans indicates overland flows are not obstructed. The Preliminary Flood Risk Assessment indicates that the Site is within proximity of reported incidents of surface water flooding during the 2007 flood event (JBA Consulting 2011).

Figure 6. EA surface water flood extent and depth map (EA, 2023)



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According to the EA's surface water flood risk map, where an area of the Site is not affected by flooding up to and including the 1 in 1000 year (0.1% AEP), this area is deemed to be at a very low risk of surface water (pluvial) flooding.

Groundwater flooding

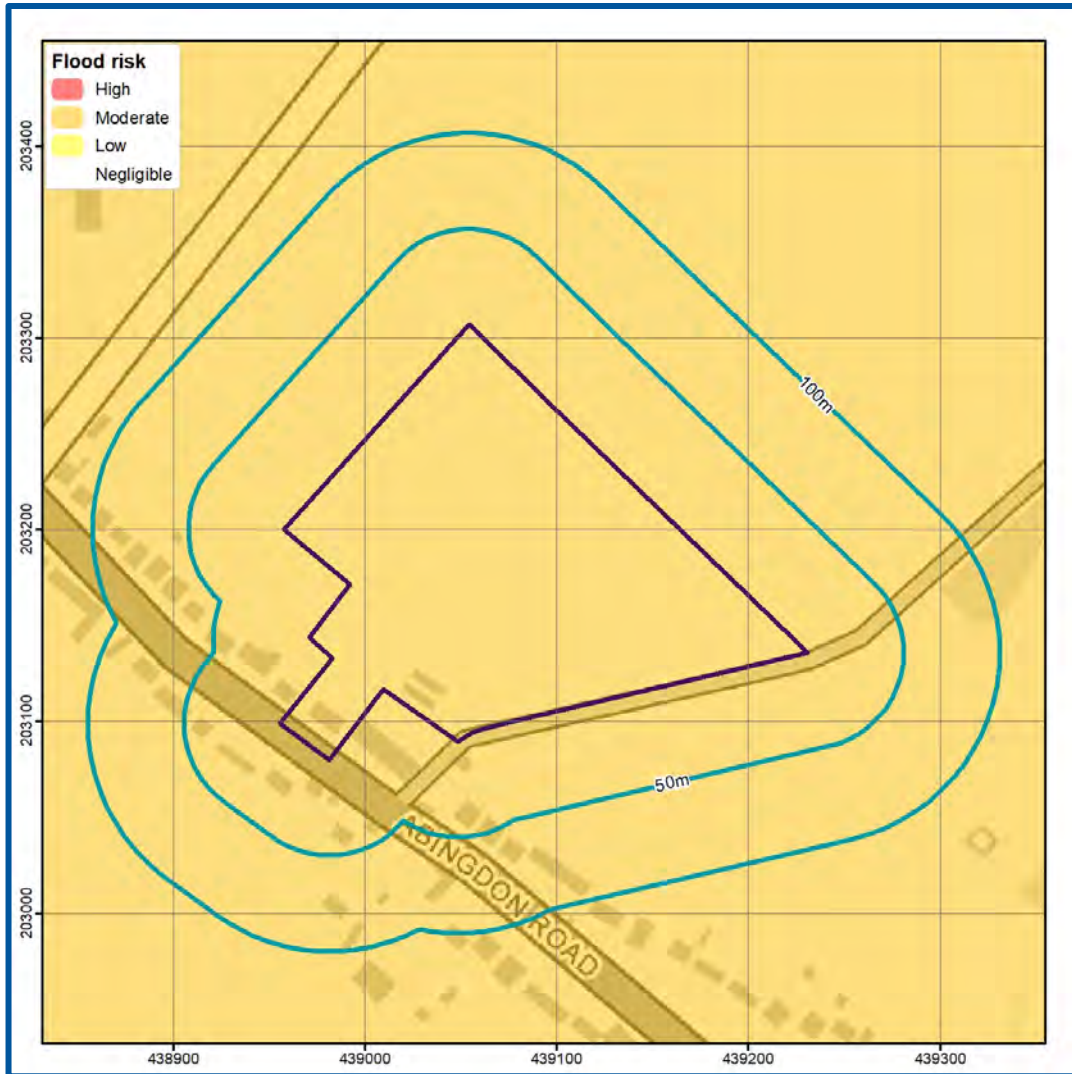
Based on GeoSmart's Groundwater Flood Risk Map (Figure 7) the Site is considered to be at Moderate risk of groundwater flooding.

The main mechanisms of groundwater flooding at the Site are related to flooding via permeable Superficial Deposits potentially in response to river and tidal events. The Site is unlikely to be at risk of Bedrock or Clearwater flooding relating to prolonged recharge and a rise in the water table.

According to GeoSmart (2023) there is a Moderate risk of groundwater flooding in this area with a return period of 1 in 100 years.

Moderate Risk - There will be a significant possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location.

Figure 7. GeoSmart Groundwater Flood Risk (GW5) Map (GeoSmart, 2023)



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Sewer flooding

Thames Water has been contacted to obtain records of any incidences of flooding, related to the surcharging of public sewers and have confirmed that no incidences of sewer flooding have been recorded at the Site (Appendix E).

The SFRA has no records of sewer flooding incidences on or within close proximity to the Site (AECOM, 2016) however, the West Oxfordshire District Parish Flood Report: Standlake report states that sewer flooding is an issue along Abingdon Road (WODC, 2008).

Properties classified as “at risk” are those that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system either once or twice in the ten year reference period (Thames Water, 2023). Records held by Thames Water provide information relating to reported incidents, the absence of any records does not mean that the Site is not at risk of flooding.

Culverts and bridges

Culverts and bridges have been identified within 1 km of the Site, although no culverts have been recorded within a 750 m radius. The SFRA and PFRA do not identify any historical drainage issues within the Site area (AECOM, 2016) (JBA Consulting 2011). Discussions with the site owner and the local authority have not identified any relevant issues.

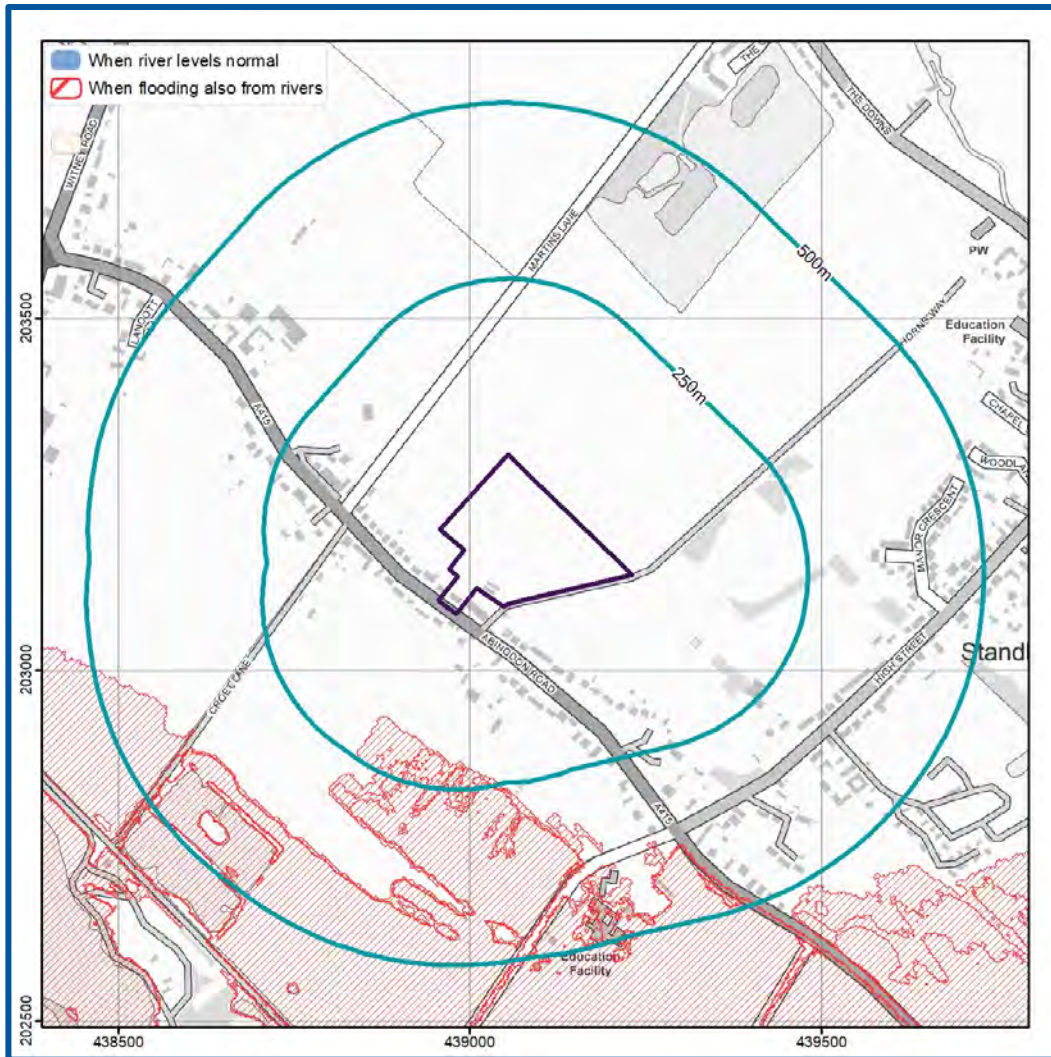
Culverts and bridges can form a constriction to flows within rivers, drainage channels and within the floodplain. Constrictions to flow can increase the risk of surcharge and also blockages, which can lead to flooding.

Structures are identified using Site plans, aerial photography and OS mapping for the purposes of this report. Therefore, records of culverts and bridges located close to the Site may not include unknown structures, such as new development since mapping took place.

Reservoir flooding

According to the Environment Agency mapping (Figure 8) the Site is not at risk of flooding from reservoirs.

Figure 8. EA Risk of Reservoir Flooding (EA, 2023)



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Guidance

The risk of reservoir flooding is related to the failure of a large reservoir (holding over 25,000m³ of water) and is based on the worst-case scenario. Reservoir flooding is extremely unlikely to occur (Environment Agency, 2016c).

5. Flood risk from the development

The development is located within a fluvial Flood Zone 1, compensatory flood storage is therefore not required.

Drainage and run-off

The development proposals are for the construction of a new building and will result in an increase in impermeable areas within the Site; as such, an estimation of surface water runoff is required.

Any changes to the existing drainage system will be undertaken in accordance with best practice and that care will be taken to ensure the new development does not overload/block any existing drainage or flow pathways to/from the Site. Based on the topography and low surface water flood risk in the vicinity interference with overland flow paths is considered unlikely.

Cotswolds Management Catchment Climate change rainfall allowances

Cotswolds Management Catchment peak rainfall allowances	3.3% AEP Event		1% AEP Event	
	2050's	2070's	2050's	2070's
Upper end	35%	35%	40%	40%
Central	20%	25%	20%	25%

A method of investigating the run-off due to the proposed development can be calculated by multiplying the run-off per square metre by the impermeable area within the proposed development plan.

It is recommended that attenuation of run-off is undertaken on site to compensate for proposed increases in impermeable surface areas. Attenuation may comprise the provision of storage within a sustainable drainage system (SuDS).

A list of SuDS components that could be used to manage surface water run-off from the Site are listed in the following table. Alternative SUDs components may also be considered and more information can be found at <http://www.susdrain.org/>. Expert advice should always be sought regarding on the selection and sizing of all SuDS components.

Option	Description
Rainwater harvesting	Rainwater harvesting can collect run-off from the roofs for use in non-potable situations, using water butts for example.
Green roof	<p>Having part/all of the roof as a green roof covered in vegetation can intercept and store a proportion of the rainfall to result in an overall reduction in the amount of surface water run-off generated from a building structure.</p> <p>They comprise a substrate (growth medium) layer which can be seeded with specially selected plants suitable for the local climatic conditions. Beneath the growth medium is a geotextile filter layer which filters out the substrate from entering the aggregate/geo-composite drainage layer below. At the very bottom of the green roofing, a waterproof membrane protects the roof structure below.</p>
Permeable paving	Permeable pavements can be used for driveways, footpaths and parking areas to increase the amount of permeable land cover. Suitable aggregate materials (angular gravels with suitable grading as per CIRIA, 2007) will improve water quality due to their filtration capacity. Plastic geocellular systems beneath these surfaces can increase the void space and therefore storage but do not allow filtration unless they are combined with aggregate material and/or permeable geotextiles.
Swales	Shallow, wide and vegetated channels that can store excess run-off whilst removing any pollutants.
Soakaways	An excavation filled with gravel within the Site. Surface water run-off is piped to the soakaway.
Attenuation basins/pond	Dry basin or a permanent pond that is designed to hold excess water during a rainfall event.

Based on the topography and low surface water flood risk in the vicinity of the area proposed for development, interference with overland flow paths is considered unlikely.

6. Suitability of the proposed development

The information below outlines the suitability of the proposed development in relation to national and local planning policy.

National

The aims of the national planning policies are achieved through application of the Sequential Test and in some cases the Exception Test.

Guidance

Sequential test: The aim of this test is to steer new development towards areas with the lowest probability of flooding (NPPF, 2021). Reasonably available sites located in Flood Zone 1 should be considered before those in Flood Zone 2 and only when there are no reasonably available sites in Flood Zones 1 and 2 should development in Flood Zone 3 be considered.

Exception test: In some cases this may need to be applied once the sequential test has been considered. For the exception test to be passed it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Suitability of the proposed development, and whether an Exception Test is required, is based on the flood zone the Site is located within and the flood risk vulnerability classification of the Site (see table overleaf).

The development is classified as 'more vulnerable' and is located within Flood Zone 1. Therefore, the proposals would be acceptable according to national policy.

Table: Flood risk vulnerability and flood zone 'compatibility (taken from NPPF, 2021)

Flood risk vulnerability classification		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood Zone	Zone 1 – low probability	✓	✓	✓	✓	✓
	Zone 2 – medium probability	✓	✓	Exception test required	✓	✓
	Zone 3a high probability	Exception test required	✓	X	Exception test required	✓
	Zone 3b functional flood plain	Exception test required	✓	X	X	X

Local Requirements

For this report, the West Oxfordshire Strategic Flood Risk Assessment (SFRA)(AECOM, 2016), the Oxfordshire County Council Preliminary Flood Risk Assessment (PRFA)(JBA Consulting, 2011) and the West Oxfordshire District Parish Flood Report: Standlake (WODC, 2008) have been consulted. Relevant information contained in this report for the Site area is outlined below:

West Oxfordshire Strategic Flood Risk Assessment (2016):

- The Windrush catchment is located south of the Evenlode catchment and North of the Thames. The Windrush flows south eastwards across the West Oxfordshire District. The River Windrush catchment has been extensively affected by the construction of mills along the watercourse and gravel extraction from the floodplain.

Oxfordshire County Council Preliminary Flood Risk Assessment (2011):

- The river flooding also had a major impact on local infrastructure and economy. Many roads were flooded throughout the county including the M40 and several A-roads. Several roads in Oxford were closed for over 5 days, including Abingdon Road.

West Oxfordshire District Parish Flood Report: Standlake (2008):

- Standlake is a rural parish of 1000 Hectares including the communities of Standlake village, Brighthampton, Standlake Common and Rack End sandwiched between the River Thames to the south and River Windrush to the north.
- Abingdon Road suffers from sewage surcharging during periods of heavy rain as surface water is connected to the local combined sewer that overloads the pumping station.
- In 2005, Thames Water installed a new 225mm diameter sewer, to replace the existing 150mm diameter sewer for a length of 350m, along Abingdon Road. This attenuation facility was designed to provide 1 in 30 year flood protection but was subsequently overwhelmed by the extreme event of July 2007 and subsequent river flooding. This has the net effect of flooding properties in Abingdon Road every time there is heavy rain.
- A number of design strategies are detailed including the Water Exclusion Strategy and Water Entry Strategy. Resistance measures are aimed at preventing water ingress into a building (Water Exclusion Strategy); they are designed to minimise the impact of floodwaters directly affecting buildings and to give occupants more time to relocate ground floor contents. These measures will probably only be effective for short duration, low depth flooding, i.e. less than 0.3m.

Guidance

Strategic Flood Risk Assessments are carried out by local authorities, in consultation with the Environment Agency, to assess the flood risk to the area from all sources both now and in the future due to climate change. They are used to inform planning decisions to ensure inappropriate development is avoided (NPPF, 2021).

7. Resilience and mitigation

Based on the available information mitigation measures outlined in the following section are likely to help protect the development from flooding, as well as reducing the impact of the development on flood risk to off-site receptors.

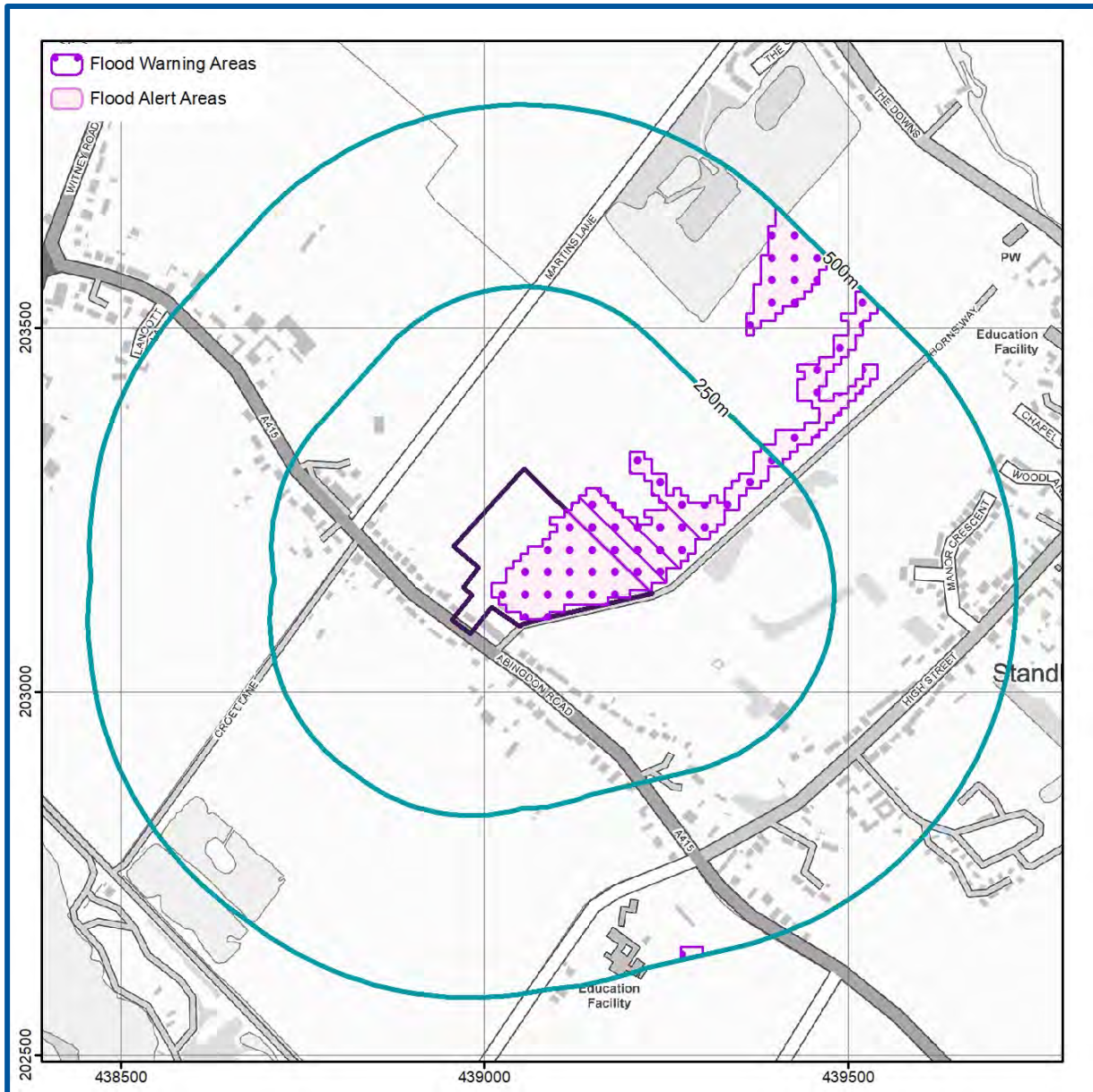
Emergency evacuation/safe access and egress routes

Flood Warnings Direct (FWD)

The EA operates a flood warning service in all areas at risk of flooding; this is available on their website (www.environment-agency.gov.uk). Flood warnings are broadcast on TV and radio weather and travel bulletins and, in designated flood warning areas, direct to the local community by siren, loudhailer or flood wardens, and in high risk areas by phone or fax. The flood warning information on the EA website is updated every 15 minutes. All warnings are also available through the EA's 24 hour Floodline Service 0845 988 1188. Furthermore, people may sign up to Flood Warnings Direct (FWD) to receive a pre-recorded flood warning message sent to their home, work or mobile phone number.

The Site is partly located within an EA Flood Warning Coverage area so is able to receive warnings via the EA Flood Warnings Direct Service (Figure 9). Flood warnings can provide adequate time to enable protection of property and evacuation from a Site, reducing risk to life and property.

Figure 9. EA Flood Warning and Alerts Coverage for the local area



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Emergency Evacuation

The area proposed for development is located outside of the 1 in 100 year flood event including an allowance for climate change. Thus, safe access and egress routes with a 'very low' hazard rating are present for the proposed development.

As flood levels for a 1 in 100 plus 30% climate change event are lower than the elevation of the proposed development Site, a flood warning would be required to trigger an evacuation with a 'very low' hazard rating from the development.

Principal escape route: vehicle

Residents should exit the property and travel along the access road into Abingdon Road. Following this route will lead residents into Flood Zone 1 and an area within a 'Very Low Hazard' rating where provisions can be made for alternative accommodation can be found to the west (away from risk flood areas).

Other relevant information

Occupants should be signed up to the Environment Agency's flood warning scheme.

Registration to the Environment Agency's flood warning scheme can be done by following this link: <https://fwd.environment-agency.gov.uk/app/olr/register>

Main communication lines required for contacting the emergency services, the electricity sockets/meters, water supply and first aid stations and supplies should not be compromised by flood waters.

Fluvial/coastal mitigation measures

The Site is located within Flood Zones 1 - 3 and modelled flood levels indicate that the development area is located entirely outside of the 1 in 100 plus 30% climate change flood extent from the River Windrush.

As the Site is located outside the extent of the 1 in 100 year + climate change flood event, the development proposals would be acceptable according to national policy.

The vulnerability classification of the site and the Flood Zone means proposals for the Site fall under DEFRA and Environment Agency Flood Risk Standing Advice (FRSA) for more vulnerable developments.

As the Site is located within a Flood Zone 1 and in close proximity to the boundary of Flood Zone 3, we recommend minimum floor levels of the development are set to at least 65.83 mAOD². Present design proposals state that floor levels of the development will be set to 65.84 mAOD, thereby ensuring a sufficient freeboard above the modelled 1 in 100 year + 30% climate change allowance flood level.

Surface water (pluvial) flooding

As the Site is not identified as being at significant pluvial flood risk, mitigation measures are not required for this source of flooding.

A SuDS design should be considered to mitigate any flood risk both to and from the Site as a result of surface water runoff from the Site.

Groundwater mitigation measures

² 300mm above the 1 in 100 year modelled flood level plus 30% climate change allowance of 65.53 mAOD

It is likely that the mitigation measures recommended for fluvial flood risk, in addition to the raising of finished floor levels to 65.84 mAOD as outlined in the development proposals will be sufficient for the groundwater flood risk at the Site.

Other Flood Risk mitigation measures

West Oxfordshire District Parish Flood Report: Standlake report states that sewer flooding is an issue along Abingdon Road. Non-return flap valves on the sewer outfalls are likely to provide suitable mitigation for sewer flooding within internal areas of the property. Recommended fluvial flood risk mitigation such as temporary defences are likely to be sufficient, where sewer flooding from sewers discharges and flows above ground onto the Site.

8. Conclusions and recommendations

A **LOW** fluvial flood risk has been identified at the Site.

A **VERY LOW - LOW** surface water risk has been identified at the Site.

A **MODERATE** groundwater flood risk has been identified at the Site.

The Site is not at risk from reservoir flooding.

The West Oxfordshire District Parish Flood Report: Standlake report (WOBC, 2008) states that sewer flooding is an issue along Abingdon Road.

According to Table 3 of the NPPF, 'More Vulnerable' development within the Environment Agency's Flood Zone 1 would be suitable and acceptable according to national planning policy.

Further to a consultation request, the Environment Agency provided a preliminary response letter. However, this letter does not offer bespoke comments to the Site, therefore we would recommend that a pre-application request is set up with the Environment Agency (at their chargeable rate), so they can review the Flood Risk Assessment and Site plans and confirm whether they would accept the development, including the recommendations for mitigation.

The table below provides a summary of where the responses to key questions are discussed in this report.

Key sources of flood risks identified	Fluvial, groundwater and sewer flooding (see Section 4).
Are standard mitigation measures likely to provide protection from flooding to/from the Site?	Yes, see Section 7.
Is the development likely to satisfy the requirements of the Sequential Test?	No, see Section 6.
Is any further work recommended?	It is recommended that, where feasible, minimum floor levels for the Site are set no lower than 65.83 mAOD. Current proposals state a minimum finished floor level of 65.84 mAOD, ensuring this recommendation is met. It is recommended that residents of the Site sign up to receive EA Flood Warnings.

	<p>Specific groundwater measures listed in Section 7 and non-return flap valves on the sewer lines should be considered.</p> <p>We recommend that the mitigation measures that have been discussed within this report are considered as part of the proposed development where possible and evidence of this is provided to the Local Authority as part of the planning application.</p>
--	--

9. References and glossary

- AECOM (2016).** West Oxfordshire District Council Strategic Flood Risk Assessment. Accessed from: <https://www.westoxon.gov.uk/media/0adg2zs5/env9-west-oxfordshire-district-council-strategic-flood-risk-assessment-update-report-november-2016.pdf> on 17/02/2023.
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- Defra/Environment Agency (2005).** Flood Risk Assessment Guidance for New Development. *Phase 2 Framework and Guidance for Assessing and Managing Flood Risk for New Development – Fill Documentation and Tools*. R & D Technical Report FD232-/TR2.
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- Environment Agency [EA] (2017a).** Product 4 (Detailed Flood Risk) for: Weavings Farm, 101 Abingdon Road, Standlake, OX29 7QN
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- Environment Agency [EA] (2017c).** What's in your backyard? Interactive Maps. Accessed from: http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e on 17/02/2023.
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- Landmark (2017).** HomeCheck Flood Report for Weavings Farm, 101 Abingdon Road, Standlake, OX29 7QN
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- Thames Water (2017).** Thames Water Property Searches – Sewer Flooding History Enquiry. SFH/SFH Standard/2017_3489358.
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Glossary

General terms

BGS	British Geological Survey
EA	Environment Agency
GeoSmart groundwater flood risk model	GeoSmart's national groundwater flood risk model takes advantage of all the available data and provides a preliminary indication of groundwater flood risk on a 50m grid covering England and Wales. The model indicates the risk of the water table coming within 1 m of the ground surface for an indicative 1 in 200 year return period scenario.
Dry-Island	An area considered at low risk of flooding (eg. In a Flood Zone 1) that is entirely surrounded by areas at higher risk of flooding (eg. Flood Zone 2 and 3)
Flood resilience	Flood resilience of wet-proofing accepts that water will enter the building, but through careful design will minimise damage and allow the re-occupancy of the building quickly. Mitigation measures that reduce the damage to a property caused by flooding can include water entry strategies, raising electrical sockets off the floor, hard flooring.
Flood resistance	Flood resistance, or dry-proofing, stops water entering a building. Mitigation measures that prevent or reduce the likelihood of water entering a property can include raising flood levels or installation of sandbags.
Flood Zone 1	This zone has less than a 0.1% annual probability of river flooding
Flood Zone 2	This zone has between 0.1 and 1% annual probability of river flooding and between 0.1% and 0.5 % annual probability sea flooding
Flood Zone 3	This zone has more than a 1% annual probability of river flooding and 0.5% annual probability of sea flooding
Functional Flood Plain	An area of land where water has to flow or be stored in times of flood.
Hydrologic model	A computer model that simulates surface run-off or fluvial flow. The typical accuracy of hydrologic models such as this is $\pm 0.25\text{m}$ for estimating flood levels at particular locations.
OS	Ordnance Survey
Residual Flood Risk	The flood risk remaining after taking mitigating actions.
SFRA	Strategic Flood Risk Assessment. This is a brief flood risk assessment provided by the local council
SuDS	A Sustainable drainage system (SuDS) is designed to replicate, as closely as possible, the natural drainage from the Site (before development) to ensure that the flood risk downstream of the Site does not increase as a result of the land being developed. SuDS also significantly improve the quality of water leaving the Site and can also improve the amenity and biodiversity that a site has to offer. There are a range of SuDS options available to provide effective surface water management that intercept and store excess run-off. Sites over 1 Ha will usually require a sustainable drainage assessment if planning permission is required. The current proposal is that from April 2014 for more than a single dwelling the drainage system will require approval from the SuDs Approval Board (SABs).

Aquifer Types

Principal aquifer

These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary A aquifer

Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Secondary B aquifer

Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary undifferentiated

Has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata

These are rock layers or drift deposits with low permeability that has negligible significance for water supply or river base flow.

NPPF (2021) terms

Exception test

Applied once the sequential test has been passed. For the exception test to be passed it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Sequential test

Aims to steer new development to areas with the lowest probability of flooding.

Essential infrastructure

Essential infrastructure includes essential transport infrastructure, essential utility infrastructure and wind turbines.

Water compatible

Water compatible land uses include flood control infrastructure, water-based recreation and lifeguard/coastal stations.

Less vulnerable

Less vulnerable land uses include police/ambulance/fire stations which are not required to be operational during flooding and buildings used for shops/financial/professional/other services.

More vulnerable

More vulnerable land uses include hospitals, residential institutions, buildings used for dwelling houses/student halls/drinking establishments/hotels and sites used for holiday or short-let caravans and camping.

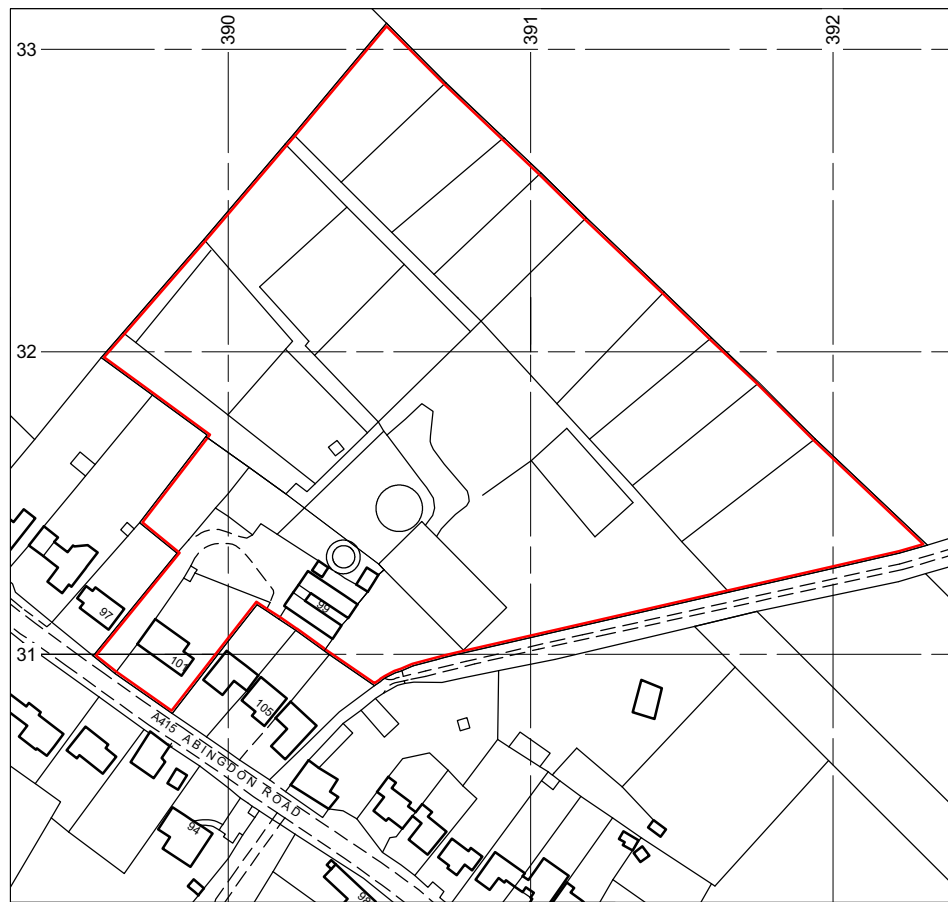
Highly vulnerable

Highly vulnerable land uses include police/ambulance/fire stations which are required to be operational during flooding, basement dwellings and caravans/mobile homes/park homes intended for permanent residential use.

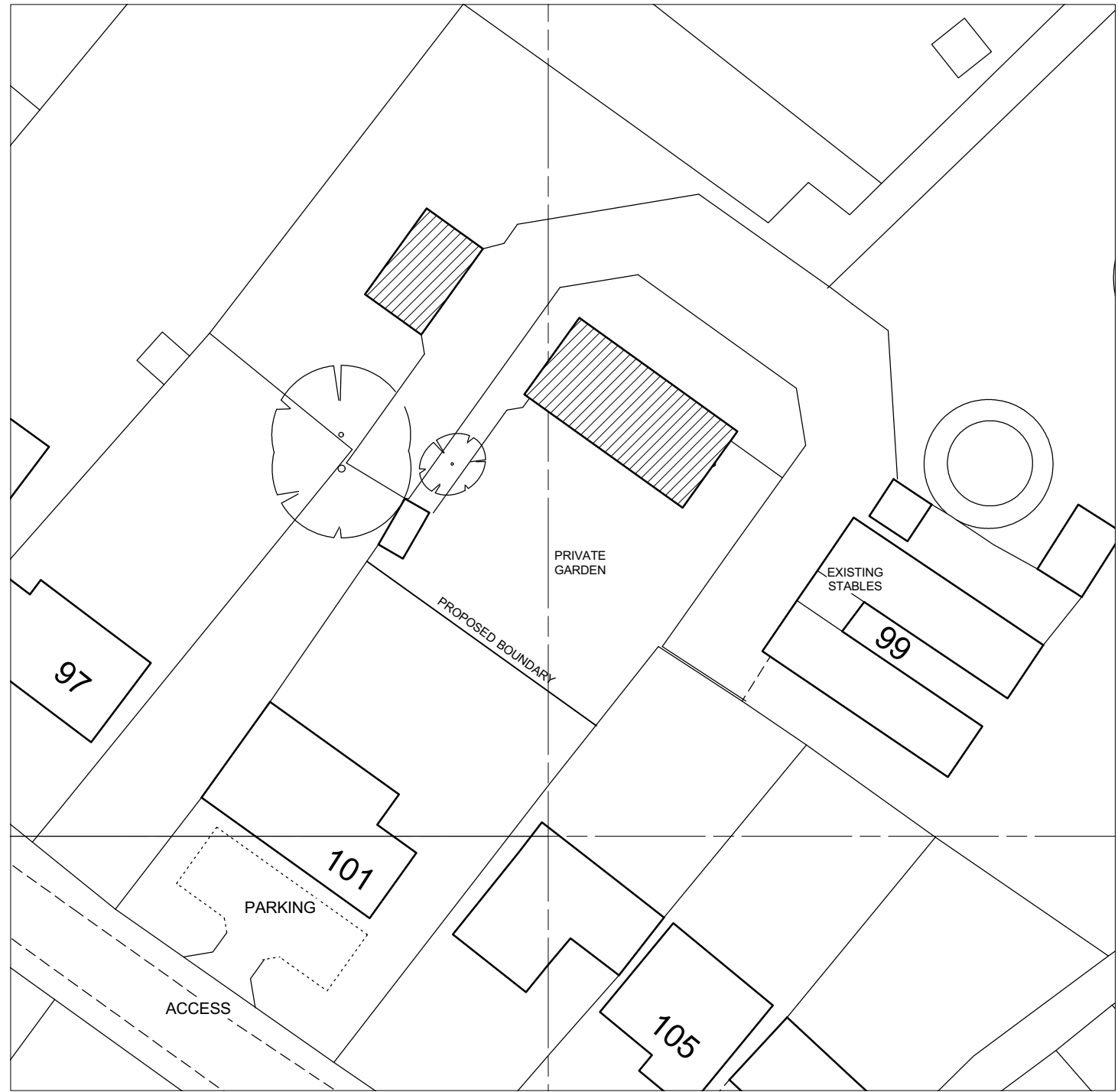
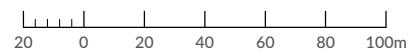
Appendices

Appendix A

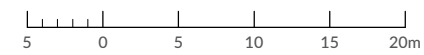
Current and proposed development plans

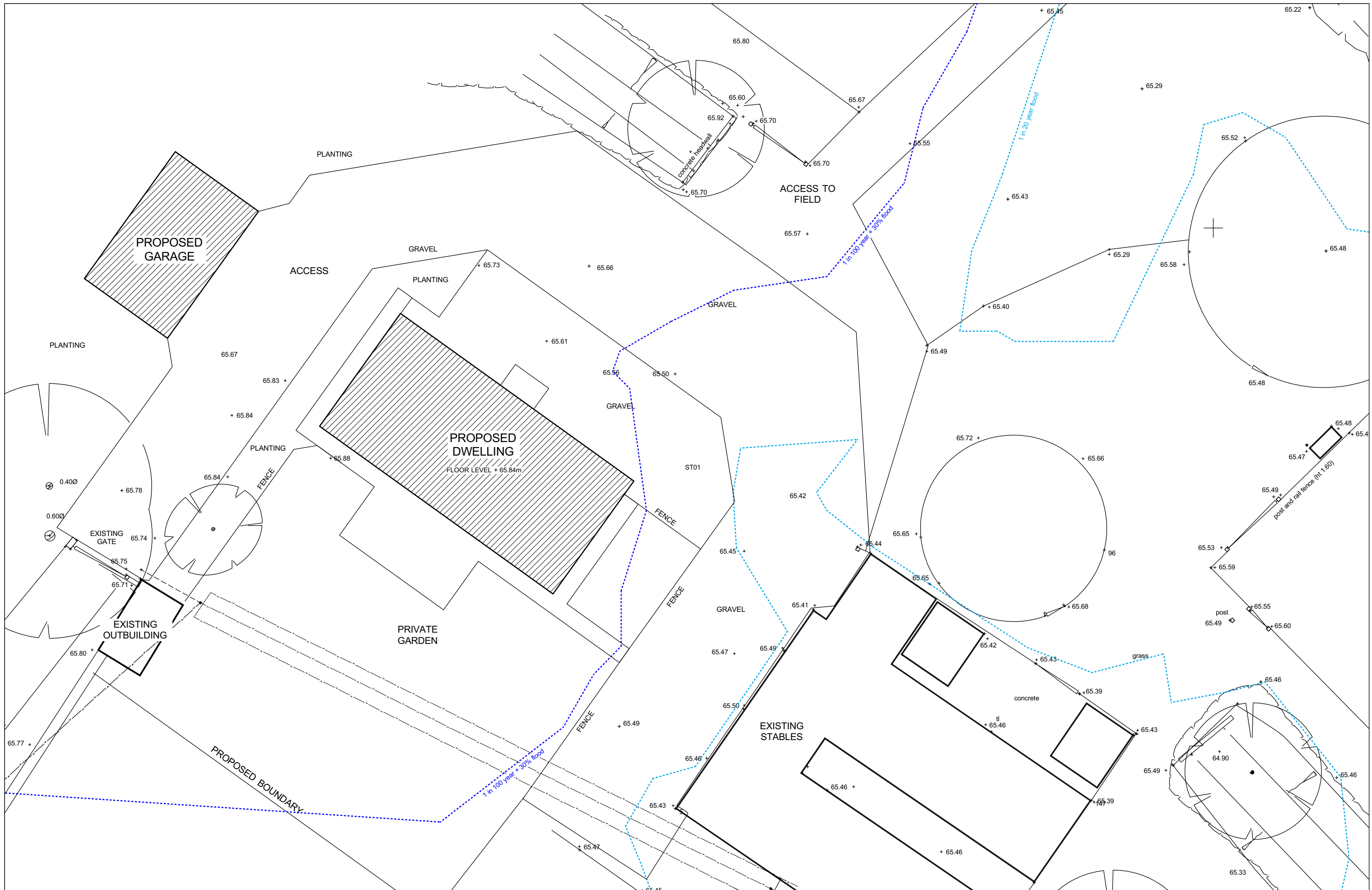


LOCATION PLAN 1:2500



BLOCK PLAN 1:500





The Studio
 Ammonite Cottage
 Church Road
 North Leigh OX29 6TX
 01993 402 993
 www.ajp-design.co.uk

REV A : 09-02-2023 - PLANNING APPLICATION

NEW DWELLING AT WEAVINGS FARM, ABINGDON ROAD, STANDLAKE

S.BOOTH

SITE PLAN PROPOSED 2

1:200 @ A3

428 - 124

REV: A





OVERVIEW 1



OVERVIEW 2



OVERVIEW 3



OVERVIEW 4



EYE LEVEL VIEW 1



EYE LEVEL VIEW 2



EYE LEVEL VIEW 3



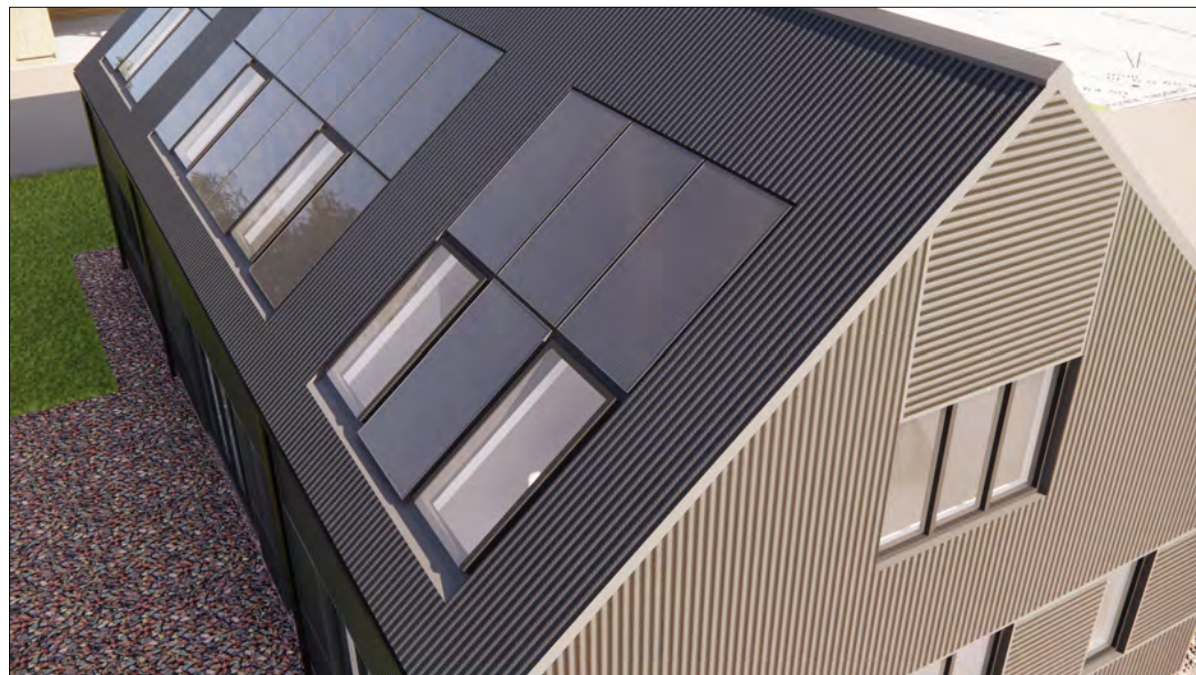
EYE LEVEL VIEW 4



DETAIL VIEW 1



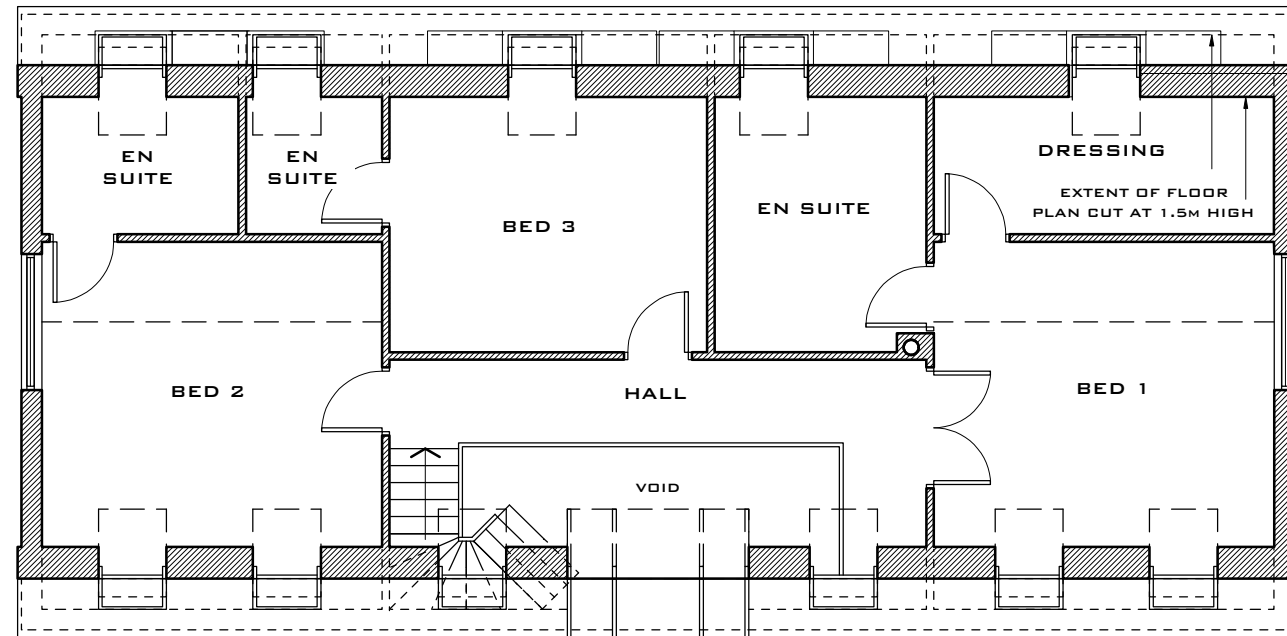
DETAIL VIEW 2



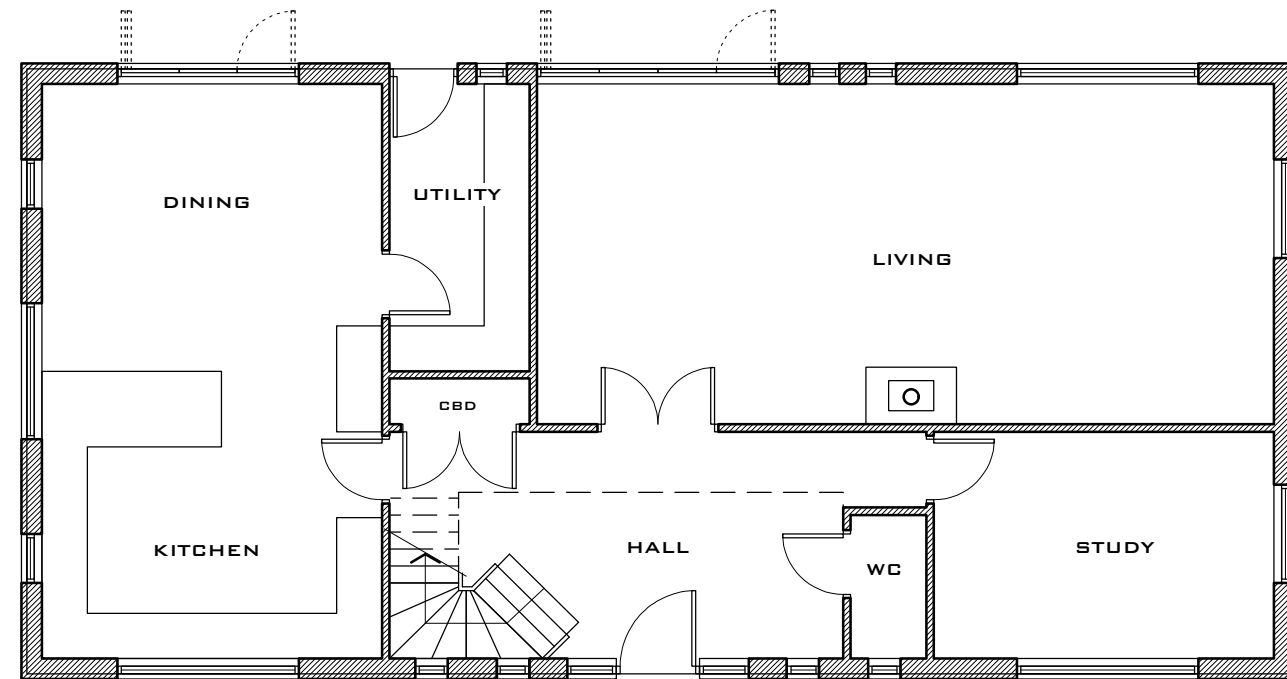
DETAIL VIEW 3



DETAIL VIEW 4



FIRST FLOOR PLAN



GROUND FLOOR PLAN



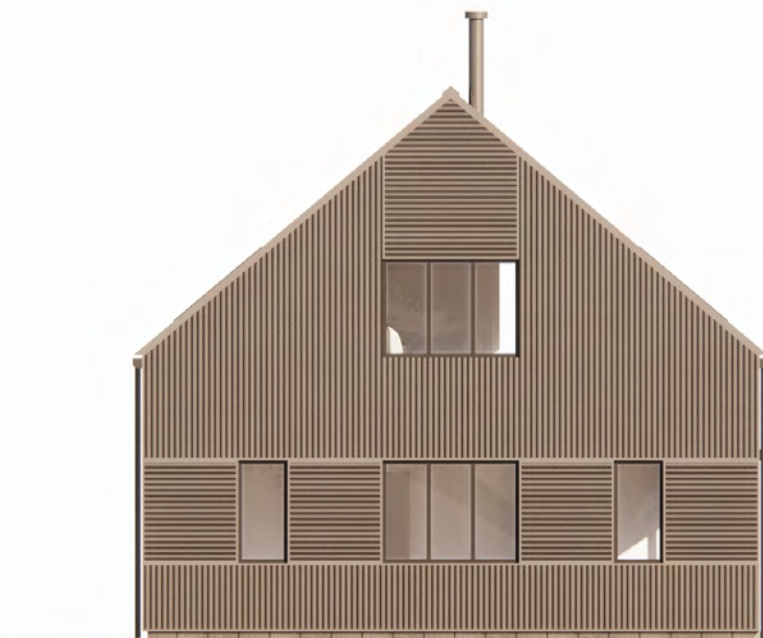
FRONT ELEVATION (NE)



SIDE ELEVATION (NW)



REAR ELEVATION (SW)



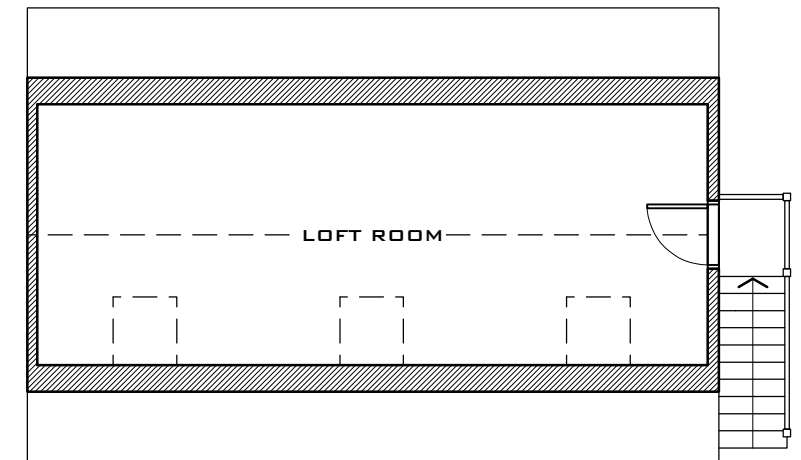
SIDE ELEVATION (SE)



FRONT ELEVATION (SE)



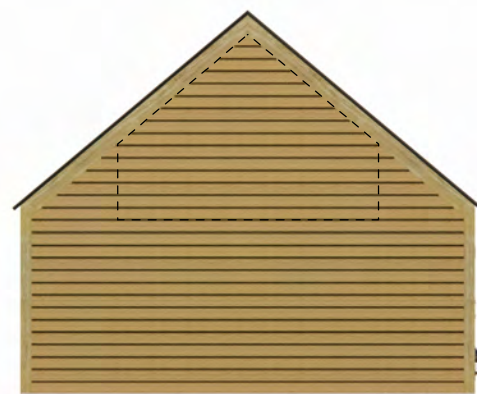
SIDE ELEVATION (NE)



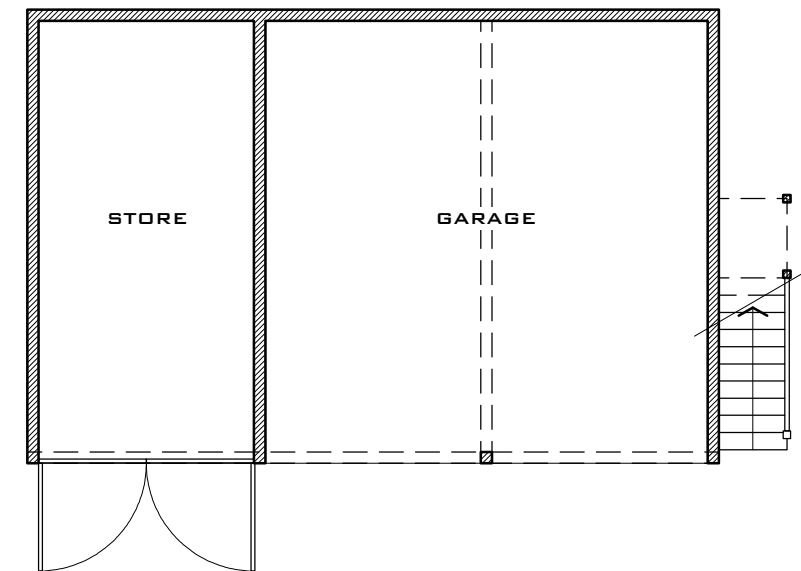
LOFT PLAN



REAR ELEVATION (NW)



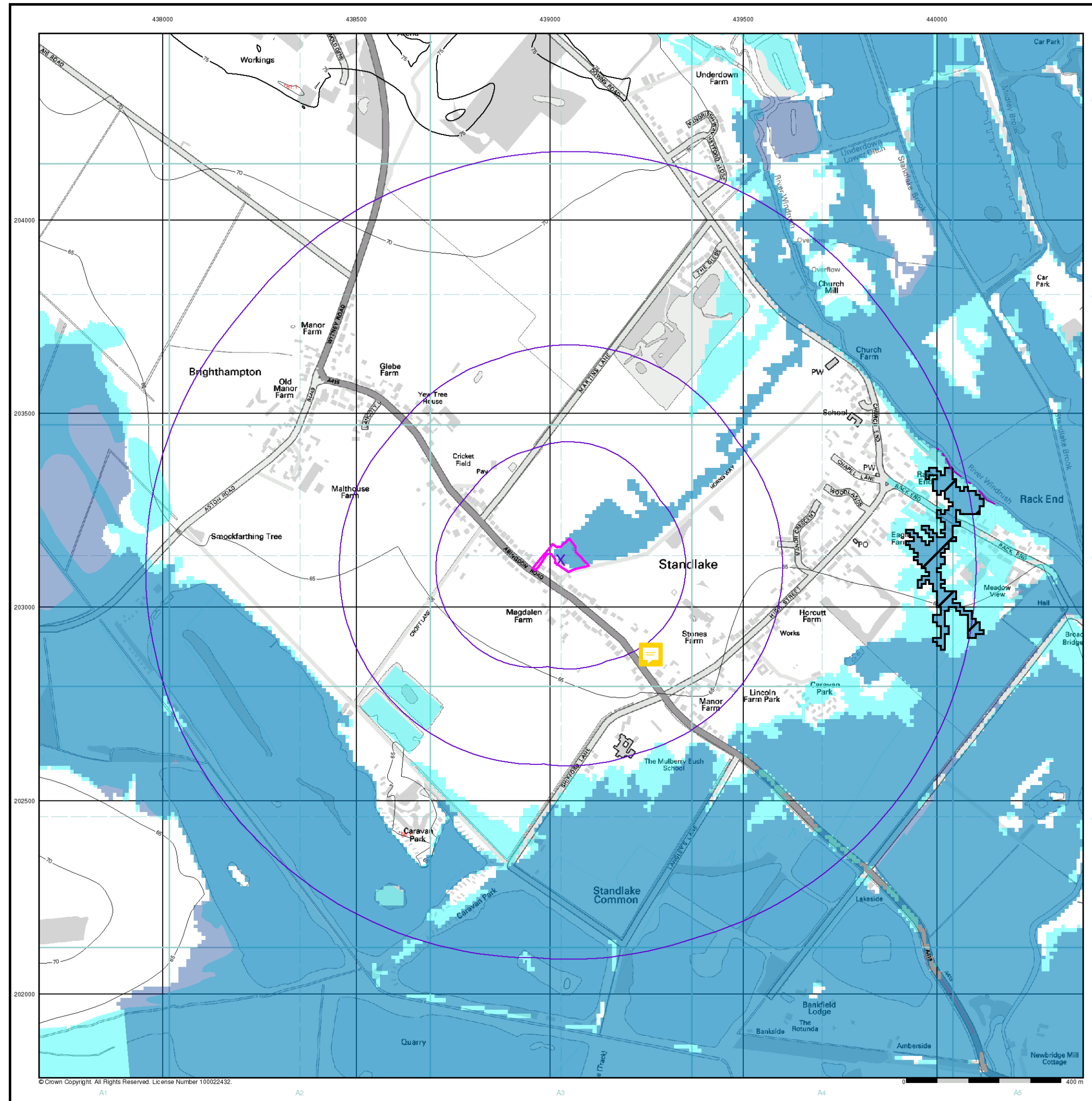
SIDE ELEVATION (SW)



GROUND FLOOR PLAN

Appendix B

Commercial flood report - Based upon previous Site Boundary (Landmark, 2017)



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)

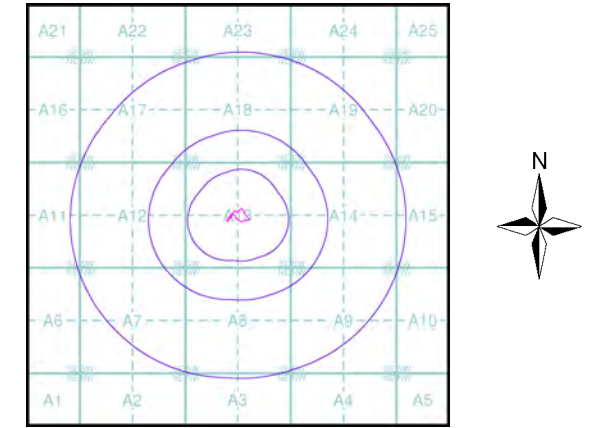
Standard Contour: 105, 100, 95

Master Contour: 100, 95

Spot Height: *167.8

MLW - Mean Low Water
 MHW - Mean High Water

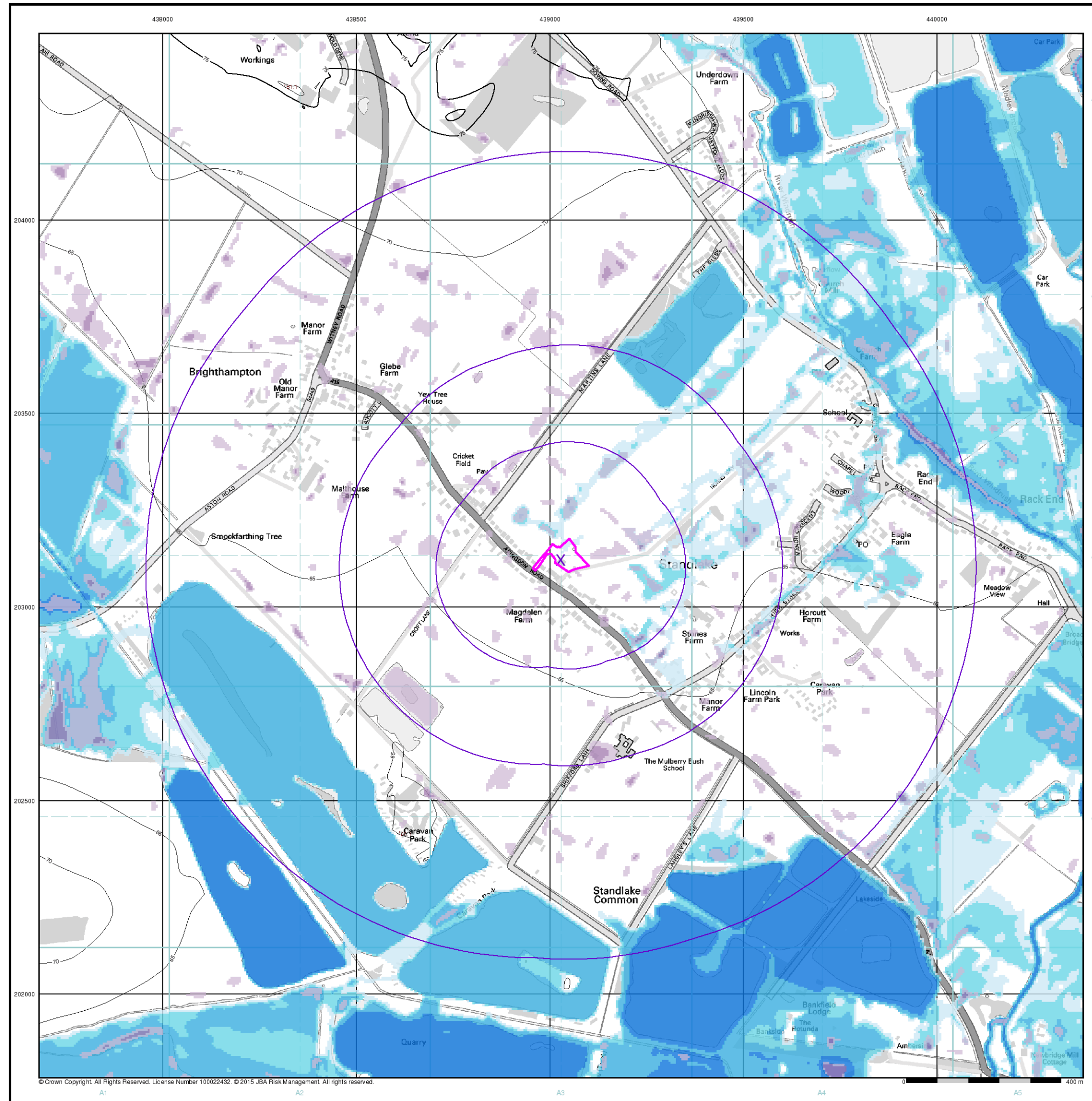
EANRW Flood Data Map - Slice A



Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details
 101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



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

General

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

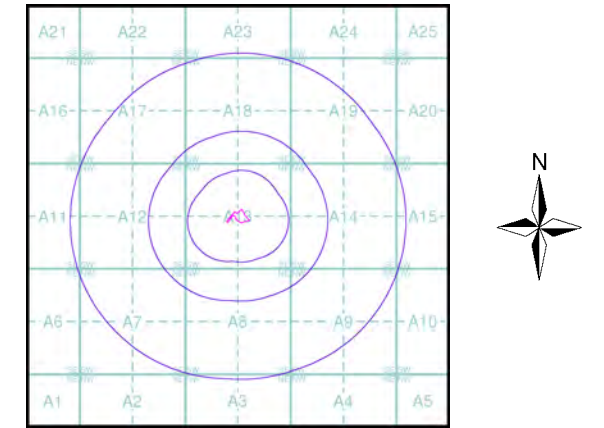
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
< 1cm	0.5mm - 10cm	< 10cm
1cm - 10cm	10cm - 30cm	10cm - 30cm
10cm - 30cm	30cm - 1m	30cm - 1m
30cm - 1m	> 1m	> 1m
> 1m		

Contours (height in metres)

- Standard Contour 105 MLW Mean Low Water
- Master Contour 100 MHW Mean High Water
- Spot Height *167.8

JBA 75 Year Return Flood Map (Undefended) - Slice A



Order Details

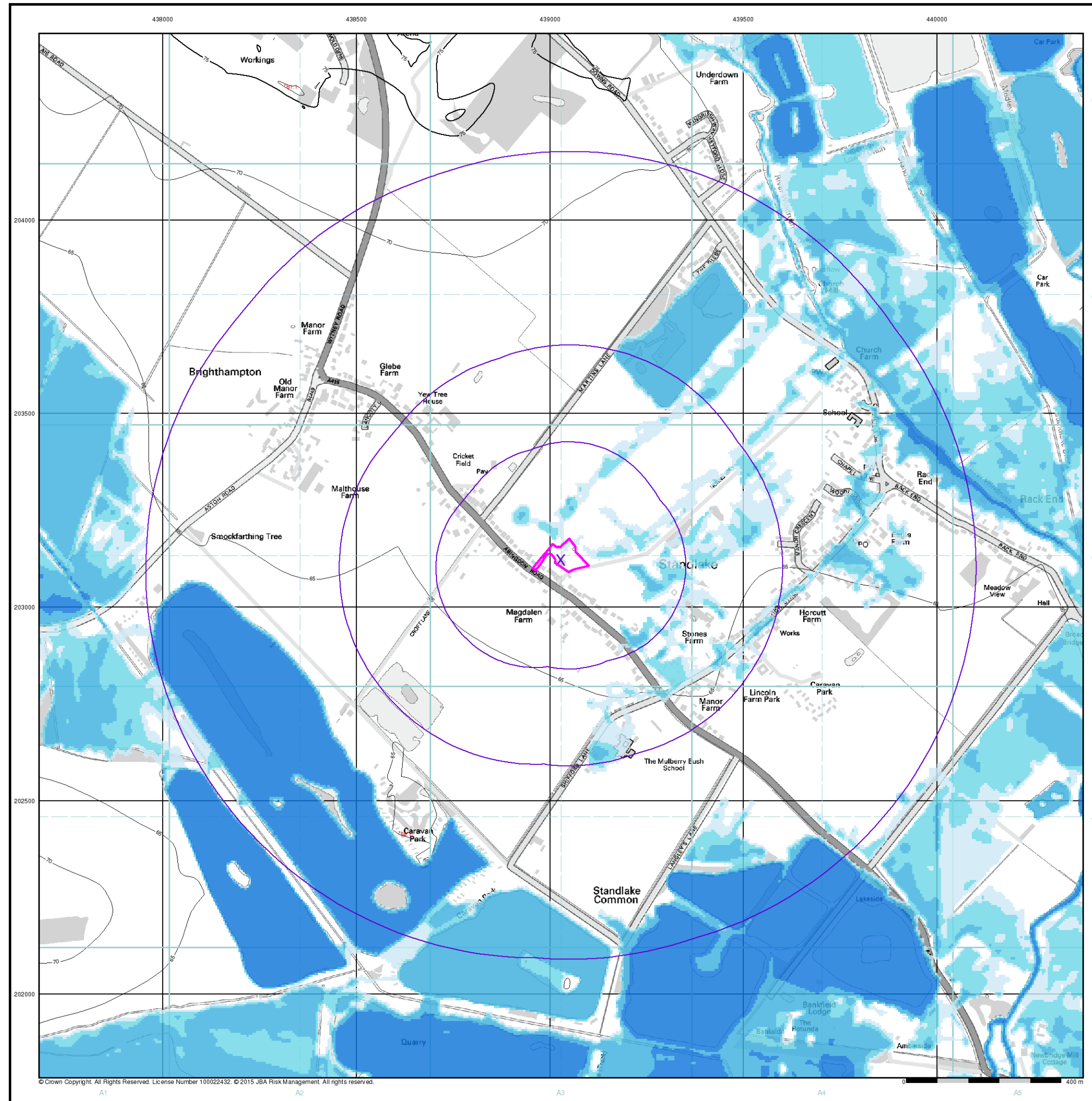
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 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



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



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

General

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

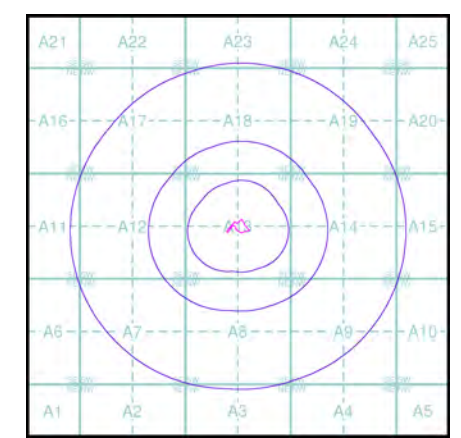
Modelled Flood Depth

Fluvial Depth	Coastal Depth
0.5mm - 10cm	< 10cm
10cm - 30cm	10cm - 30cm
30cm - 1m	30cm - 1m
>1m	>1m

Contours (height in metres)

- Standard Contour 105 100 95
- Master Contour
- Spot Height *167.8
- MLW Mean Low Water
- MHW Mean High Water

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



Order Details

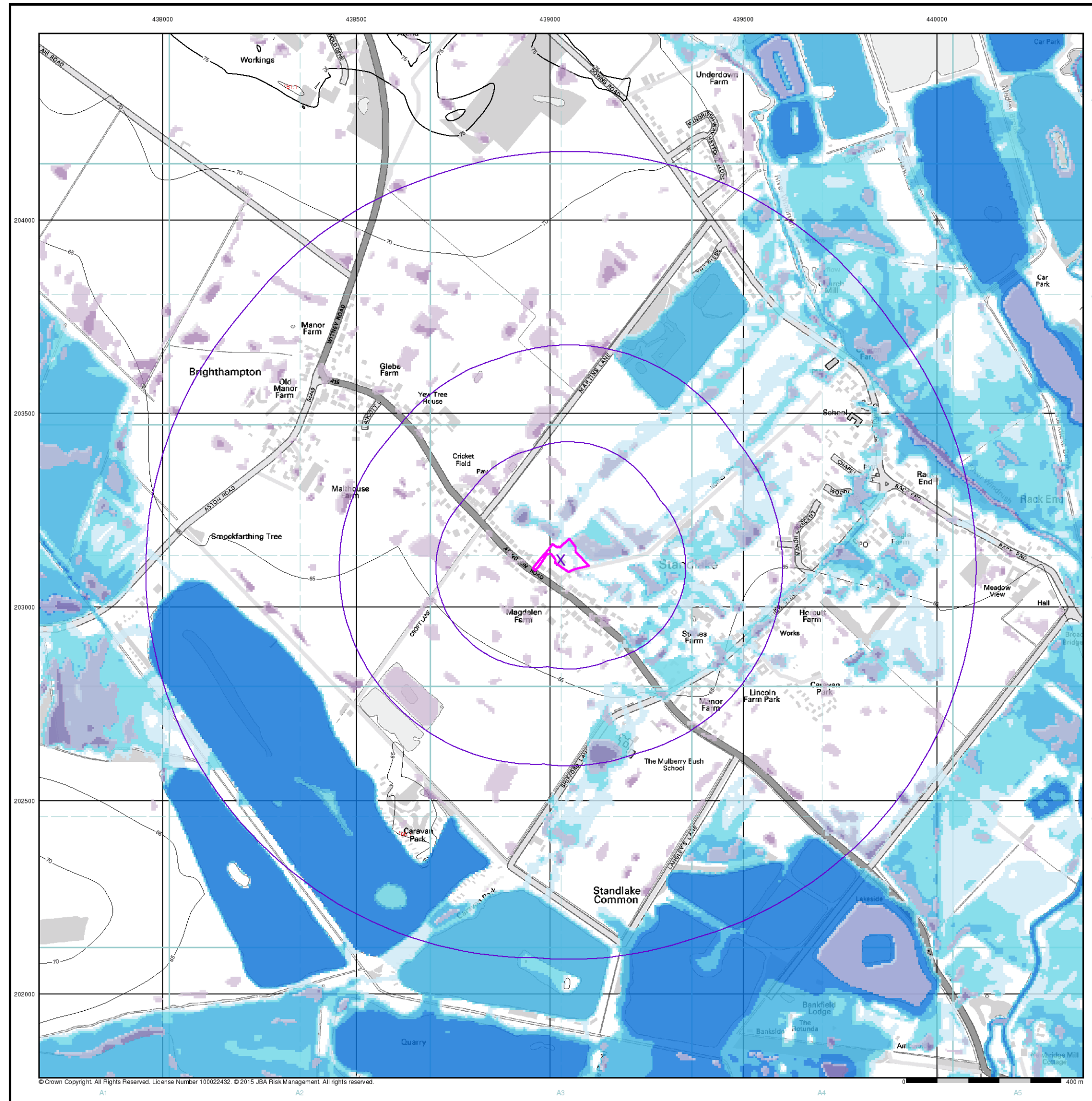
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 Search Buffer (m): 1000

Site Details

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



**JBA 200 Year Return Flood Map (Undefended)
(1:10,000)**

General

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

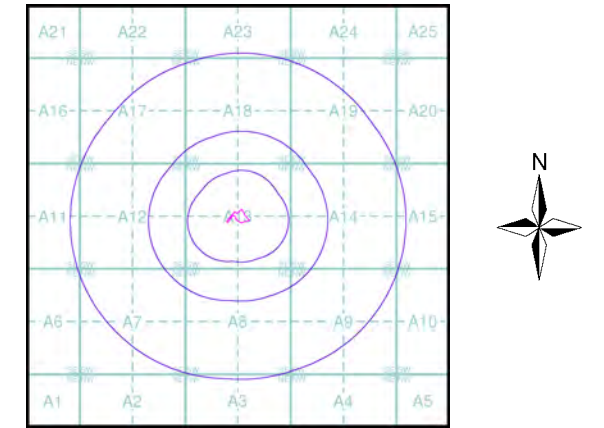
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
< 1cm	0.5mm - 10cm	< 10cm
1cm - 10cm	10cm - 30cm	10cm - 30cm
10cm - 30cm	30cm - 1m	30cm - 1m
30cm - 1m	>1m	>1m
>1m		

Contours (height in metres)

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

**JBA 200 Year Return Flood Map (Undefended) -
Slice A**



Order Details

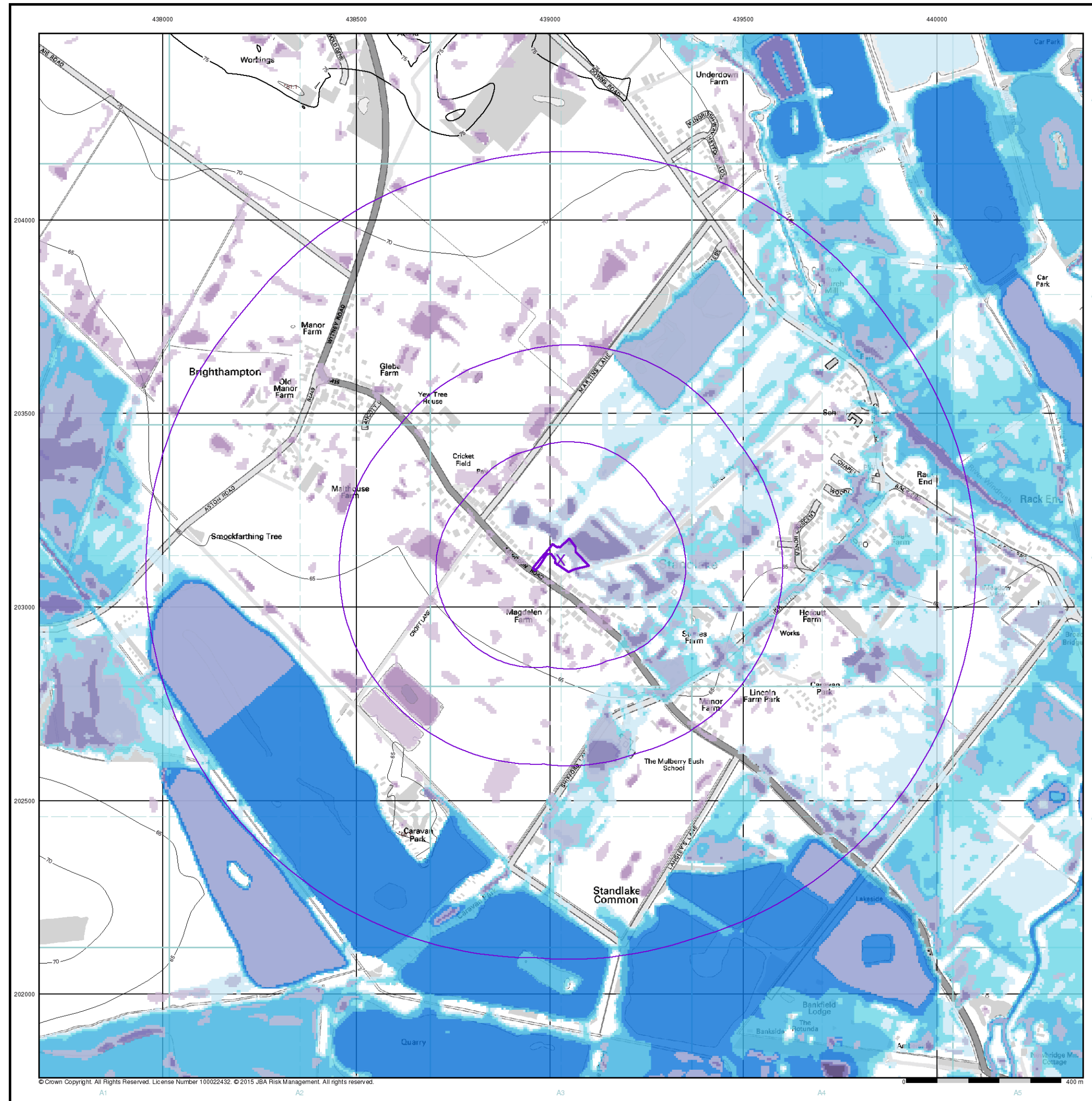
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 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



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



General

- ◻ Specified Site
- ◌ Specified Buffer(s)
- X Bearing Reference Point

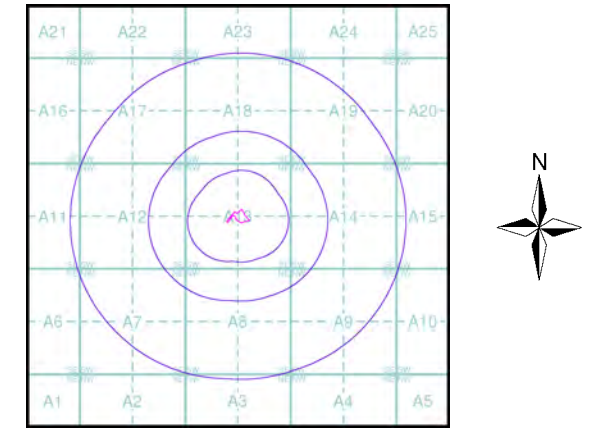
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
< 1cm	0.5mm - 10cm	< 10cm
1cm - 10cm	10cm - 30cm	10cm - 30cm
10cm - 30cm	30cm - 1m	30cm - 1m
30cm - 1m	>1m	>1m
>1m		

Contours (height in metres)



JBA 1000 Year Return Flood Map (Undefended) - Slice A

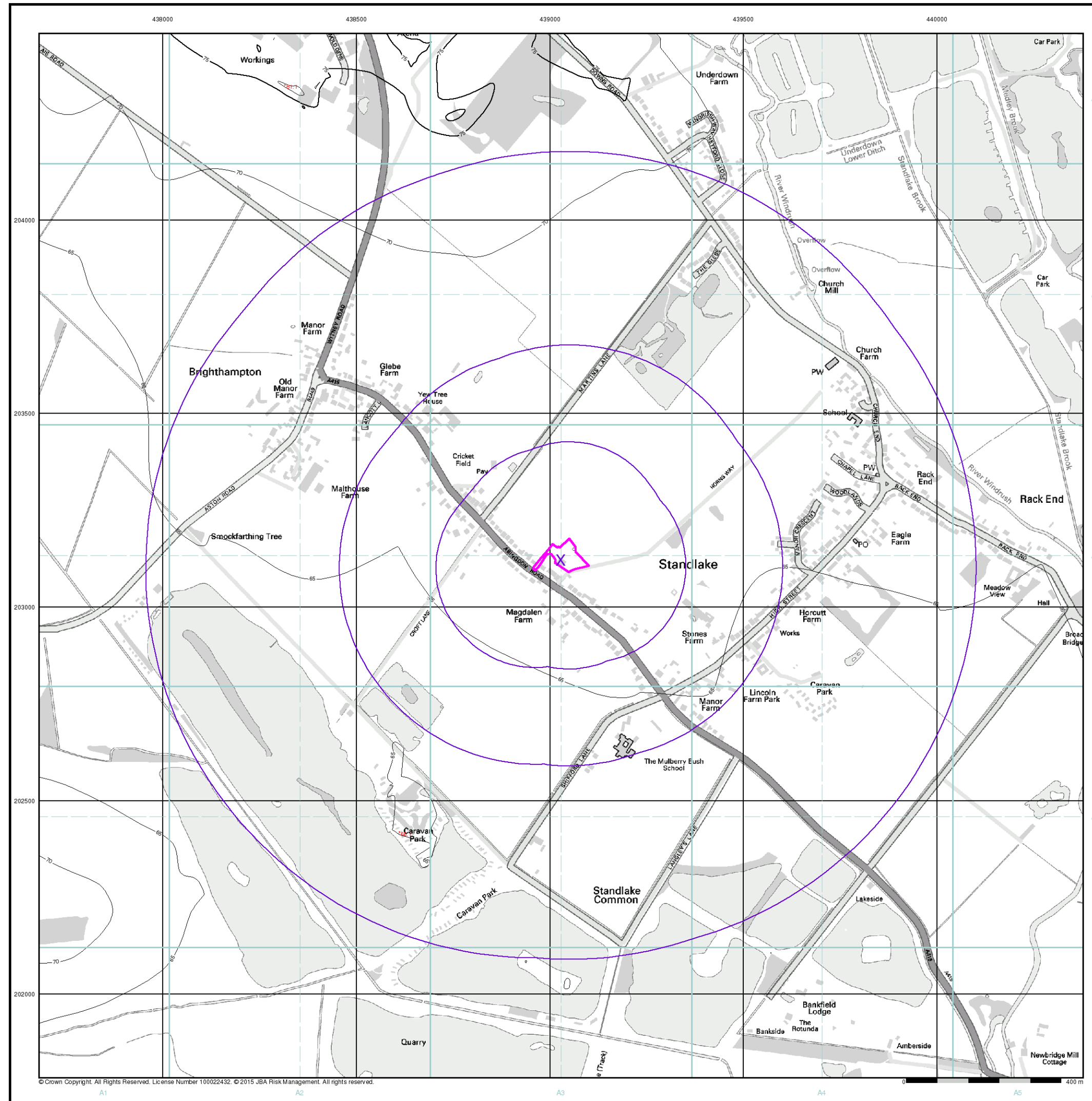


Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



General

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

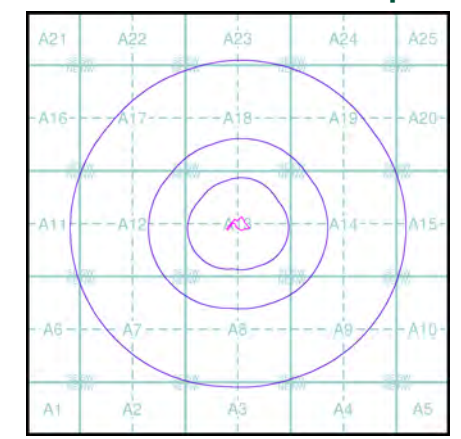
Flood Data

- Canal Failure
- Coverage

Contours (height in metres)

- Standard Contour 105 MLW Mean Low Water
- Master Contour 100 MHW Mean High Water
- Spot Height *167.8

JBA Canal Failure Flood Map - Slice A

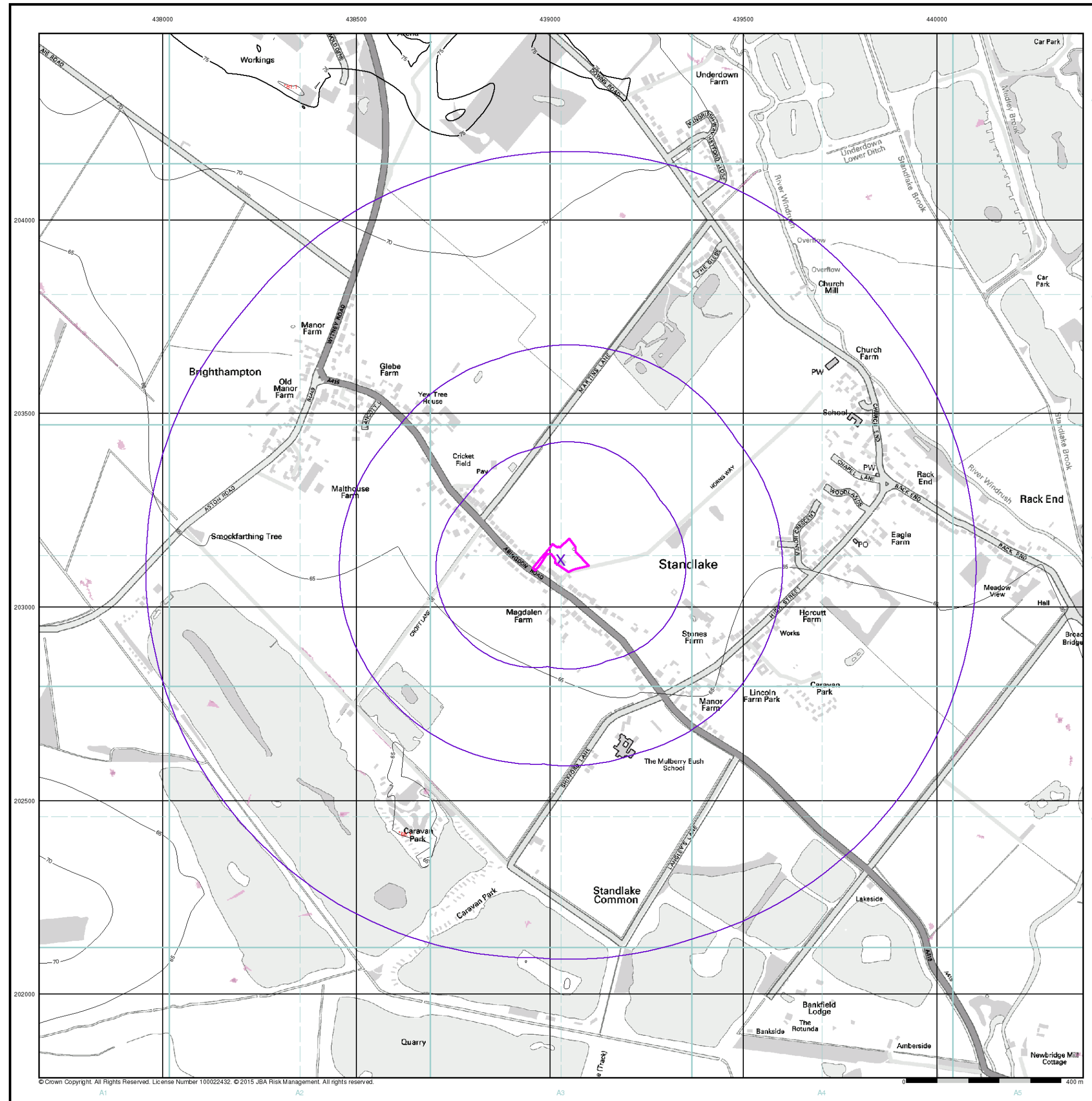


Order Details

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 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

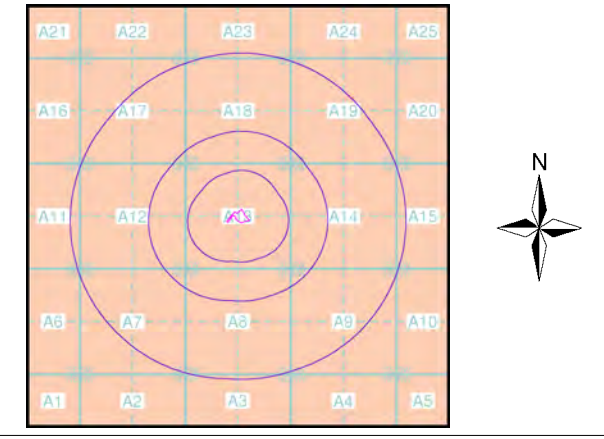
101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



E/ANRW 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 - 0.60m
 - 0.60 - 0.90m
 - 0.90 - 1.20m
 - > 1.20m
- Contours (height in metres)**
- Standard Contour
 - Master Contour
 - Spot Height: *167.8
 - MLW - Mean Low Water
 - MHW - Mean High Water
- Suitability**
- See the suitability map below
- National to county
 - County to town
 - Town to street
 - Street to parcels of land
 - Property

E/ANRW Suitability Map - Slice A

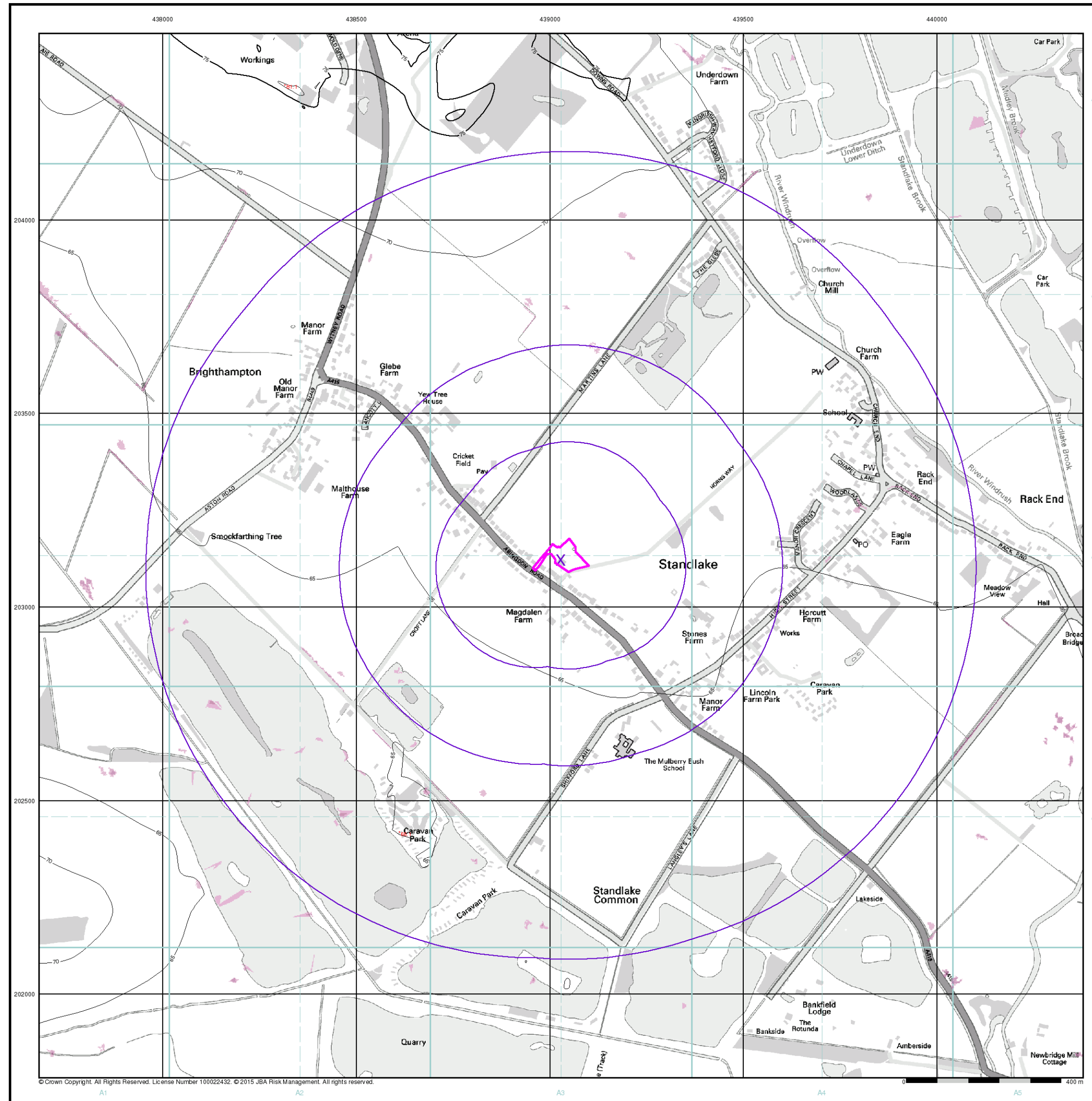


Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



E/NRW Surface Water 100 Year Return Depth Map

General
 Specified Site (pink X) Specified Buffer(s) (purple circle) Bearing Reference Point (X)

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.60m
- 0.60 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

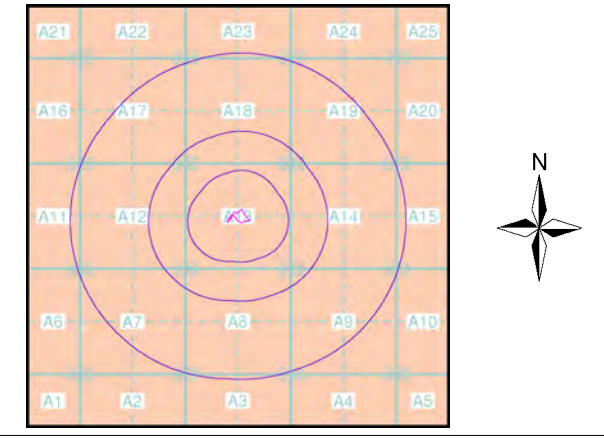
Standard Contour: 105, 100, 95
 Master Contour: 100
 Spot Height: *167.8

MLW Mean Low Water
 MHW Mean High Water

Suitability
 See the suitability map below

- National to county (light green)
- County to town (orange)
- Town to street (blue)
- Street to parcels of land (pink)
- Property (yellow)

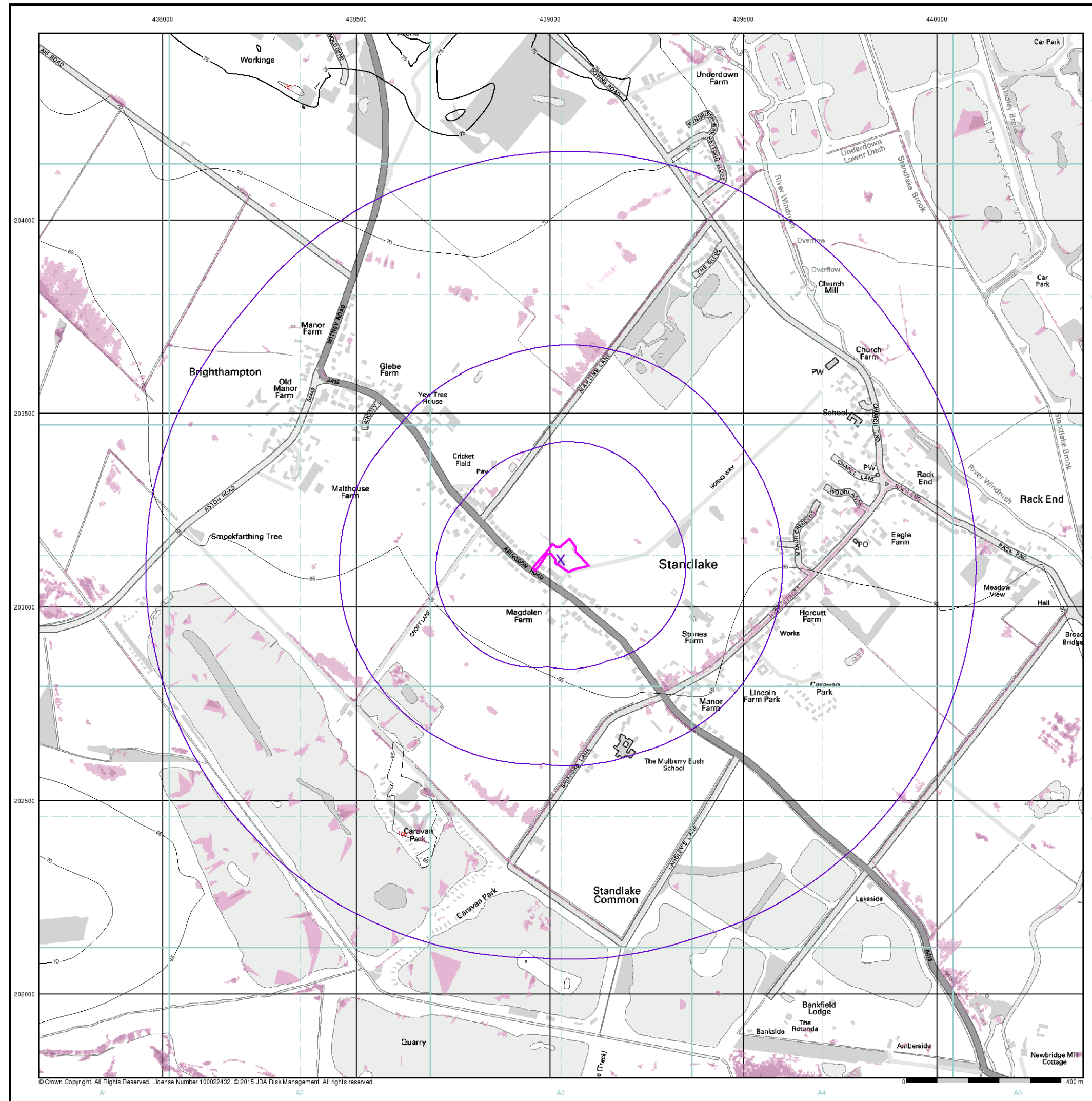
E/NRW Suitability Map - Slice A



Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

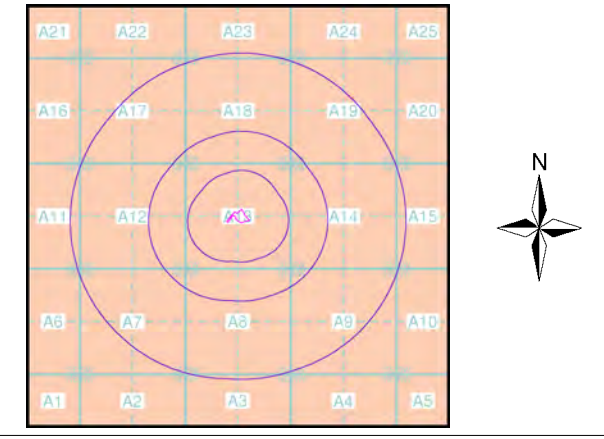
Site Details
 101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



E/ANRW 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 - 0.60m
 - 0.60 - 0.90m
 - 0.90 - 1.20m
 - > 1.20m
- Contours (height in metres)**
- Standard Contour
 - Master Contour
 - Spot Height: *167.8
 - MLW - Mean Low Water
 - MHW - Mean High Water
- Suitability**
- See the suitability map below
- National to county
 - County to town
 - Town to street
 - Street to parcels of land
 - Property

E/ANRW Suitability Map - Slice A



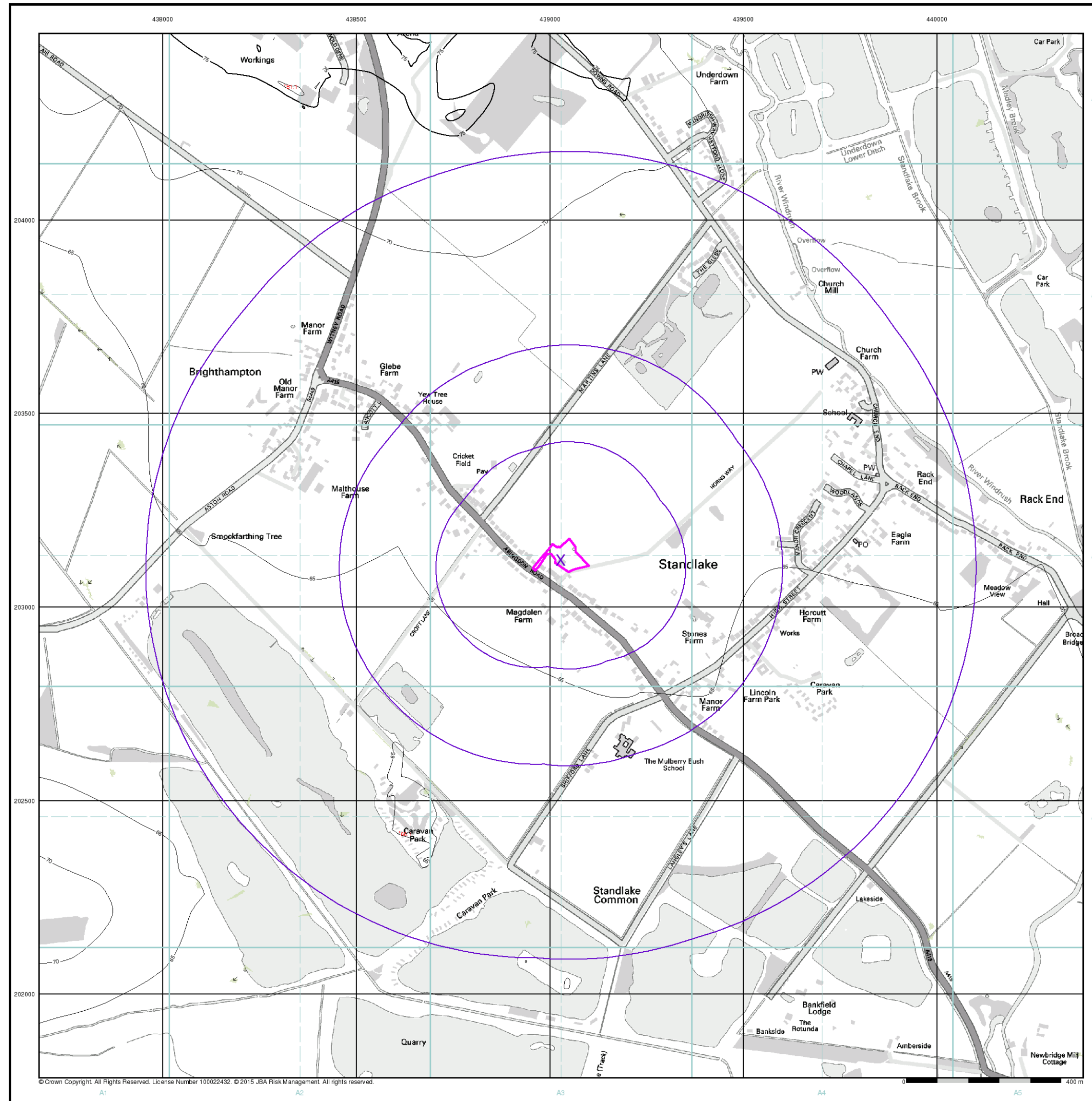
Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN





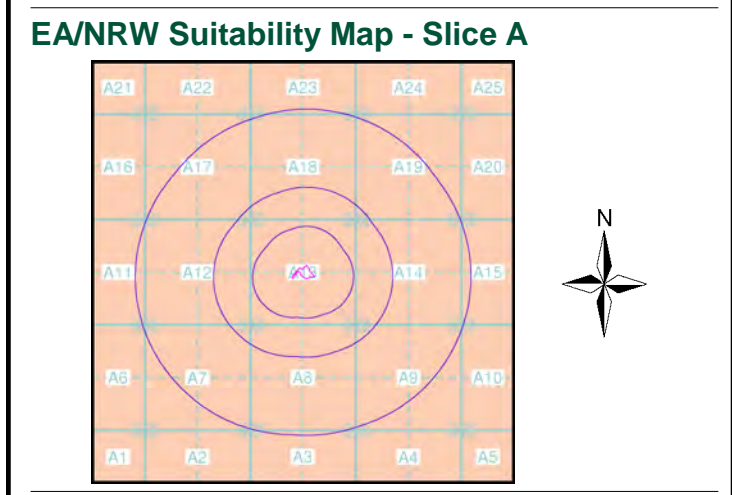
GeoSmart Information
 Environmental Thinking
E/ANRW Surface Water 30 Year Return Velocity and Flow Direction Map (1:10,000)

General
 Specified Site (pink X) Specified Buffer(s) (purple circle) Bearing Reference Point (X)

Surface Water Velocity and Direction
 0.00 - 0.25m/s
 0.25 - 0.50m/s
 0.50 - 1.00m/s
 1.00 - 2.00m/s
 > 2.00m/s
 ↑ Flow Direction at maximum velocity

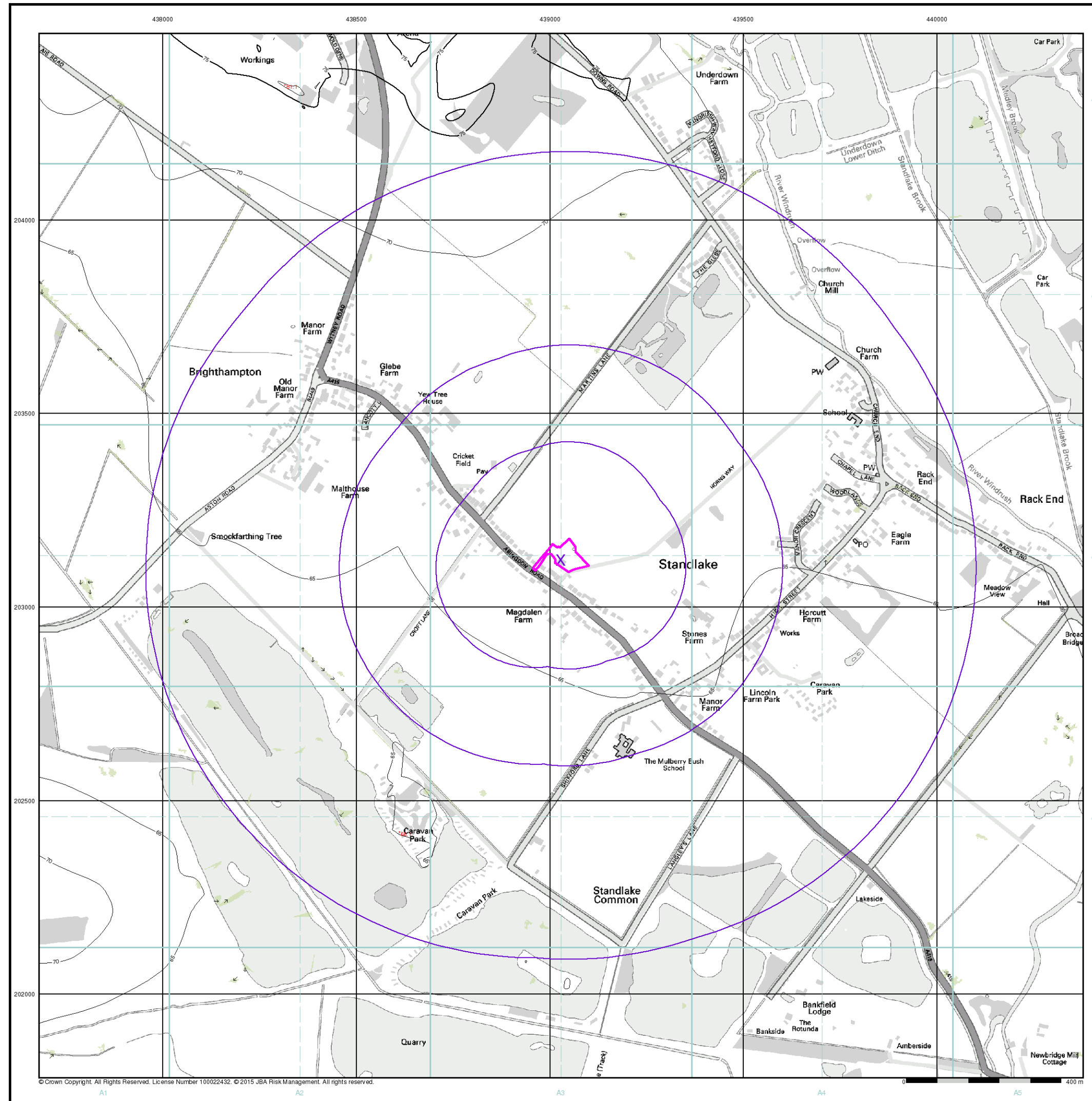
Contours (height in metres)
 Standard Contour (105, 100, 95) — MLW — Mean Low Water
 Master Contour — MHW — Mean High Water
 Spot Height *167.8

Suitability
 See the suitability map below
 National to county (light green) Street to parcels of land (pink)
 County to town (orange) Property (yellow)
 Town to street (blue)



Order Details
 Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details
 101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



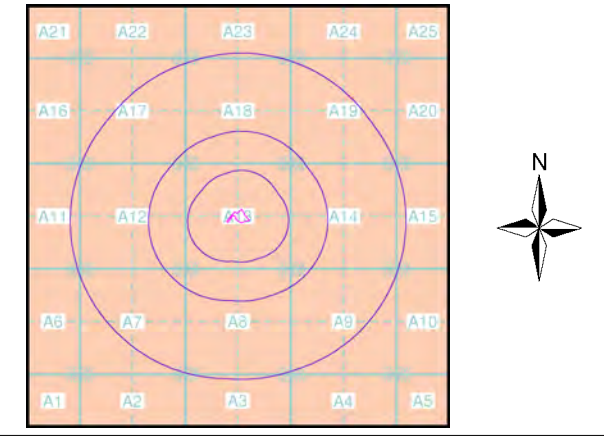
E/ANRW Surface Water 100 Year Return Velocity and Flow Direction Map (1:10,000)

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
- Surface Water Velocity and Direction**
- 0.00 - 0.25m/s
 - 0.25 - 0.50m/s
 - 0.50 - 1.00m/s
 - 1.00 - 2.00m/s
 - > 2.00m/s
 - Flow Direction at maximum velocity

- Contours (height in metres)**
- Standard Contour
 - Master Contour
 - Spot Height: *167.8
 - MLW - Mean Low Water
 - MHW - Mean High Water

- Suitability**
- See the suitability map below
- National to county
 - County to town
 - Town to street
 - Street to parcels of land
 - Property

E/ANRW Suitability Map - Slice A

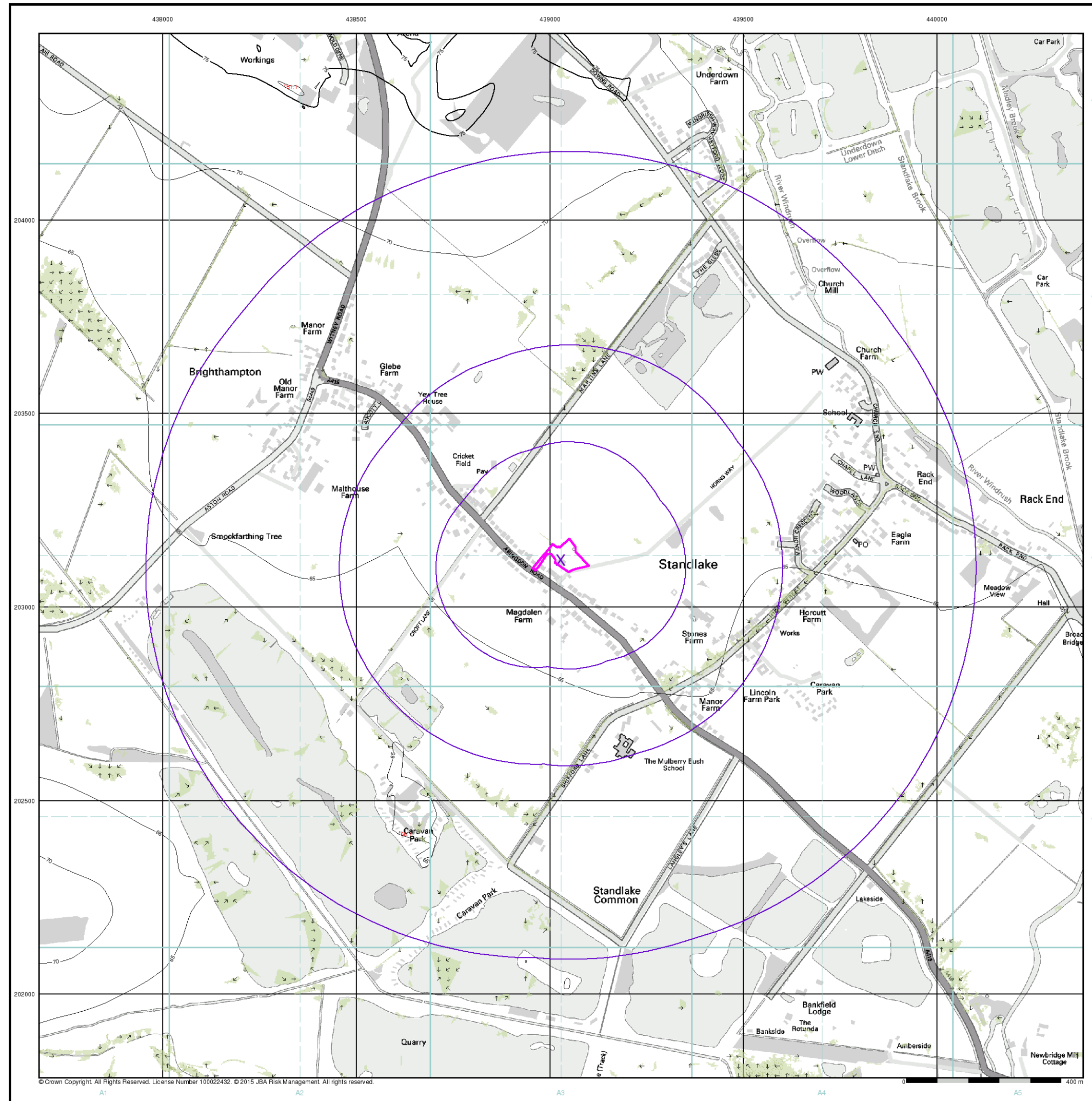


Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN

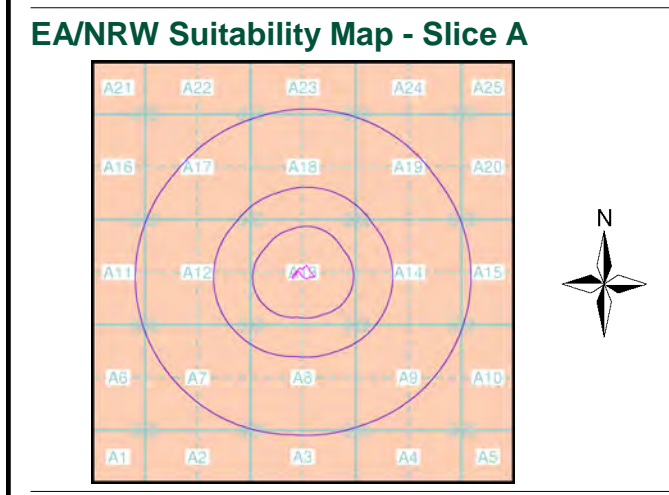


GeoSmart Information
 Environmental Thinking
EANRW Surface Water 1000 Year Return Velocity and Flow Direction Map (1:10,000)

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
- Surface Water Velocity and Direction**
- 0.00 - 0.25m/s
 - 0.25 - 0.50m/s
 - 0.50 - 1.00m/s
 - 1.00 - 2.00m/s
 - > 2.00m/s
 - Flow Direction at maximum velocity

- Contours (height in metres)**
- Standard Contour
 - Master Contour
 - Spot Height: *167.8
 - MLW - Mean Low Water
 - MHW - Mean High Water

- Suitability**
- See the suitability map below
- National to county
 - County to town
 - Town to street
 - Street to parcels of land
 - Property

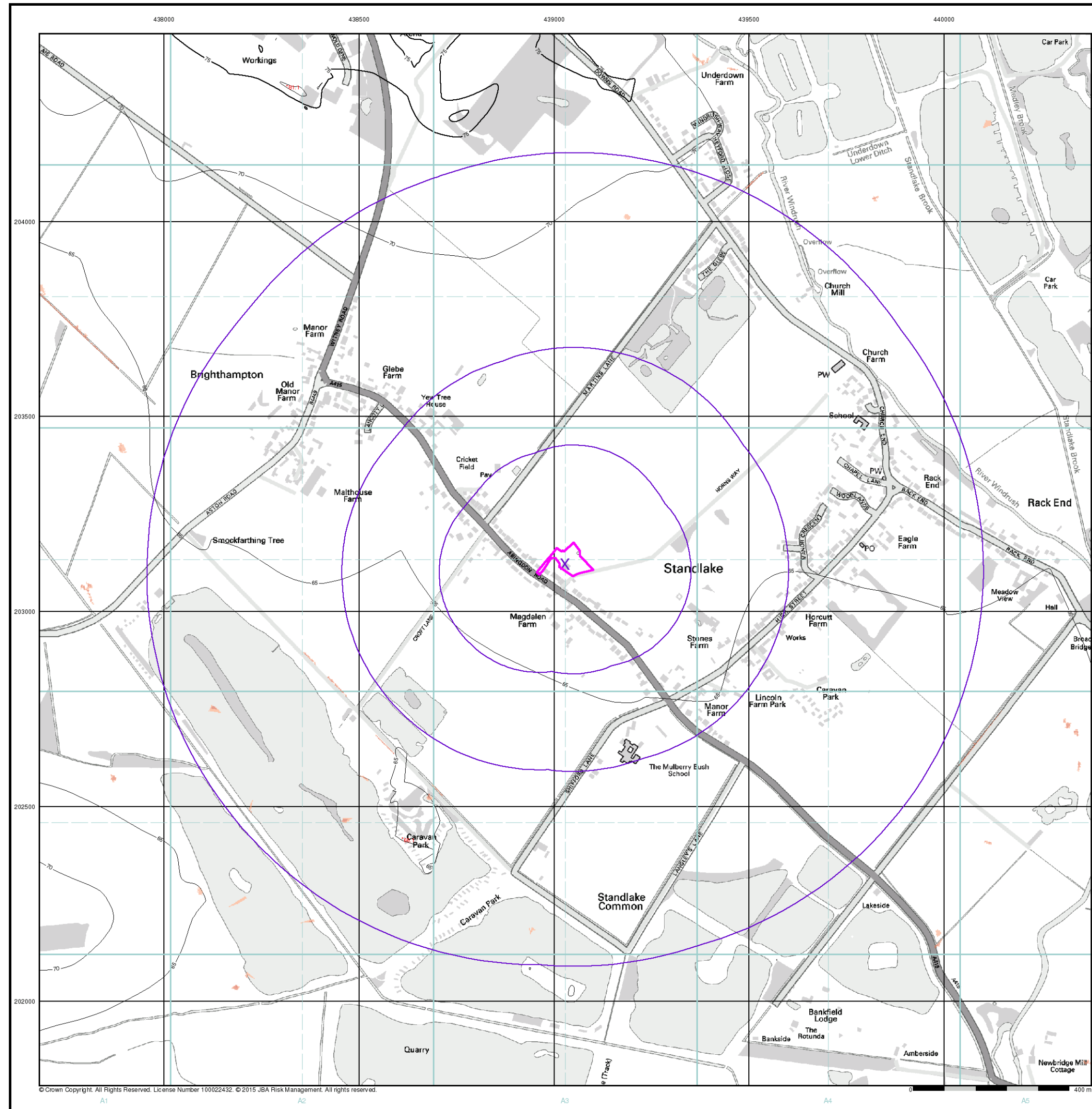


Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



GeoSmart Information
 Environmental Thinking
E/ANRW Surface Water 30 Year Return Hazard Rating Map (1:10,000)

General
 Specified Site (Pink Polygon) Specified Buffer(s) (Purple Circles) Bearing Reference Point (X)

Surface Water Hazard Rating

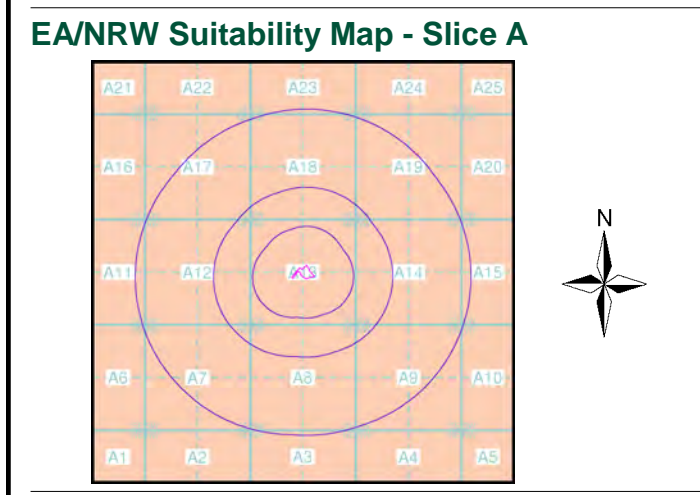
- Low (0.5 – 0.75)
- Moderate (0.75 – 1.25)
- Significant (1.25 – 2.0)
- Extreme (>2.0)

Contours (height in metres)

Standard Contour (105, 100, 95) MLW (Mean Low Water)
 Master Contour (105, 100, 95) MHW (Mean High Water)
 Spot Height: *167.8

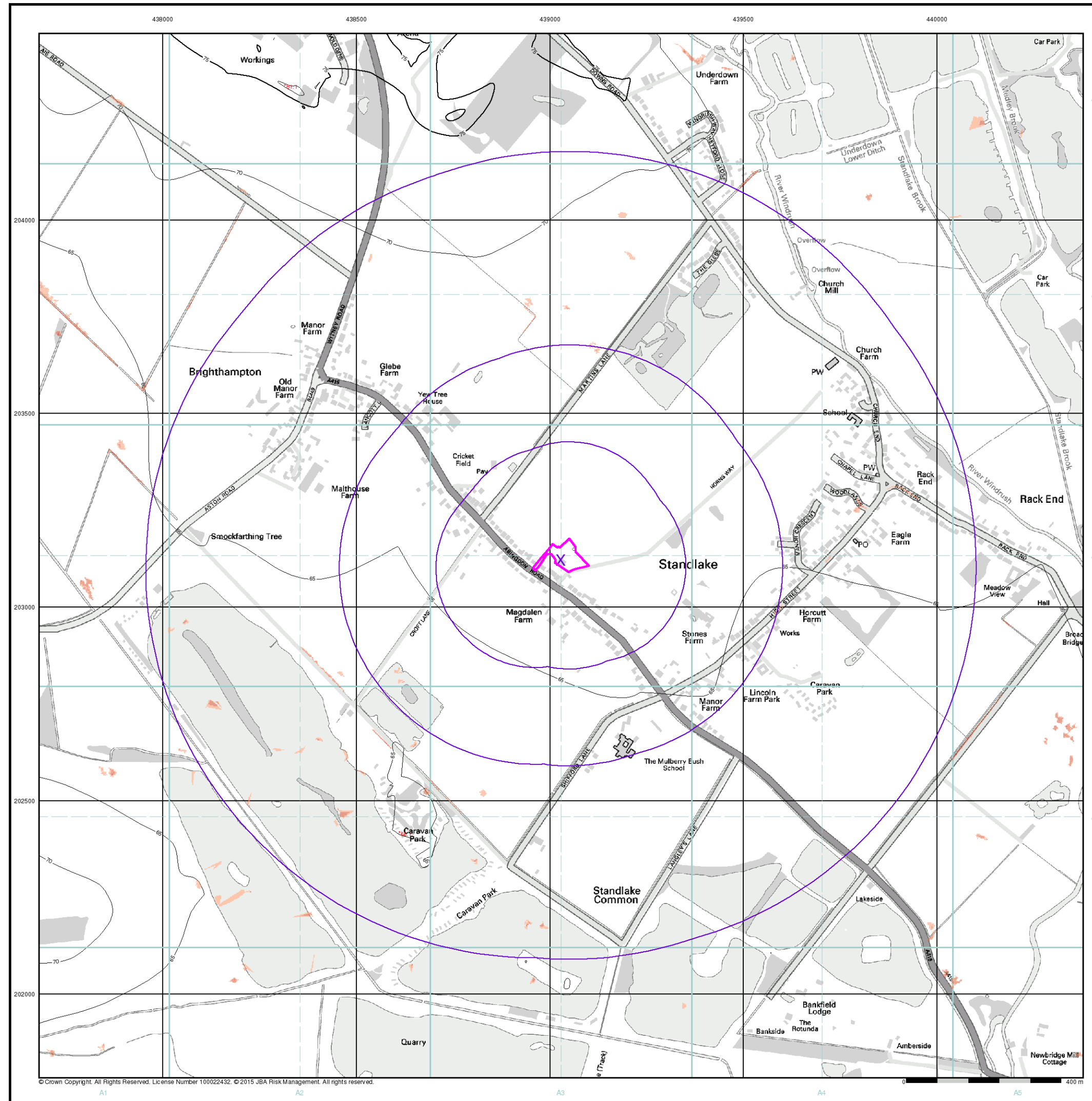
Suitability
 See the suitability map below

- National to county (Light Green)
- County to town (Orange)
- Town to street (Blue)
- Street to parcels of land (Pink)
- Property (Yellow)



Order Details
 Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details
 101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



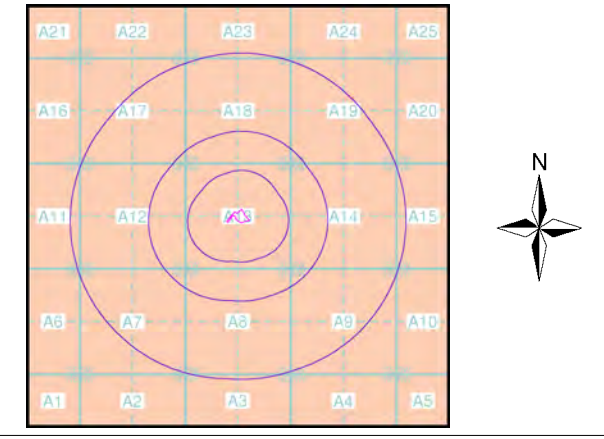
E/ANRW Surface Water 100 Year Return Hazard Rating Map (1:10,000)

- 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: *167.8
 - MLW: Mean Low Water
 - MHW: Mean High Water

- Suitability**
- See the suitability map below
- National to county
 - County to town
 - Town to street
 - Street to parcels of land
 - Property

E/ANRW Suitability Map - Slice A



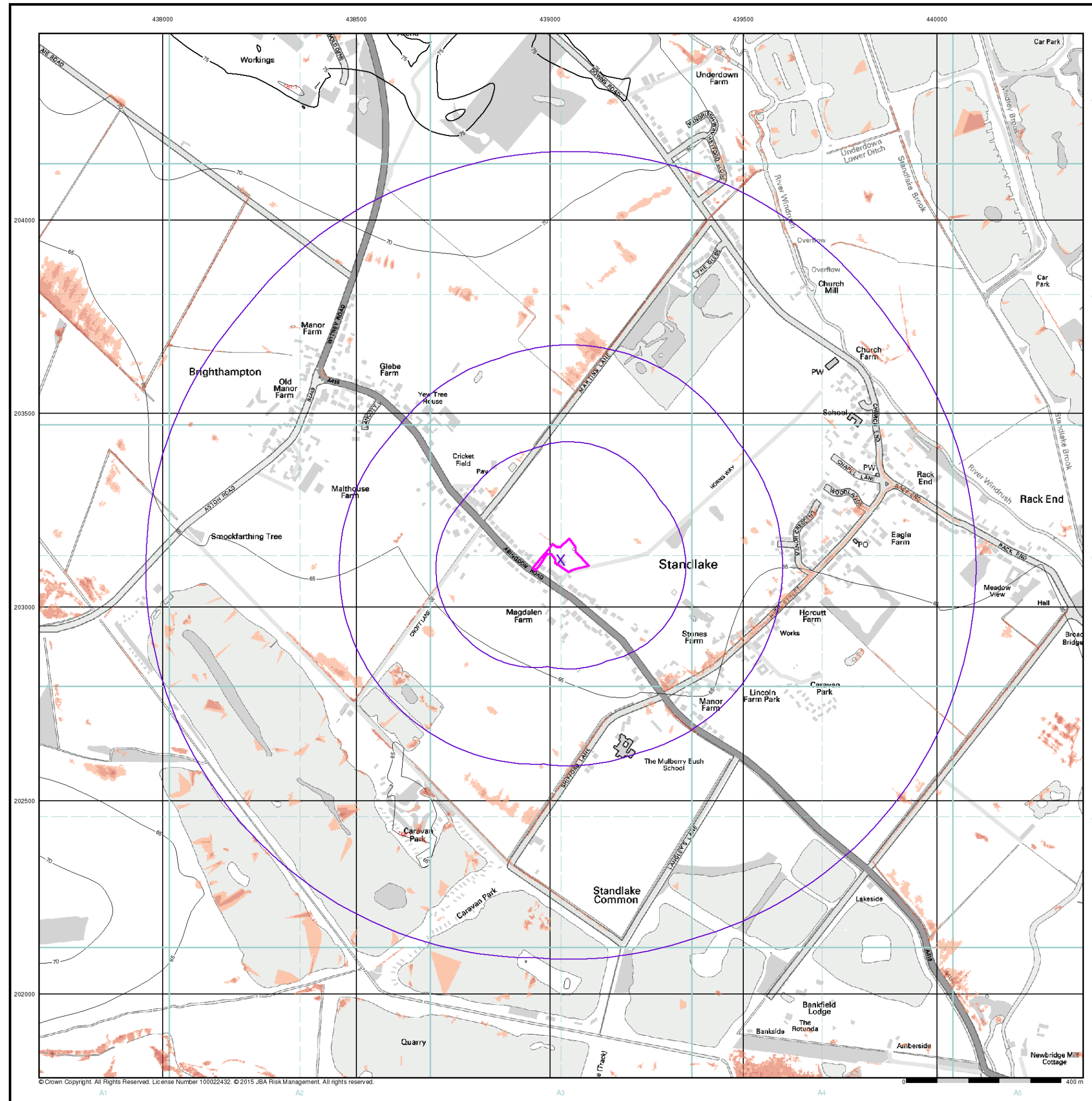
Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



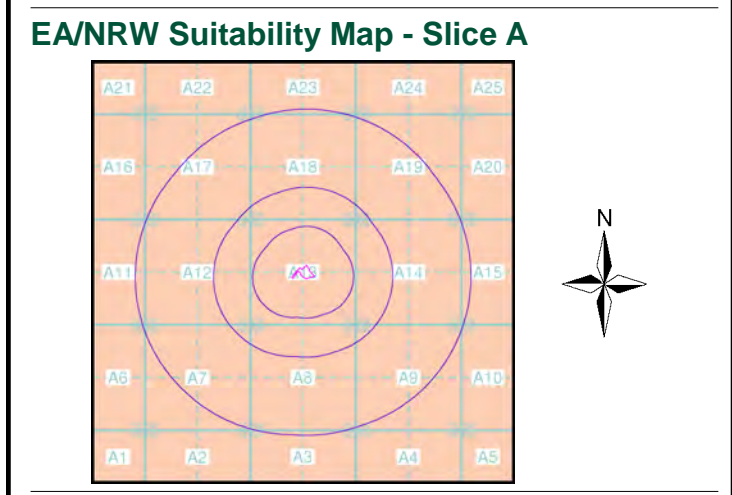


GeoSmart Information
 Environmental Thinking
E/ANRW Surface Water 1000 Year Return Hazard Rating Map (1:10,000)

- General**
 Specified Site (pink polygon) Specified Buffer(s) (purple circles) Bearing Reference Point (X)
- Surface Water Hazard Rating**
- Low (0.5 – 0.75)
 - Moderate (0.75 – 1.25)
 - Significant (1.25 – 2.0)
 - Extreme (>2.0)

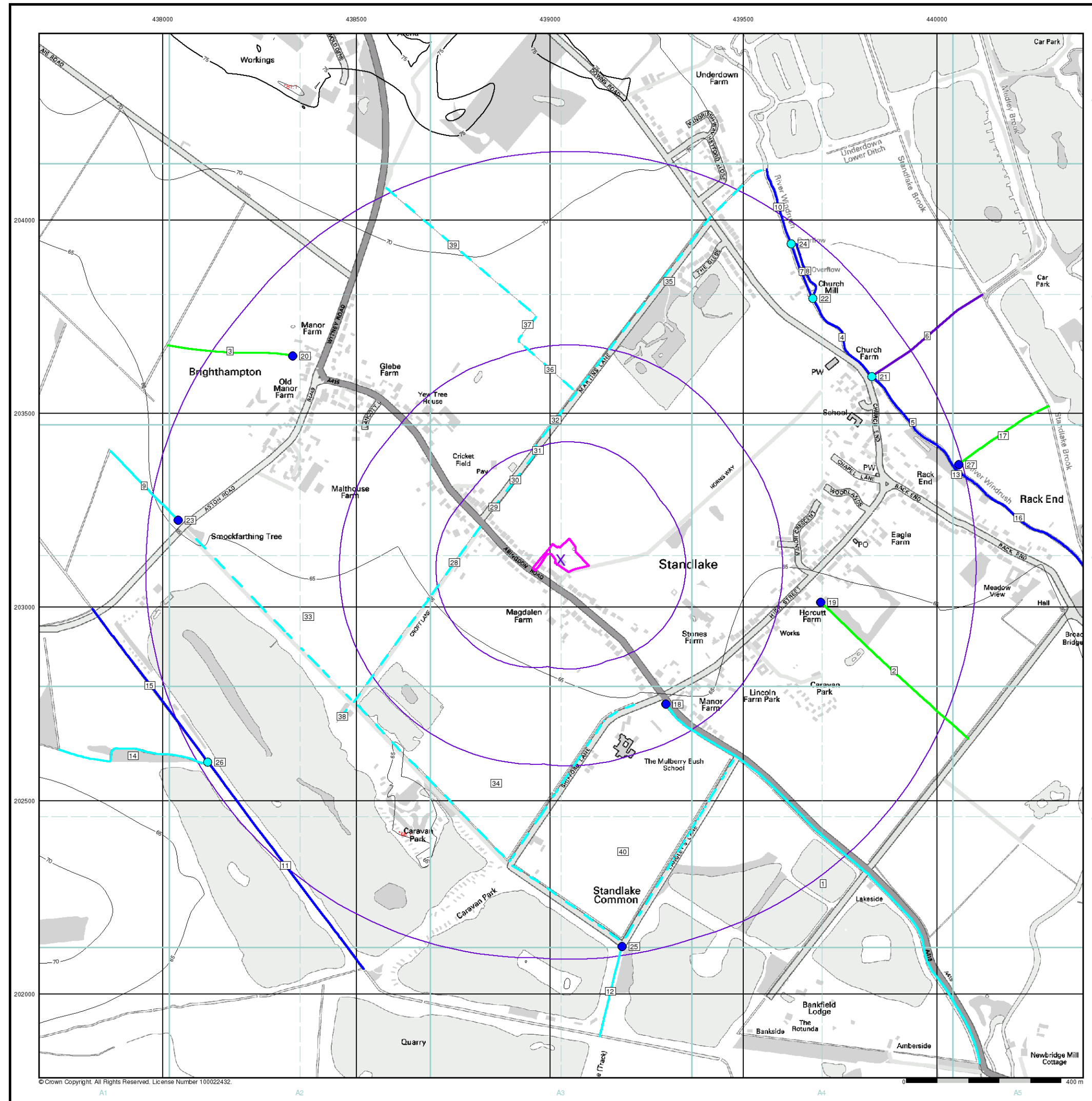
- Contours (height in metres)**
- Standard Contour (105, 100, 95) — MLW — Mean Low Water
 Master Contour — MHW — Mean High Water
 Spot Height *167.8

- Suitability**
 See the suitability map below
- National to county (light green)
 - County to town (orange)
 - Town to street (blue)
 - Street to parcels of land (pink)
 - Property (yellow)



Order Details
 Order Number: 110678516_1_1
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 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details
 101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



General

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

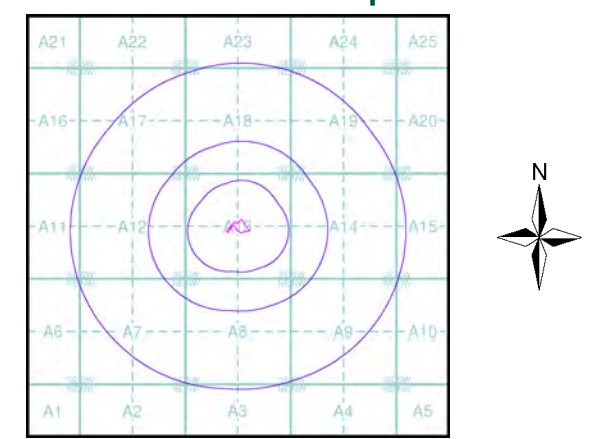
Detailed River Network Data

- | | |
|--------------------------|---|
| Primary River | Extended Culvert (greater than 50m) |
| Secondary River | Underground River (inferred) |
| Tertiary River | Underground River (local knowledge) |
| Canal | Downstream of High Water Mark |
| Canal Tunnel | Downstream of Seaward Extension |
| Undefined River | Not assigned River feature |
| Lake/Reservoir | |
| Source | Not assigned River feature |
| Junction | Pseudo Node (general) |
| Sink | Pseudo Node (High Water Mark) |
| Non-interactive Node | Pseudo Node (OS MasterMap polygon boundary) |
| Offline Drainage Feature | |

Contours (height in metres)

- Standard Contour 105
- Master Contour 100 95
- Spot Height *167.3
- MLW Mean Low Water
- MHW Mean High Water

Detailed River Network Map - Slice A

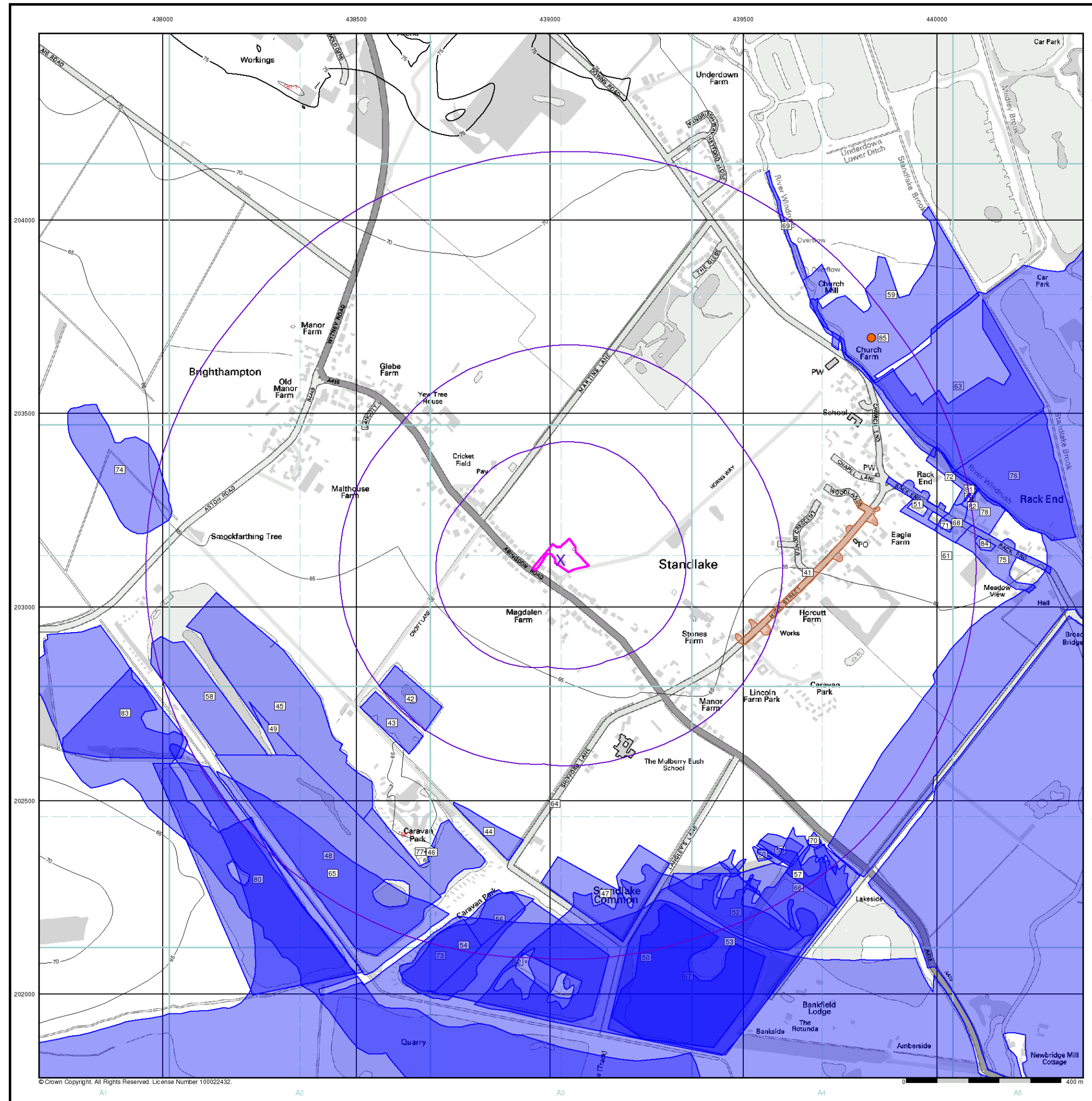


Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN



General

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

Historic Flood Events Data

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

Historical Flood Liabilities

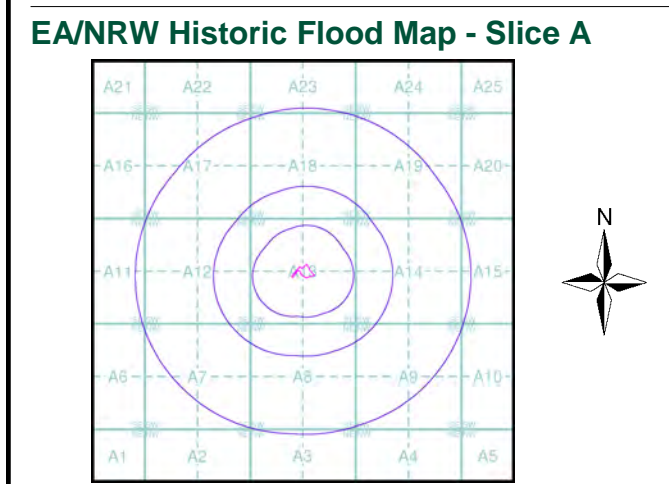
Contours (height in metres)

Standard Contour: 105, 100, 95

Master Contour: 100, 95

Spot Height: 167.8

MLW - Mean Low Water
 MHW - Mean High Water



Order Details

Order Number: 110678516_1_1
 Customer Ref: 65667
 National Grid Reference: 439030, 203120
 Slice: A
 Site Area (Ha): 0.5
 Search Buffer (m): 1000

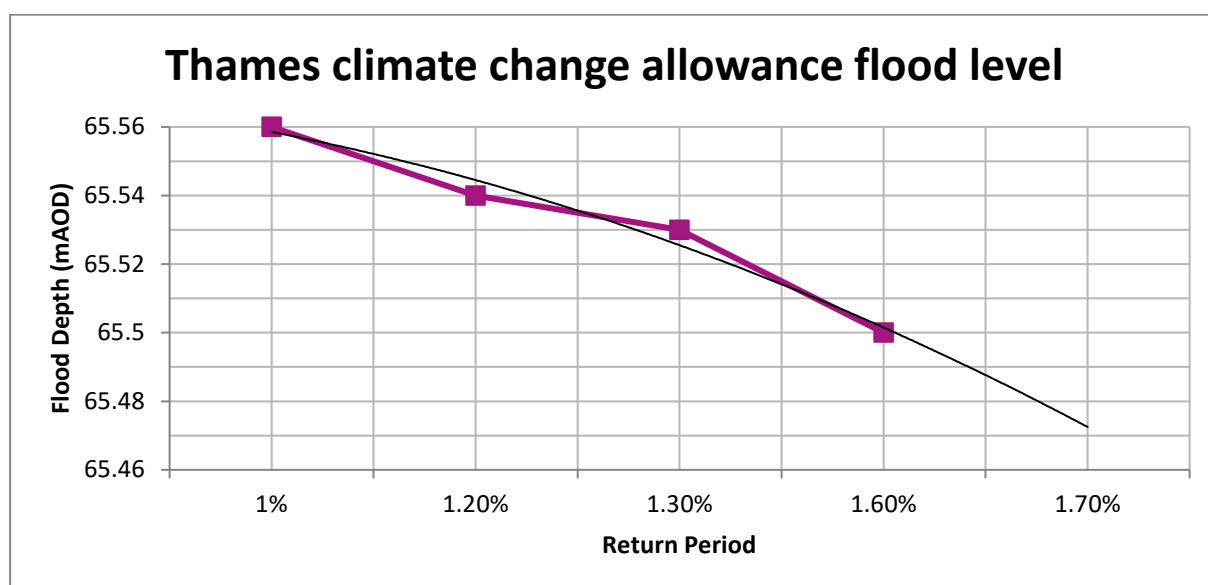
Site Details

101 Abingdon Road, Standlake, WITNEY, Oxfordshire, OX29 7QN

Appendix C

Environment Agency data

Return period	Flood Level
1% (1 in 100 year event)	65.56
1.20% (1 in 100 year event plus 20% climate change)	65.54
1.30% (1 in 100 year event plus 30% climate change)	65.53
0.1% (1 in 1000 year event)	65.50
1.70% (1 in 100 year event plus 70% climate change)	65.50



1 in 100 year
(plus 30%
CC) event
LiDAR map.

Appendix D

Topographic Survey Elevation Data (Midlands Survey Ltd, 2017)

Appendix E

Thames Water Sewer Flooding History Search

Sewer Flooding

History Enquiry



Envirep Ltd
New Zealand House

Search address supplied 99
Abingdon Road
Standlake
Witney
OX29 7QN

Your reference 65667 PO: 1747

Our reference SFH/SFH Standard/2017_3489358

Received date 17 January 2017

Search date 7 February 2017

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504

E searches@thameswater.co.uk

I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry



Search address supplied: 99, Abingdon Road, Standlake, Witney, OX29 7QN

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments

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No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry



History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

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Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

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Tel: 01743 276 150

Email: info@geosmartinfo.co.uk

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

The Search Code:

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

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

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

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

FloodSmart Pro

Ref 65667.02R3

TPOs contact details:

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

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

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

Complaints procedure

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

If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

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

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision.

Complaints should be sent to:

Martin Lucass - Commercial Director

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

martinlucass@geosmartinfo.co.uk

FloodSmart Pro

Ref 65667.02R3