



# **PROPOSED CHANGES**

# **APPLICATION REPORT**

## **Appendix 5 – Flood Risk**

## **Assessment Extracts**

### **Drax Bioenergy with Carbon Capture and Storage**

Document Reference Number: 8.5.3.5

Applicant: Drax Power Limited

PINS Reference: EN010120



REVISION: 01

DATE: December 2022

DOCUMENT OWNER: WSP UK Ltd

AUTHOR: E. Szostak

APPROVER: A. Smith

PUBLIC

## 7. OPERATIONAL PHASE MITIGATION

---

7.1.1. The previous sections demonstrate that the Carbon Dioxide Delivery Terminal Compound, the Northern Development Parcel, part of the Southern Development Parcel and Habitat Provision Area are at risk of flooding during the design event “FT2”. The proposed mitigation measures are detailed below for design and sensitivity events:

### **FREEBOARD**

7.1.2. The flood modelling undertaken by the Environment Agency and then refined to be site specific for the Proposed Scheme provides a high level of local knowledge and understanding, thus the freeboard allowances can be set with the levels of confidence associated with the model.

7.1.3. For the purposes of this assessment sensitive infrastructure is that which is required to maintain the operation of the Proposed Scheme (“sensitive infrastructure”) and could be adversely impacted by flood waters.

7.1.4. The sensitive infrastructure within the floodplain will be set a minimum of 800 mm above the design event (FT2) flood levels. For sensitive infrastructure located outside of the design and sensitivity floodplains a minimum freeboard of 300 mm will be incorporated to mitigate the risk of flooding during exceedance events and from surface water.

7.1.5. Raising the sensitive infrastructure will provide a minimum of 380 mm freeboard for level of the sensitive infrastructure and the modelled flood levels for the sensitivity scenarios and a minimum of 250 mm freeboard allowance between the level of the sensitive infrastructure and the modelled breach flood levels.

7.1.6. The inclusion of these freeboard allowances for the sensitive infrastructure is within the maximum height parameters for the Proposed Scheme as detailed in Schedule 15 of the DCO.

7.1.7. Details of the proposed finished levels and associated freeboard are summarised in Table 7.1.

**Table 7.1 - Modelled flood levels and proposed building levels**

Building	Current Ground Level (mAOD)	Modelled Flood Levels (mAOD) in 2046							Minimum Design Level (mAOD) Based on Event "FT2"	Resultant Minimum Freeboard (m)					
		FT2 (Design Event)	FT1	FD	FT5	T	FT1 Breach	FT2 Breach		FD	FT1	FT5	T	FT1 Breach	FT2 Breach
1 (East)	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.58	0.3m above ground level					
1 (West)	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20	0.3m above ground level					
3 (West)	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.23	0.3m above ground level					
3 (East)	5.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.15	0.3m above ground level					
4 (East)	4.50	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.25	
4 (West)	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.91	0.3m above ground level					
8	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.26	0.3m above ground level					
10	4.55	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.25	
12 (East)	4.43	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.25	
12 (West)	4.55	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.25	
13	4.42	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.25	
14	4.57	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.25	
16 Carbon Dioxide Delivery Terminal Compound	3.94	4.60	5.02	5.02	0.00	0.00	5.15	5.14	5.40	0.38	0.38	No onsite flooding	0.25	0.26	
Elements outside of the Design floodplain	Varies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Varies	0.3m above ground level					

## RISK TO HUMAN HEALTH

- 7.1.8. The results of the hydraulic modelling show that the Carbon Dioxide Delivery Terminal Compound, Northern Development Parcel and part of Southern Development Parcel) are located in the areas at risk of flooding during a breach event. During both of these events, the Northern Development Parcel and the Carbon Dioxide Delivery Terminal Compound are predicted to experience Significant Hazard (dangerous for most). Due to the nature of the Proposed Scheme and that Drax Power Station Site will update (prior to construction and operation, as appropriate) operational management plans, Environment Management System and Drax Management Instructions, as appropriate, to incorporate the additional risks and requirements of the Proposed Scheme, to ensure safe operation of the site and the ability to safely shut down and evacuate the site (in an extreme case the existing evacuation alarm system would be utilised), if required, this is considered an acceptable hazard rating.

## FLOODPLAIN IMPACTS

- 7.1.9. The Proposed Scheme is located on the edge of the floodplain, thus any impact on flow routes and overall flood level without mitigation is likely to minimal, however, appropriate mitigation has been included within the Proposed Scheme.
- 7.1.10. The existing built footprint across the site does not form part of the floodplain in accordance with the Flood Risk and Coastal Change Planning Policy Guidance which states:
- “Areas which would naturally flood, but which are prevented from doing so by existing defences and infrastructure or solid buildings, will not normally be identified as functional floodplain.”
- 7.1.11. There are existing buildings within the design event (FT2) floodplain which will be demolished prior to construction of the Proposed Scheme under planning consent (202/0994/FULM). These buildings are considered to be solid and relatively watertight as shown in **Plate 7.1** and **Plate 7.2**.



**Plate 7.1 - Example of an Existing Tank**



**Plate 7.2 - Example of an Existing Building**

### Floodplain Assessment

**7.1.12.** Notwithstanding this demolition, the comparison of the built footprint in the design event floodplain (including climate change allowances) ~~is detailed in Table 7.2~~ has been undertaken in GIS to determine the magnitude of the floodplain compensation required included for the design event:

7.1.12.

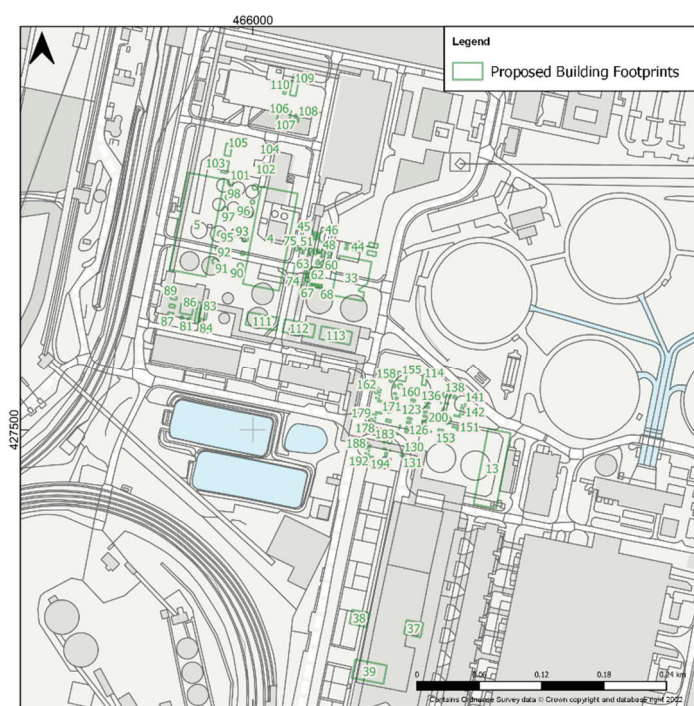
- a. Utilising the flood results from the design scenario, as detailed within the FRA (scenario FT2);

- b. Identifying the buildings / bunds (that comply with point 3 above) which are to be demolished and are located within the floodplain. The nature of these buildings is provided in paragraphs 7.1.9 to 7.1.14 of this FRA. Planning permission for the demolition of these buildings has been granted by the LPA (ref 2020/0994/FULM), whilst other aspects of the demolition is covered by permitted development rights. The area of each of these buildings / bunds was extracted, based upon that in the Indicative Plans and Elevations (APP-012) and drawing Plan View Layout Plant and Buildings to be Demolished (ref 70069244-DWG-002) from the consented scheme (LPA ref 2020/0994/FULM), along with the information contained in the 3D model which forms the basis of the Model Flyover Video (APP-198);
- c. The overhead features (i.e. conveyors / gantries) were discounted from the assessment, given the negligible footprint;
- d. Identifying the elements of the Proposed Scheme and demolished buildings/bunds which are located within the floodplain, the area and flood depths of each of these elements were extracted, based upon the information used to develop that shown in the Indicative Plans and Elevations (APP-012);
- e. Intersecting the flood results and the proposed and demolished footprints, this enabled the flood depths and extents to be accurately extracted for each building (see **Appendix A**);
- f. Areas which are currently protected by bunds (based on the Indicative Plans and Elevations (APP-012)) which will remain bunded in the future have been discounted from the assessment;
- g. The findings of the GIS assessment demonstrate that the proposed footprint is larger than the footprint of buildings which will be demolished to facilitate the Proposed Scheme (**Table 7.2**).

**Table 7.2 - Pre and Post Scheme Footprint Comparison**

	<u>Design Scenario (FT2) Areas Flooded (m<sup>2</sup>)</u>
<u>Demolished</u>	<u>5051.9</u>
<u>Proposed</u>	<u>8443.8</u>
<u>Change in built footprint</u>	<u>+3391.9</u>

7.1.13. The footprints which are to be demolished are shown in **Plate 7.3** and the proposed footprint areas are shown in **Plate 7.4**, these are extracted from the 3D ground model (APP-198) also provided in more detail in **Appendix M**, where they are overlain with the flood extents.



**Plate 7.3 - Demolished Buildings Footprints**

**Plate 7.4 - Proposed Building Footprints**

7.1.14. The assessment has been undertaken by interrogating the baseline (i.e. structures which will be demolished as part of the enabling works) and the proposed footprint areas above ground level, from which, in conjunction with the depth grids from the Hydraulic Model - FT2 scenario (design scenario), both the baseline and proposed floodwater volume has been calculated. It should be noted that not all of the proposed / demolished footprints are located within the floodplain. The overall results of the current volumetric assessment for the demolished and proposed structures are provided in **Table 7.3**.

**Table 7.3 - Pre and Post Scheme Volume Comparison**

	<b>Design Scenario (FT2) Flood Volume (m<sup>3</sup>)</b>
<b>Baseline</b>	<b>578.4</b>
<b>Proposed</b>	<b>1457.7</b>
<b>Change in volume</b>	<b>+879.3</b>

7.1.15. This assessment determines that an overall floodplain storage volume of 880m<sup>3</sup> will be displaced by the Proposed Scheme in the future scenario during the design event. Floodplain compensation is to be provided to mitigate against this loss of floodplain storage. It has been agreed with the Environment Agency (during a meeting on 23

August 2022), that floodplain compensation would be provided on a volume-for-volume basis as the floodplain is relatively flat across the Site.

**Table 7.2 - Floodplain - built footprint comparisons**

<b>Stage</b>	<b>Built Footprint</b>
Baseline	9,070m <sup>2</sup>
Post-development	10,960m <sup>2</sup>
Difference	+1,889m <sup>2</sup>

7.1.16. This demonstrates that the Proposed Scheme will result in a minor loss of floodplain, which if not mitigated could have an adverse impact on third parties. In the current day scenario, the Proposed Scheme is located within the defended floodplain, thus there is no flood risk during the design flood event. Should the Environment Agency not enhance the offsite defences to keep pace with the impacts of climate change, then the Proposed Scheme will result in a loss of floodplain during the design event and thus requires the provision of floodplain compensation as detailed in Table 7.2 to ensure that there are no adverse effects to third parties.

7.1.17. As part of the preparation of this FRA, the approach and requirements for the provision of floodplain compensation were discussed with the Environment Agency. The most detailed discussion was held on 10 February 2022, with the Minutes provided in Appendix C. The key agreements are:

- a. No compensation will be required if it can be proved that the footprint of demolished solid buildings/bunded areas are equal or less than the footprint of the proposed solid buildings;
- b. No change in floodplain displacement in Flood Zone 3 is expected by the Environment Agency;
- c. It would need to be demonstrated that those existing buildings which are to be demolished do not flood. Paragraph 15 (Reference ID: 7-015-20140306) of the Flood Risk and Coastal Change Planning Practice Guidance states that the buildings have to be a solid building so that they do not flood;
- d. Post-development modelling may not be required if the footprint balance can be justified. If the footprint balance is achieved, any changes will be negligible and therefore there is no need to continue to model something on the fringes of the floodplain;
- e. Residual risk - breach scenario - volume for volume compensation is expected beyond any increase in built footprint; and



f. Sensitivity test - need to consider displacement of hazard, change in hazard band, change in speed in onset or change in a local planning allocation. However, as the Proposed Scheme is not located in a major flow route no change in flood hazard is expected. Furthermore, if the footprint balance is achieved then there is no requirement to be concerned about the change in hazard as the buildings changing very marginally on the edge of the floodplain.

### **Policy**

7.1.18. The Planning Practice Guidance (PPG) 'Flood Risk and Coastal Change' (Department for Levelling Up, Housing and Communities, 2022), covers the requirements for flood compensation in Paragraph 049. This paragraph provides a hierarchy for the provision of floodplain compensation, this is as follows:

- a. On-site level-for-level compensatory storage, accounting for the predicted impacts of climate change over the lifetime of the development;
- b. Off-site compensatory storage on site, noting that it has to be hydraulically and hydrologically linked;
- c. On-site volume for volume compensatory storage [inferred]; and
- d. If the impacts of development on flood risk elsewhere, now and in the future cannot be fully mitigated, the site-specific flood risk assessment will need to fully detail the extent and nature of the increase in risk and to assess its significance.

7.1.19. The design of the flood compensation strategy has been based upon this hierarchy. It is not possible to provide compensation within the Proposed Scheme footprint given the nature of the operational Power Station Site and land required for the construction / enabling works, furthermore this land is not at the right elevation to provide suitable floodplain compensation.

7.1.20. As such, an area of adjacent land which is hydraulically and hydrologically linked has been identified. The compensation is being provided on the basis that an equal volume of floodplain will be provided to that lost using the lowest and highest flood levels across the development site.

### **Requirements**

7.1.21. The loss of existing floodplain storage associated with the proposed structure footprints will be offset by providing floodplain compensation on a volume-for-volume basis, through the removal of material (cut) from an area of existing high ground located immediately north of Drax Power Station Site. This area is currently agricultural grazed land referred to as "Flood Compensation Field" and is owned by Drax Power Station Ltd. The location of the proposed Flood Compensation Area (FCA) is shown in Plate 7.5 below. This area is shown to be outside of the existing floodplain during the design scenario FT2, and therefore it can be used for provision of floodplain compensation storage.

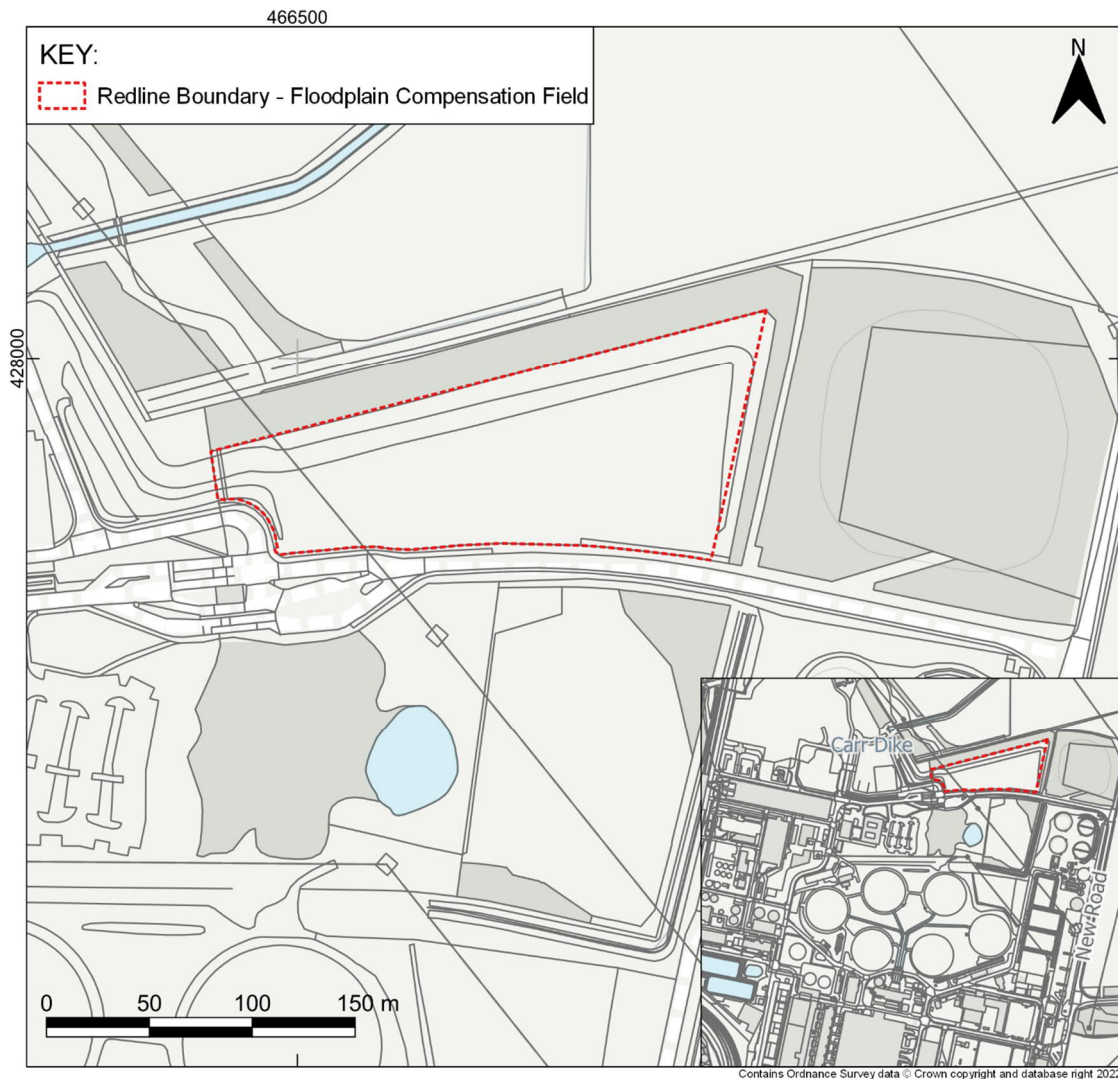
7.1.22. The preliminary calculations, as detailed in section 7.1.15 above, indicate that a total floodplain compensation volume of 880 m<sup>3</sup> is required (these will be confirmed during

detailed design). To mitigate the risk of flooding, the required volume can only be provided between levels outlined below in **Table 7.4**, which are the minimum and maximum flood levels across the Proposed Scheme, as identified from the flood modelling for the design scenario. The topographical survey (Appendix M) of the proposed FCA, shows that the existing ground levels vary between approximately 3.3 mAOD and approximately 6.6 mAOD. The topographical survey has been compared to the LiDAR and they show a good level of match. The survey shows that the required compensation storage volume can be achieved in the proposed area.

**Table 7.4 - Levels Extracted from Proposed Footprints**

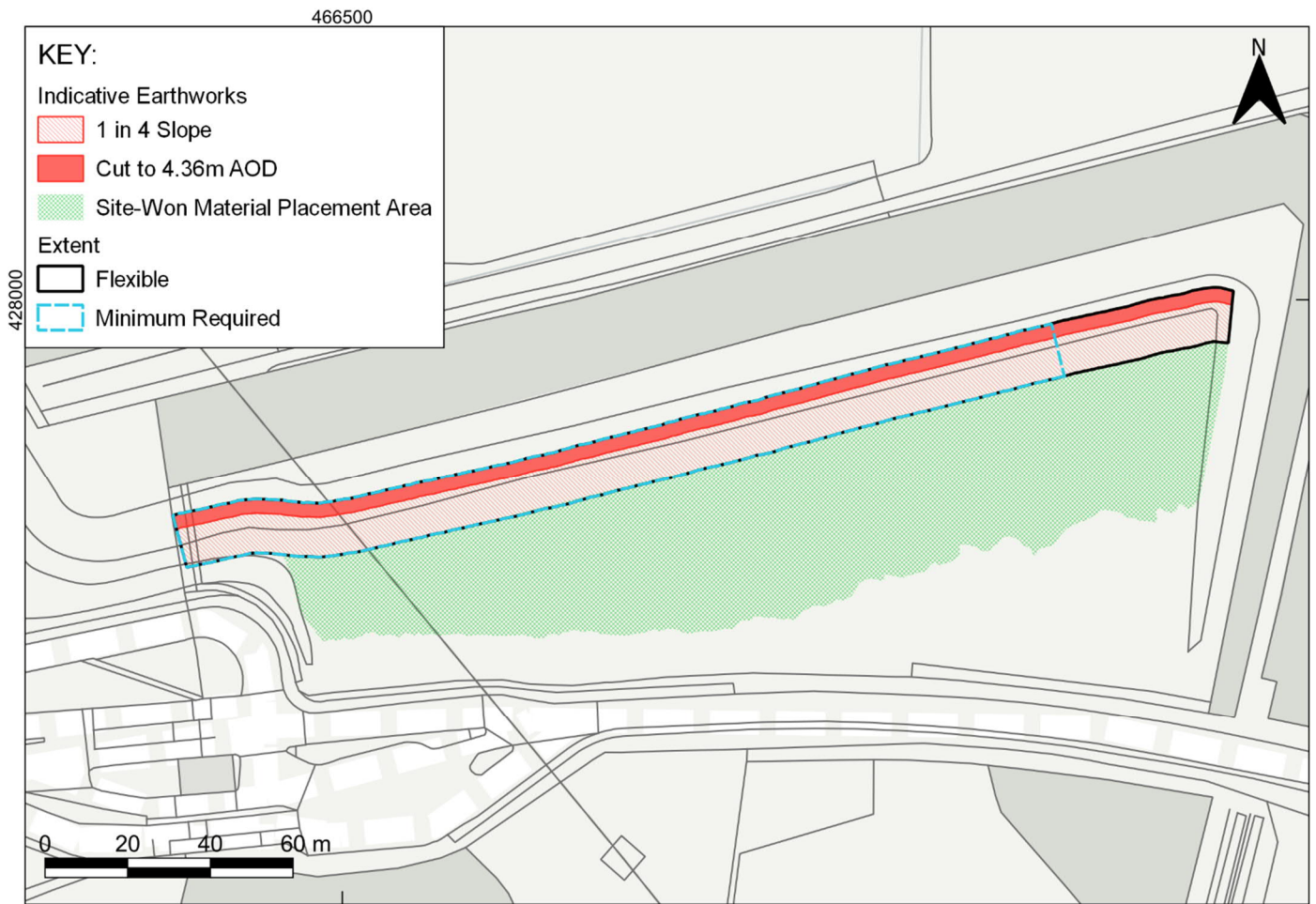
	<u>Design Scenario (FT2) mAOD</u>
<u>Max flood height at the proposed built footprints</u>	<u>+5.35</u>
<u>Min DTM at the proposed built footprints</u>	<u>+4.36</u>

7.1.23. The location of the proposed FCA is shown in **Plate 7.5**, and detailed in **Appendix M** along with photos of the proposed FCA.



### Plate 7.5 - Indicative Location of the Flood Compensation Area

7.1.24. Two potential extents for floodplain compensation storage are indicated in **Plate 7.6**. The blue (smaller) extent indicates the minimum cut area extent required to achieve volume of 880 m<sup>3</sup>. The black (larger) extent offers a more flexible approach to allow for any other landscaping which may take place on site (i.e. it facilitates changes to how the slopes are tied into the existing and provides additional volume, should it be required at detailed design).



Contains Ordnance Survey data © Crown copyright and database right 2022.

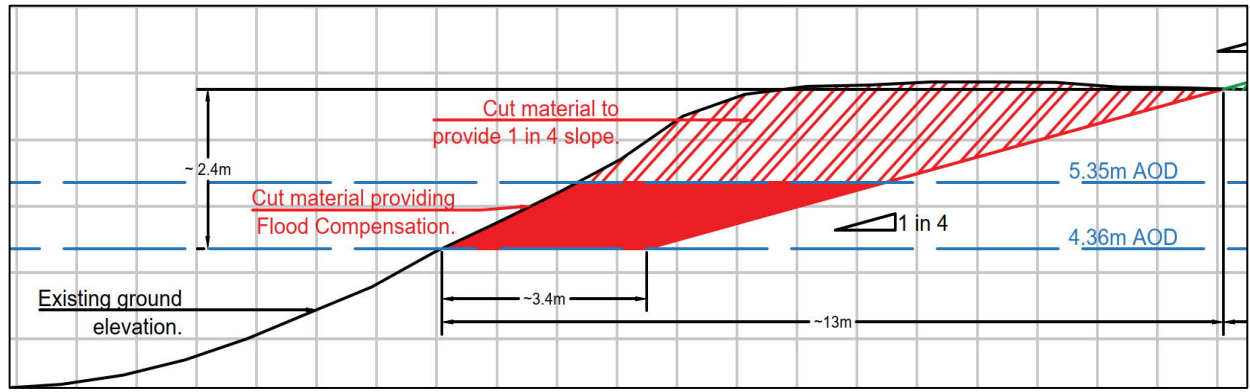
## **Plate 7.6 - Flood Compensation Area General Arrangement**

7.1.25. An indicative section through the proposed flood compensation area is shown in [Plate 7.7](#), and details are shown in [Appendix D](#). The ‘cut volume providing flood compensation’ was calculated based on material removed between ground levels of +4.36 mAOD up to +5.35 mAOD. The ‘total volume of cut’ consists of both the ‘cut volume providing flood compensation’ and the volume of material cut to provide the required 1 in 4 slopes to tie into the existing land levels. Volumes of material removed by cut within the proposed flood compensation storage area are summarised in [Table 7.5](#) below. These volumes were calculated using a ground elevation grid of both the [existing situation \(based on LiDAR<sup>1</sup>\)](#) and the [proposed situation \(manipulated proposed floodplain compensation area grid\)](#).

7.1.26. The indicative cross section in [Plate 7.7](#) shows that the required floodplain compensation volume is available for the full range of vertical levels from +5.35 mAOD down to +4.36 mAOD, where it connects to the existing ground levels. This

<sup>1</sup> Environment Agency - Survey Data; LiDAR, DTM, 1m Res - 2020 Accessed: <https://environment.data.gov.uk/DefraDataDownload/?Mode=survey>

approach will ensure that water can flow freely in and out of the proposed FCA during a flood event. The flood waters will naturally reach the FCA by flowing from the existing floodplain, through the adjacent tree line, at a depth of approximately 2m for the design scenario.



**Plate 7.7 - Flood Compensation Cut Indicative Section**

**Table 7.5 - Volume Provided by the Compensation Area**

<u>Volume (m<sup>3</sup>)</u>	<u>Compensation Storage Minimum Required Extent (blue extent in Plate 7.6)</u>	<u>Compensation Storage Flexible Extent (black extent in Plate 7.6)</u>
<u>Cut volume providing flood compensation (m<sup>3</sup>)</u>	880	1,079
<u>Total volume of cut (m<sup>3</sup>)</u>	2,038	2,505

- 7.1.27. The 'cut volume providing flood compensation' provided in **Table 7.5** shows that compensation storage volume can be achieved, whilst providing flexibility for the any changes to the earthworks design.
- 7.1.28. Considering this information, the proposed flood compensation storage will provide a beneficial impact, as more floodplain storage will be available as a result of the Proposed Scheme, as this does not take account of the fluctuation in ground surface across the area where the Proposed Scheme will occur. This is because the FCA has been designed to cut the entire proposed area to the lowest design flood level.
- 7.1.29. The excavated material (total volume of cut) will be kept within the FCA and placed in the area indicated in green in **Plate 7.6**. This area is bounded by existing higher ground (at levels above +5.35 mAOD), therefore, it is located outside of the existing floodplain and adding the extra material on top will have no impact on the risk of flooding during the design event in the area or elsewhere.

7.1.30. The extent of the proposed FCA was established to avoid the existing trees and their root protection areas.

7.1.31. No change to the risk of groundwater flooding is predicted as a result of the floodplain compensation works. However, given that the works involve land lowering on the edge of the floodplain, there remains a risk that there may be instances where the groundwater level rises above ground surface and groundwater flooding occurs, and would contribute to some of the flood volume. However, this is not an issue as during those times it would be difficult to establish which proportion is from surface water and which is from groundwater.

7.1.32. The FCA will be maintained by Drax Power Ltd throughout the lifetime of the Proposed Scheme to ensure the FCA remains suitable for the proposed use. This requirement would be added to the Outline Landscape and Biodiversity Strategy (OLBS) (APP-180) which will be updated and submitted into the Examination of the Proposed Scheme should PC-01 be accepted. The measures will then support the development of the Landscape and Biodiversity Strategy (LBS) at the detailed design stage of the Proposed Scheme.

**Environment Agency Requirements**

7.1.33. Demonstration as to how this meets the Environment Agency’s requirements are outlined below in **Table 7.6**.

**Table 7.6 - EA Requirements and how they have been addressed**

<u>EA Requirement</u>	<u>How requirement has been addressed</u>
<u>i. No compensation will be required if it can be proved that the footprint of demolished solid buildings/bunded areas are equal or less than the footprint of the proposed solid buildings;</u>	<u>The proposed footprint is greater, thus floodplain compensation is required.</u>
<u>ii. No change in floodplain displacement in Flood Zone 3 is expected by the Environment Agency;</u>	<u>No action required, furthermore, the mitigation area will result in additional Flood Zone 3 being created.</u>
<u>iii. It would need to be demonstrated that those existing buildings which are to be demolished do not flood. Paragraph 15 (Reference ID: 7-015-20140306) of the Flood Risk and Coastal Change Planning Practise Guidance states that the buildings</u>	<u>The nature of the existing buildings is provided in paragraphs 7.1.9 to 7.1.14 of this FRA.</u>

<u>EA Requirement</u>	<u>How requirement has been addressed</u>
<u>have to be a solid building so that they do not flood;</u>	
iv. <u>The Post-development modelling may not be required if the footprint balance can be justified. If the footprint balance achieved any changes will be negligible and therefore there is no need to continue to model something on the fringes of the floodplain;</u>	The volume that will be provided in the compensation area equates to / is greater than the volume lost as a result of the Proposed Scheme, as this is provided in close proximity therefore there is no requirement to undertake further hydraulic modelling.
v. <u>Residual risk – breach scenario - volume for volume compensation is expected beyond any increase in built footprint;</u>	It is demonstrated that an equal to or greater volume of storage would be provided as part of the floodplain compensation.
vi. <u>Sensitivity test – need to consider displacement of hazard, change in hazard band, change in speed in onset or change in a local planning allocation. However, as the Proposed Scheme is not located in a major flow route no change in flood hazard is expected. Furthermore, if the footprint balance is achieved then there is no requirement to be concerned about the change in hazard as the buildings are changing very marginally on the edge of the floodplain.</u>	It is considered that the Proposed Scheme will not result in any changes in flood hazard given the location of the buildings and the floodplain compensation area.
vii. <u>The land is suitable for use as floodplain compensation.</u>	The land is owned by Drax Power Ltd and soil testing has been undertaken to that the land is not contaminated (refer to Appendix 1 (FCA Trial Pitting Interpretative Technical Note) (document reference 8.5.3.1)).
i.viii. <b><u>Maintenance will be undertaken for the lifetime of the Proposed Scheme to ensure the floodplain volume</u></b>	These measures will be added to the OLBS (APP-180) which will be updated and submitted into the Examination of the Proposed

<u>EA Requirement</u>	<u>How requirement has been addressed</u>
<u>remains an active part of the floodplain.</u>	Scheme should PC-01 be accepted. The measures will then support the development of the LBS at the detailed design stage of the Proposed Scheme.

### Delivery Programme / Approach

7.1.34. The Proposed Scheme is protected from flooding by the Environment Agency's flood defences along the River Ouse, under the current day design flood scenario but becomes impacted during the operational phase of the Proposed Scheme, as demonstrated by the flood modelling for the design year.

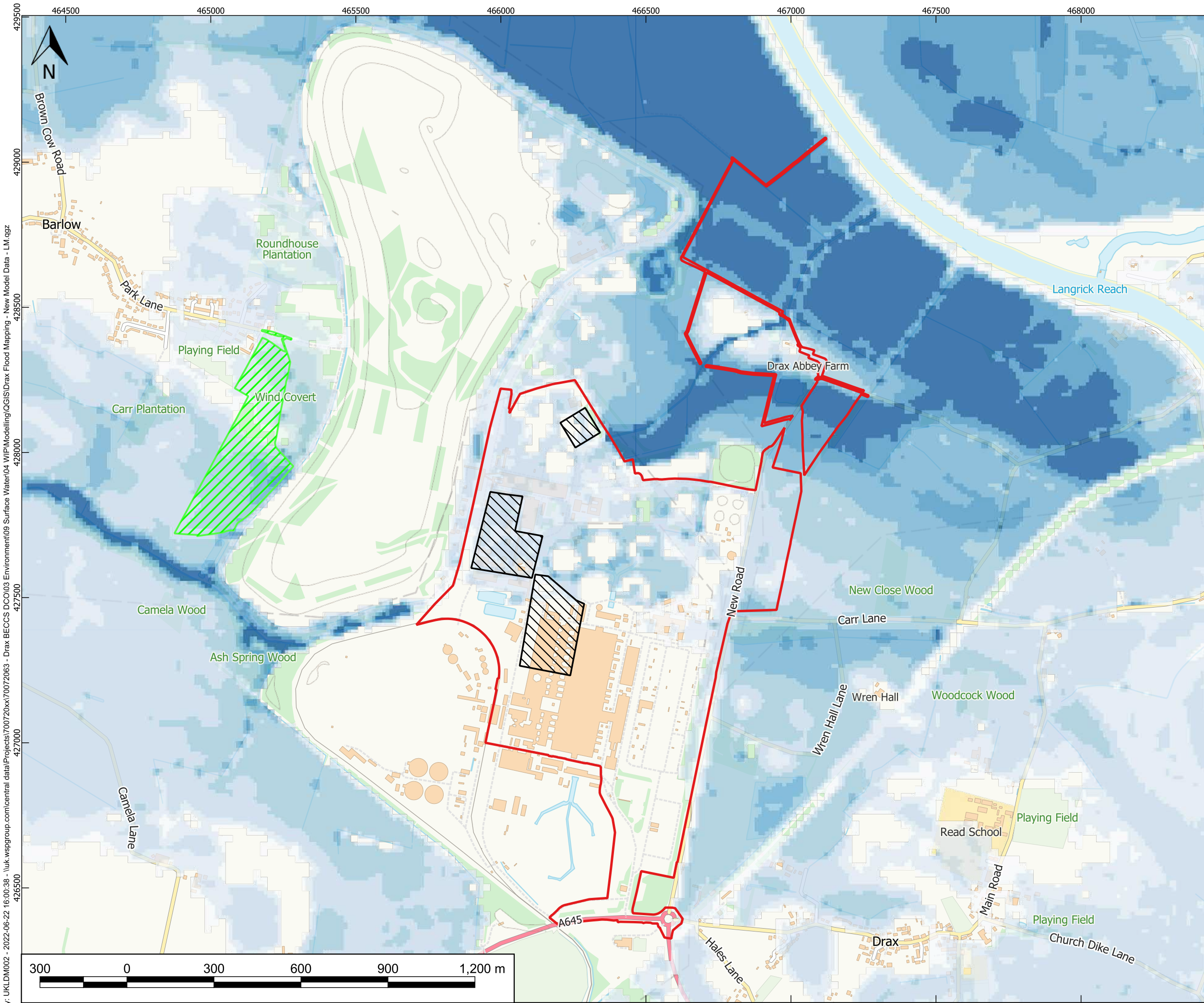
7.1.35. This means that the FCA construction does not have to be undertaken as a pre-commencement requirement, but could be completed at any point during the construction phase.

~~7.1.13.~~ The indicative design will be reviewed during detailed design and further consultation will be held with the Environment Agency (refer to ref ID WE15 of Table 5.2 of the Proposed Changes Application Report (document reference 8.5.1). The review will be carried out during detailed design when further details on the construction and operational methods are available to ensure the flood compensation area identified is still appropriate. - ~~This increase will be mitigated by creating additional floodplain (a minimum floodplain area of 1,889m<sup>2</sup> will be created) through the lowering of ground outside the floodplain on land controlled by the Applicant.~~

~~7.1.14.~~7.1.36. This will ensure that the Proposed Scheme will not result in a loss of floodplain and that there will be no displacement of flood waters elsewhere. As such no increase in flood risk offsite is expected.



# **APPENDIX L – MODELLED FLOOD DEPTH AND FLOOD HAZARD MAPS AND FLOOD LEVEL TABLES**



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS:  
**FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT:  
**drax**

ARCHITECT:  
-

PROJECT:  
**DRAX BECCS DCO**

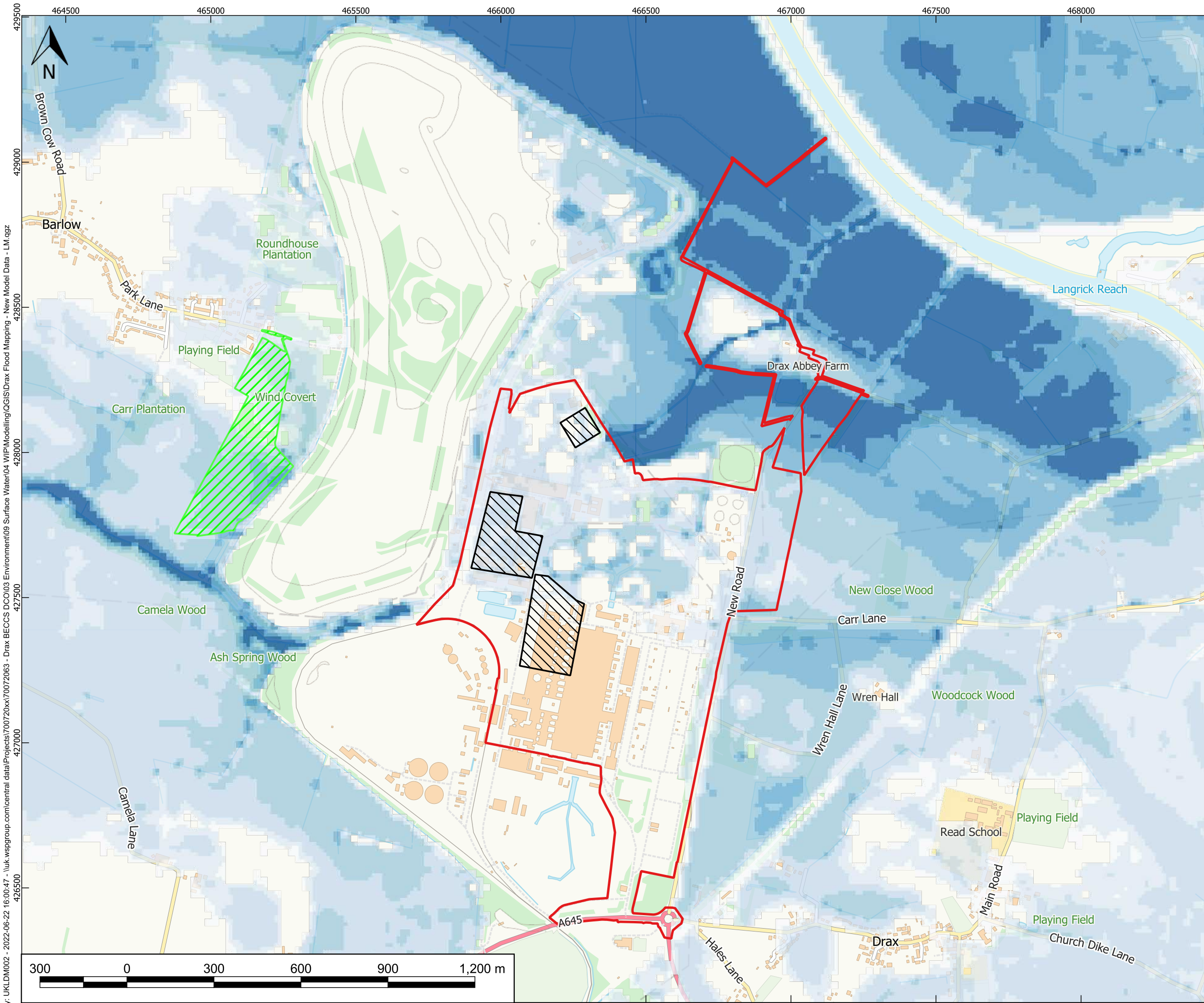
TITLE:  
**MAXIMUM FLOOD DEPTHS FOR FD DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FD-D	REV: <b>A</b>
--------------------------------	-----------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:00:38 - \\uk.wspgroup.com\central\_data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\OGIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **MAXIMUM FLOOD DEPTHS FOR FT1 DEFENDED - DESIGN LIFE 2046**

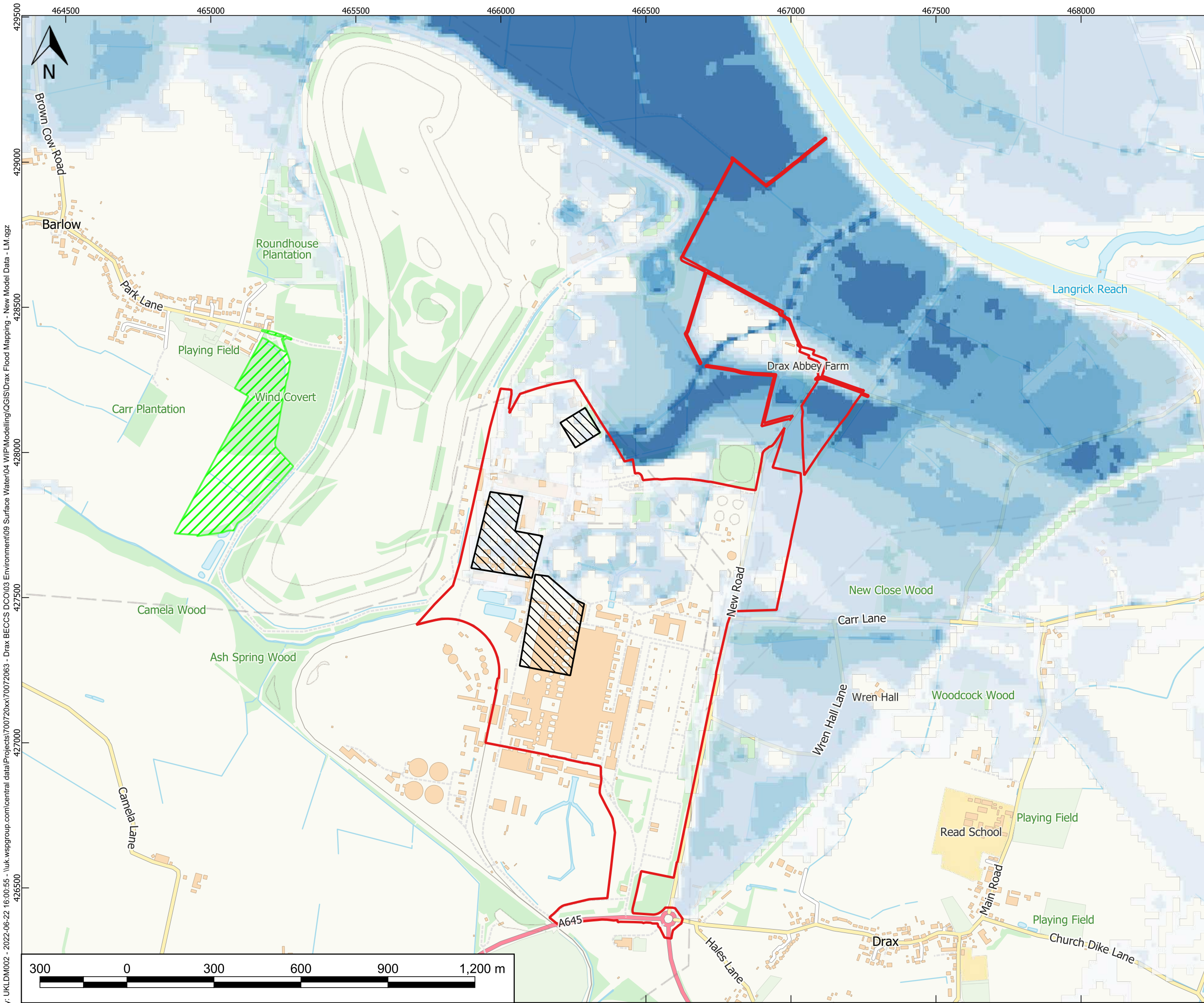
DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FT1-D	REV: <b>A</b>
--------------------------------	------------------------------------	------------------



Created by: UKLDM002 - 2022-06-22 16:00:47 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000

www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

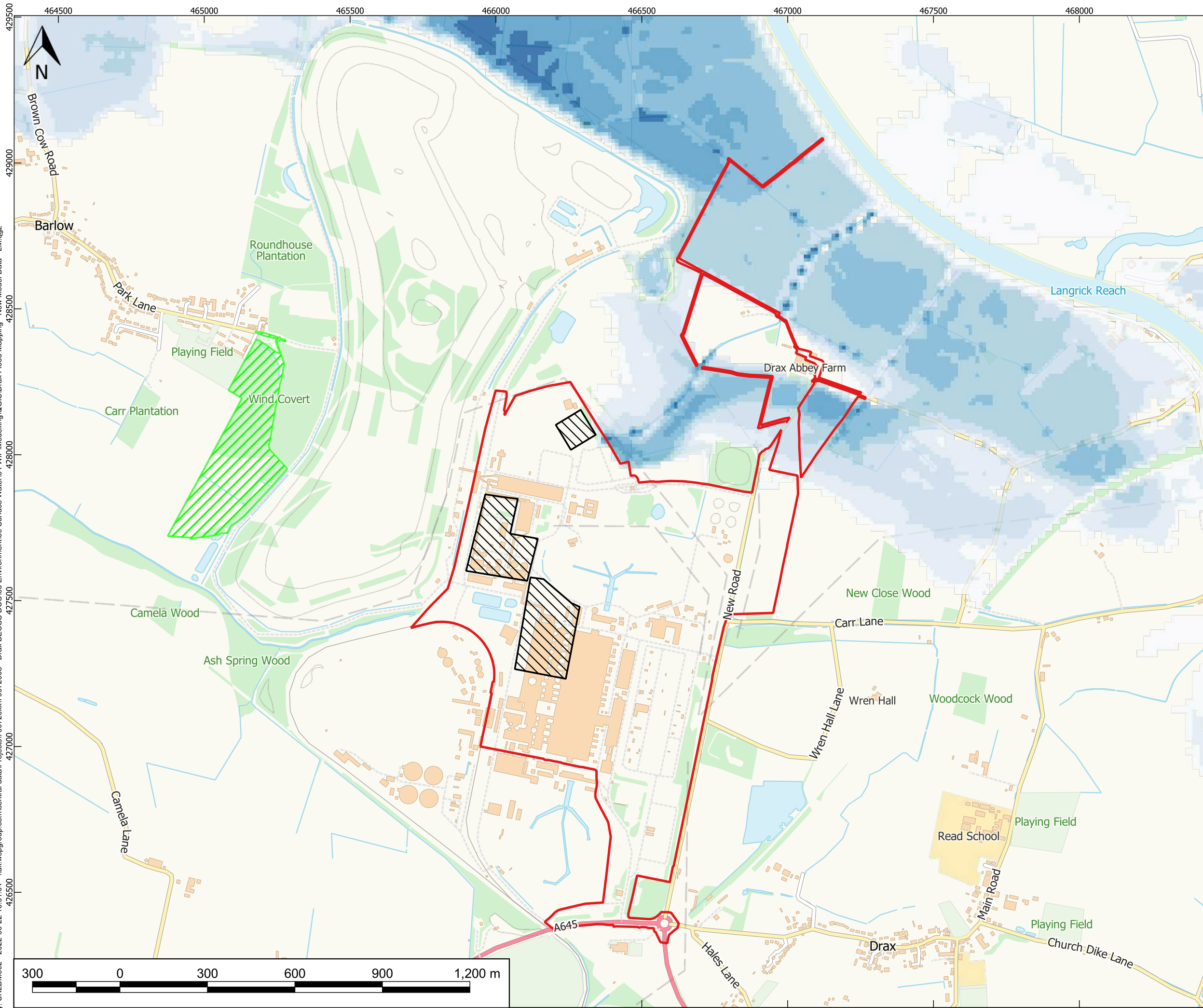
TITLE: **MAXIMUM FLOOD DEPTHS FOR FT2 DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FT2-D	REV: <b>A</b>
--------------------------------	------------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:00:55 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\QGIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000

www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

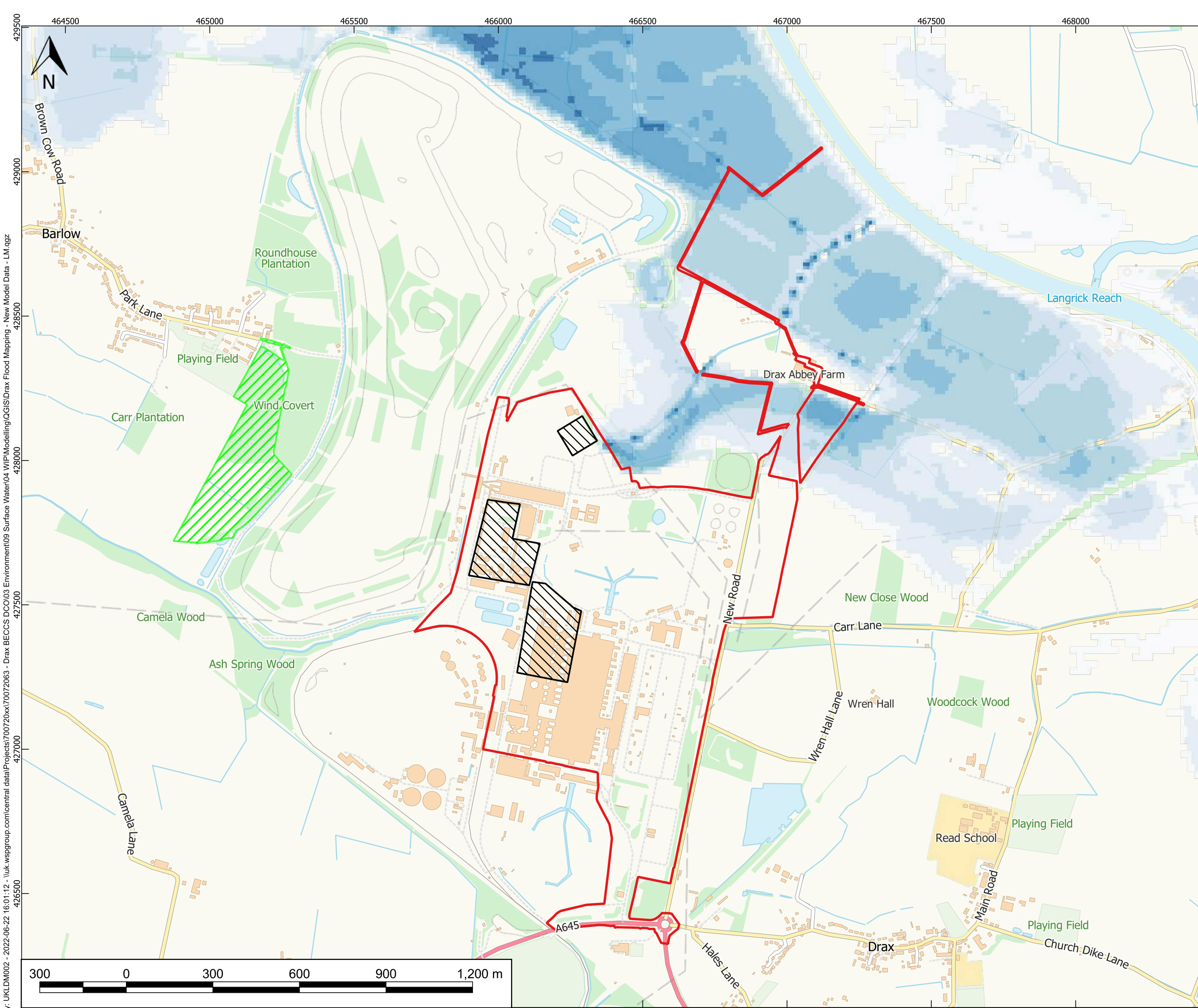
TITLE: **MAXIMUM FLOOD DEPTHS FOR FT5 DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FT5-D	REV: <b>A</b>
--------------------------------	------------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:01:04 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000

www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

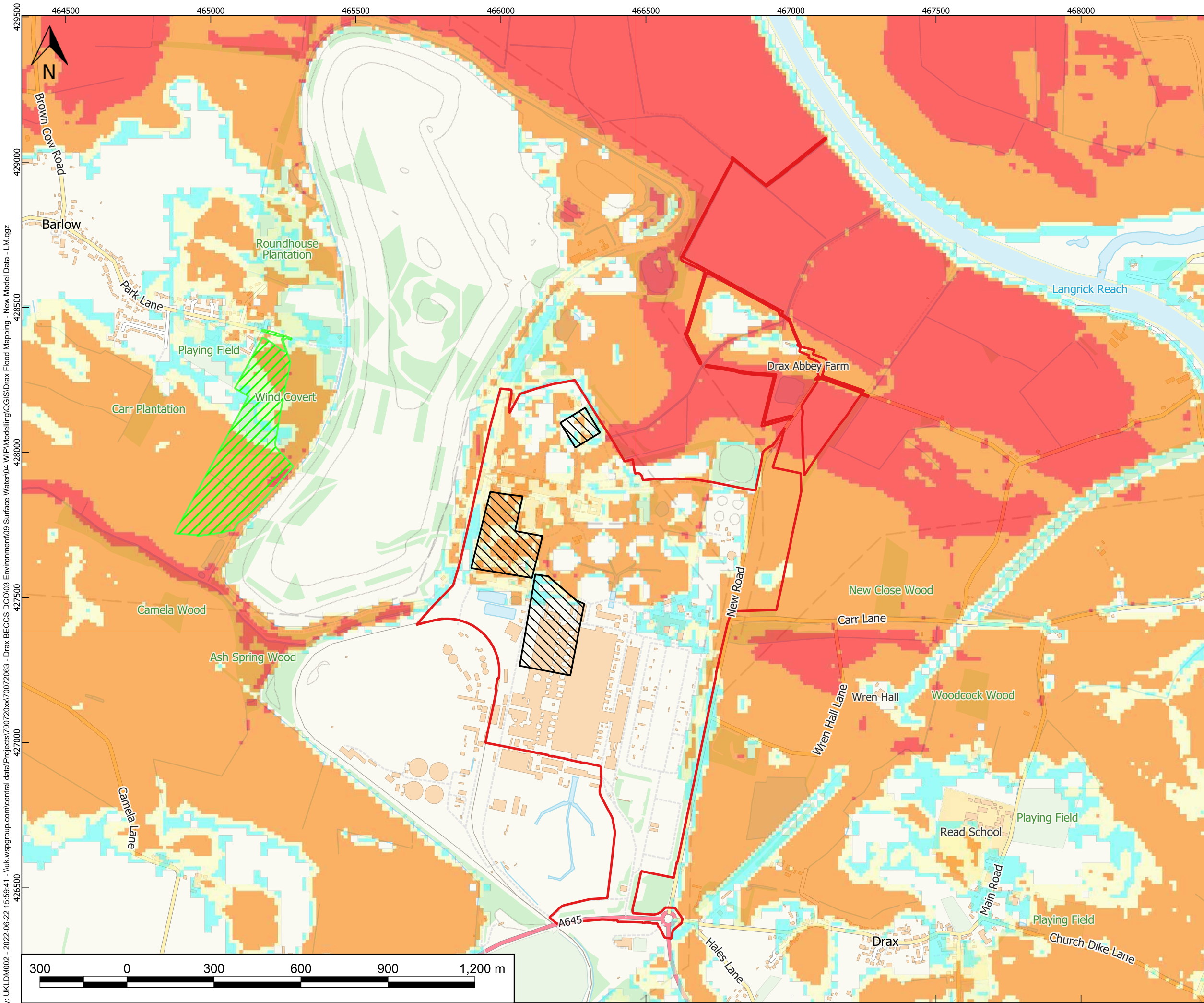
TITLE: **MAXIMUM FLOOD DEPTHS FOR T DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-T-D	REV: <b>A</b>
--------------------------------	----------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:01:12 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
  
www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **FLOOD HAZARD RATING FOR FD DEFENDED - DESIGN LIFE 2046**

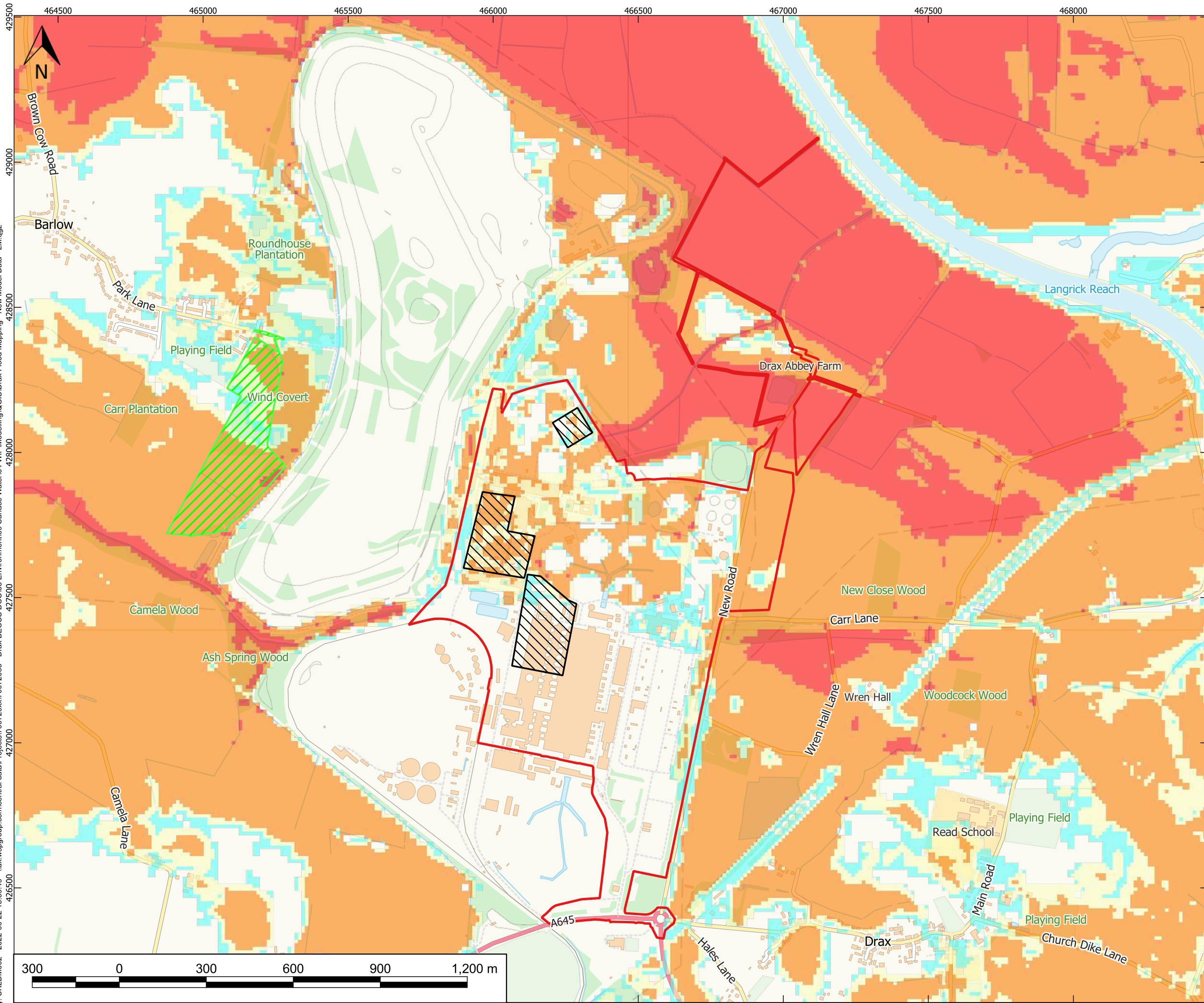
DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

QGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FD-FHR	REV: <b>A</b>
--------------------------------	-------------------------------------	------------------



Created by: UKLDM002 - 2022-06-22 15:59:41 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\QGIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **FLOOD HAZARD RATING FOR FT1 DEFENDED - DESIGN LIFE 2046**

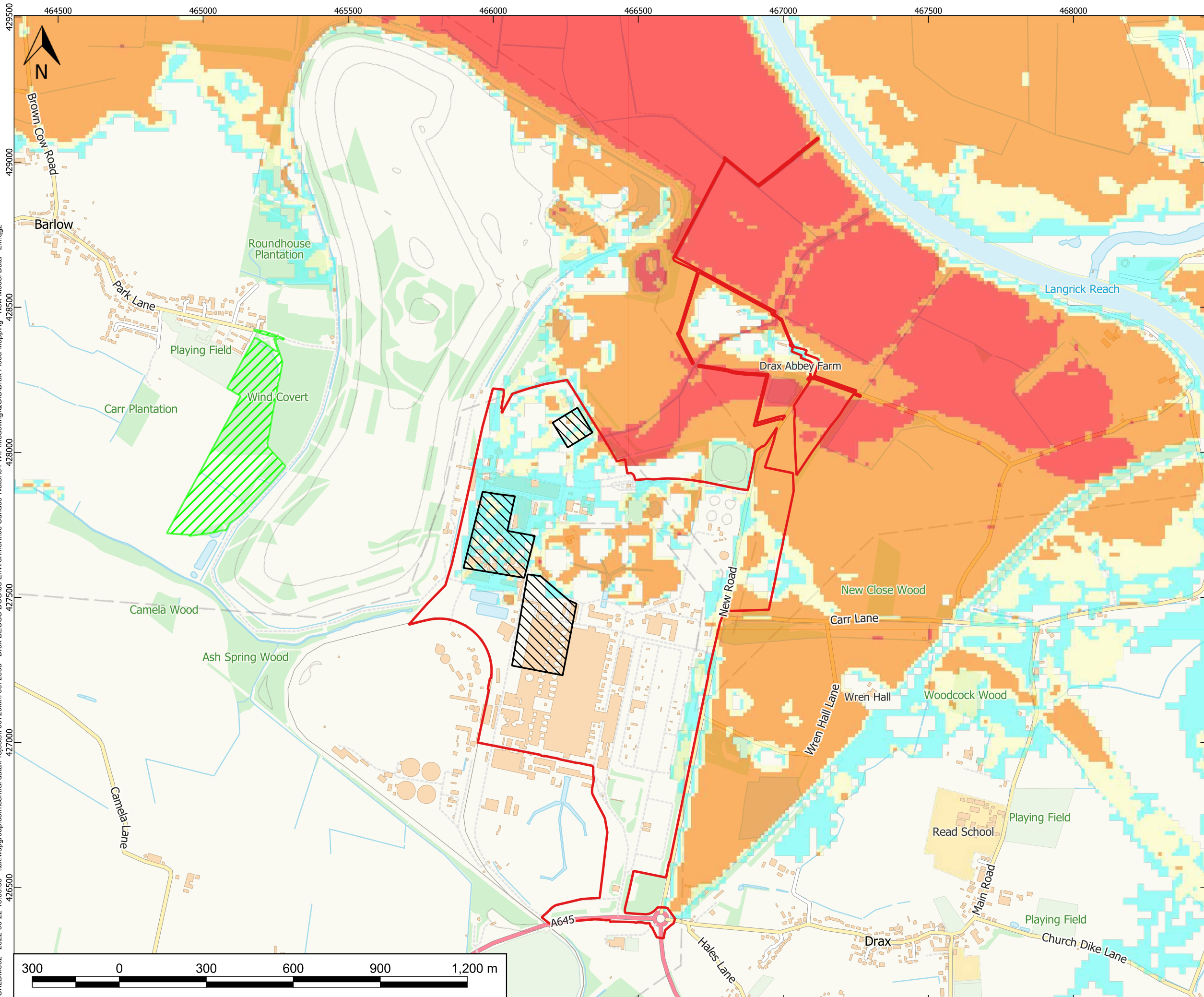
DRAWN: LM	CHECKED: ES	APPROVED: AS
--------------	----------------	-----------------

QGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FT1-FHR	REV: <b>A</b>
--------------------------------	--------------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 15:59:49 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\QGIS\Drax Flood Mapping - New Model Data - LM.ggz





**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
  
www.wsp.com

CLIENT: **drax**

ARCHITECT: -

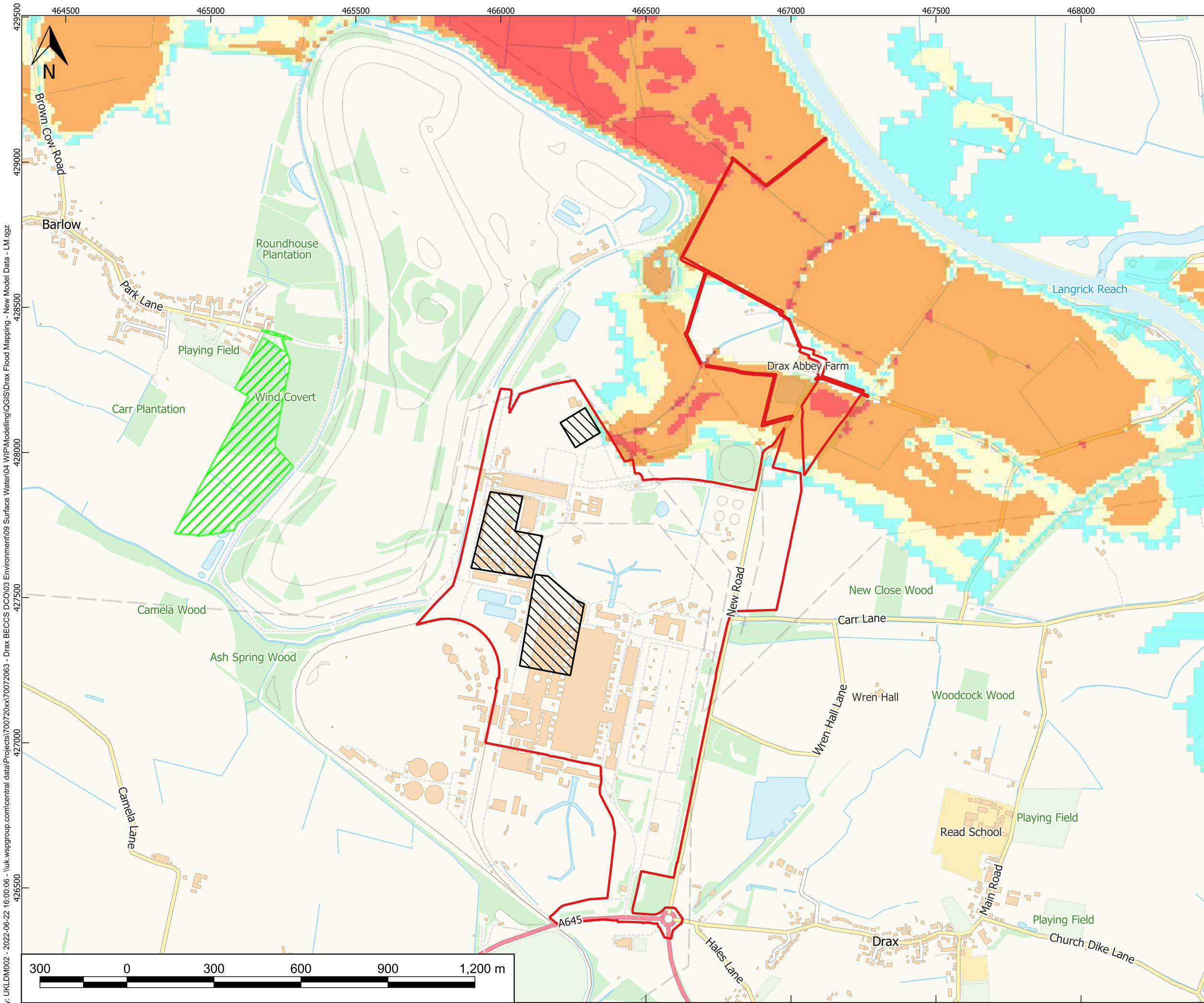
PROJECT: **DRAX BECCS DCO**

TITLE: **FLOOD HAZARD RATING FOR FT2 DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

QGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FT2-FHR	REV: <b>A</b>
--------------------------------	--------------------------------------	------------------



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

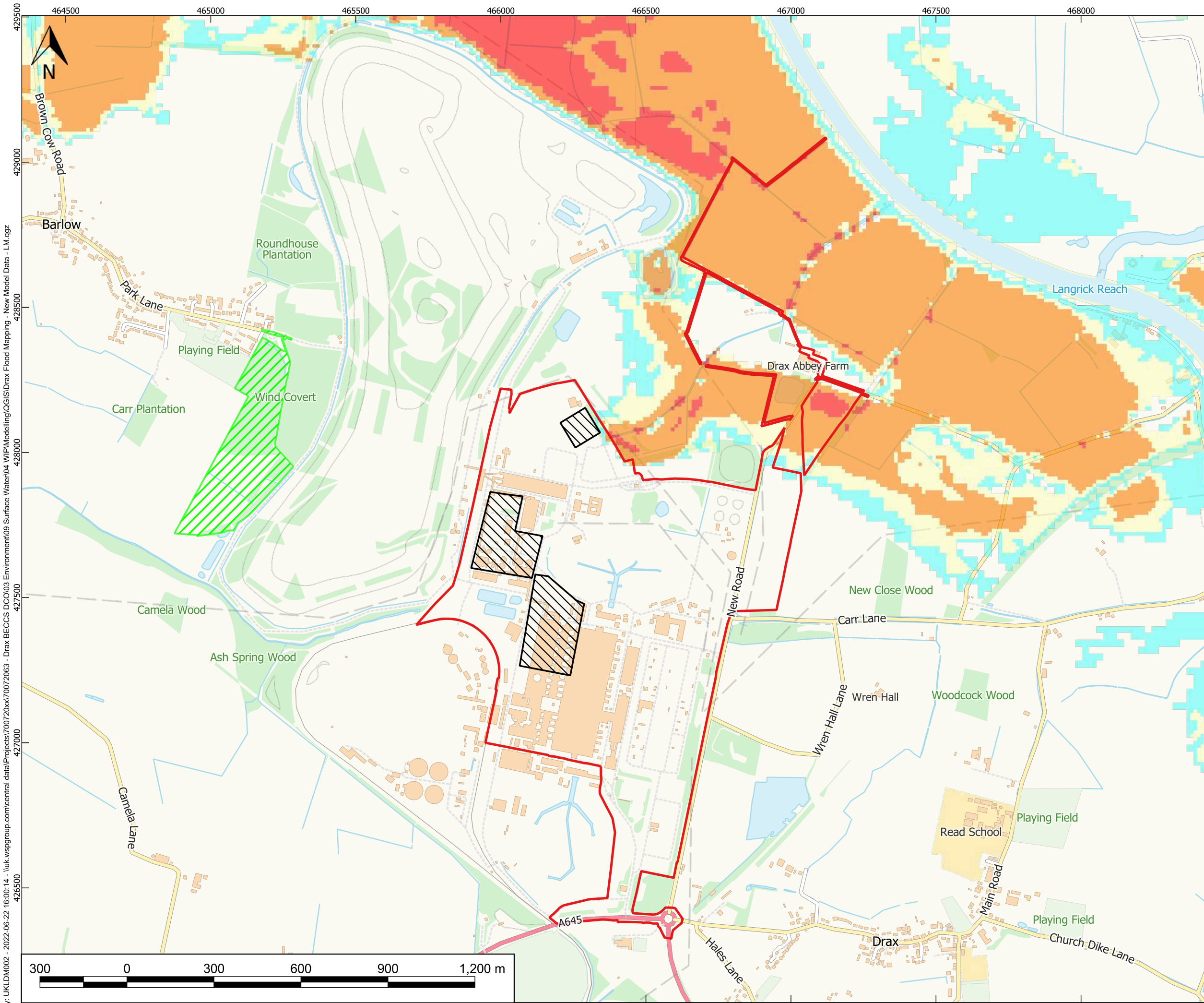
TITLE: **FLOOD HAZARD RATING FOR FT5 DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-FT5-FHR	REV: <b>A</b>
--------------------------------	--------------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:00:06 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

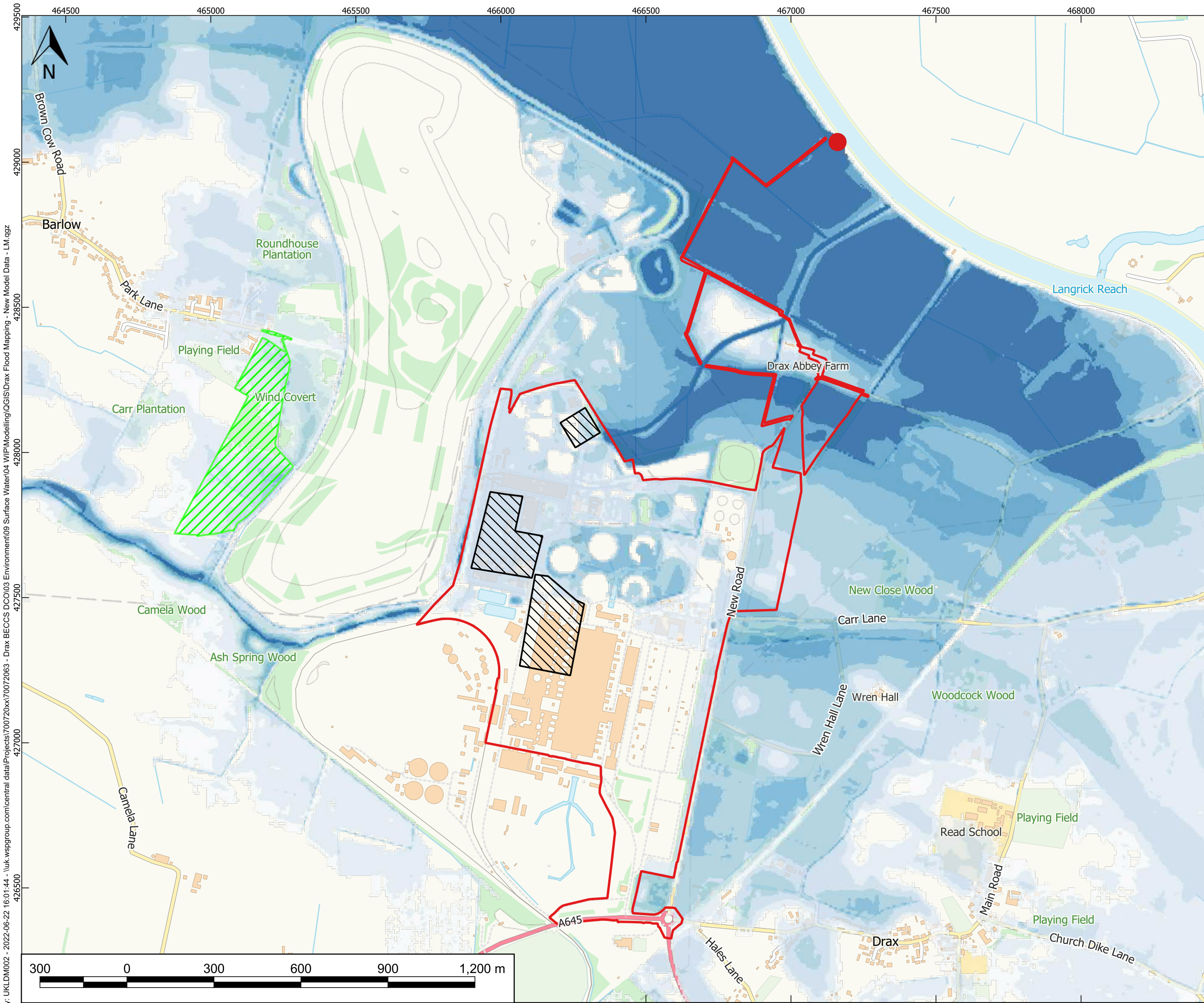
TITLE: **FLOOD HAZARD RATING FOR T DEFENDED - DESIGN LIFE 2046**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: DEFENDED-2046-T-FHR	REV: <b>A</b>
--------------------------------	------------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:00:14 - \\uk.wspgroup.com\central\data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works
- Breach Location

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000

www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **MAXIMUM FLOOD DEPTHS DURING BREACH EVENT FT1**

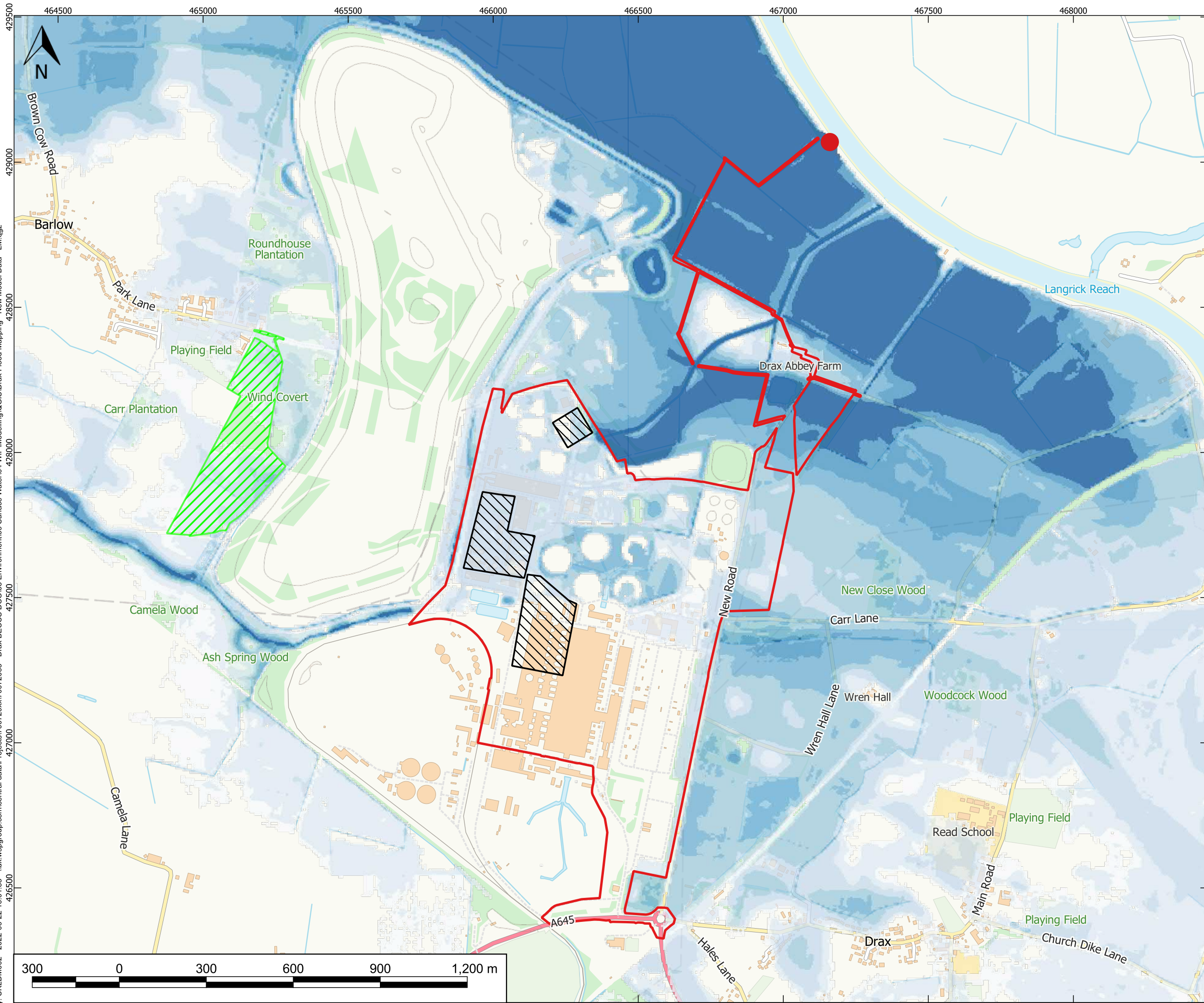
DRAWN: LM	CHECKED: ES	APPROVED: AS
--------------	----------------	-----------------

QGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: BREACH-FT1-D	REV: <b>A</b>
--------------------------------	-----------------------------	------------------



Created by: UKLDM002 - 2022-06-22 16:01:44 - \\uk.wspgroup.com\central\_data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\QGIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works
- Breach Location

**Maximum Flood Depth (m)**

- 0.00 - 0.15 m
- 0.15 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- 2.00 - 2.50 m
- > 2.50 m

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000

www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **MAXIMUM FLOOD DEPTHS DURING BREACH EVENT FT2**

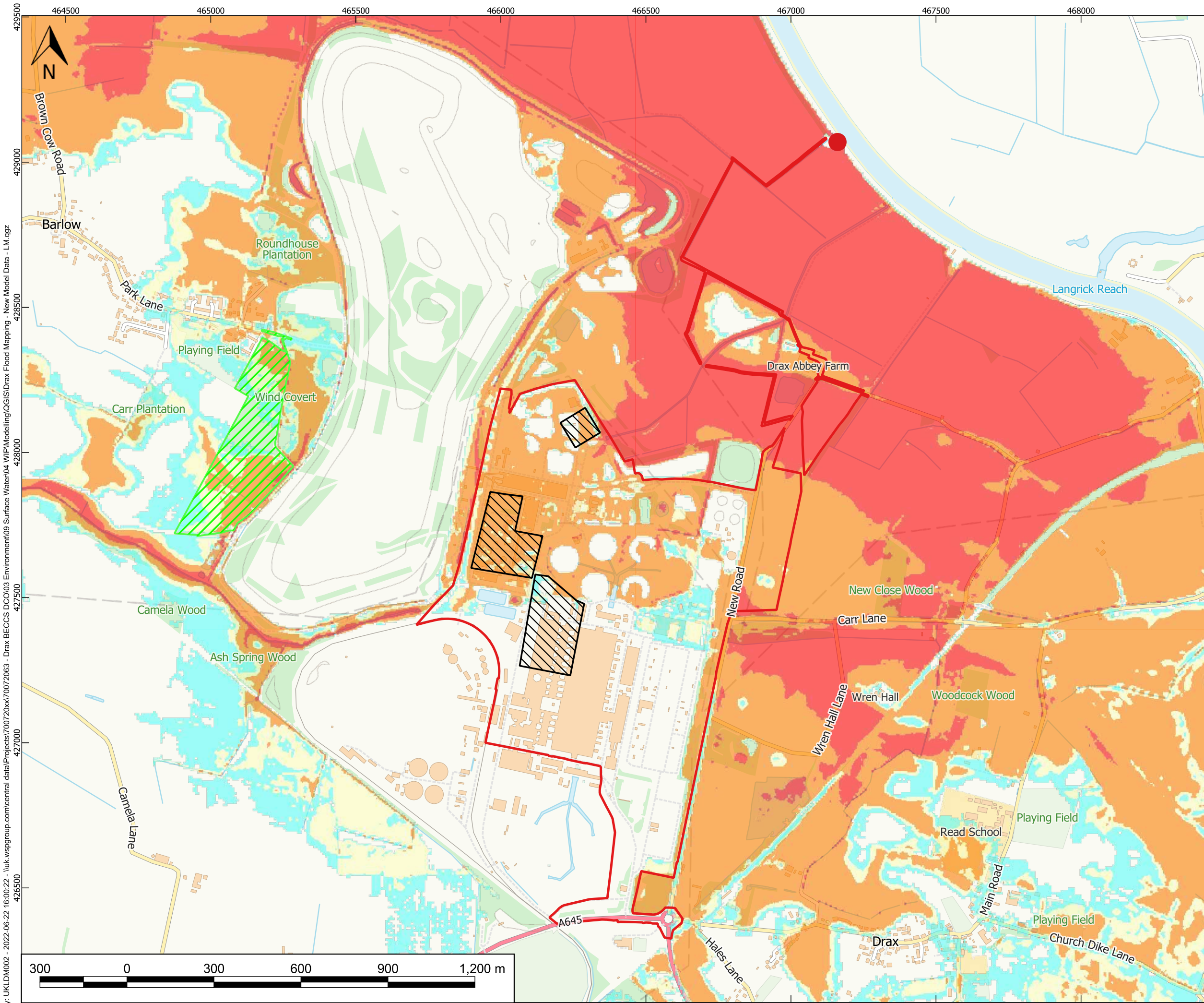
DRAWN: LM	CHECKED: ES	APPROVED: AS
--------------	----------------	-----------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: BREACH-FT2-D	REV: <b>A</b>
--------------------------------	-----------------------------	------------------



Created by: UKLDM002 - 2022-06-22 16:01:53 - \\uk.wspgroup.com\central\_data\Projects\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works
- Breach Location

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
  
www.wsp.com

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **FLOOD HAZARD RATING DURING BREACH EVENT FT1**

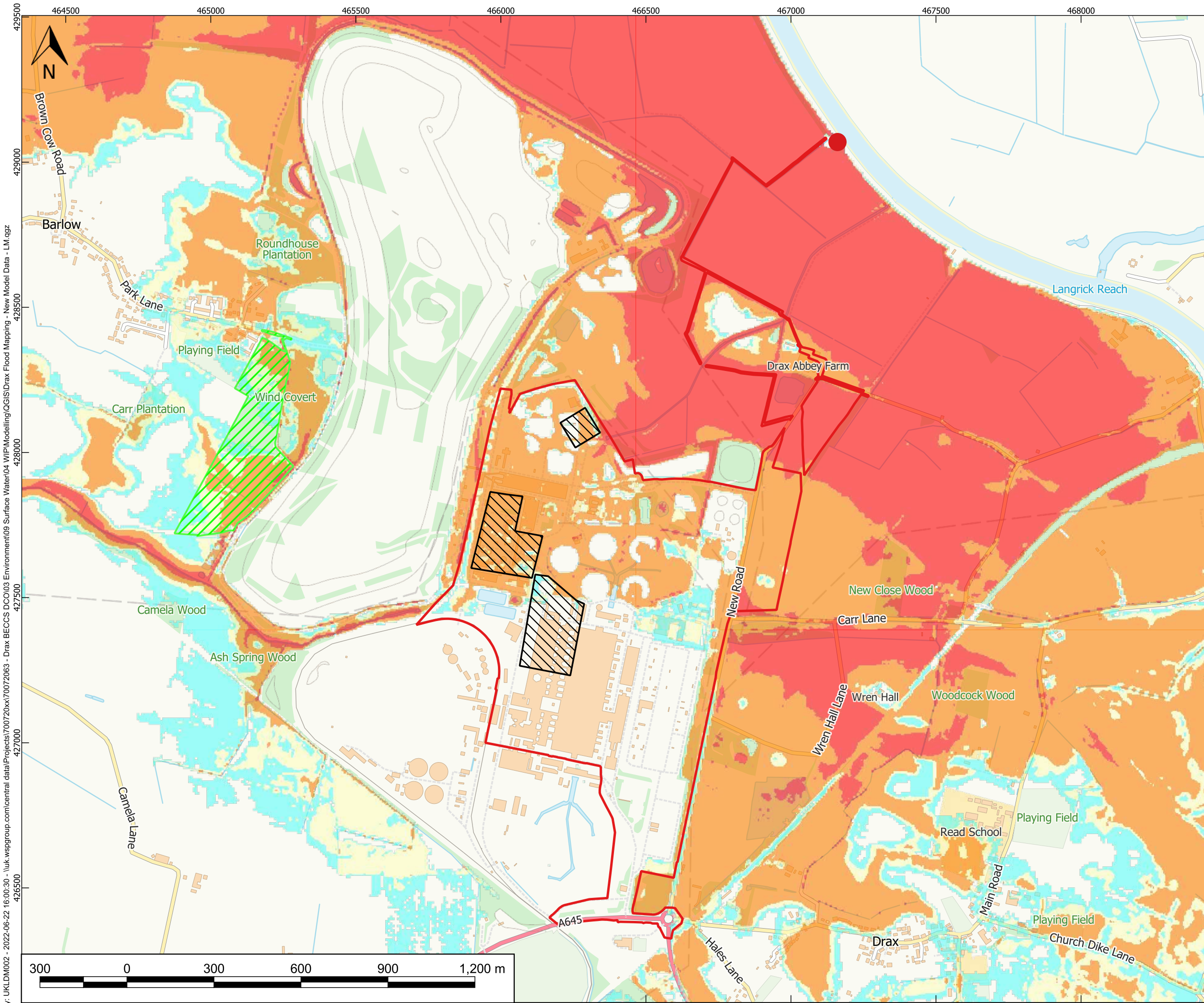
DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: BREACH-FT1-FHR	REV: <b>A</b>
--------------------------------	-------------------------------	------------------



Created by: UKLDM002 - 2022-06-22 16:00:22 - \\uk.wspgroup.com\central\_data\Projects\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz



**KEY:**

- Order Limits
- Off-Site Habitat Provision Area
- Indicative Areas of Proposed Works
- Breach Location

**Flood Hazard Rating**

- 0.00 - 0.75 Low Hazard
- 0.75 - 1.25 Moderate Hazard
- 1.25 - 2.00 Significant Hazard
- > 2.00 Extreme Hazard

A	22/06/22	LM	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**

**wsp**

Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **drax**

ARCHITECT: -

PROJECT: **DRAX BECCS DCO**

TITLE: **FLOOD HAZARD RATING DURING BREACH EVENT FT2**

DRAWN: <b>LM</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

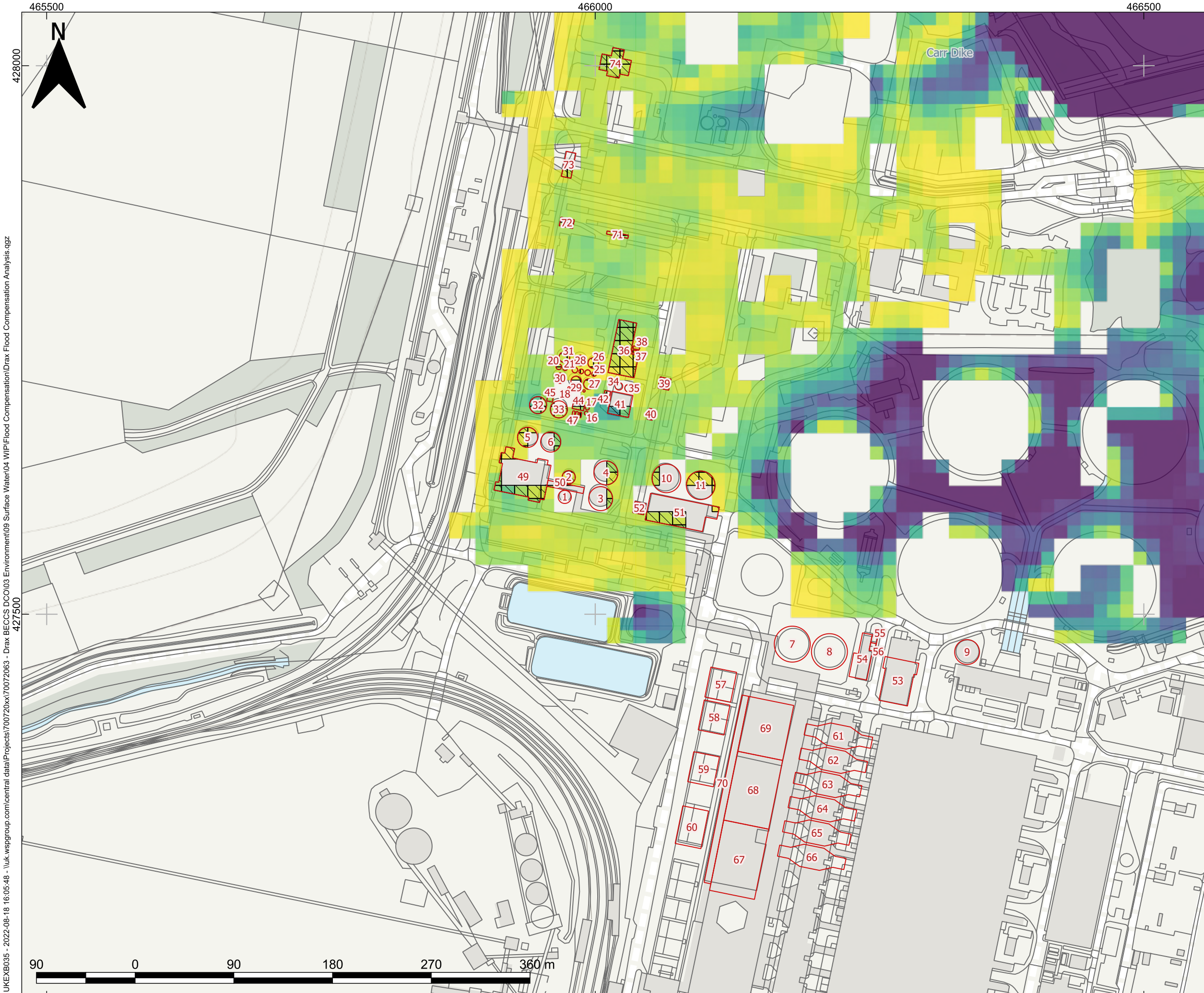
OGIS FILE: Drax Flood Mapping - New Model Data - LM.ggz	SCALE @A3: <b>1:12,500</b>	DATE: <b>22/06/22</b>
--	-------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: <b>BREACH-FT2-FHR</b>	REV: <b>A</b>
--------------------------------	--------------------------------------	------------------

Created by: UKLDM002 - 2022-06-22 16:00:30 - \\uk.wspgroup.com\central\_data\Projects\700720xx\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Modelling\GIS\Drax Flood Mapping - New Model Data - LM.ggz

# APPENDIX M – FLOODPLAIN COMPENSATION ANALYSIS





**KEY:**

- Demolished Building Footprints
- Extracted

**FT2 Flood Depth (m)**

0 1

A	17/8/22	BW	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**



Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **DRAX POWER**

ARCHITECT: -

PROJECT: **70072063 - Drax BECCS DCO**

TITLE: **Flood Compensation Areas  
FT2 Flood Result Demolished  
Buildings Intersection**

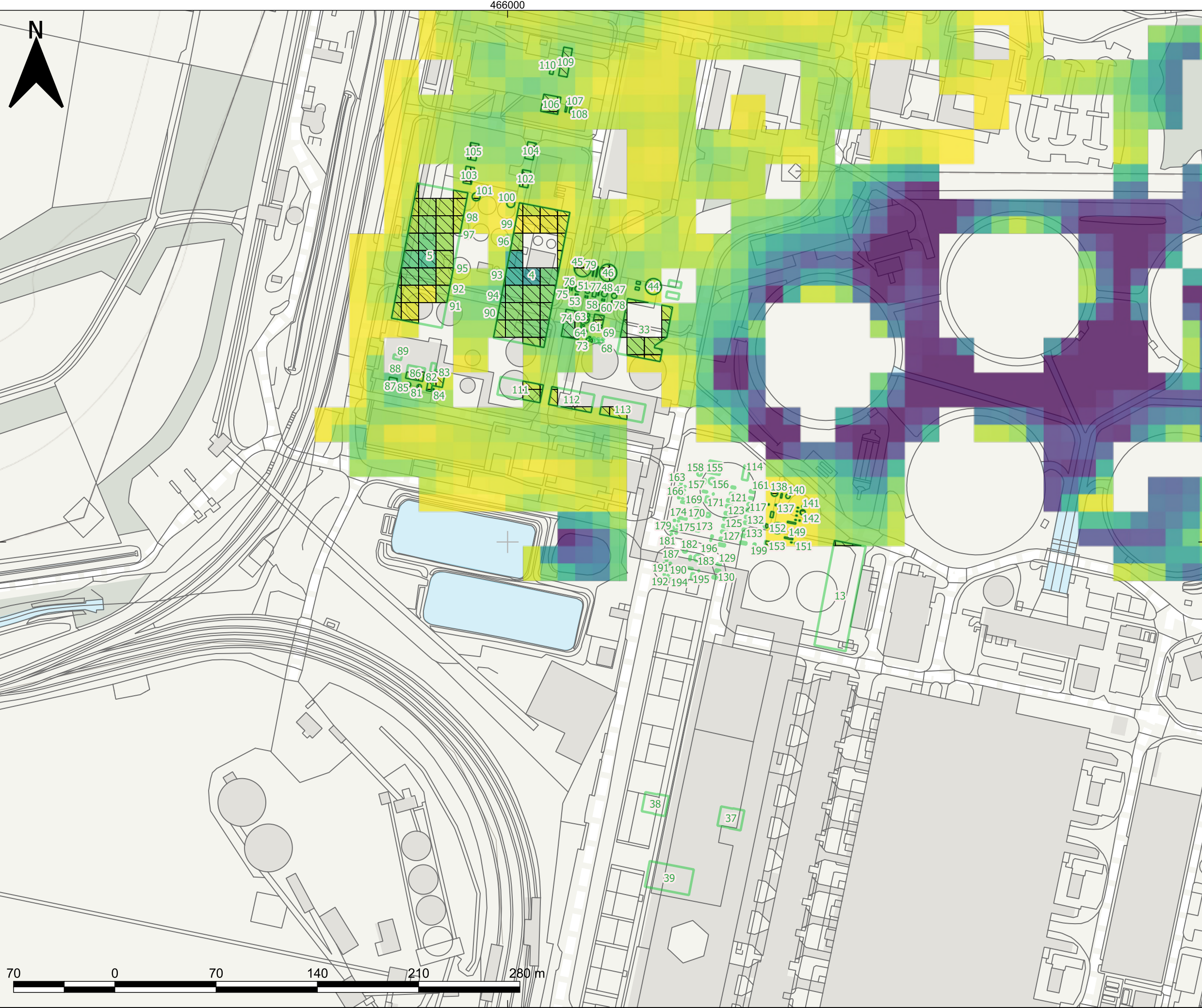
DRAWN: <b>BW</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

QGIS FILE: Drax Flood Compensation Analysis.ggz	SCALE @A3: <b>1:3,310</b>	DATE: <b>18/08/22</b>
--	------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: 70072063-FCA-1	REV: <b>A</b>
--------------------------------	-------------------------------	------------------

Created by: UKEXB035 - 2022-08-18 16:05:48 - \\uk.wspgroup.com\central\_data\Projects\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Flood Compensation Analysis.ggz

Created by: UKEXB035 - 2022-08-18 16:06:08 - \\uk.wspgroup.com\central\_data\Projects\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Flood Compensation\Drax Flood Compensation Analysis.ggz



**KEY:**

- Proposed Building Footprints
- Extracted

**FT2 Flood Depth (m)**

0 1

A	17/8/22	BW	FIRST ISSUE	ES	AS
REV	DATE	DRW	DESCRIPTION	CHK	APP

STATUS: **FOR INFORMATION ONLY**



Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000  
[www.wsp.com](http://www.wsp.com)

CLIENT: **DRAX POWER**

ARCHITECT: -

PROJECT: **70072063 - Drax BECCS DCO**

TITLE: **Flood Compensation Areas  
FT2 Flood Result Proposed Buildings  
Intersection**

DRAWN:	CHECKED:	APPROVED:
BW	ES	AS

QGIS FILE: Drax Flood Compensation Analysis.ggz	SCALE @A3: <b>1:2,530</b>	DATE: <b>18/08/22</b>
--	------------------------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: 70072063-FCA-2	REV: <b>A</b>
--------------------------------	-------------------------------	------------------

## PHOTOS OF PROPOSED COMPENSATION AREA

---

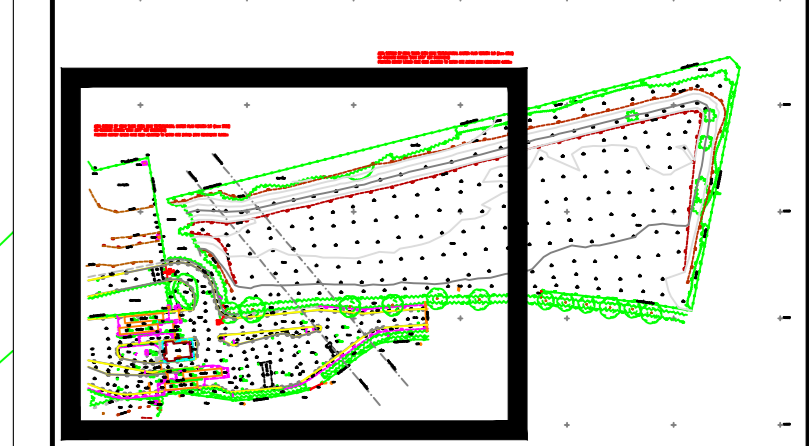
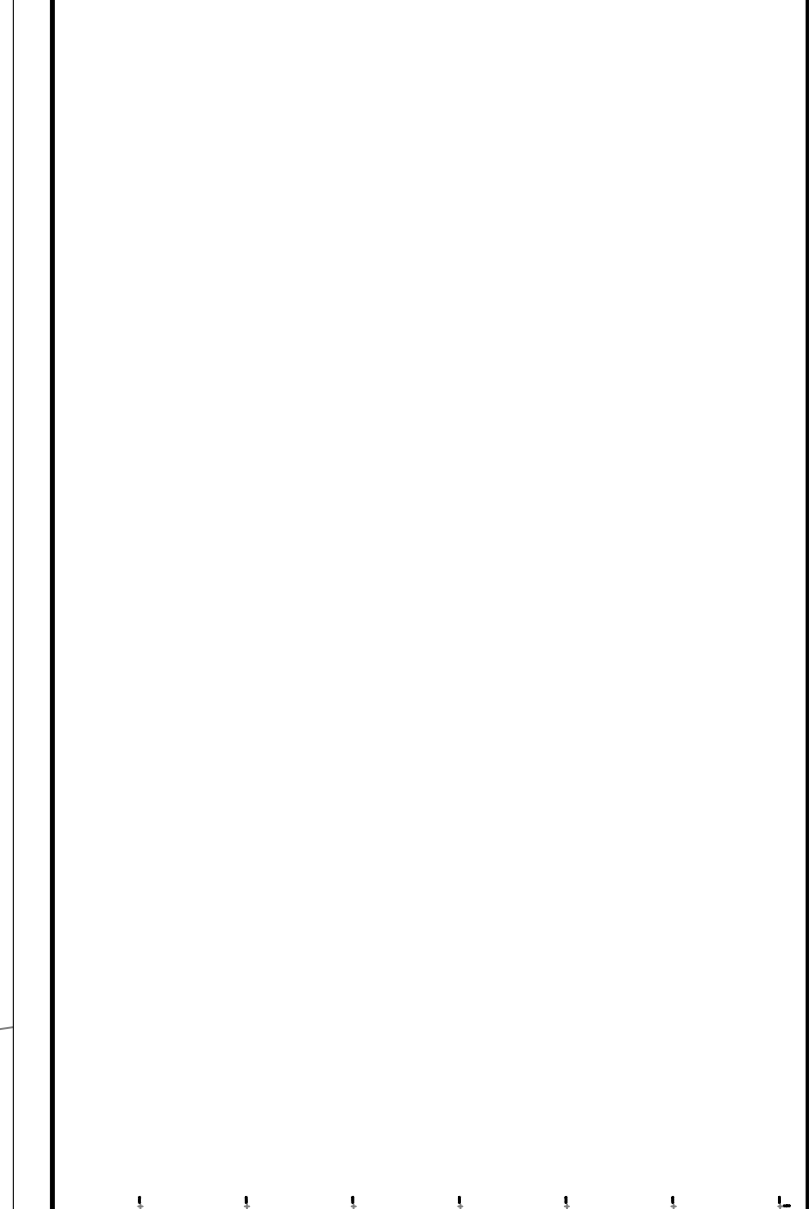


AREA OUTSIDE OF FIELD TAKEN FROM DRAX TOPOGRAPHICAL MASTER PLAN VERSION 2.0 (June 2022)  
 CO-ORDINATE SYSTEM: "DRAX 2017" NOT OSGB36(15)  
 PREVIOUS SURVEY LEVELS HAVE BEEN ADJUSTED TO MATCH SITE DATUM: DRAX BENCHMARK 6.993m



MANHOLE LEGEND		ABBREVIATIONS	
HTCT	Cable Television	LP	Lamp Post
HELE	Electricity	WK	Water Meter
HEGA	Gas	WSP	Water Stop Valve
HEWA	Surface Water	EP	Electricity Pole
HEFW	Foul Water	GM	Gas Marker Monument
HEBT	British Telecom	MS	Manhole
HEWT	Water	GU	Gully
SYMBOL LEGEND		FL	Fire Hydrant
+	Benchmark	WM	Water Meter
○	Well	WSP	Water Stop Valve
□	Electric Pole	GSV	Gas Stop Valve
○	Electricity Pole	RE	Rodding Eye
○	Fence Post	GU	Gully
□	Gas Stop Valve	FL	Fire Hydrant
○	Gate Post	WM	Water Meter
○	Gas Marker	WSP	Water Stop Valve
○	Gully	GSV	Gas Stop Valve
○	Gas Well	RE	Rodding Eye
○	Lamp Post	RE	Bottom of Bank
+	Manhole Post	BL	Building
△	MS Triangular	CE	Concrete Edge
△	Ground Marker	CE	Concrete Edge
○	Marker Post	CH	Ditch
○	Rodding Eye	DK	Drop Kerb
○	Sample Point	OC	Overhead Cable
○	Sign Post	FC	Fence
○	Spot Height	GA	Gate
+	Stone Level	KE	Kerb
+	Ridge Level	PK	Path
△	Survey Station	PL	Power Line
○	Telegraph Pole	TE	Tarmac Edge
○	Deciduous Tree	TB	Top of Bank
○	Valve	TR	Track
○	Water Meter	WT	Wall
○	Letter Box	VE	Verge
○	MS Circular	HE	Hedge/Line
		GE	Grass Edge

SHEET LAYOUT



REVISION	DESCRIPTION	DATE

**PROGAR**  
 Underground Mapping

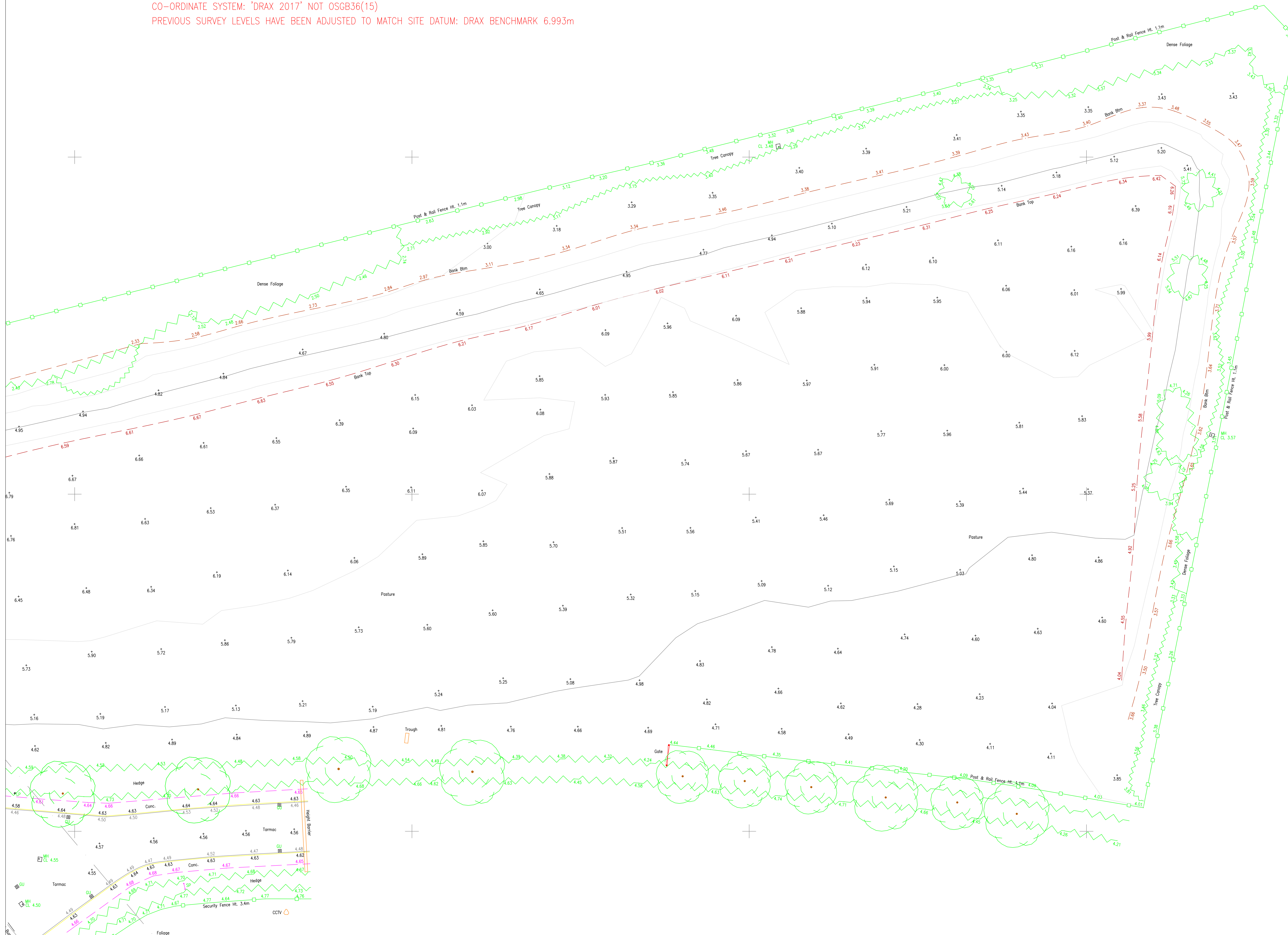
PROGAR SURVEYS LTD.  
 Unit 20 Carlisle House  
 Carlisle Street  
 Goole DN14 5DS  
 T: +44 (0) 1482 778 588  
 F: +44 (0) 8443 913 111  
 E: info@progarsurveys.co.uk  
 W: www.progarsurveys.co.uk

JOB TITLE: DRAX POWER LIMITED  
 BECOS PROJECT  
 DRAX POWER STATION

DRAWING TITLE	TOPOGRAPHICAL SURVEY
DRAWING NO.	9239A-001
DATE	02/09/2022
SHEET NO.	No. 1 of 2
REVISION	
DRAWN BY	AB
SCALE	1:200 @ A3
CHECKED BY	MS
APPROVED BY	AD

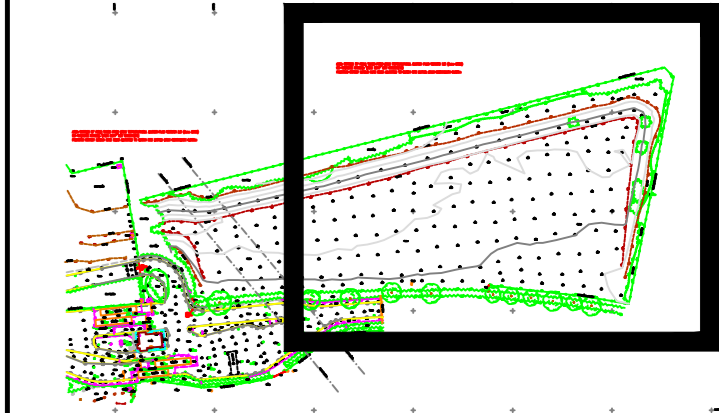
SCALE BAR: 0.5m 1m 2m 4m 6m 8m 10m

AREA OUTSIDE OF FIELD TAKEN FROM DRAX TOPOGRAPHICAL MASTER PLAN VERSION 2.0 (June 2022)  
 CO-ORDINATE SYSTEM: 'DRAX 2017' NOT OSGB36(15)  
 PREVIOUS SURVEY LEVELS HAVE BEEN ADJUSTED TO MATCH SITE DATUM: DRAX BENCHMARK 6.993m



HANDICAP LEGEND		ABBREVIATIONS	
HWCT	Cable Television	LP	Lamp Post
HWEL	Electricity	TP	Telegraph Pole
HWGA	Gas	EP	Electricity Pole
HWFW	Surface Water	GM	Gas Marker Monument
HWFW	Foul Water	MR	Manhole
HWBT	British Telecom	GU	Gully
HWWT	Water	FL	Fire Hydrant
		WM	Water Meter
		WSSV	Water Stop Valve
		GSV	Gas Stop Valve
		RZ	Rodding Eye
		GU	Gully
		FL	Fire Hydrant
		WM	Water Meter
		WSSV	Water Stop Valve
		GSV	Gas Stop Valve
		RE	Rodding Eye
			Bottom of Bank
			Building
			Canopy Edge
			Concrete Edge
			Ditch
			Drop Kerb
			Overhead Cable
			Fence
			Gate
			Kerb
			Path
			Post
			Power Line
			Tarmac Edge
			Top of Bank
			Track
			Wall
			Verge
			Hedge/Line
			Grass Edge

SHEET LAYOUT



REVISION	DESCRIPTION	DATE

	PRODAR SURVEYS LTD. Unit 20 Carlisle House Carlisle Street Goolie DN14 5DS T: +44 (0) 1482 778 588 F: +44 (0) 8443 913 111 E: info@prodarsurveys.co.uk W: www.prodarsurveys.co.uk
	JOB TITLE: DRAX POWER LIMITED
	BECCS PROJECT
	DRAX POWER STATION
	DRAWING TITLE: TOPOGRAPHICAL SURVEY
DRAWING NO: 02394-001	DATE: 02/09/2022
SHEET NO: No. 2 of 2	REVISION:
DRAWN BY: AD	SCALE: 1:200 @ A3
CHECKED BY: MS	APPROVED BY: AD
SCALE BAR: 0.0m 2.0m 4.0m 6.0m 8.0m 10.0m	

466500



Site-won Material Volume (m3)	Flexible Extent	Minimum Required Extent
Providing Compensation	1,079	880
Total	2,505	2,038

- KEY:**
- Redline Boundary
  - Indicative Earthworks**
  - 1 in 4 Slope
  - Cut to 4.36m AOD
  - Site-Won Material Placement Area
  - Floodplain Compensation Extents**
  - Flexible
  - Minimum Required

**NOTES**

- Indicative cut area to be sloped up to existing ground levels at 1 in 4 slope.
- Site-won material to be placed in areas above 5.35m AOD.
- Proposed Flood Compensation Area is indicative and subject to detailed design.

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	12/9/22	BW	FIRST ISSUE	ES	AS

STATUS:  
**FOR INFORMATION ONLY**



Kings Orchard, 1 Queen Street,  
Bristol, BS2 0HQ  
Tel: +44 (0) 117 930 2000

www.wsp.com

CLIENT:  
**DRAX POWER**

ARCHITECT:  
-

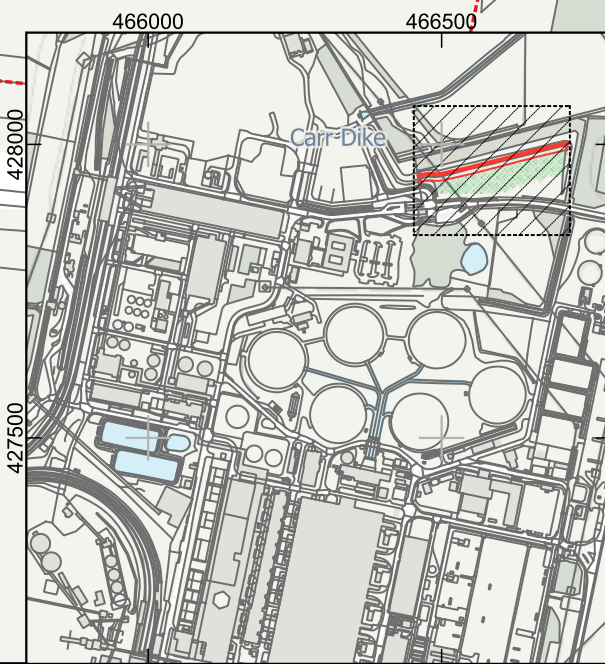
PROJECT:  
**70072063 - Drax BECCS DCO**

TITLE:  
**Indicative Flood Compensation Area**

DRAWN:	CHECKED:	APPROVED:
BW	ES	AS

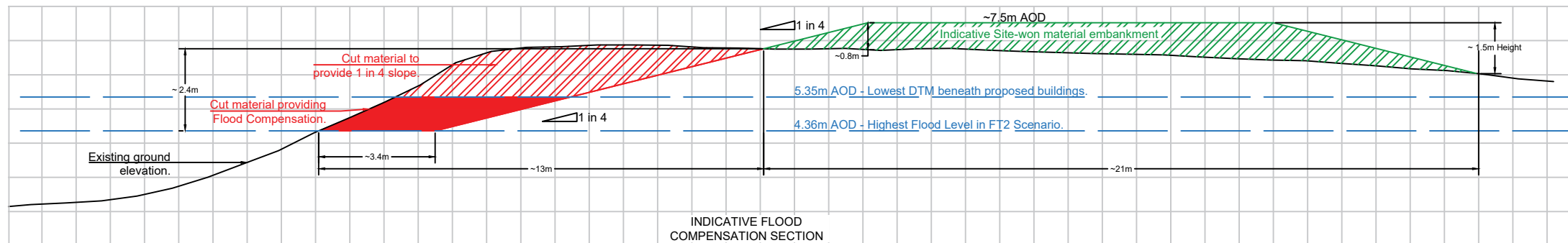
QGIS FILE:	SCALE @A3:	DATE:
Drax Flood Compensation Analysis.ggz	1:810	21/09/22

PROJECT No:	DRAWING No:	REV:
70072063	70072063-FCA-2	A



Created by: UKEXB035 - 2022-09-21 14:18:17 - \\uk.wspgroup.com\central\_data\Projects\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Flood Compensation Analysis.ggz

Created by: UKEXB035 - 2022-09-13 09:23:00 - \\uk.wspgroup.com\central\_data\Projects\70072063 - Drax BECCS DCO\03 Environment\09 Surface Water\04 WIP\Flood Compensation Analysis\03.ggz



NOTES  
 - Indicative cut area to be sloped up to existing ground levels at 1 in 4 slope.  
 - Site-won material to be placed in areas above 5.35m AOD.  
 - Proposed Flood Compensation Area is indicative and subject to detailed design.

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	12/9/22	BW	FIRST ISSUE	ES	AS

STATUS:  
**FOR INFORMATION ONLY**

  
 Kings Orchard, 1 Queen Street,  
 Bristol, BS2 0HQ  
 Tel: +44 (0) 117 930 2000  
 www.wsp.com

CLIENT:  
**DRAX POWER**

ARCHITECT:  
 -

PROJECT:  
**70072063 - Drax BECCS DCO**

TITLE:  
**Indicative Flood Compensation Section**

DRAWN: <b>BW</b>	CHECKED: <b>ES</b>	APPROVED: <b>AS</b>
---------------------	-----------------------	------------------------

QGIS FILE: Drax Flood Compensation Analysis.ggz	SCALE @A3:	DATE: <b>13/09/22</b>
--	------------	--------------------------

PROJECT No: <b>70072063</b>	DRAWING No: 70072063-FCA-3	REV: <b>A</b>
--------------------------------	-------------------------------	------------------