

BARTON'S ROAD, LAND AT CAMP FIELD

Nitrogen Budget for Camp Field, Bartons Road

ECO01516
Barton's Road
Nitrogen Budget for Camp Field
3
20th May 2022

REPORT

Quality Management

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Appendix B Land use over the previous decade

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1 INTRODUCTION

Site history

- 1.1.1 RPS was commissioned by Redrow Homes to undertake a Nitrate Budget Calculation of Bartons Road, Land at Camp Field, Havant, PO9 5NB.
- 1.1.2 The site is in Havant, Hampshire and consists of land to the north of Bartons Road. The site is approximately 3.31 ha in size. The National Grid coordinates for the centre of the site are SU 7334 0809.
- 1.1.3 At the point of survey the site comprised a well-managed, poor semi-improved grassland field with semi-improved grassland field margins and scattered broadleaf trees however RPS have been advised the site was re-planted to cereal crop following the survey. The site is bordered to the west by a line of broadleaf trees and a vegetated bund to the south. A boundary is not present to the north and to the west the site is bound by wire deer fencing. Evidence of the land use on site over the previous 10-year period can be found in Appendix B.
- 1.1.4 Earthcare Technical completed an assessment of the nitrogen budget for the site which can be found in Appendix A (Earthcare Technical, 2020). The data required updating for the new Reserved Matters application and has therefore been re-calculated by RPS below in line with the Natural England's most up to date guidance (Natural England, 2022).

Development proposals

- 1.1.5 Proposals for the site include the development of the site to include 70 properties with associated car parking and public open space including a community orchard.

2 CALCULATIONS

Methods

- 2.1.1 A nitrogen budget has been undertaken following the 'Natural England's Advice on Nutrient Budget Guidance (Natural England, 2022).
- 2.1.2 Results will show whether or not the development is likely to have an effect on the Chichester and Langstone Harbour Special Protection Area (SPA) or Solent Maritime Special Area of Conservation (SAC) or if it will achieve nitrate neutrality.
- 2.1.3 Calculations were based on the landscape plans for the site (Appendix C) and measurements for each habitat type were used as per Table 2.1 below.

Table 2.1: Habitat types and sizes

Habitat types	Area (ha)
Residential urban land	2.29
Community food growing	0.37
Green space	0.30
Shrub	0.32
Water	0.03
Total area	3.31

- 2.1.4 Calculations are provided in a series of tables displayed below. As per guidelines, an average population size of 2.4 people per household and a maximum water efficiency of 120 litres per day per person has been used within these calculations (Natural England, 2022).

Results

- 2.1.5 Results for each stage of the assessment are displayed below in Table 2.2; 2.3 and 2.4.

Stage 1

- 2.1.6 Stage one of the assessment calculates the total annual nitrogen (TN) load from the development wastewater. As displayed in Table 2.2 below, the rate of wastewater total nitrogen load is 53.02 kg/TN/yr.

Table 2.2: Stage 1 – Total nitrogen (TN) load from development wastewater

Step	Measurement	Value	Unit	Inputs
Development proposal	Date of first occupancy	01/10/2022	Date	
1	Average occupancy rate	2.4	Persons	2.4 persons per dwelling as per NE guidance
2	Maximum water use per day	120	litres/day	Estimated as per NE guidance
3	Development proposal	70	dwellings	Site design plans
4	Include deductible acceptable loading?	Yes	2 mg/l	As per NE guidance
5	Wastewater treatment works	Budds Farm WwTW	Site name	As per NE guidance
6	Wastewater treatment works N permit	7.7	mg/l TN	As per NE guidance
7	Additional population	168	Persons	As per NE guidance (para 2.7)
8	Wastewater generated by proposed development	20160	litres/day	As per NE guidance

Step	Measurement	Value	Unit	Inputs
Wastewater total nitrogen (TN) load		51.03 kg/TN/yr		

Stage 2

2.1.7 Stage two calculates the annual nitrogen nutrient export from current land use (Table 2.3).

2.1.8 Although at the time of survey, the site comprised a well-managed, poor semi-improved grassland field with semi-improved grassland field margins and scattered broadleaf trees, RPS were advised that the site was re-sown subsequently with arable crops. Further, historic photograph evidence from Google Earth (Appendix B) indicates that the site has been used for agricultural purposes for at most of the last decade.

Table 2.3: Stage 2 – Total annual nitrogen nutrient export per year

Step	Measurement	Value	Unit	Inputs
1	Catchment	East Hampshire Rivers	Catchment name	Identified using NE guidance
2	Soil drainage type	Impeded drainage	Soil type	Identified using NE guidance
4	Annual average rainfall	800.1 - 850	mm	Identified using NE guidance
5	Within Nitrate Vulnerable Zone (NVZ)	Yes	Yes/No	Identified using NE guidance
6	Existing land use type	Cereals	Land use description	Phase 1 survey data and aerial imagery (Google maps, 2022) – see Appendix B
Annal nitrogen nutrient export		66.60 kg/TN/yr		

Stage 3

2.1.9 Stage three calculates the total annual nitrogen nutrient export from the development. This includes the nitrogen load from the new urban development and from the new open space. The calculation only includes the areas of the site where there will be a change in land use, for example from agricultural land to new urban development or agricultural land to Suitable Alternative Natural Greenspace (SANG) / open space.

Table 2.4: Stage 3 – Total annual nitrogen nutrient export from future land uses

Step	Measurement	Value	Unit	Inputs
1	New land use types			
	Residential urban land	2.29	ha	Landscape design
	Community food growing	0.37	ha	Landscape design
	Greenspace	0.30	ha	Landscape design
	Shrub	0.32	ha	Landscape design
	Water	0.03	ha	Landscape design
Total annual nitrogen nutrient export from new land use		44.15 kg/TN//yr		

Stage 4

- 2.1.10 Stage four calculates the total nitrogen to be neutralised from the development. This is derived by calculating the difference between the total nitrogen load calculated for the proposed development (wastewater, urban area, open space etc.) and that for the existing land uses.
- 2.1.11 The total annual nitrogen load to mitigate is **36.68 TN/year**.

3 CONCLUSION

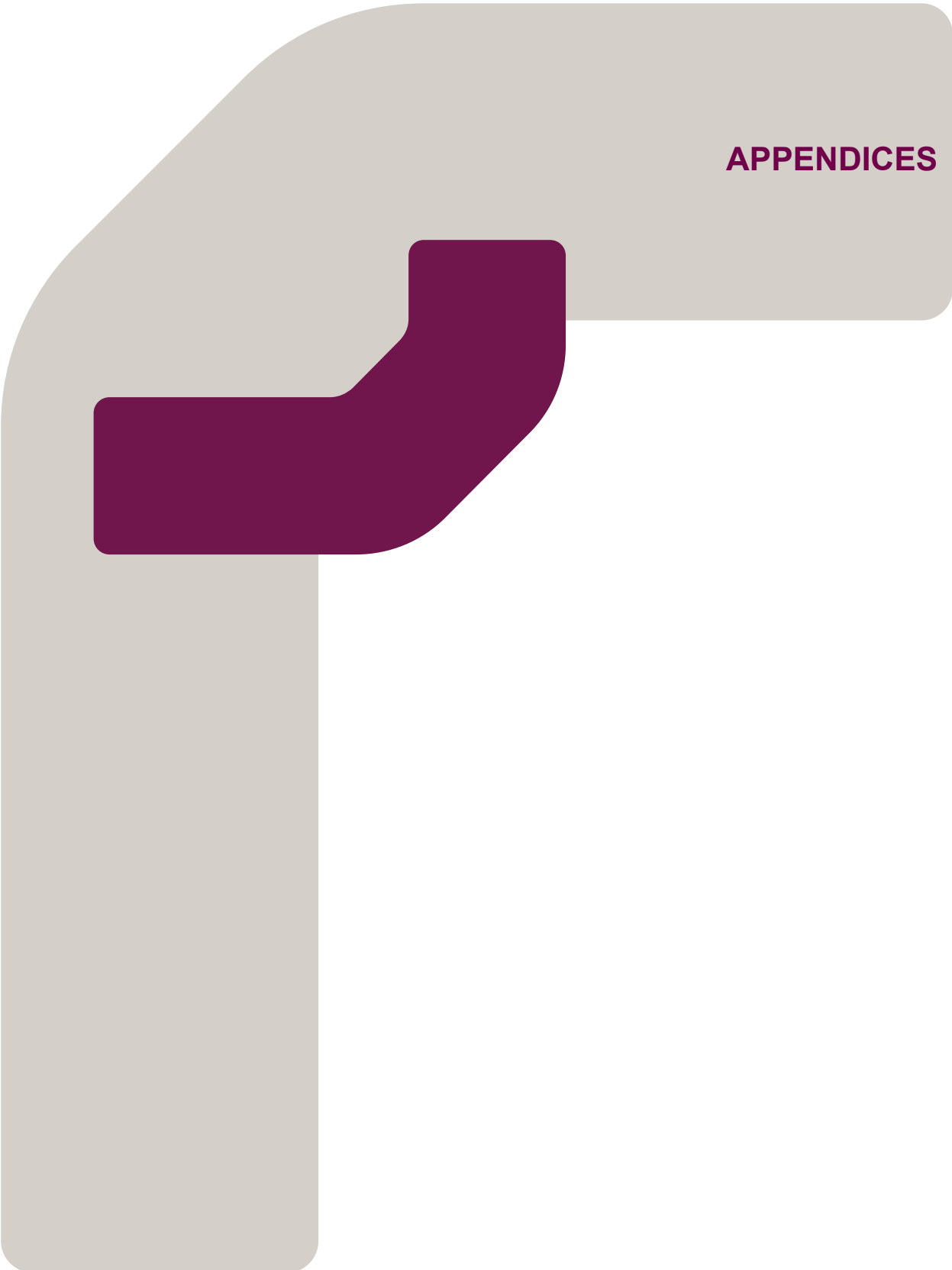
- 3.1.1 The total nitrogen load that needs neutralising from the development is 33.68 kg/N/yr. Therefore, this development will give rise to a surplus of nitrogen into the East Hampshire Rivers, the Chichester and Langstone Harbour SPA and/or the Solent Maritime SAC.
- 3.1.2 There are potential sources of mitigation off site which are available from Hampshire and Isle of Wight Wildlife Trust or Warnford Park Estate or Whitewool Stream Wetland. At the time of writing Redrow are aiming to secure a 'credits available in principle' letter from one of the sources.

REFERENCES

Earthcare Technical, 2020. *Nutrient Budget for the Camp Field, Bartons Road, Havant Development within the Solent Region* [unpublished report].

Google Maps, 2022. Aerial Images of Bartons Road, Havant. [online]. Available at: <<https://www.google.co.uk/maps/place/Bartons+Rd,+Havant/@50.8683559,-0.9617303,500m/data=!3m1!1e3!4m5!3m4!1s0x4874451963efa56d:0xc3498c5fa1a03ee2!8m2!3d50.8664735!4d-0.9653352>>

Natural England, 2022. *Nutrient Budget Calculator Guidance Document* [online]. Available at <<https://www.havant.gov.uk/nutrient-budget-calculator-guidance-pdf-815-kb>> Accessed April 2022.

A large, light beige graphic on the left side of the page, shaped like a stylized hand holding a pen. The 'hand' part is a large, rounded shape, and the 'pen' part is a smaller, curved shape extending from the bottom right of the hand. The word 'APPENDICES' is written in a dark purple, sans-serif font on the right side of the page, aligned with the top of the 'hand' shape.

APPENDICES

Appendix A

Earthcare Technical, Nutrient Budget for Bartons Road

Appendix B

Land use over the previous decade



2011: Aerial Photograph. Google Earth



2015: Aerial Photograph. Showing the field as arable crop. Google Earth



2016: Aerial Photograph. Showing the field as arable crop. Google Earth



2019: Aerial Photograph. Showing the field as arable crop. Google Earth



. Google Earth

2020: Aerial Photograph: Showing the field as arable crop. Google Earth

Appendix C
Post Development Layout



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Notes
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KEY

RESIDENTIAL URBAN LAND
2.29Ha

COMMUNITY FOOD GROWING
0.37Ha

GREEN SPACE
0.30Ha

SHRUB
0.32Ha

WATER
0.03Ha

To be read in conjunction with Table 2.4 of RPS ECO01516 Nitrogen Budget for Camp Field.

A	Upvised to Rev 100U	MW	DC	09/05/22
Rev	Description	By	CB	Date



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Client Redrow Homes

Project Land at Camp Field
Bartons Road

Title Land Use Categories

Status Planning	Drawn By SH	PM/Checked by NB
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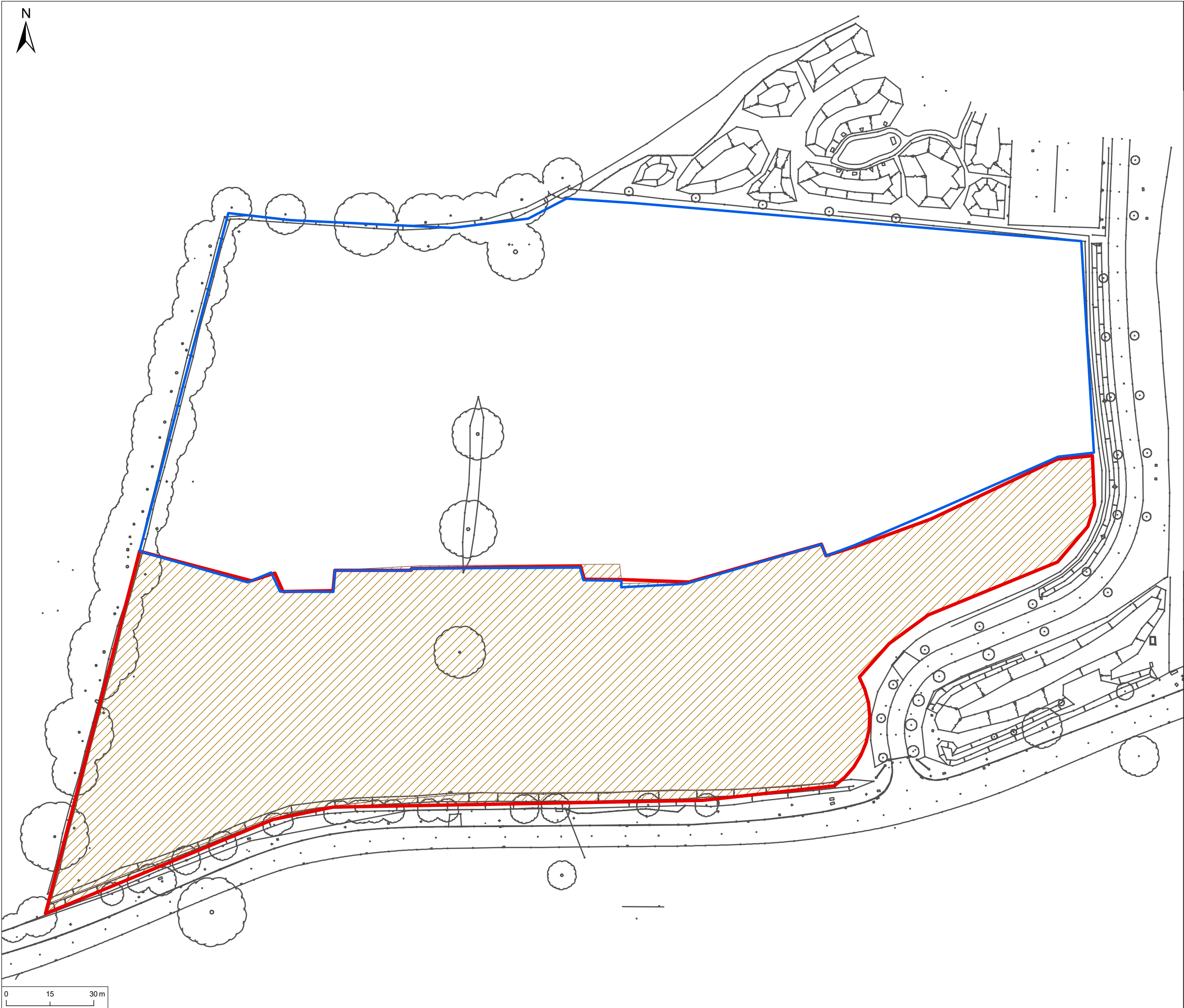
Job Ref JSL3850	Scale @ A3 nts	Date Created April 22
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RPS Drawing / Figure Number 800	Rev A
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Appendix D
Land Use Categories

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Legend

 Cereal (3.31 ha)

Rev	Description	By	CB	Date



MAKING
COMPLEX
EASY

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Client **Redrow Homes**

Project **Barton's Road, Land at Camp Field**

Title **Pre-development Land Use**

Status FINAL	Drawn By DGH	PM/Checked By -
Project Number ECO01516	Scale @ A3 1:1,250	Date Created APR 2022
Plan Number Plan 1		Rev -

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