

TECHNICAL NOTE

B05927 - TN0002

Project: Land off Ploughley Road, Ambrosden, Oxfordshire Page **1** of **8**
 Subject: LLFA Planning Comments Response Date: 25/11/2022

Technical Note Prepared by:	Approved for Issue by:
Justin Brown Civil Engineer	Max Thurgood Director

Issue No. - Date	Status	Description of Amendments
P01 – 22/07/2022	S2	First Issue.

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1. Introduction

This Technical Note has been produced to provide a response to the Lead Local Flood Authority (LLFA) comments from Oxfordshire County Council (OCC) dated 31st October 2022 on a proposed development known as ‘Land off Ploughley Road, Ambrosden’. The planning reference for the development is 22/02866/OUT, where the original comments from the LLFA can be found.

This Technical Note serves as an addendum to the existing FRA (B05927-CLK-XX-XX-RP-FH-1001) submitted at planning.

In the following note the comment from the LLFA is in italics and the design response from CB in normal text.

TECHNICAL NOTE

B05927 - TN0002

Project: Land off Ploughley Road, Ambrosden, Oxfordshire

Page 2 of 8

Subject: LLFA Planning Comments Response

Date: 25/11/2022

2. Planning Comments and Designers Responses

LLFA Comment 1

Provide Calculations for the greenfield run off rate.

Designer’s Response

The greenfield runoff rate has been provided in Section 5.3.2, Table 5 of the submitted FRA reference B05927-CLK-XX-XX-RP-FH-1001 dated 6th September 2022 produced by Clarkebond which indicates a discharge rate of 4.19l/s/ha.

For ease of reference, Table 5 has been provided below.

Return Period	Greenfield Runoff Rate (l/s/1ha)	Greenfield Runoff Rate (l/s/9.5ha)
QBAR	4.19	39.81
1 in 30 Year	9.63	91.49
1 in 100 Year	13.36	126.92
1 in 100 year +45% CC	19.37	184.03

Figure 1 - Table 5 from Clarkebond FRA

In addition to the FRA, please see Figure 2 below which shows a greenfield runoff estimation using the FEH catchment data which was not obtained at the time of writing the FRA. It is noted that following the model of the catchment with FEH data instead of IH124 the Greenfield Runoff Rate has increased to **6.96l/s/ha** which will become the discharge rate at detailed design. This value has been derived from the relationship between Qbar and Qmed stated within the “introduction to FSR” (A.4.4) document as;

$$Q_{BAR} = Q_{MED} * 1.07 = 6.5l/s/ha * 1.07 = 6.96l/s/ha.$$

The screenshot shows the FEH software interface with the following data:

FEH Input	Median Annual Flood (QMED)	Results
QMED Method: 2008	BFIHOST: 0.260	QMED rural (l/s): 6.5
Site Location: GB 460050 220200 SP 60050 20200	FARL: 1.000	QMED Urban (l/s): 6.6
Area (ha): 1.000		
SAAR (mm): 620		
SPRHOST: 50.670		
URBEXT: 1990, 0.0043		

Figure 2 - FEH Catchment Runoff Estimation

It is proposed that these revised run off rate values are used in the detailed design for the development drainage system.

TECHNICAL NOTE

B05927 - TN0002

Project:	Land off Ploughley Road, Ambrosden, Oxfordshire	Page 3 of 8
Subject:	LLFA Planning Comments Response	Date: 25/11/2022

LLFA Comment 2

Drainage strategy to show attenuation volumes and discharge rates. Discharge rate to be based on greenfield run off Qbar.

Designer’s Response

An updated drawing B05927-CLK-XX-XX-DR-C-0010 showing the location for each SuDS feature has been added As Appendix B, please also refer to **Table 1** below indicating the attenuation volumes.

Infiltration into the ground will be confirmed through soakaway testing at the SuDS features indicated on the Masterplan and Drainage Strategy layout.

LLFA Comment 3

All potential SuDS features need to be identified which will be incorporated during final design.

Designer’s Response

The SuDS features shown on the site wide masterplan produced by Barton Wilmore and contained as Appendix A in the FRA report show the approximate location for SUDs features that can be utilised to provide infiltration or attenuation storage as part of the site wide drainage strategy, these have been separately identified in drawing B05927-CLK-XX-XX-DR-C-0010 and volumes shown in Table 1 below.

Should the ground conditions show no or limited infiltration the SUDS features will accommodate the 1:100 year+ 40% CC event as a combined series of features and locations that can be utilised to achieve the volume required.

As noted in the FRA, the impermeable areas have been measured with a 10% allowance for urban creep.

The below volumes have been calculated form the base masterplan, including the allowance for urban creep and with a 300mm freeboard from the top of bank, and the results are shown in Table 1 below.

Table 1 - SuDS Feature Volumes

Ploughley Road SuDS Feature Volumes			
Feature	Bank Level (m)	Bed Level (m)	Volume (m ³)
A	64.500	63.450	1317
B	64.500	63.450	849
C	66.000	65.000	601
D	66.000	64.750	527
E	Conveyance Only		0
Total Volume:			3294

As noted in the FRA a storage estimate for the development in a 1:100 year + 40%CC event requires between 1785m³ and 2530m³ based on a discharge rate of 20.3l/s as recalculated using the FEH

TECHNICAL NOTE**B05927 - TN0002**

Project: Land off Ploughley Road, Ambrosden, Oxfordshire

Page 4 of 8

Subject: LLFA Planning Comments Response

Date: 25/11/2022

method. Generally, during detailed design the midpoint between these upper and lower limits is close to the true storage requirement for a development.

The results of this assessment show that the areas provided adequately accommodate the possible run off volume with spare capacity. The exact locations and nature of the basins can be determined during the detailed design.

LLFA Comment 4

Clarify if 10% urban creep has been allowed for.

Designer's Response

10% urban creep has been allowed for as stated in section 5.3.3 of the FRA. Once a strategy has been agreed, modelling and calculations will allow for this in the detailed design.

LLFA Comment 5

Provide ownership details of the watercourse and permission to discharge at the proposed rates. Confirm the capacity of the watercourse.

Designer's Response

The site ownership is currently vested with the landowner who controls both banks of the ditch at the discharger location. Permission to discharge will form part of the land purchase and won't be withheld.

The capacity of the ditch is 4130l/s as shown in Appendix D.

LLFA Comment 6

Provide calculations for the 1:100 year + 40% climate change to confirm sizing of the features.

Designer's Response

See the answer to LLFA Comment 2 and 3 above.

LLFA Comment 7

Provide phasing plan should the site consist of more than one phase.

Designer's Response

The site will be developed in one phase.

TECHNICAL NOTE

B05927 - TN0002

Project: Land off Ploughley Road, Ambrosden, Oxfordshire

Page **5** of **8**



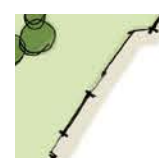


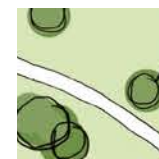
Subject: LLFA Planning Comments Response

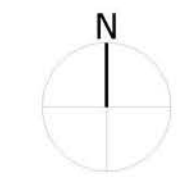
Date: 25/11/2022

Appendix A – Barton Willmore Base Masterplan



- A Site access
- B Existing hedges and trees to be retained and enhanced.
- C New Pedestrian Link to connect site to West Hawthorne Road.
- D Potential play/recreational facilities
- E Potential attenuation feature
- F Main spine road to have street tree planting
- G Pedestrian Link to Ploughley Road
- H Development around the edges of the site to be more informal to provide a rural edge character.
- I Primary street to have greater formality with emphasis on structured landscape and tree planting to front gardens
- J Extensive green spaces that interconnect to provide green corridors and enhance the rural feel of the development as well as potential for biodiversity enhancement.
- K A mix of 2, 3 & 4 bedroom houses with an emphasis on smaller family homes.
- L North West boundary to have new hedge planting and potential ditch feature
- M Indicative Pumping Station Location

-  Site boundary
-  Primary frontage
-  Secondary frontage
-  Shared Surface Road
-  Existing trees and hedges
-  Proposed tree planting to open space areas.



Project
Ploughley Road, Ambrosden

Drawing Title
Framework Plan

Date 09.06.2022	Scale 1:1000@A1	Drawn by BW	Check by JT
Project No 32948	Drawing No FP-01	Revision	

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TECHNICAL NOTE

B05927 - TN0002

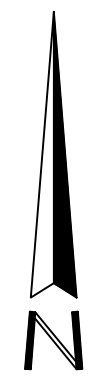
Project: Land off Ploughley Road, Ambrosden, Oxfordshire

Page **6** of **8**

Subject: LLFA Planning Comments Response

Date: 25/11/2022

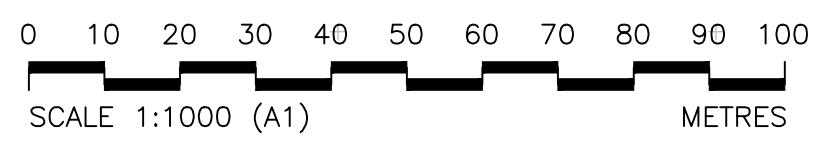
Appendix B – Drainage Strategy



KEY

	POTENTIAL SUDS
	EXISTING DITCH
	CONVEYANCE FEATURE

INFILTRATION RATES ARE TO BE CONFIRMED DURING THE PHASE 2 GROUND INVESTIGATION. THIS WILL INFORM THE FINAL SUDS SOLUTION FOR THE DEVELOPMENT.



CDM RESIDUAL RISKS
 The work shown on this drawing is both familiar to the designers and routinely safely built in similar circumstances by competent contractors.
 Risks are not considered significant.
 Relevant data is included in the Pre-Construction Information Pack.
 Signed: Max Thurgood Date: 25.08.2022
 DO NOT SCALE THIS DRAWING FOR CONSTRUCTION PURPOSES.
 CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ENGINEER.

P04	SUDS FEATURE REFERENCES ADDED	JB	MT	15.11.22
P03	BASE MASTERPLAN UPDATED	JB	MT	06.09.22
P02	PUMP STATION ADDED	JB	MT	25.08.22
P01	FIRST ISSUE	CP	MT	21.07.22
Rev	Detail	By	Chk	Date

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Client
ARCHSTONE AMBROSDEN LTD. AND BELLWAY HOMES LTD.

Project
LAND OFF PLOUGHLEY ROAD AMBROSDEN

Drawing Title
DRAINAGE STRATEGY

Purpose of Issue
ISSUE FOR INFORMATION

Clarkebond Project No.		Status				
B05927		S2				
Project	Originator	Volume	Level	Type	Role	Orig No.
B05927	CLK	XX	XX	DR	C	0010
Scale	Date		Revision			
1/1000	15.07.2022					
Drawn	Checked	Sheet Size		Revision		
CP	MT	A1		P04		

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TECHNICAL NOTE

B05927 - TN0002

Project: Land off Ploughley Road, Ambrosden, Oxfordshire

Page **7** of **8**

Subject: LLFA Planning Comments Response

Date: 25/11/2022

Appendix C – Ownership Title Plans



Official copy of register of title

Title number ON237191

Edition date 23.04.2019

- This official copy shows the entries on the register of title on 10 MAR 2022 at 07:56:44.
- This date must be quoted as the "search from date" in any official search application based on this copy.
- The date at the beginning of an entry is the date on which the entry was made in the register.
- Issued on 10 Mar 2022.
- Under s.67 of the Land Registration Act 2002, this copy is admissible in evidence to the same extent as the original.
- This title is dealt with by HM Land Registry, Gloucester Office.

A: Property Register

This register describes the land and estate comprised in the title.

OXFORDSHIRE : CHERWELL

- 1 (05.11.2002) The Freehold land shown edged with red on the plan of the above title filed at the Registry and being Land at Ambrosden, Bicester.
- 2 (08.05.2003) The land has the benefit of the following rights reserved by a Transfer of the land edged and lettered ON240589 in green dated 30 April 2003 made between (1) Ann Rosemary May (Transferor) and (2) Andrew Pao and Joseph Kong (Transferees):-

"There are reserved out of the Property for the benefit of the whole and every part of the Retained Land and for the benefit of the owner or owners of the remainder of the Retained Land and of the adjoining and neighbouring land now owned by the Transferor and of any part or parts of that land intended to be benefitted and all of the persons having the like or right or similar right:-

3.1 Such right of water drainage and all other easements through the Property as exist at the date hereof or would have existed if the Property and the Retained Land had been in separate ownership or at any time during the Perpetuity Period

3.2 A right of access over the approximate line shown by a pink dotted line on the Plan to and from the Retained Land through that portion of the Retained Land hatched green on the Plan with or without vehicles or animals at all times

3.3 To enter to the Property for the purpose of laying maintaining inspecting and connecting water or drainage pipes to that of the Retained Land hatched green on the Plan"

NOTE 1: The Perpetuity Period referred to is a period of 80 years from 30 April 2003 The Retained land is the land remaining in this title and the Property is the land edged and numbered ON240589 in green

NOTE 2: The land hatched green referred to is tinted pink on the filed plan. The pink dotted line referred to is shown by a blue broken line on the filed plan.

- 3 (08.05.2003) The Transfer dated 30 April 2003 referred to above

A: Property Register continued

contains the following provision:-

"It is hereby agreed and declared that the boundaries between the points A-B-C-D-E-F-G-H on the Plan remain in the ownership of the Transferor."

NOTE: Points A B C D E F G H have been reproduced on the filed plan.

- 4 (28.07.2003) The land edged and numbered in green on the title plan has been removed from this title and registered under the title number or numbers shown in green on the said plan.
- 5 (17.08.2007) The land has the benefit of the rights granted by a Deed of Grant dated 27 June 2006 made between (1) Ambrosden Residents Company Limited (2) Jago Homes Limited and (3) Ann Rosemary May.

NOTE: Copy filed ON242798.

B: Proprietorship Register

This register specifies the class of title and identifies the owner. It contains any entries that affect the right of disposal.

Title absolute

- 1 (05.11.2002) PROPRIETOR: ANN ROSEMARY MAY of West View Farm, Ambrosden, Bicester, Oxfordshire OX25 2LX.
- 2 (05.11.2002) The value stated as at 5 November 2002 was £120,000.

C: Charges Register

This register contains any charges and other matters that affect the land.

- 1 (05.11.2002) The land is subject to the following rights granted by a Deed of Grant dated 3 August 1949 made between (1) Samuel Jackson May and (2) His Majesty's Principal Secretary Of State For The War Department :-

"The Grantor as Beneficial Owner hereby grants unto the Secretary of State in fee simple the following rights to the end and intent that such rights shall be forever appurtenant to the adjoining land for all purposes connected with the use occupation and enjoyment thereof and of all land and premises (hereinafter referred to as "the additional property") adjacent or near to the adjoining land which now are or shall be at any time hereafter owned or occupied by the Secretary of State his successors or assigns in whatever state the adjoining land or additional property may be or to whatever use and purpose they or any part thereof respectively or any erection or building thereon may be put namely:- FIRST the right for the Secretary of State his successors and assigns owner or owners for the time being of the adjoining land and his and their licensees from time to time and at all times hereafter to lay construct maintain test inspect and use (a) a sewer nine inches in diameter with such apparatus appliances and fittings as are required in connection therewith (hereinafter collectively called "the said sewer") across the said land in the position indicated by a red line on the plan Number 2 attached hereto (b) three water mains with such apparatus appliances and fittings as are required in connection therewith (hereinafter called "the said water mains") across the said land in the positions indicated by blue lines on the plan...Numbered 2 attached hereto SECONDLY the like right from time to time to renew alter and remove all or any of the same AND THIRDLY the right at all times to enter upon the said land with or without workmen and others to inspect and carry out repairs to the said cable and to excavate along the whole course of the said sewer and the said water main as shown on the said plan for the purpose of exercising the right hereinbefore granted the Secretary of State or his successors or assigns as aforesaid making good any damage thereby done to the surface of the said land.

C: Charges Register continued

THE Secretary of State hereby covenants with the Grantor that he will from time to time and at all times keep in good repair the said sewer and water mains and pay to the Grantor or his successors in title or other occupier for the time being of the said land reasonable compensation for any damage done to the crops thereon by the construction or maintenance of the said sewer and water mains the amount of such compensation in the event of any dispute or difference arising to be settled by an arbitrator to be agreed between the parties hereto or in default of agreement to be nominated by the President for the time being of the Royal Institution of Chartered Surveyors and subject to and in accordance with the Arbitration Acts 1889 to 1934 or any statutory modification thereof for the time being in force"

NOTE: Copy filed.

- 2 (05.11.2002) The land is subject to the rights granted by a Deed dated 17 August 1974 made between (1) Alfred Charles May and (2) Thames Water Authority.

The said Deed also contains restrictive covenants by the grantor.

NOTE: Copy filed.

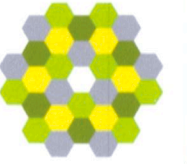
- 3 (23.04.2019) UNILATERAL NOTICE affecting the land edged blue on the title plan in respect of an option to purchase contained in an Agreement dated 17 April 2019 made between (1) Ann Rosemary May and (2) Archstone Ambrosden Limited.

- 4 (23.04.2019) BENEFICIARY: Archstone Ambrosden Limited (Co. Regn. No. 09540179) of 2 West Mills, Newbury RG14 5HG.

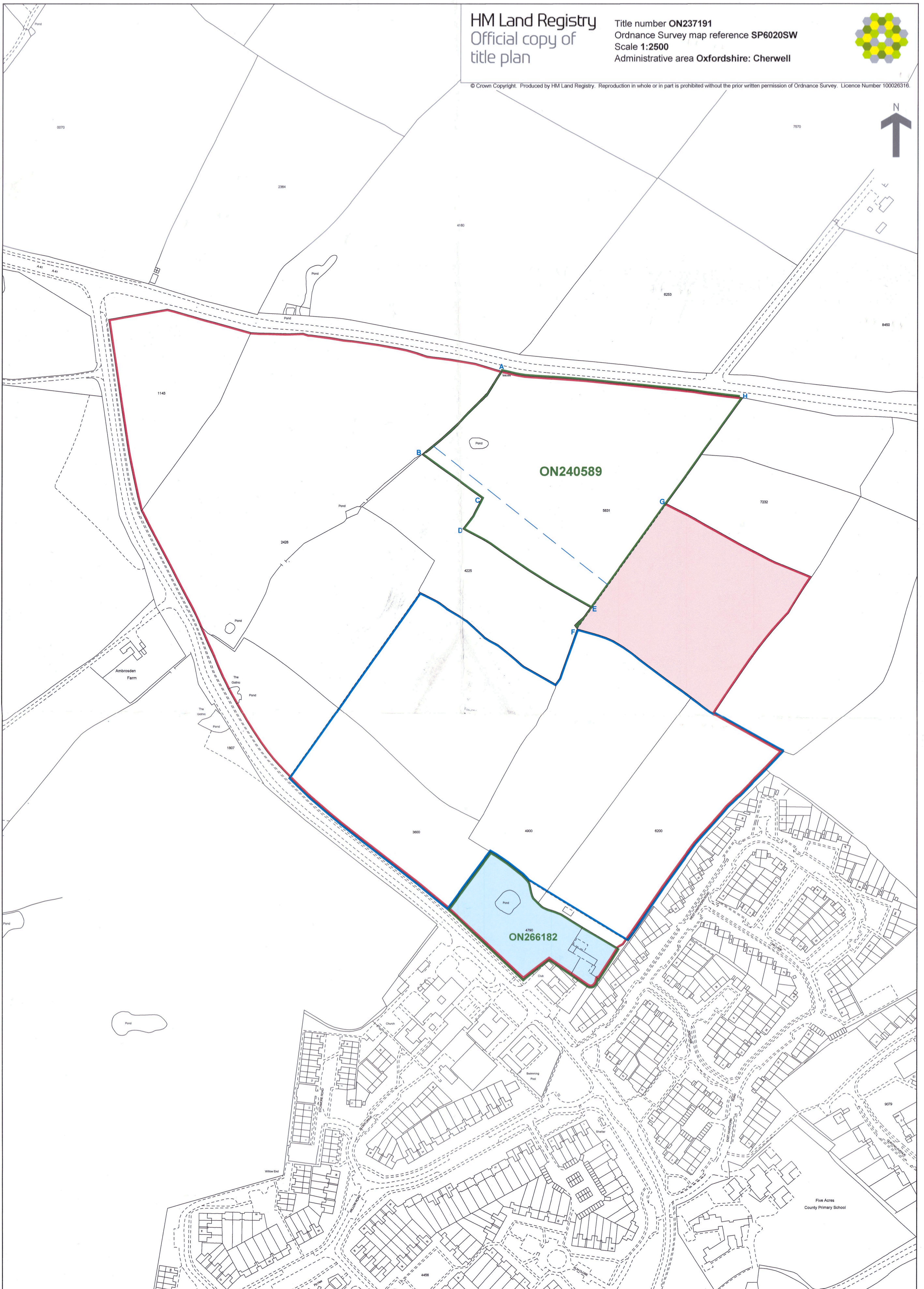
End of register

HM Land Registry
Official copy of
title plan

Title number ON237191
Ordnance Survey map reference SP6020SW
Scale 1:2500
Administrative area Oxfordshire: Cherwell



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This official copy issued on 31 May 2022 shows the state of this title plan on 31 May 2022 at 17:05:34.
It is admissible in evidence to the same extent as the original (s.67 Land Registration Act 2002).
This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.
This title is dealt with by HM Land Registry, Durham Office.

TECHNICAL NOTE

B05927 - TN0002

Project: Land off Ploughley Road, Ambrosden, Oxfordshire

Page **8** of **8**

Subject: LLFA Planning Comments Response

Date: 25/11/2022

Appendix D - Ditch Capacity Calculation

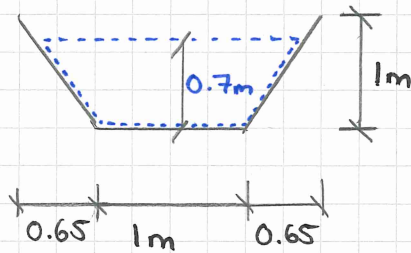
clarkebond

Project
PLOUGHLEY ROADProject no
805927

CALCULATION SHEET

Drawing no
-Calculation by
JBChecked by
DJ

Date 18.11.2022

Calculation sheet
01Revision no
AEXISTING DITCH CAPACITY

$$S_0 = 1/93$$

$$n = 0.03 \text{ (OVERGROWN DITCH)}$$

$$A = \frac{1000 \cdot 1000 + (2 \cdot (650 \cdot 1000))}{1000^2} = 1.650 \text{ m}^2$$

$$\text{WETTED} = \frac{835 \cdot 2 + 1000}{1000} = 2.67 \text{ m}$$

$$R = \frac{1.65}{2.67} = 0.618 \text{ m}$$

$$Q = \frac{A}{n} \cdot R^{\frac{2}{3}} \cdot S_0^{\frac{1}{2}}$$

$$Q = \frac{1.65}{0.03} \cdot 0.618^{\frac{2}{3}} \cdot (1/93)^{\frac{1}{2}} = 4.13 \text{ m}^3/\text{s} \rightarrow 4.13 \cdot 1000 = \underline{\underline{4130 \text{ L/S}}}$$

TOTAL DITCH CAPACITY INCLUDING 300mm FREEBOARD = 4,130 L/S.

TOTAL SITE DISCHARGE RATE = 20.35 L/S.