

Our ref: 680568-01L
Planning Application Ref: 22/03240/OUT

28th February 2023

Kabier Salam
Oxfordshire County Council
County Hall
New Road
Oxford
OX1 1ND

Land South of Burford Road, Minster Lovell
Response to LLFA Comments and Objection

Following your review of the submitted Flood Risk Assessment (FRA) (Ref. 680568-R1(01)-FRA, RSK, November 2022) and subsequent comments (included as **Appendix A** for reference) to the Local Planning Authority dated 2nd February 2023, we are writing to address your concerns.

This addendum also accounts for the latest site masterplan layout (ref. 466_P03-Illustrative Masterplan_Rev F) issued on the 24th February 2023, included as **Appendix B**.

Each of the comments raised are addressed below, with the LLFA text included in italics, and RSK's response beneath in plain text.

***Key Issue (1):** Provide catchment areas which has been used to calculate the attenuation volumes.*

***Detailed Comments (4):** Provide catchment areas, demonstrating the percentage build up that has been assumed for the impermeable areas and also state the final area with additional 10% urban creep.*

RSK Response (1): An allowance for urban creep was not included in the original report/strategy calculations since the outline nature of the current application means the masterplan is illustrative in nature.

The latest attenuation volume for the proposed infiltration basin is based on a development area of 2.85ha which has been measured directly from the latest available illustrative site masterplan included in **Appendix B**. A revised calculation including a 10% increase in impermeable area has been included with this letter (see **Appendix C**), using an impermeable area of 3.136ha (2.85ha +10%). This calculation demonstrates the proposed basin has sufficient capacity to accommodate the new maximum storage (2126m³) with no need for further modification.

The ultimate surface water drainage strategy therefore remains unchanged, but the revised details described here are included on the latest version of the strategy drawing included in **Appendix D**.

Key Issue (2): Clarify the phasing of the development.

Detailed Comment (2): Should the site consist of more than one phase, then a phasing plan needs to be provided. Each phase should have adequate SuDS features to discharge surface water to mitigate flood risk.

RSK Response (2): At this outline planning stage there is no phasing plan available for the proposed development. At present the project is just one phase.

The proposed site masterplan included as **Appendix B** covers the illustrative proposed development layout, which, assuming outline planning permission is granted, we would expect to be built out over a period of approximately 2-4 years, but this would be confirmed at the detailed planning stage.

The surface water drainage strategy proposes utilising a network of conveyance swales across the site to relay runoff to the main infiltration basin. It would be advised that both the infiltration basin and various stages of the linking drainage network are constructed early in construction phase to ensure effective drainage for the site.

Key Issue (3): Provide attenuation volumes and discharge rates on the drainage plan.

Detailed Comment (3): Provide attenuation volumes and discharge rates on the drainage plan.

RSK Response (3): Both the maximum storage required (2126m³) and infiltration rate (0.05724 m/hr) used in the current calculations are stated on the drainage strategy drawing (see **Appendix D**) in the Infiltration Basin Details textbox.

We trust that the above is satisfactory to enable you to approve the proposals, but should you have any queries, please do not hesitate to contact us.

Yours sincerely,

For RSK LDE Limited

and



Ben Donoghue
Flood Risk Consultant



Matthew Cheeseman
Associate Director

Appendices

- Appendix A** Objection Letter
- Appendix B** Updated Illustrative Masterplan
- Appendix C** Urban Creep Allowance Calculations
- Appendix D** Updated Strategy Drawing

Appendix A – Objection Letter

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Application no: 22/03240/OUT

Location: Land South Of Burford Road Minster Lovell

Lead Local Flood Authority

Recommendation:

Objection

Key issues:

- Provide catchment areas which has been used to calculate the attenuation volumes.
- Clarify the phasing of the development.
- Provide attenuation volumes and discharge rates on the drainage plan.

Detailed comments:

Provide catchment areas, demonstrating the percentage build up that has been assumed for the impermeable areas and also state the final area with additional 10% urban creep.

Should the site consist of more than one phase, then a phasing plan needs to be provided. Each phase should have adequate SuDS features to discharge surface water to mitigate flood risk.

Provide attenuation volumes and discharge rates on the drainage plan.

Officer's Name: Kabier Salam

Officer's Title: LLFA Engineer

Date: 02/02/2023

Appendix B – Updated Illustrative Masterplan

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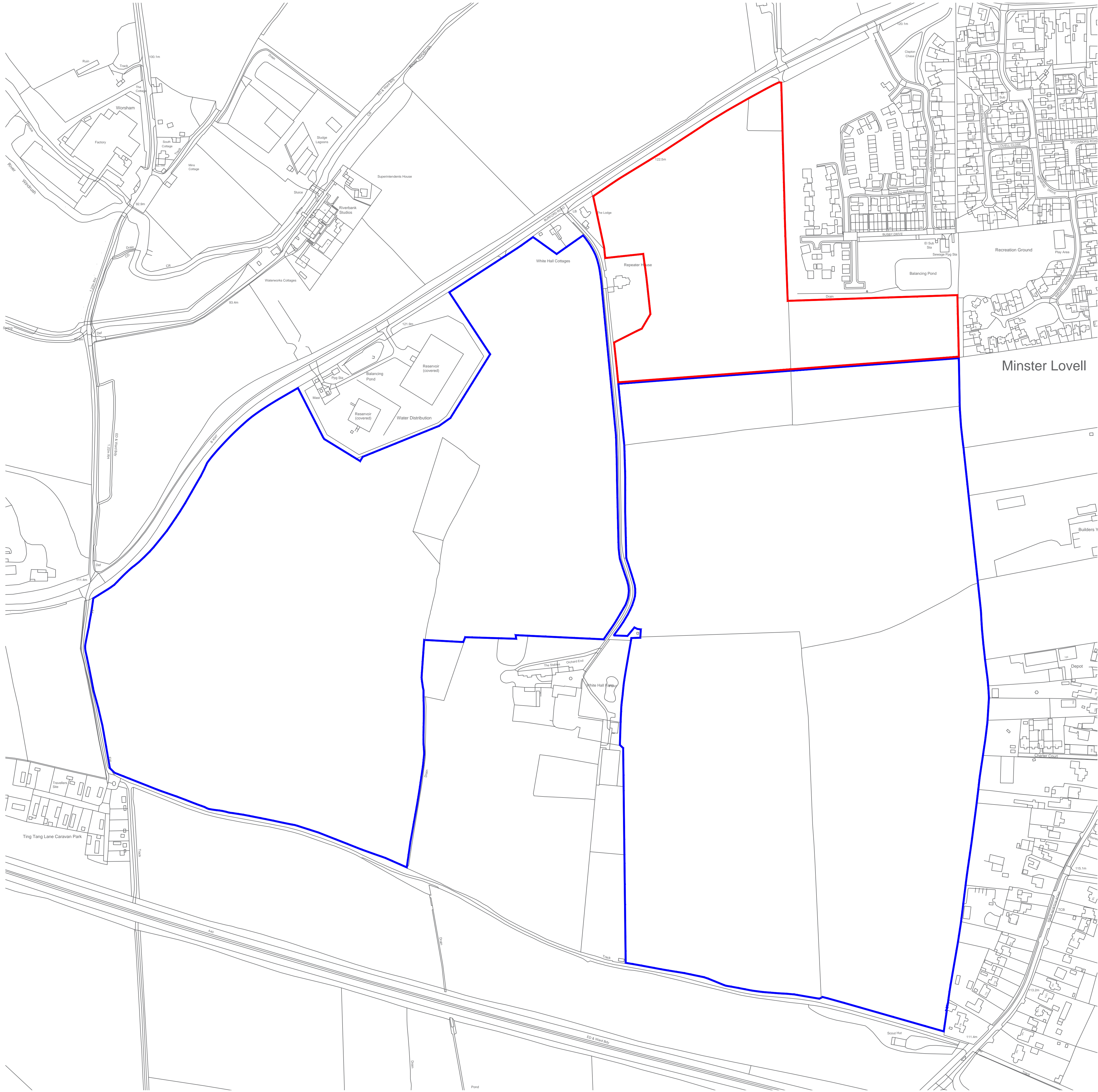
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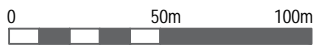
LEGEND

Site Boundary - 8.54Ha / 21.10 Ac

Other Land in Applicants Control - 64.66Ha / 159.78 Ac

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Catesby Estates plc
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a	11/11/2022	land owner advised blue line boundary amendment	AKP
Rev:	Date:	Description:	Initial:
Project:			
Land South of Burford Road Minster Lovell			
Drawing:			
16b - Site Location Plan			
Scale:			Drawn:
1:2,500 @ A1			AKP
Date:			Checked:
17/10/2022			--



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DRAFT

- Site boundary (8.54 ha)**
- ① Proposed vehicular and pedestrian access
 - ② Proposed pedestrian/cycle connection
 - ③ Primary street
 - ④ Secondary street
 - ⑤ Private drive
 - ⑥ Proposed recreational route
 - ⑦ Proposed playspace
 - ⑧ Proposed attenuation basin
 - ⑨ Existing vegetation retained and enhanced as necessary with locally characteristic and native species
 - ⑩ Proposed woodland edge
 - ⑪ Proposed green buffer to existing property
 - ⑫ Proposed pumping station
 - ⑬ Proposed footpath along Burford Road

F	23.01.25	Amended proposals
E	22.12.06	Amended boundary and proposals
D	22.10.13	Amended site boundary
C	22.10.12	Amended site boundary
B	22.10.06	Amended landscape
A	22.09.29	Amended proposed layout

Rev.	Date	Description
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Land to the west of
MINSTER LOVELL

Illustrative Masterplan

Job ref: 466	Drawing number: P03	Revision: F
Scale: 1:2,500 @ A3	Date: January 2023	



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Appendix C – Urban Creep Allowance Calculations

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RSK Ltd		Page 1
18 Frogmore Road	680568	
Hemel Hempstead	Burford Rd, Minster Lovell	
Herts, HP3 9RT	Design Calculations (+10% UC)	
Date 27.02.23	Designed By BD	
File 2023-02-22 INFILTRATIO...	Checked By	
Micro Drainage	Source Control W.12.5	

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 1272 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	117.107	0.507	13.1	796.2	O K
30 min Summer	117.254	0.654	13.4	1040.7	O K
60 min Summer	117.398	0.798	13.7	1286.3	O K
120 min Summer	117.531	0.931	14.0	1519.1	O K
180 min Summer	117.598	0.998	14.2	1637.8	O K
240 min Summer	117.637	1.037	14.3	1707.4	O K
360 min Summer	117.680	1.080	14.4	1786.3	O K
480 min Summer	117.702	1.102	14.5	1824.6	Flood Risk
600 min Summer	117.709	1.109	14.5	1838.2	Flood Risk
720 min Summer	117.708	1.108	14.5	1835.9	Flood Risk
960 min Summer	117.689	1.089	14.4	1801.7	O K
1440 min Summer	117.639	1.039	14.3	1711.5	O K
2160 min Summer	117.572	0.972	14.1	1591.8	O K
2880 min Summer	117.514	0.914	14.0	1488.8	O K
4320 min Summer	117.406	0.806	13.7	1301.2	O K
5760 min Summer	117.306	0.706	13.5	1129.2	O K
7200 min Summer	117.213	0.613	13.3	972.2	O K
8640 min Summer	117.127	0.527	13.1	829.3	O K
10080 min Summer	117.048	0.448	12.9	700.5	O K
15 min Winter	117.166	0.566	13.2	893.5	O K
30 min Winter	117.329	0.729	13.6	1168.6	O K
60 min Winter	117.490	0.890	13.9	1446.6	O K
120 min Winter	117.640	1.040	14.3	1713.3	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	138.153	26
30 min Summer	90.705	41
60 min Summer	56.713	70
120 min Summer	34.246	130
180 min Summer	25.149	188
240 min Summer	20.078	248
360 min Summer	14.585	366
480 min Summer	11.622	484
600 min Summer	9.738	604
720 min Summer	8.424	722
960 min Summer	6.697	950
1440 min Summer	4.839	1162
2160 min Summer	3.490	1540
2880 min Summer	2.766	1960
4320 min Summer	1.989	2768
5760 min Summer	1.573	3576
7200 min Summer	1.311	4328
8640 min Summer	1.129	5104
10080 min Summer	0.994	5856
15 min Winter	138.153	26
30 min Winter	90.705	41
60 min Winter	56.713	70
120 min Winter	34.246	128

RSK Ltd		Page 2
18 Frogmore Road Hemel Hempstead Herts, HP3 9RT	680568 Burford Rd, Minster Lovell Design Calculations (+10% UC)	
Date 27.02.23 File 2023-02-22 INFILTRATIO...	Designed By BD Checked By	
Micro Drainage	Source Control W.12.5	

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
180 min Winter	117.717	1.117	14.5	1852.3	Flood Risk
240 min Winter	117.763	1.163	14.6	1936.0	Flood Risk
360 min Winter	117.817	1.217	14.7	2036.2	Flood Risk
480 min Winter	117.846	1.246	14.8	2090.7	Flood Risk
600 min Winter	117.861	1.261	14.8	2117.5	Flood Risk
720 min Winter	117.865	1.265	14.8	2126.5	Flood Risk
960 min Winter	117.857	1.257	14.8	2111.4	Flood Risk
1440 min Winter	117.804	1.204	14.7	2012.8	Flood Risk
2160 min Winter	117.719	1.119	14.5	1856.8	Flood Risk
2880 min Winter	117.641	1.041	14.3	1714.2	O K
4320 min Winter	117.485	0.885	13.9	1438.2	O K
5760 min Winter	117.337	0.737	13.6	1181.9	O K
7200 min Winter	117.199	0.599	13.3	949.3	O K
8640 min Winter	117.074	0.474	13.0	742.5	O K
10080 min Winter	116.962	0.362	12.7	561.2	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
180 min Winter	25.149	186
240 min Winter	20.078	244
360 min Winter	14.585	360
480 min Winter	11.622	476
600 min Winter	9.738	590
720 min Winter	8.424	704
960 min Winter	6.697	926
1440 min Winter	4.839	1336
2160 min Winter	3.490	1656
2880 min Winter	2.766	2112
4320 min Winter	1.989	2992
5760 min Winter	1.573	3864
7200 min Winter	1.311	4680
8640 min Winter	1.129	5440
10080 min Winter	0.994	6152

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time / Area Diagram

Total Area (ha) 3.136

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.045	4-8	1.045	8-12	1.045

Model Details

Storage is Online Cover Level (m) 118.000

Infiltration Basin Structure

Invert Level (m) 116.600 Safety Factor 2.0

Infiltration Coefficient Base (m/hr) 0.05724 Porosity 1.00

Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	1500.0	1.200	1847.6	2.400	0.0	3.600	0.0	4.800	0.0
0.200	1555.4	1.400	1909.1	2.600	0.0	3.800	0.0	5.000	0.0
0.400	1611.8	1.401	0.0	2.800	0.0	4.000	0.0		
0.600	1669.3	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	1727.7	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	1787.2	2.200	0.0	3.400	0.0	4.600	0.0		

Appendix D – Updated Strategy Drawing

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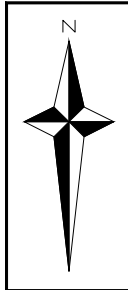
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CIVIL / STRUCTURAL DESIGN RISK MANAGEMENT

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-

RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

KEY

Red Line Boundary

Proposed Impermeable Area

Proposed Surface Water Sewer

Outfall Headwall

Indicative Permeable Paving

Conveyance Swale (possible infiltration potential)

Infiltration Basin

Notes:

1. This drawing has been produced to planning/viability purposes only.

2. This drawing is to be read in conjunction with all other relevant drawings.

3. All dimensions are in metres U.N.O

4. All levels in metres.

P02	24.02.23	Updated Masterplan	BD	MEC	MEC
P01	24.10.22	Preliminary Issue	BD	MEC	MEC
Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

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Client

CATESBY STRATEGIC LAND LTD

Project Title

LAND SOUTH OF BURFORD ROAD
MINSTER LOVELL
OXFORDSHIRE

Status

WORK IN PROGRESS

Drawing Title

DRAINAGE STRATEGY

Drawn	Date	Checked	Date	Approved	Date
BD	24.10.22	MC	24.10.22	MC	24.10.22
Scale	Orig Size	Dimensions	Revision		
1:1000	A1	M	P02		

Drawing File

680568-RSK-A-ALL-24-02-23 - DRAINAGE STRATEGY.DWG

Project No.	Originator	Unit	Site Area	Series	Number	Sheet
680568	RSK		ALL	05	01	01

Scale 1:1000

0 10 20 30 40 50m