RCD

KEYO AGRICULTURAL
EUROPA WAY
ANCHOLME BUSINESS PARK
BRIGG
NORTH LINCOLNSHIRE
DN20 8AR

FLOOD RISK ASSESSMENT

Rev	Date	Purpose/Status	Document Ref.	QA
A	26.11.2025	For approval	First issue	RAC/STC
B				
C				
D				
E				
F				

Disclaimer

This report is for the use of the Client only and is not for the use of any other parties without the express permission of the Client. All calculations and related quantified assumptions are indicative for planning purposes only and are based solely on the available design proposals and must be reassessed during detailed design with the appropriate compliance methodology.

Table of Contents

1.0 EXECUTIVE SUMMARY

RCD Consultants Ltd has been appointed to complete a Flood Risk Assessment for the proposed development at Keyo Agricultural, Europa Way, Ancholme Business Paek, Brigg, North Lincolnshire, DN20 8AR.

This flood risk assessment has been completed in accordance with the National Planning Policy Framework (NPPF), the Ciria SUDS Manual (C753), the Planning Practice Guidance (Flood Risk and Coastal change) and the Joint Lincolnshire Flood Risk and Drainage Management Strategy 2012-2025.

The site is Brownfield with an area of 0.4Ha and is currently being used for storage of equipment and vehicles. The site is to the south of the existing main building and is predominantly flat with levels varying between 1.80 and 2.00m AOD.

A block of seven commercial/industrial units is proposed with a roof area of 0.16Ha and an impermeable hard landscaped area of 0.15Ha.

The Flood Warning Information Services website confirms that the site is in flood zone 3a and that there is a low risk of surface water flooding.

The NPPF categorises the development as “less vulnerable” being of general industry use, and that development of this type is permitted in flood zone 3a, therefore an exemption and sequential test are not required.

The British Geological website confirms that the site is underlain by superficial deposits of Alluvium (Clay, silt, sand and gravel) over bedrock of the Oxford Clay Formation (Mudstone), both of which are known to have poor infiltration characteristics.

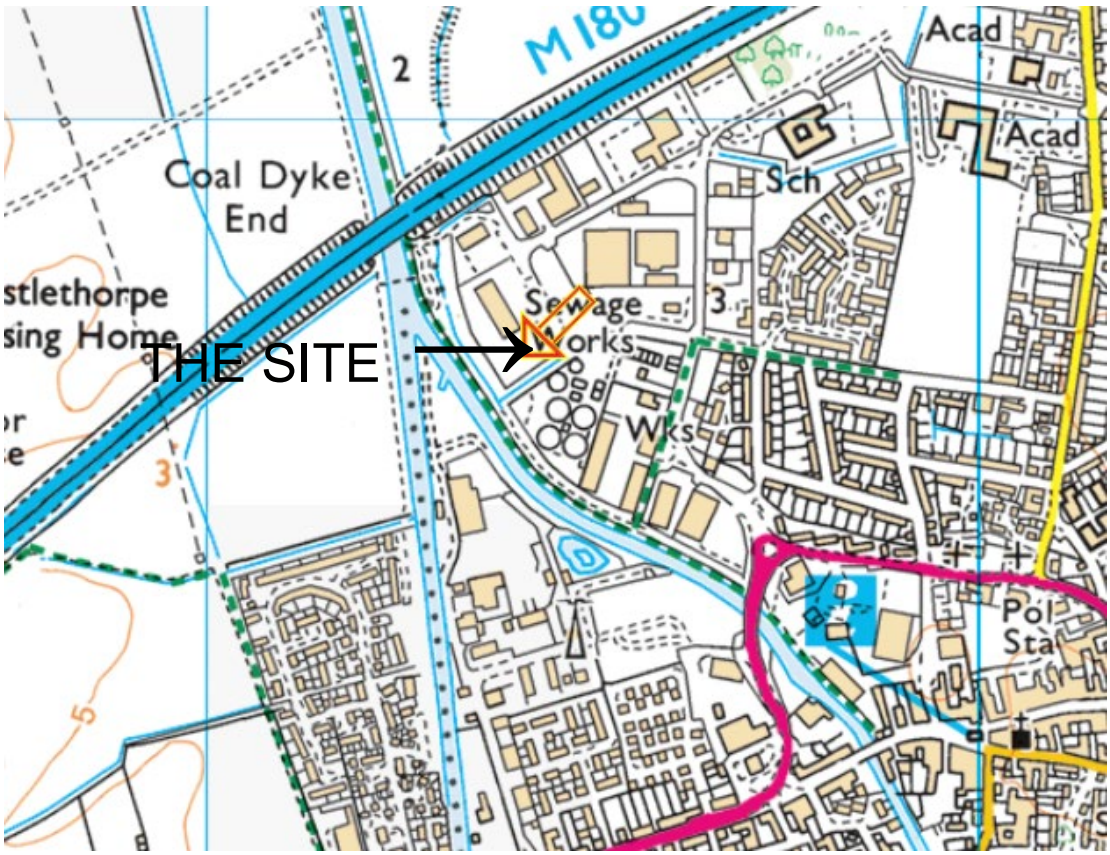
It is proposed that surface water will discharge to the existing drainage network with flows being restricted to as close to Greenfield rates as possible. Attenuation will be provided by a combination of a no-fines sub-base and a cellular storage tank.

2.0 DEVELOPMENT DESCRIPTION AND LOCATION

2.1 What type of development is proposed and where will it be located?

The block of seven commercial/industrial units is proposed with a roof area of 0.16Ha and an impermeable hard landscaped area of 0.15Ha.

The site is located at Keyo Agricultural, Europa Way, Ancholme Business Paek, Brigg, North Lincolnshire, DN20 8AR, National Grid reference 499407,407691.



Location extract from the Streetmap website

The site is Brownfield with an area of 0.4Ha and is currently being used for storage of equipment and vehicles. The site is to the south of the existing main building and is predominantly flat with levels varying between 1.80 and 2.00m AOD.

A copy of the topographical survey is shown in Appendix A.

2.2 What is the vulnerability classification?

In accordance with the NPPF, the proposed site is classified as “less vulnerable” being a site used for general industrial use.

2.3 Is the proposed development consistent with the Local Development Documents?

The EA “Flood Map for Planning” website extract below shows the site is located in flood zone 3a and therefore at risk of flooding.

Low risk means that each year this area has a chance of flooding of between 0.1% and 1%.

Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%.

High risk means that each year this area has a chance of flooding of greater than 3.3%.

Extract from EA’s “Flood Map for Planning” Website

The NPPF categorises the development as “less vulnerable” being of general industry use, and that development of this type is permitted in flood zone 3a, therefore an exemption and sequential test are not required and the site is therefore consistent with the LDD.

2.4 Please provide evidence that the Sequential Test or Exception Test has been applied in the selection of this site for this development type?

Table 3 of the NPPF confirms that the site does not require an exception test or the sequential test.

A copy of Table 3 is shown below.

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

3.0 DEFINITION OF FLOOD HAZARD

3.1.1 What sources of flooding could affect the site?

Potential Source	Before Mitigation	After Mitigation
Flooding from Rivers	**High**	**Low**
Flooding from the Sea	**Low**	**Low**
Flooding from surface water	**Low**	**Low**
Flooding from Groundwater	**Low**	**Low**
Flooding from Sewers	**Low**	**Low**
Flooding from Reservoirs, Canals and other Artificial Sources	**Low**	**Low**

3.2 For each identified source, describe how flooding would occur, with reference to any historic records wherever these are available?

FLOODING FROM RIVERS

The Old River Ancholme runs along the western boundary of the site. The flood warning services website confirms that the site remains in flood zone 3a despite flood defences being in place between the river and the site, we assume this is the case as the defences are not continuous and are local to the site only.

A recent approved Flood Risk Assessment completed in 2022 for a site 390m to the east on Atherton Way confirmed that the finished floor level of the building was acceptable to be set at 2.55m AOD.

Due to existing level constraints, the proposed service yard will have a crossfall gradient of 1 in 20 to enable the proposed building to be lifted to a maximum finished floor level of 2.60m AOD.

To mitigate changes to climate change allowances water resilient construction techniques will be used to protect the building from flood ingress.

To mitigate the risk to life the owners/employers will sign up to the Environment Agency early warning system so that staff are notified to stay at home or to evacuate to a safer location in a timely manner.

After mitigation the risk of flooding is therefore low.

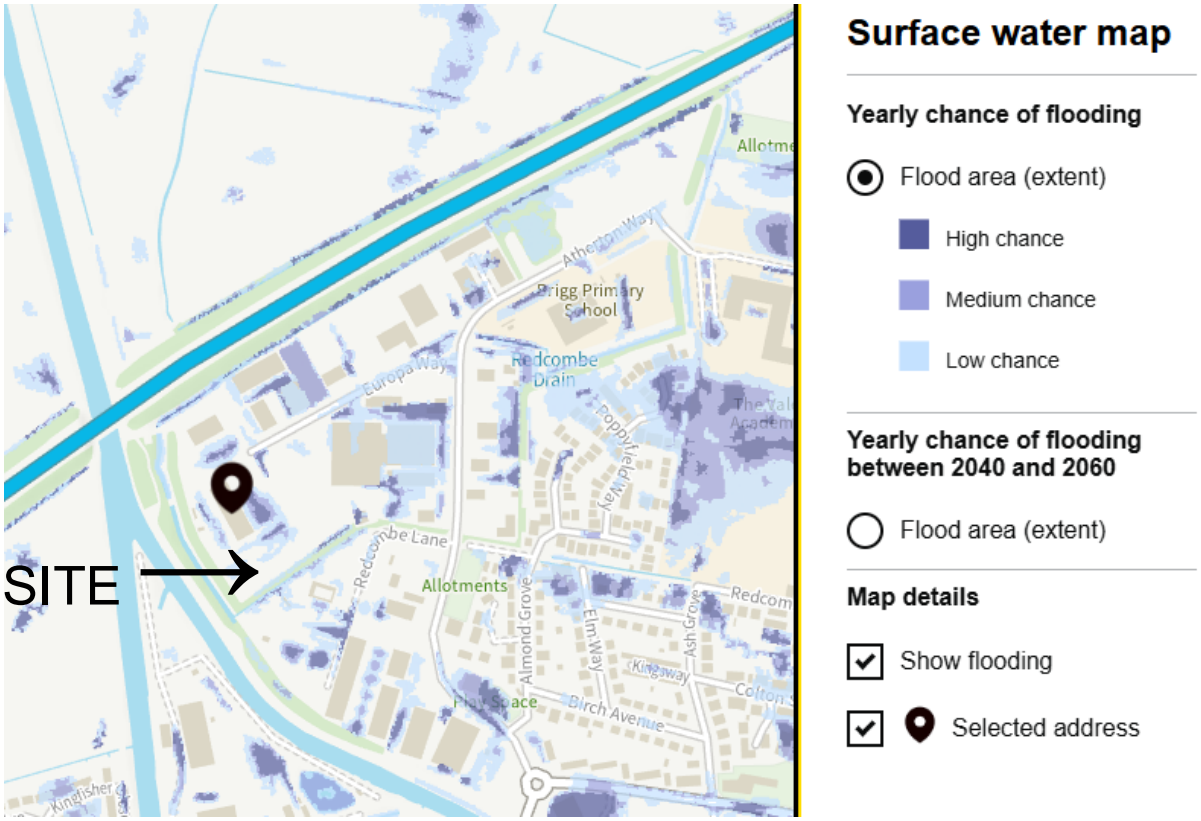
FLOODING FROM THE SEA

The River Humber and River Ancholme are affected by tidal influences to which the risks of flooding from Rivers apply.

With mitigation in place the risk of flooding will be low.

FLOODING FROM SURFACE WATER

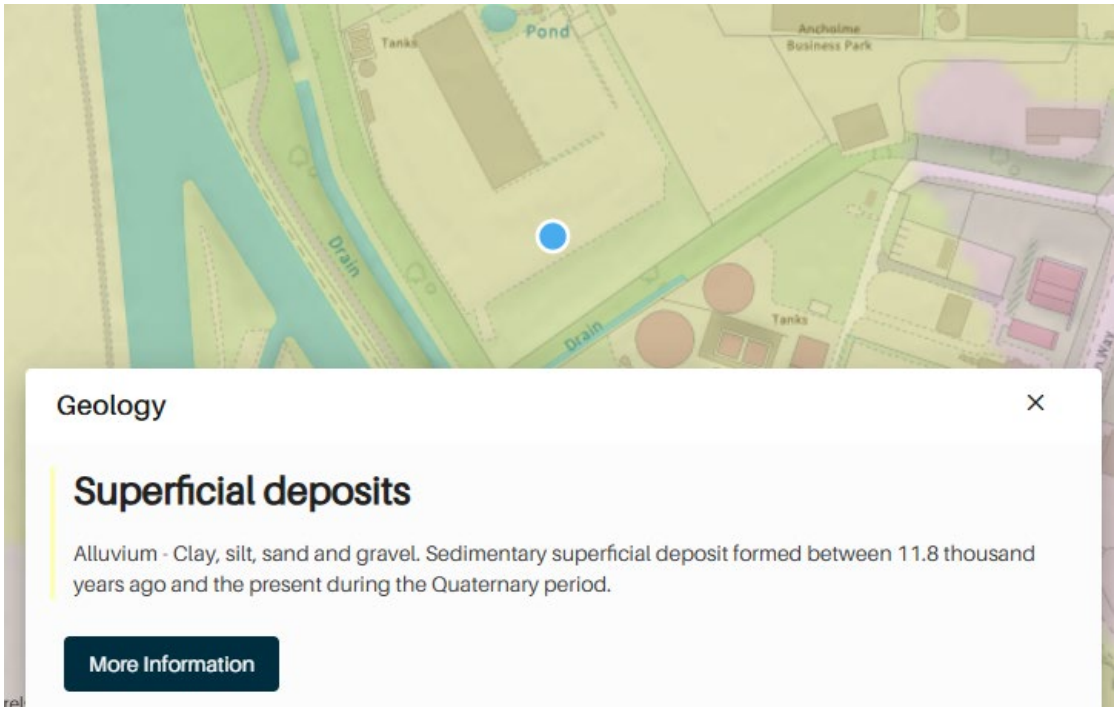
THE SITE →

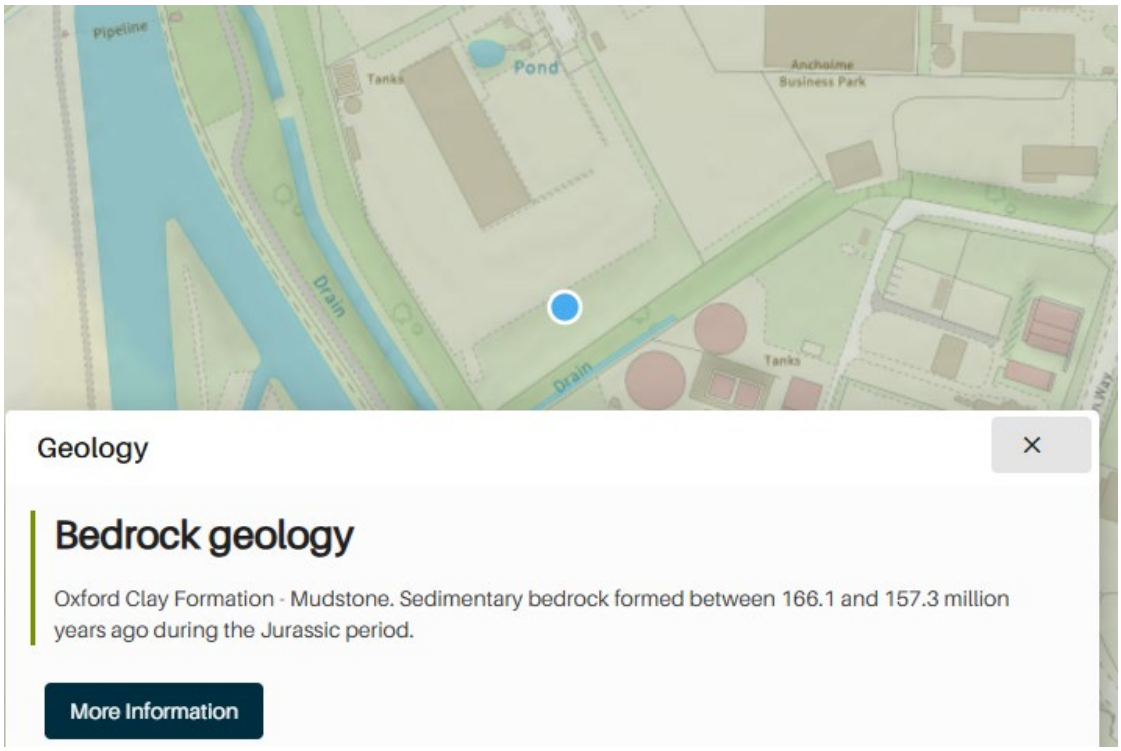


The above extract from the Flood Warning Information Services website shows that the site is at low risk of surface water flooding. However, the building will be placed 600mm higher than surrounding ground levels that will remove this risk.

FLOODING FROM GROUNDWATER

The British Geological website confirms that the site is underlain by superficial deposits of Alluvium (Clay, silt, sand and gravel) over bedrock of the Oxford Clay Formation (Mudstone), both of which are known to have poor leaching characteristics that would prevent groundwater movement.





FLOODING FROM SEWERS

There are existing foul and surface water sewers in the site that are well maintained. The private sewers then discharge to public sewers in Europa Way where levels are lower. Any such flooding would therefore follow the topography of the area and flow away from the existing and proposed buildings.

The risk of flooding from the sewers is low.

FLOODING FROM RESERVIORS, CANALS AND OTHER ARTIFICIAL SOURCE

The Flood Warning Information Services website confirms that the site is not at risk of flooding from reservoirs or artificial sources.

4.0 PROBABILITY

4.1 Which flood zone is the site within?

The relevant flood map shown in Section 2c represents current best estimates of zone 2 and zone 3 flooding as in NPPF.

Zone 1	Low Probability of river or sea flooding
Zone 2	Medium Probability of river or sea flooding
Zone 3a	High Probability of river or sea flooding
Zone 3b	Functional Floodplain

The map shown in section 2.3 confirms that the site falls mainly within Zone 1 and partially in flood zone 2 along the western boundary.

4.2 If there is a Strategic Flood Risk Assessment covering this site, what does it show?

The North Lincolnshire County Council SFRA dated November 2021 confirms that the site is on Flood zone 3a.

4.3 What is the probability of the site flooding taking account of the contents of the SFRA and of any further site-specific assessments?

The probability of flooding from the Old River Ancholme is between 0.1% and 1% per year.

4.4 What are the existing and proposed flow rates and volumes of run-off generated by this site?

The site is currently Brownfield with Greenfield flow rates and volumes given in the following table. Pre-development calculations are shown in Appendix B and post-development critical storm event calculations are shown in Appendix D:

Storm Duration (1 in Years)	HR Wallingford Greenfield rates (l/s)	Greenfield Volumes (m^3)
2	0.3	1.2
30	0.8	3.9
100	1.2	8.8

Storm Duration (1 in Years)	Post-development rates (l/s)	Post-development Volumes (m^3)
2	1.2	88.6
30 (30%CC)	1.6	228.3
100 (40%CC)	2.1	302.5

5.0 CLIMATE CHANGE

5.1 How is flood risk at the site likely to be affected by climate change?

The proposed development is for commercial/industrial use.

The Flood Warning Information Services website includes climate change allowances and confirms that the site is at risk of flooding from the Sea and from Rivers.

The proposed FFL will be raised so that the building is 600mm above existing ground levels to mitigate the risk of flooding affecting the building.

There is a low risk of surface water flooding that will also be mitigated by raising the floor level of the building.

The drainage design includes current climate change allowances, and the calculations confirm that no flooding occurs during the worst-case 1 in 100 year storm event with a 40% climate change allowance.

The site will therefore not be affected by climate change.

6.0 DETAILED DEVELOPMENT PROPOSALS

6.1 Please provide details of the development layout, referring to the relevant drawings.

The site is Brownfield with an area of 0.4Ha and is currently being used for storage of equipment and vehicles. The site is to the south of the existing main building and is predominantly flat with levels varying between 1.80 and 2.00m AOD.

A block of seven commercial/industrial units is proposed with a roof area of 0.16Ha and an impermeable hard landscaped area of 0.15Ha.

The proposed FFL of 2.60m AOD will be set 600mm above existing ground levels.

The drainage layout is shown in Appendix C.

The flood receptors for the proposed development are the staff working in each unit.

The proposed development is classified as less vulnerable to table 2 of NPPF, being a site used for commercial/industrial purposes.

With regard to the proposed drainage strategy there is a preference to dispose of surface water run by infiltration methods. If infiltration is not possible then discharging to a watercourse should be considered before discharge to a sewer. The following table considers each of the options:

Method	Yes/No	Reason
Infiltration	No	The British Geological website confirms that the site is underlain by superficial deposits of Alluvium (Clay, silt, sand and gravel) over bedrock of the Oxford Clay Formation (Mudstone), both of which are known to have poor infiltration characteristics.
Watercourse	No	The Redford Water runs along the western boundary of the development
Sewers	Yes	There is an existing surface water sewer on site.

6.2 Where appropriate, demonstrate how land uses most sensitive to flood damage have been placed in areas within the site that are at least risk of flooding.

The entire site is in flood zone 3a and at risk of flooding from the sea and rivers. To mitigate this the building FFL will be set 600mm above existing ground levels. The FFL will be 2.60m AOD.

7.0 FLOOD RISK MANAGEMENT MEASURES

7.1 How will the site be protected from flooding, including the potential impacts of climate change, over the development's lifetime?

The owners will sign up to the Environment Agency early warning system so that they can alert the staff of the risks so that they can either stay at home or evacuate to a safe dry area in a timely manner.

A Flood exceedance Plan in Appendix E shows the route flood water will take in the unlikely event of SUDS and drainage failure. This generally shows that flood water will follow the topography and flow in a northerly direction to follow the existing flood flow route.

8.0 OFFSITE IMPACTS

8.1 How will you ensure that your proposed development and the measures to protect your site from flooding will not increase flood risk elsewhere?

The site is entirely in flood zone 3a and this risk will remain post-development.

The site levels will be raised but will not affect water levels within the flood cell by displaced water as the cell is several hectares and the rise in water level will be negligible.

8.2 How will you prevent run-off from the completed development causing an impact elsewhere*?*

The drainage calculations shown in Appendix D include current climate change allowances and confirm no flooding occurs during the worst-case 1 in 100 year storm event.

9.0 RESIDUAL RISKS

9.1 What flood-related risks will remain after you have implemented the measures to protect the site from flooding?

The site is entirely within flood zone 3a, therefore the risk of flooding from sea and rivers will remain.

The owners will sign up to the Environment Agency early warning system to ensure members of staff are evacuated to a safe location in a timely manner.

The building FFL will be set 600mm above existing ground level and water resilient construction techniques will be used to protect the building.

9.2 How and by whom will these risks be managed over the lifetime of the development?

The owners will be responsible for inspecting, repairing, and maintaining all SUDS components.

A copy of the SUDS maintenance schedule is shown in appendix F.

10.0 CONTAMINATION MITIGATION

The British Geological website confirms that the site is underlain by superficial deposits of Alluvium (Clay, silt, sand and gravel) over bedrock of the Oxford Clay Formation (Mudstone), both of which are known to have poor leaching characteristics.

The Magic Map application website shows that the site lies above a secondary (A) superficial deposit aquifer and a principal bedrock aquifer and the Groundwater vulnerability is medium to low.

Ciria 753 Chapter 26 Mitigation indices:

Pre-development pollution indices:

Commercial Yard use is identified in Table 26.2 with a pollution hazard level of medium;

Indices: Total Solids = 0.7, Metals = 0.6 and Hydrocarbons = 0.7

The mitigation index is therefore MI = 0.7 + 0.5x0.6 + 0.5x0.7 = 1.35

Post-development

The Commercial Yard use is identified in Table 26.2 with a pollution hazard level of medium;

Indices: Total Solids = 0.7, Metals = 0.6 and Hydrocarbons = 0.7

The mitigation index is therefore MI = 0.7 + 0.5x0.6 + 0.5x0.7 = 1.35

However half the existing service yard is being replaced by a building with a commercial roof that has low pollution hazard indices with a value of approximately 0.55. The average total indices will therefore be 0.95 and is an improvement to those for the pre-development site.

Table 26.5 Risk matrix

Element Number	Description	Risk Score	Weighting Factor	Score
1	Pollution Hazard Traffic Density	1	15	15
2	Average annual rainfall	1	15	30
3	Type of SUDS	3	15	45
4	Unsaturated zone depth	1	20	20
5	Flow through sub-soils	1	20	20
6	Unsaturated zone material	1	10	10
7	Soil organic matter	1	5	5
8	Unsaturated zone ph	1	5	5
Total				**150**

Based upon the above table the risk to groundwater is low as the total value is less than 180.

APPENDIX A: Topographical survey

This drawing is the copyright of Lincs Design Consultancy and must not be reproduced without written consent. The client/contractor is responsible for taking and checking all dimensions on site prior to commencement particularly where building elements have not been accessible during surveys, and reporting back to the architectural consultant any discrepancies. All materials specified on this drawing are to be used in strict accordance with manufacturers written instructions and current codes of practice.

All Details and Specification on this drawing and in relation to this specific project should be adhered to. If any deviations occur the contractor / client should inform Lincs Design Consultancy immediately as we cannot be held responsible for errors resulting from undeclared detail and specification changes.

DRAWING ISSUES AND REVISIONS

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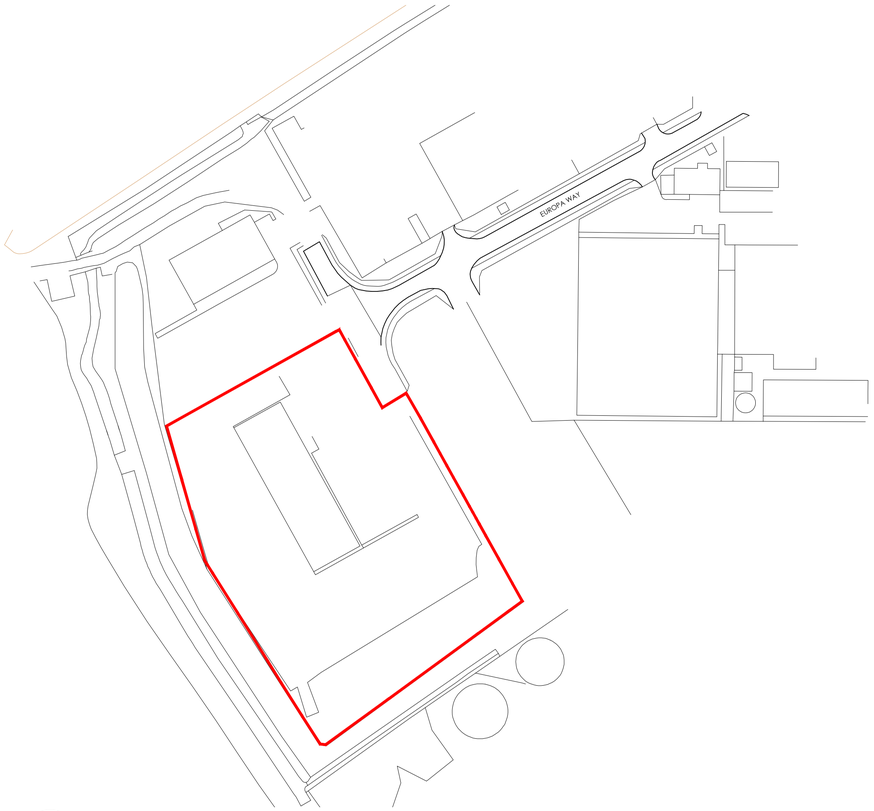
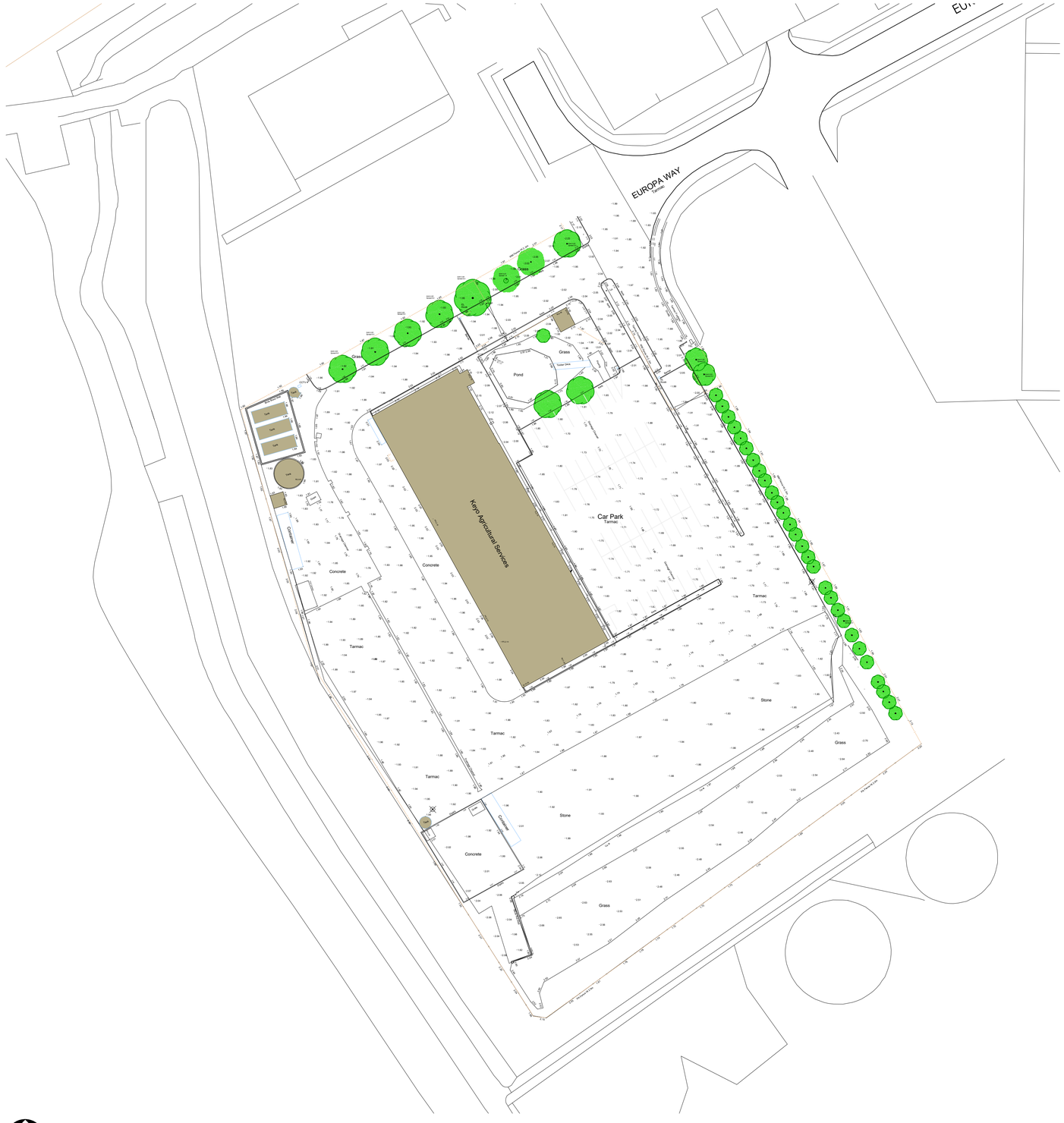


LOCATION PLAN
scale 1:1250



EXISTING SITE PLAN
scale 1:500

Lincs Design Consultancy
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Louth
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LN11 9PJ
T | 01507 611155
E | admin@lincsdesignconsultancy.co.uk
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PROJECT	Proposed Industrial Units, Keyo, Europa Way, Brigg, Lincs
DATE	August 2025
TITLE	Existing
SCALE	1:500 / 1:1250
ORIGINAL SIZE	A1
DRG STATUS	PLANNING
DRAWING NUMBER	LDC4715-02

APPENDIX B: Pre-development drainage calculations

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	21/11/2025
Calculated by	RAY CLARK
Reference	1111-2560
Model version	2.2.2

Location

Site name	KEYO AGRRICULTURAL
Site location	BRIGG

Site easting (British National Grid)	499423
Site northing (British National Grid)	407694

Site details

Total site area (ha)	0.31 ha

Greenfield runoff

Method

Method	FEH statistical (2025)

FEH statistical (2025)

	My value		Map value
SAAR9120 (mm)	656 mm		
BFIHOST19scaled	0.712		
QMed-QBar conversion	1.124		1.124
QMed (l/s)	0.3 l/s		
QBar (FEH statistical 2025) (l/s)	0.3 l/s		

Growth curve factors

	My value		Map value
Hydrological region	5		5
1 year growth factor	0.87		
2 year growth factor	0.89		
10 year growth factor	1.65		
30 year growth factor	2.45		
100 year growth factor	3.56		
200 year growth factor	4.21		

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	0.3 l/s
Flow rate 2 year (l/s)	0.3 l/s
Flow rate 10 years (l/s)	0.5 l/s
Flow rate 30 years (l/s)	0.8 l/s
Flow rate 100 years (l/s)	1.2 l/s
Flow rate 200 years (l/s)	1.4 l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (https://www.uksuds.com/). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (https://www.uksuds.com/terms-conditions). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Greenfield Runoff Volume

FSR Data

Return Period (years)	2
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	18.200
Ratio R	0.400
Areal Reduction Factor	1.00
Area (ha)	0.310
SAAR (mm)	624
CWI	91.320
Urban	0.000
SPR	10.000

Results

Percentage Runoff (%)	1.58
Greenfield Runoff Volume (m^3)	1.181

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Greenfield Runoff Volume

FSR Data

Return Period (years)	30
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	18.200
Ratio R	0.400
Areal Reduction Factor	1.00
Area (ha)	0.310
SAAR (mm)	624
CWI	91.320
Urban	0.000
SPR	10.000

Results

Percentage Runoff (%)	2.82
Greenfield Runoff Volume (m^3)	3.867

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Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	18.200
Ratio R	0.400
Areal Reduction Factor	1.00
Area (ha)	0.310
SAAR (mm)	624
CWI	91.320
Urban	0.000
SPR	10.000

Results

Percentage Runoff (%)	4.94
Greenfield Runoff Volume (m^3)	8.840

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APPENDIX C: Drainage layout

DRAWING LEGEND

SURFACE WATER DRAINAGE

	EXISTING SURFACE WATER MANHOLE
	EXISTING SURFACE WATER SEWER
S1	PCC MANHOLE CP DENOTES CATCHPIT
SIC	INSPECTION CHAMBER
	SURFACE WATER SEWER
R	RAINWATER PIPE
ACO	LINEAR CHANNEL
	CONCRETE SURFACING WITH 350mm THICK NO FINES SUB-BASE STORAGE

FOUL WATER DRAINAGE

	EXISTING FOUL MANHOLE
	EXISTING FOUL SEWER
FIC	INSPECTION CHAMBER
	PRIVATE FOUL WATER SEWER
DP	DRAINAGE POINT

CDM REGULATIONS 2015 RESIDUAL HAZARDS

RESIDUAL HAZARDS IDENTIFIED

CONSTRUCTION

1. NO SIGNIFICANT RESIDUAL HAZARDS BEYOND THOSE KNOWN TO AN EXPERIENCED CONTRACTOR.

FUTURE DEMOLITION

A. NO SIGNIFICANT RESIDUAL HAZARDS BEYOND THOSE KNOWN TO AN EXPERIENCED CONTRACTOR.

THIS REGISTER IS A NON-EXHAUSTIVE LIST OF RESIDUAL HAZARDS RELATING TO THE WORKS SHOWN ON THIS DRAWING THAT HAVE BEEN IDENTIFIED DURING THE DESIGN STAGE.

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A CONTRACTOR WITH THE APPROPRIATE SKILLS, KNOWLEDGE & EXPERIENCE, AND IF THEY ARE AN ORGANISATION, THE ORGANISATIONAL CAPABILITY NECESSARY TO FULFILL THE ROLE.

NOTES

CONTRACTORS MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK ON SHOP DRAWINGS

DO NOT SCALE FROM THIS DRAWING

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NOTES

1. ALL DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS AND CALCULATIONS ASSOCIATED WITH THIS PROJECT.
3. ALL COMPONENTS AND MATERIALS ARE TO BE MANUFACTURED AND SUPPLIED IN ACCORDANCE WITH THE RELEVANT BRITISH STANDARDS, AND LAID AND BACKFILLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND THE RELEVANT BRITISH STANDARDS.
4. THE CONTRACTOR SHALL, BEFORE COMMENCING THE WORKS, VERIFY ALL SITE AND SETTING OUT DIMENSIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRUE AND PROPER SETTING OUT OF THE WORKS AND FOR THE CORRECTNESS OF THE POSITION, LEVELS, DIMENSIONS, AND ALIGNMENT OF ALL PARTS OF THE WORKS.
5. ALL BUILDING DRAINAGE TO BE INSTALLED AND TESTED IN COMPLIANCE WITH THE BUILDING REGULATIONS 2000 DRAINAGE AND WASTE DISPOSAL APPROVED DOCUMENT H 2002 EDITION.
6. SMALL LIGHTWEIGHT ACCESS COVERS SHOULD BE SECURED (FOR EXAMPLE WITH SCREWS) TO DETER UNAUTHORISED ACCESS.
7. ALL ABOVE GROUND DRAINAGE TO INCORPORATE RODDING ACCESS FACILITIES.
8. INSITU CONCRETE FOR USE IN GENERAL DRAINAGE WORKS, GRADE TO BS: 5328.
9. FOR INTERNAL DRAINAGE POSITIONS REFER TO ARCHITECT'S CURRENT WORKING DRAWINGS.
10. FOR LANDSCAPING SURFACE MATERIAL FINISHES REFER TO ARCHITECT'S CURRENT WORKING DRAWINGS.
11. ALL PIPES TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE.
12. THE FOUL AND SURFACE WATER SEWER CONNECTION WILL REQUIRE APPROVAL UNDER A S106 SEWER CONNECTION AGREEMENT WITH ANGLIAN WATER SERVICES LTD.

TABLE A

STORM EVENT (1 IN) YEARS	GREENFIELD FLOW RATE l/s	POST-DEVELOPMENT FLOW RATE l/s
2	0.3	1.2
30 (+30%CC)	0.8	(1.6)
100 (+40%CC)	1.2	(2.1)

1m 2m 3m 4m 5m 10m 15m 20m

SCALE 1-200

REV	AMENDMENT	DATE	CHKD
P1	PRELIMINARY ISSUE	21.11.2025	RAC

DRAWING STATUS

PRELIMINARY

RCD

RCD CONSULTANTS LTD
EMAIL: ray@rcd-consultants.com

CLIENT

PROJECT

PROPOSED COMMERCIAL DEVELOPMENT
KEYO AGRICULTURAL, EUROPA WAY
ANCHOLME BUSINESS PARK, BRIGG

DRAWING TITLE

DRAINAGE LAYOUT

CIVILS

SCALE	DRAWN BY	CHECKED	DATE
1:200 @ A1 1:400 @ A3	EPC	RAC	NOV 2025

DRAWING NUMBER: 1111-2565-CIV-10

REVISION: P1

APPENDIX D: Post-development drainage calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	0.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
S1	0.040	5.00	2.600	600	0.750
S2	0.040	5.00	2.600	600	0.900
S3	0.000		2.600	600	1.100
S4	0.040	5.00	2.600	600	0.750
S5	0.040	5.00	2.600	600	0.900
S6	0.000		2.600	600	1.200
S7	0.150	5.00	2.350	1200	1.300
STORMSHARK	0.000		2.150	1200	1.150
EXS8	0.000		1.900	1200	0.950

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S2	35.000	0.600	1.850	1.700	0.150	233.3	300	5.57	0.0
1.001	S2	S3	48.000	0.600	1.700	1.500	0.200	240.0	300	6.36	0.0
1.002	S3	S6	21.000	0.600	1.500	1.400	0.100	210.0	300	6.68	0.0
2.000	S4	S5	35.000	0.600	1.850	1.700	0.150	233.3	300	5.57	0.0
2.001	S5	S6	48.000	0.600	1.700	1.400	0.300	160.0	300	6.21	0.0
1.003	S6	S7	7.000	0.600	1.400	1.050	0.350	20.0	300	6.72	0.0
1.004	S7	STORMSHARK	4.000	0.600	1.050	1.000	0.050	80.0	300	6.76	0.0
1.005	STORMSHARK	EXS8	4.000	0.600	1.000	0.950	0.050	80.0	300	6.79	0.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.025	72.4	0.0	0.450	0.600	0.040	0.0	0	0.000
1.001	1.010	71.4	0.0	0.600	0.800	0.080	0.0	0	0.000
1.002	1.081	76.4	0.0	0.800	0.900	0.080	0.0	0	0.000
2.000	1.025	72.4	0.0	0.450	0.600	0.040	0.0	0	0.000
2.001	1.240	87.7	0.0	0.600	0.900	0.080	0.0	0	0.000
1.003	3.531	249.6	0.0	0.900	1.000	0.160	0.0	0	0.000
1.004	1.759	124.3	0.0	1.000	0.850	0.310	0.0	0	0.000
1.005	1.759	124.3	0.0	0.850	0.650	0.310	0.0	0	0.000

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Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	35.000	233.3	300	Circular	2.600	1.850	0.450	2.600	1.700	0.600
1.001	48.000	240.0	300	Circular	2.600	1.700	0.600	2.600	1.500	0.800
1.002	21.000	210.0	300	Circular	2.600	1.500	0.800	2.600	1.400	0.900
2.000	35.000	233.3	300	Circular	2.600	1.850	0.450	2.600	1.700	0.600
2.001	48.000	160.0	300	Circular	2.600	1.700	0.600	2.600	1.400	0.900
1.003	7.000	20.0	300	Circular	2.600	1.400	0.900	2.350	1.050	1.000
1.004	4.000	80.0	300	Circular	2.350	1.050	1.000	2.150	1.000	0.850
1.005	4.000	80.0	300	Circular	2.150	1.000	0.850	1.900	0.950	0.650

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	600	Manhole	Adoptable	S2	600	Manhole	Adoptable
1.001	S2	600	Manhole	Adoptable	S3	600	Manhole	Adoptable
1.002	S3	600	Manhole	Adoptable	S6	600	Manhole	Adoptable
2.000	S4	600	Manhole	Adoptable	S5	600	Manhole	Adoptable
2.001	S5	600	Manhole	Adoptable	S6	600	Manhole	Adoptable
1.003	S6	600	Manhole	Adoptable	S7	1200	Manhole	Adoptable
1.004	S7	1200	Manhole	Adoptable	STORMSHARK	1200	Manhole	Adoptable
1.005	STORMSHARK	1200	Manhole	Adoptable	EXS8	1200	Manhole	Adoptable

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	2.600	0.750	600	0	1.000	1.850	300
S2	2.600	0.900	600	1	1.000	1.700	300
				0	1.001	1.700	300
S3	2.600	1.100	600	1	1.001	1.500	300
				0	1.002	1.500	300
S4	2.600	0.750	600	0	2.000	1.850	300
S5	2.600	0.900	600	1	2.000	1.700	300
				0	2.001	1.700	300
S6	2.600	1.200	600	1	2.001	1.400	300
				2	1.002	1.400	300
				0	1.003	1.400	300
S7	2.350	1.300	1200	1	1.003	1.050	300
				0	1.004	1.050	300

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Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
STORMSHARK	2.150	1.150	1200	1	1.004	1.000	300
				0	1.005	1.000	300
EXS8	1.900	0.950	1200	1	1.005	0.950	300

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	10080	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	30	0	0
100	40	0	0

Node S7 Online Orifice Control

Flap Valve	x	Invert Level (m)	1.050	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.030		

Node S7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	2565

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	128.0	0.0	0.750	128.0	0.0	0.751	0.0	0.0

Node S7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	1.550	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	1005	Depth (m)	0.350
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	75.000		

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

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Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m^3)	
Full Bore Velocity	✓		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	98.952	28.000
2 year 15 minute winter	69.440	28.000
2 year 30 minute summer	63.295	17.910
2 year 30 minute winter	44.417	17.910
2 year 60 minute summer	42.211	11.155
2 year 60 minute winter	28.044	11.155
2 year 120 minute summer	29.858	7.891
2 year 120 minute winter	19.837	7.891
2 year 180 minute summer	24.184	6.223
2 year 180 minute winter	15.720	6.223
2 year 240 minute summer	19.639	5.190
2 year 240 minute winter	13.048	5.190
2 year 360 minute summer	15.341	3.948
2 year 360 minute winter	9.972	3.948
2 year 480 minute summer	12.155	3.212
2 year 480 minute winter	8.076	3.212
2 year 600 minute summer	9.953	2.722
2 year 600 minute winter	6.800	2.722
2 year 720 minute summer	8.845	2.371
2 year 720 minute winter	5.944	2.371
2 year 960 minute summer	7.199	1.896
2 year 960 minute winter	4.769	1.896
2 year 1440 minute summer	5.134	1.376
2 year 1440 minute winter	3.450	1.376
2 year 2160 minute summer	3.606	0.997
2 year 2160 minute winter	2.485	0.997
2 year 2880 minute summer	2.971	0.796
2 year 2880 minute winter	1.997	0.796
2 year 4320 minute summer	2.252	0.589
2 year 4320 minute winter	1.483	0.589
2 year 5760 minute summer	1.881	0.482
2 year 5760 minute winter	1.218	0.482
2 year 7200 minute summer	1.636	0.417

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Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 7200 minute winter	1.056	0.417
2 year 8640 minute summer	1.468	0.375
2 year 8640 minute winter	0.948	0.375
2 year 10080 minute summer	1.349	0.344
2 year 10080 minute winter	0.871	0.344
30 year +30% CC 15 minute summer	387.965	109.781
30 year +30% CC 15 minute winter	272.256	109.781
30 year +30% CC 30 minute summer	253.164	71.637
30 year +30% CC 30 minute winter	177.659	71.637
30 year +30% CC 60 minute summer	168.691	44.580
30 year +30% CC 60 minute winter	112.074	44.580
30 year +30% CC 120 minute summer	99.902	26.401
30 year +30% CC 120 minute winter	66.373	26.401
30 year +30% CC 180 minute summer	75.029	19.307
30 year +30% CC 180 minute winter	48.771	19.307
30 year +30% CC 240 minute summer	58.298	15.406
30 year +30% CC 240 minute winter	38.732	15.406
30 year +30% CC 360 minute summer	43.275	11.136
30 year +30% CC 360 minute winter	28.130	11.136
30 year +30% CC 480 minute summer	33.327	8.807
30 year +30% CC 480 minute winter	22.142	8.807
30 year +30% CC 600 minute summer	26.789	7.327
30 year +30% CC 600 minute winter	18.304	7.327
30 year +30% CC 720 minute summer	23.497	6.298
30 year +30% CC 720 minute winter	15.792	6.298
30 year +30% CC 960 minute summer	18.792	4.948
30 year +30% CC 960 minute winter	12.448	4.948
30 year +30% CC 1440 minute summer	13.173	3.530
30 year +30% CC 1440 minute winter	8.853	3.530
30 year +30% CC 2160 minute summer	9.132	2.524
30 year +30% CC 2160 minute winter	6.292	2.524
30 year +30% CC 2880 minute summer	7.454	1.998
30 year +30% CC 2880 minute winter	5.010	1.998
30 year +30% CC 4320 minute summer	5.569	1.456
30 year +30% CC 4320 minute winter	3.667	1.456
30 year +30% CC 5760 minute summer	4.598	1.177
30 year +30% CC 5760 minute winter	2.976	1.177
30 year +30% CC 7200 minute summer	3.954	1.009
30 year +30% CC 7200 minute winter	2.552	1.009
30 year +30% CC 8640 minute summer	3.513	0.896
30 year +30% CC 8640 minute winter	2.267	0.896
30 year +30% CC 10080 minute summer	3.197	0.816
30 year +30% CC 10080 minute winter	2.064	0.816
100 year +40% CC 15 minute summer	539.390	152.629
100 year +40% CC 15 minute winter	378.519	152.629
100 year +40% CC 30 minute summer	354.013	100.173
100 year +40% CC 30 minute winter	248.430	100.173
100 year +40% CC 60 minute summer	238.028	62.904
100 year +40% CC 60 minute winter	158.140	62.904
100 year +40% CC 120 minute summer	137.304	36.285
100 year +40% CC 120 minute winter	91.222	36.285
100 year +40% CC 180 minute summer	101.850	26.210

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Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +40% CC 180 minute winter	66.205	26.210
100 year +40% CC 240 minute summer	78.564	20.762
100 year +40% CC 240 minute winter	52.196	20.762
100 year +40% CC 360 minute summer	57.855	14.888
100 year +40% CC 360 minute winter	37.608	14.888
100 year +40% CC 480 minute summer	44.393	11.732
100 year +40% CC 480 minute winter	29.493	11.732
100 year +40% CC 600 minute summer	35.615	9.742
100 year +40% CC 600 minute winter	24.335	9.742
100 year +40% CC 720 minute summer	31.207	8.364
100 year +40% CC 720 minute winter	20.973	8.364
100 year +40% CC 960 minute summer	24.939	6.567
100 year +40% CC 960 minute winter	16.520	6.567
100 year +40% CC 1440 minute summer	17.489	4.687
100 year +40% CC 1440 minute winter	11.753	4.687
100 year +40% CC 2160 minute summer	12.129	3.352
100 year +40% CC 2160 minute winter	8.357	3.352
100 year +40% CC 2880 minute summer	9.895	2.652
100 year +40% CC 2880 minute winter	6.650	2.652
100 year +40% CC 4320 minute summer	7.363	1.925
100 year +40% CC 4320 minute winter	4.849	1.925
100 year +40% CC 5760 minute summer	6.048	1.548
100 year +40% CC 5760 minute winter	3.915	1.548
100 year +40% CC 7200 minute summer	5.171	1.319
100 year +40% CC 7200 minute winter	3.337	1.319
100 year +40% CC 8640 minute summer	4.566	1.165
100 year +40% CC 8640 minute winter	2.947	1.165
100 year +40% CC 10080 minute summer	4.133	1.054
100 year +40% CC 10080 minute winter	2.667	1.054

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Results for 2 year Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	1.909	0.059	6.5	0.0168	0.0000	OK
15 minute summer	S2	11	1.786	0.086	12.8	0.0245	0.0000	OK
15 minute summer	S3	11	1.584	0.084	12.7	0.0238	0.0000	OK
15 minute summer	S4	10	1.909	0.059	6.5	0.0168	0.0000	OK
15 minute summer	S5	11	1.779	0.079	12.8	0.0223	0.0000	OK
720 minute summer	S6	540	1.502	0.102	4.0	0.0288	0.0000	OK
720 minute summer	S7	525	1.501	0.451	7.7	58.1921	0.0000	SURCHARGED
720 minute summer	STORMSHARK	525	1.022	0.022	1.2	0.0250	0.0000	OK
720 minute summer	EXS8	525	0.971	0.021	1.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	6.3	0.486	0.088	0.4651	
15 minute summer	S2	1.001	S3	12.7	0.774	0.178	0.7901	
15 minute summer	S3	1.002	S6	12.4	0.907	0.162	0.2953	
15 minute summer	S4	2.000	S5	6.4	0.522	0.088	0.4301	
15 minute summer	S5	2.001	S6	12.7	0.950	0.145	0.6421	
720 minute summer	S6	1.003	S7	4.0	1.001	0.016	0.3201	
720 minute summer	S7	Orifice	STORMSHARK	1.2				
720 minute summer	STORMSHARK	1.005	EXS8	1.2	0.553	0.010	0.0090	88.6

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Results for 30 year +30% CC Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	1.970	0.120	25.3	0.0340	0.0000	OK
15 minute summer	S2	11	1.890	0.190	50.3	0.0538	0.0000	OK
600 minute winter	S3	585	1.779	0.279	4.0	0.0790	0.0000	OK
15 minute summer	S4	10	1.970	0.120	25.3	0.0340	0.0000	OK
15 minute summer	S5	10	1.867	0.167	50.3	0.0473	0.0000	OK
600 minute winter	S6	585	1.779	0.379	7.7	0.1073	0.0000	SURCHARGED
600 minute winter	S7	585	1.779	0.729	15.4	180.3508	0.0000	SURCHARGED
600 minute winter	STORMSHARK	585	1.025	0.025	1.6	0.0281	0.0000	OK
600 minute winter	EXS8	585	0.974	0.024	1.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	25.0	0.684	0.345	1.2809	
15 minute summer	S2	1.001	S3	49.7	1.076	0.695	2.2351	
600 minute winter	S3	1.002	S6	3.7	0.589	0.049	1.4564	
15 minute summer	S4	2.000	S5	25.0	0.751	0.345	1.1657	
15 minute summer	S5	2.001	S6	49.7	1.296	0.567	1.9368	
600 minute winter	S6	1.003	S7	8.9	1.069	0.036	0.4929	
600 minute winter	S7	Orifice	STORMSHARK	1.6				
600 minute winter	STORMSHARK	1.005	EXS8	1.6	0.595	0.013	0.0107	228.3

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	S1	600	2.265	0.415	4.0	0.1175	0.0000	SURCHARGED
600 minute summer	S2	600	2.267	0.567	8.0	0.1605	0.0000	SURCHARGED
600 minute summer	S3	600	2.268	0.768	8.0	0.2174	0.0000	SURCHARGED
600 minute summer	S4	600	2.267	0.417	4.0	0.1181	0.0000	SURCHARGED
600 minute summer	S5	600	2.267	0.567	8.0	0.1606	0.0000	SURCHARGED
600 minute summer	S6	600	2.268	0.868	15.5	0.2456	0.0000	SURCHARGED
600 minute summer	S7	600	2.267	1.217	30.0	238.2947	0.0000	FLOOD RISK
600 minute summer	STORMSHARK	600	1.028	0.028	2.1	0.0320	0.0000	OK
600 minute summer	EXS8	600	0.977	0.027	2.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute summer	S1	1.000	S2	4.0	0.428	0.055	2.4647	
600 minute summer	S2	1.001	S3	8.0	0.559	0.112	3.3801	
600 minute summer	S3	1.002	S6	7.5	0.559	0.098	1.4788	
600 minute summer	S4	2.000	S5	4.0	0.465	0.055	2.4647	
600 minute summer	S5	2.001	S6	8.0	0.598	0.091	3.3801	
600 minute summer	S6	1.003	S7	15.2	1.012	0.061	0.4929	
600 minute summer	S7	Orifice	STORMSHARK	2.1				
600 minute summer	STORMSHARK	1.005	EXS8	2.1	0.642	0.017	0.0128	302.5

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APPENDIX E: Flood Exceedance Plan

NOTES

CONTRACTORS MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK ON SHOP DRAWINGS

DO NOT SCALE FROM THIS DRAWING

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EXISTING AND PROPOSED FLOOD EXCEEDANCE ROUTE IN THE EVENT OF SUDS FAILURE.

REV	AMENDMENT	DATE	CHKD
P1	PRELIMINARY ISSUE	21.11.2025	RAC

DRAWING STATUS: PRELIMINARY

RCD

RCD CONSULTANTS LTD
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CLIENT

PROJECT

PROPOSED COMMERCIAL DEVELOPMENT
KEYO AGRICULTURAL, EUROPA WAY
ANCHOLME BUSINESS PARK, BRIGG

DRAWING TITLE

FLOOD EXCEEDANCE PLAN

CIVILS

SCALE	DRAWN BY	CHECKED	DATE
1:200 @ A1 1:400 @ A3	EPC	RAC	NOV 2025

DRAWING NUMBER: 1111-2565-CIV-11

REVISION: P1

1m 2m 3m 4m 5m 10m 15m 20m

SCALE 1-200

APPENDIX F: SUDS Maintenance Schedule

Operation and Maintenance Schedule - Cellular Storage Tank		
Maintenance Schedule	**Required action**	**Typical frequency**
Regular maintenance	Clean all gutters and downpipes.	Annually.
	Check for sediment build-up or debris in the upstream chambers and the pipe running through the cellular storage tank. Remove all debris and sediment.	Annually.
Occassional Maintenance	Clean all gutters and downpipes. Check for sediment build-up or debris in the upstream chambers and the pipe running through the cellular storage tank. Remove all debris and sediment.	As required based upon inspections.
Remedial Actions	Reconstruct cellular storage tank and/or replace or clean void fill, if performace deteriorates or failure occurs.	As required based upon inspections.
	Replacement of damaged geotextile (will require reconstruction of cellular storage tank).	As required based upon inspections.
Monitoring	Inspect catch pits and note rate of sediment accumulation.	Monthly in first year and then annually, increase frequency of regular mantenancence if heavy siltation occurs more frequently.
	Check cellular storage tank to ensure emptying is occurring.	Annually.

Operation and Maintenance Schedule - Flow Control Chamber		
Maintenance Schedule	**Required action**	**Typical frequency**
Regular maintenance	Clean all gutters and downpipes.	Annually
	Inspect for sedment and debris in the chamber and remove.	Six monthly.
	Clean the orifice plate and hole.	As recommended by manufacturer
Remedial Actions	Replace malfunctioning parts or structures	As required.
Monitoring	Inspect for evidence of poor operation.	Six monthly.
	Inspect orifice plate and esablish appropriate replacement frequencies	Six monthly.
	Inspect sediment accumulation rates and establish appropriate removal frequencies.	Monthly during first half year of operation, then every six months

Operation and Maintenance Schedule - Stormshark treatment system		
Maintenance Schedule	**Required action**	**Typical frequency**
Regular maintenance	Clean all gutters and downpipes.	Annually
	Inspect for sedment and debris in the chamber and remove.	Six monthly.
	Clean the filter and replace if necessary.	As recommended by manufacturer
Remedial Actions	Replace malfunctioning parts or structures	As required.
Monitoring	Inspect for evidence of poor operation.	Six monthly.
	Inspect filter media and esablish appropriate replacement frequencies	Six monthly.
	Inspect sediment accumulation rates and establish appropriate removal frequencies.	Monthly during first half year of operation, then every six months