



DRAINAGE STRATEGY

ISSUE 1

March 2026

**Proposed Lake at
Boundary Farm
Berryfield Lane
Melksham**

Document Control

Client	Mr D Guley		
Report title	Drainage Strategy		
Report reference	1245-01		
Report status	Draft		
Prepared by	A.Dixon BSc(Hons) CEng MICE		
Document check	Z.West		
Issue Number/status/Date	1	Draft	23-03-2026

This report is the copyright of Dixon Civils Ltd and is for the sole use of the person/organisation to whom it is addressed. It may not be used or referred to in whole or in part by anyone else without the express agreement of Dixon Civils Ltd.

Any information provided by third parties and referred to herein has not been checked or verified by Dixon Civils, unless otherwise expressly stated within this Report. This Report was checked and approved on the date shown in the Document Issue Record and is therefore valid on this date.

The licence to use and copy this Report is subject to other Terms & Conditions agreed between Dixon Civils and the Client. Dixon Civils do not accept liability for any loss or damage arising from any unauthorised use of this report.

Contents

Contents

1.0 Introduction	4
2.0 The Existing Site	4
2.1 Existing ground conditions.....	5
2.2 Existing Watercourses and Drainage Features	5
3.0 Surface Water Drainage Proposals	5
3.1 Attenuation Design	5
3.2 Design Exceedance.....	6
3.3 Water Quality.....	6
3.4 Ownership.....	6
3.5 Maintenance	6
4.0 Construction Management Plan	7
5.0 Conclusions	7

APPENDIX

DC1245-01-01

DC1245-02-01

DC1245-03-01

AH2025/58

Infodrainage Attenuation Calculations

TITLE

Drainage Strategy

Proposed Sections

Construction Details

Proposed Site Plan

PRODUCED BY

Dixon Civils

Dixon Civils

Dixon Civils

A Harlow and Son

1.0 Introduction

This drainage strategy report has been prepared for on behalf of Mr D Guley, for the proposed Lake at Boundary Farm, Melksham (Application Ref: PL/2025/06704). This report will demonstrate how the appropriate means of sustainable surface water drainage will be achieved, to discharge the below planning condition.

“In order to discharge the above drainage condition, the following additional information must be provided:

- In line with Standard 3 of the National Standards for SuDS, overland exceedance routes, both pre and post-development, must be identified and illustrated on the drainage plan. These routes should account for flows exceeding the 1-in-100-year rainfall event plus 40% climate change allowance, to demonstrate that there is no increased flood risk to the development or surrounding areas.*
- A storage capacity within the lake and bund system must be shown to be sufficient to manage the design storm events and a full detail of the proposed outfall to the ditch, including connection location, levels, protection measures, etc, and a capacity assessment of the outfall ditch to demonstrate that flows from the proposed development can be accommodated without increasing flood risk elsewhere.*
- Detailed cross-section and standard engineering drawings of the proposed lake shall be provided, clearly indicating the existing ground level, groundwater table range, lake base level, normal top water level, exceedance level during extreme events, and the designated freeboard.*
- A Construction Management Plan is required to control silt, pollution, and construction runoff. Measures must prevent turbid discharges to the ditch.*
- A Maintenance & Management Plan must set out: inspection frequency for the inlet, bunds, overflow, and trash screen. Arrangements for sediment management and vegetation upkeep; long-term ownership.”*

2.0 The Existing Site

The application site covers 4500m² (0.45ha) of land occupied by open agricultural land north of Boundary Farm and accessed off Berryfield Lane. Refer to the Proposed Site Plan prepared by A Harlow and Son enclosed with this report.

The site is located within flood zone 1 and is bounded to the north, east and west by open land and to the south by Boundary Farm. Land use in the vicinity is agricultural and residential.

2.1 Existing ground conditions

British Geological Survey (BGS) mapping indicates that the site is located over Oxford Clay Formation - Mudstone.

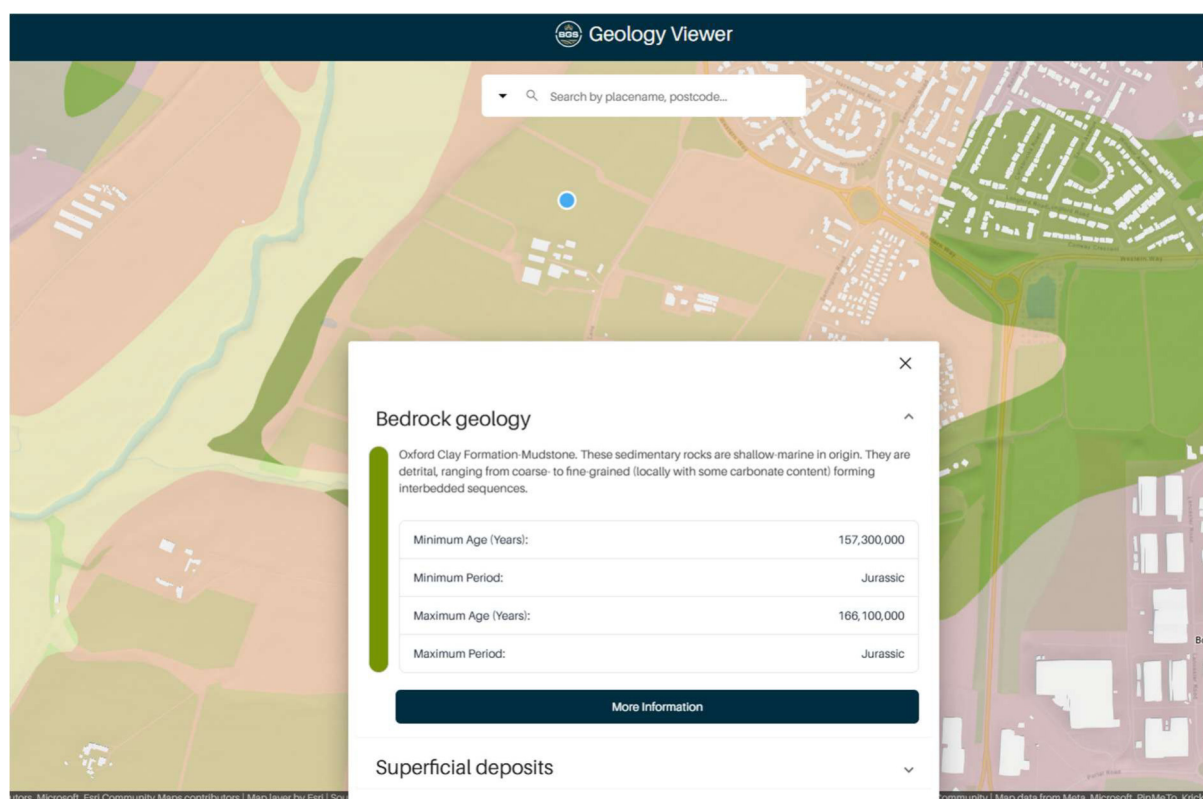


Figure 1: Bedrock Geology - Extract from British Geological Survey Geology of Britain Viewer
Source: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer>

2.2 Existing Watercourses and Drainage Features

The nearest watercourse to the site is the River Avon approximately 200m to the east. A ditch located within Boundary Farm, between the existing farm buildings and application field, drains to the river.

3.0 Surface Water Drainage Proposals

Refer to DC Drawing 1245-01-01 [*Proposed lake levels and drainage layout*] in Appendix A.

This section of the report addresses how flood risk generated as a result of developing the site will be managed using sustainable control measures to ensure that flood risks are not increased on and off the site and how surface water is managed post development.

3.1 Attenuation Design

Calculations indicate SuDS attenuation of 128m³ will be required to accommodate the proposed Lake, for all storm events up to and including the 100year + 40% climate change event, with a peak outflow

rate of 0.8 l/s to match the existing QBAR greenfield runoff rate from the undeveloped land, as generated by HR Wallingford's Greenfield runoff rate estimation tool.

This will be achieved using the freeboard within the lake above the permanent water level, and overflow will be controlled using an orifice flow control chamber. Water levels will raise temporarily by 105mm during the 100yr+ climate change event.

By reducing the peak flow rate for the 100yr+40% event to the equivalent QBAR peak discharge from the existing land, the peak runoff rate from the proposed development results in a reduction in surface water leaving the site for storm events between the 1:2 year event and 1:100 year event, with added 40% protection against an increase in climate change.

Refer to the calculations enclosed within Appendix C.

3.2 Design Exceedance

Should the drainage system and SuDS fail under extreme events or blockages, floodwaters will follow the natural topography to the south towards the existing ditch leading to the river, mirroring the existing arrangement.

3.3 Water Quality

Rain water contributing to the lake will be fairly uncontaminated, therefore further pollution interception beyond that provided by the lake itself is not proposed.

3.4 Ownership

The onsite drainage components will remain private and be the maintenance responsibility of the property owners.

3.5 Maintenance

Regular inspection and maintenance are important for the effective operation of the SuDS systems as designed. The regular maintenance of SuDS should be carried out in line with C753 The SUDS Manual (CIRIA, November 2015) or as per manufacturer's specification.

Pipework and Catchpits

It is not envisaged that silt build up within the pipework systems will require rigorous maintenance. Notwithstanding this, a suitable maintenance regime for the systems will comprise of routine inspection (every six months) and silt removal as necessary.

Lake

The maintenance of the proposed lake will be added to the maintenance regime of the existing farm complex. It is not anticipated that the lake will require a rigorous maintenance regime, as long as silt is removed from the flow control chamber and pre-discharge catchpits on a regular basis. Removal of litter from the lake outfall trash screen, mowing grass and repairs will be completed as required.

4.0 Construction Management Plan

The proposals are relatively small in scale therefore the risk of discharge of significant quantities of surface water runoff, suspended solids and other contaminants is relatively low. Notwithstanding this, the temporary measures outlined below are proposed to prevent off site runoff for the duration of the works.

Construction activities on site will mainly comprise stripping of the existing surface and excavation for the construction of the proposed Lake, bund and SuDS features.

Site should be stripped in phases, to maintain existing vegetated surfaces which will intercept runoff until construction in the area is necessary.

Runoff will then be retained within excavated pits and is unlikely to move off site. Dewatering of pit excavations while being worked on will be pumped to temporary gravel pits for dispersion by infiltration and overflow to the existing ditch network.

Any sediment gathered will be removed regularly and stockpiled onsite.

Any existing gullies which are situated in the vicinity of the works will be temporarily covered with geotextiles in order to prevent construction sediments entering the existing drainage network. Textiles should be replaced periodically to maintain flows to the sewer network.

All necessary precautions will be taken by the contractor to prevent pollutants from construction activities entering the existing drainage system and ditch network.

5.0 Conclusions

The proposed new lake at Boundary Farm will increase the impermeable surface area by introducing clay lining to the base of the lake to retain water.

Surface water runoff during storm events will be attenuated by using the freeboard within the lake above the permanent water level and will overflow to an existing ditch at the equivalent QBAR discharge rate using an orifice flow control chamber. Water levels will raise temporarily by 105mm during the 100yr+ climate change event.

Peak flow rates to the existing ditch network will be reduced during storm events when compared to existing.

The proposed Lake, SUDS and all other surface water drainage components will remain private and be maintained by the owners of the property.

We can conclude that providing the development adheres to the conditions advised in this report, the proposals can be accommodated without increasing flood risk to the site and local area.

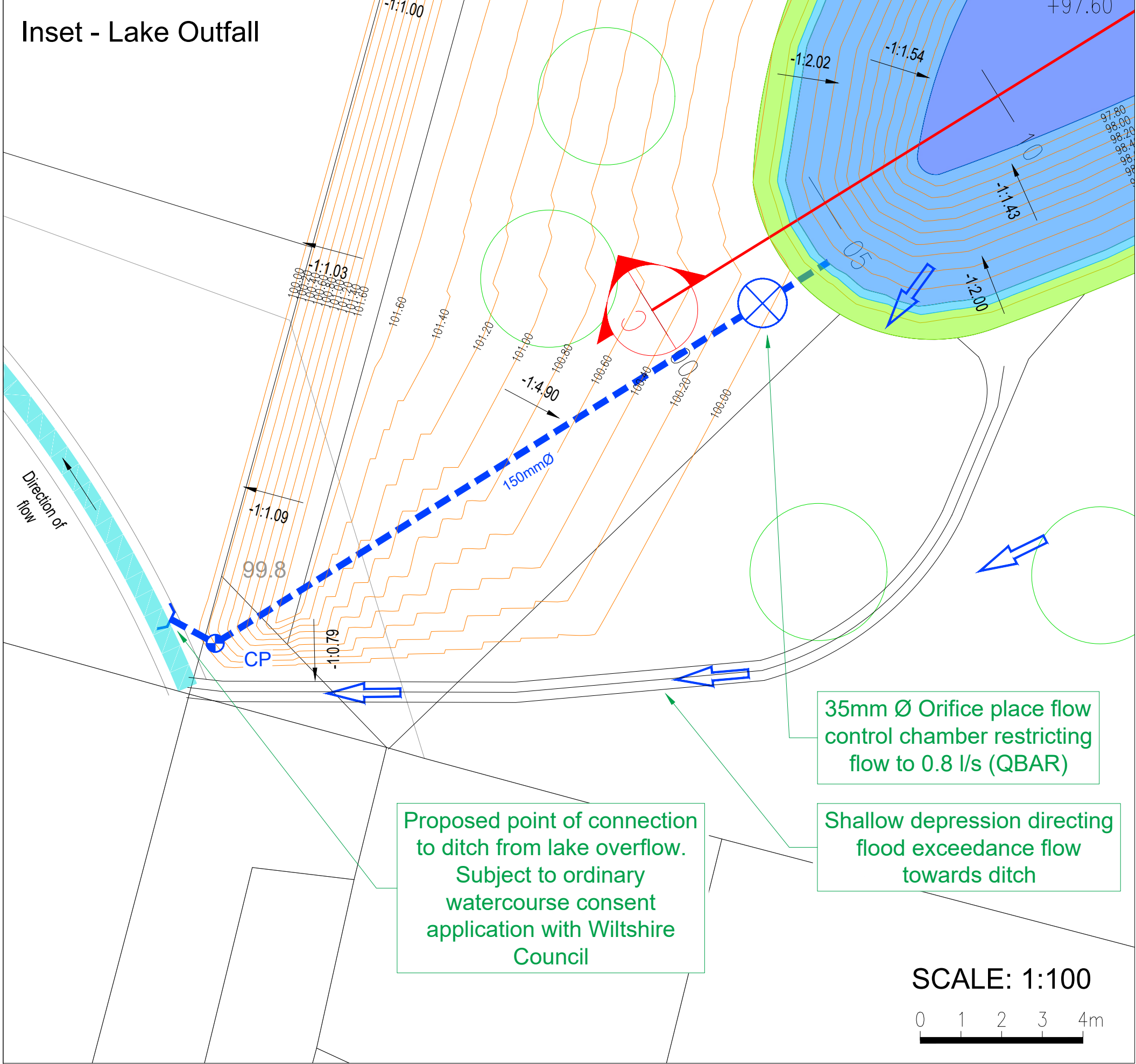
Dixon Civils Ltd

Issue 1 - March 2026

APPENDIX A

Drawings by Dixon Civils

Drawing ref. 1245-01-01	Proposed lake levels and drainage layout
Drawing ref. 1245-02-01	Proposed sections
Drawing ref. 1245-03-01	Construction details



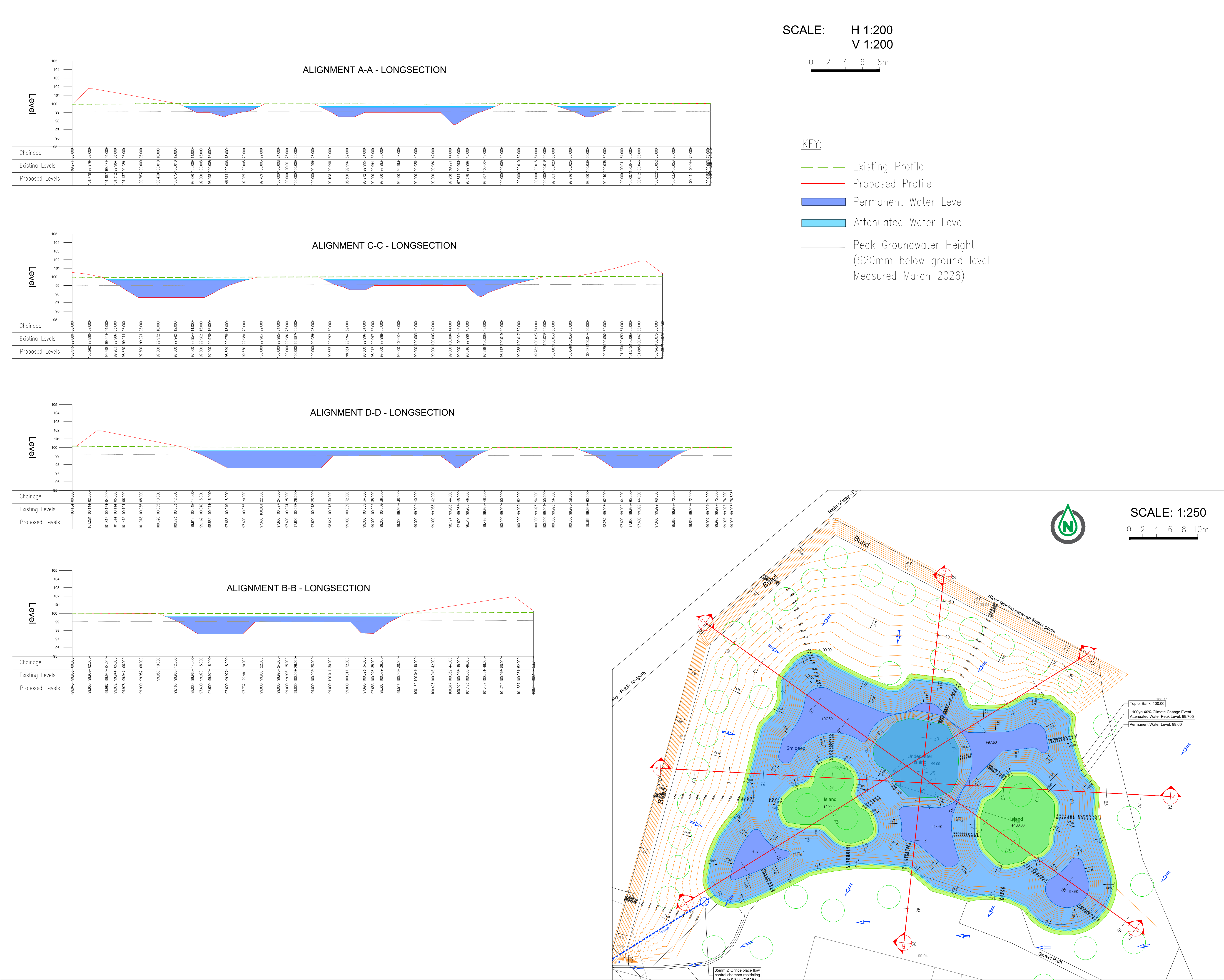
KEY:

- Proposed Surface Water Overflow Drain
- Proposed Concrete Bag Headwall
- Flow Control Chamber
- Proposed Surface Water Catchpit Chamber
- Proposed Contours At 200mm Intervals
- Flood Flow Route (Over 1:100yr+40% storm event)
- 2m Permanent Water Depth
- 0-2m Permanent Water Depth
- 105mm Attenuated Storm Water Depth
- 295mm Freeboard Above 100yr+40% Storm Event
- Section Marker. Refer To Drawing DC1245-02-01

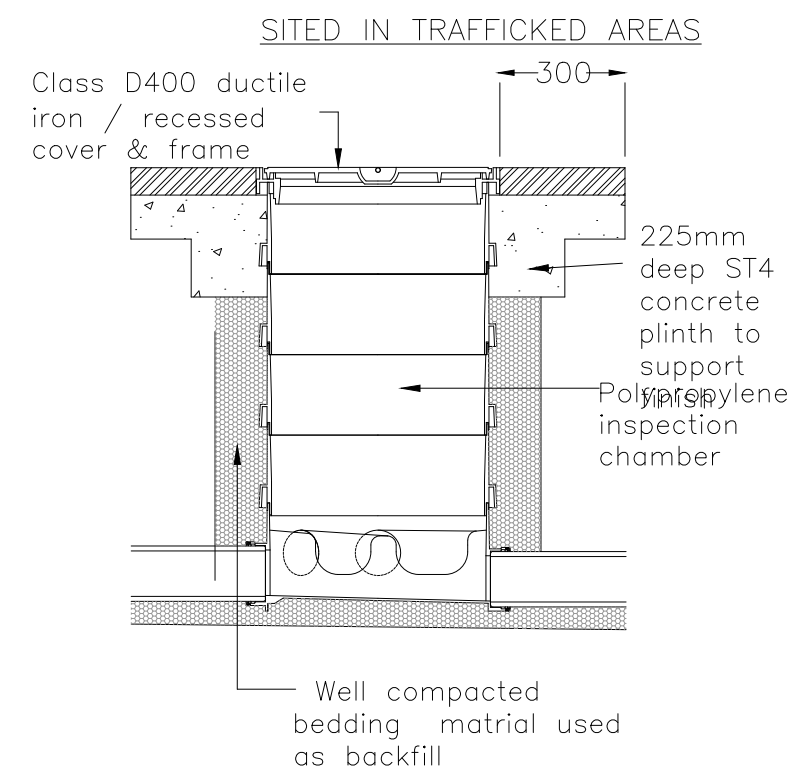
GENERAL NOTES:

- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS SHOWN ARE IN METRES UNLESS STATED OTHERWISE.
- ALL LEVELS ARE IN METRES AND RELATE TO SURVEY LEVELS PROVIDED TO DIXON CIVILS BY OTHERS.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT SCHEME DRAWINGS AND SPECIFICATIONS.
- STABILITY OF BANK GRADIENTS TO BE MONITORED ON SITE AND GEOTECHNICAL ENGINEER TO BE CONSULTED WHERE REQUIRED

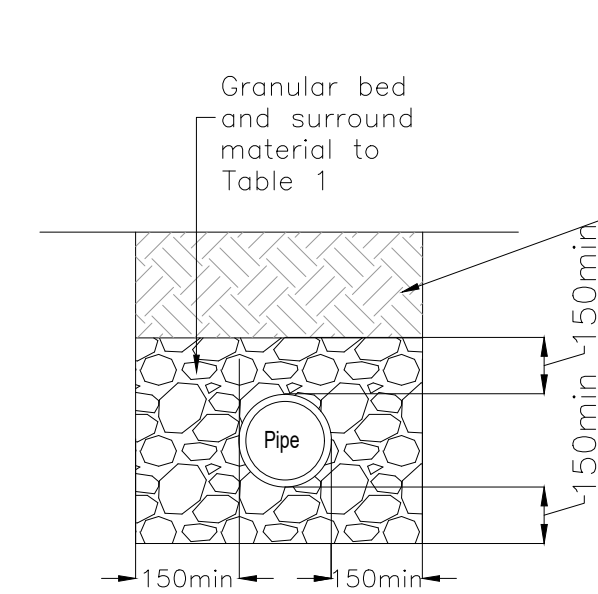
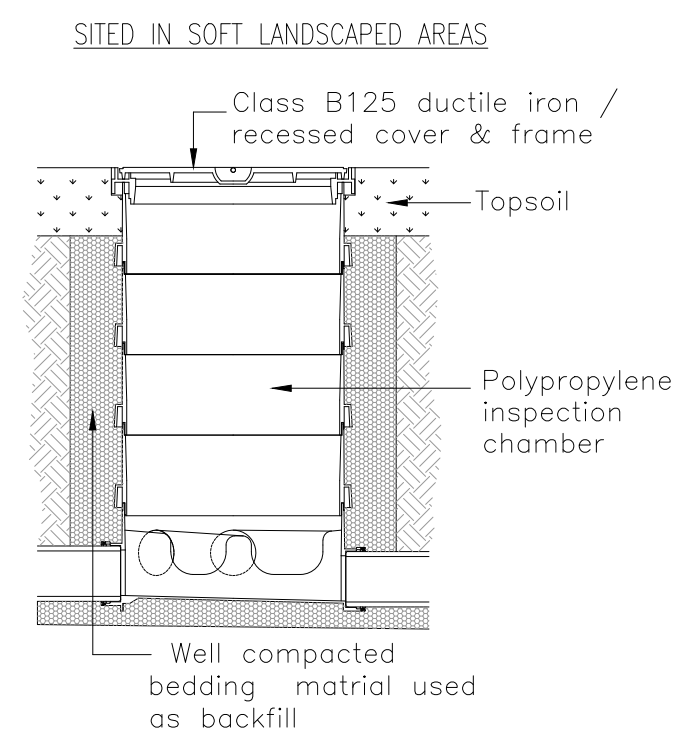
-	FIRST ISSUE (DRAFT)	AD	23.03.26
Rev	Description	Dm	Date
REVISIONS			
Dixon Civils Drainage & Infrastructure Design www.DixonCivils.com 01249 490813 Enquiries@DixonCivils.com			
CLIENT D Guley			
JOB TITLE Proposed Lake Boundary Farm Melksham			
DRAWING TITLE Proposed Lake Levels and Drainage Layout			
DATE MARCH 2026	DRAWN AD	SCALE As Shown @ A1	
DRAWING NO. 1245-01-01	REV -		
ISSUED FOR PRELIMINARY ISSUE			
This drawing is the copyright of Dixon Civils Limited. It may not be reproduced or amended without the written approval of Dixon Civils Limited.			



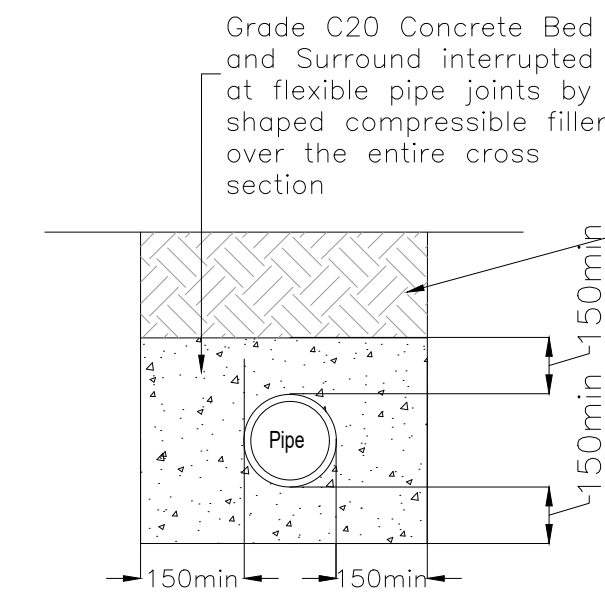
-	FIRST ISSUE (DRAFT)	AD	23.03.26
Rev	Description	Dm	Date
REVISIONS			
Dixon Civils Drainage & Infrastructure Design www.DixonCivils.com 01249 490813 Enquiries@DixonCivils.com			
CLIENT	D Guley		
JOB TITLE	Proposed Lake Boundary Farm Melksham		
DRAWING TITLE	Proposed Sections		
DATE	MARCH 2026	DRAWN	AD
DRAWING No.	1245-02-01	REV	SCALE As Shown @ A1
ISSUED FOR	PRELIMINARY ISSUE		
© This drawing is the copyright of Dixon Civils Limited. It may not be reproduced or amended without the written approval of Dixon Civils Limited.			



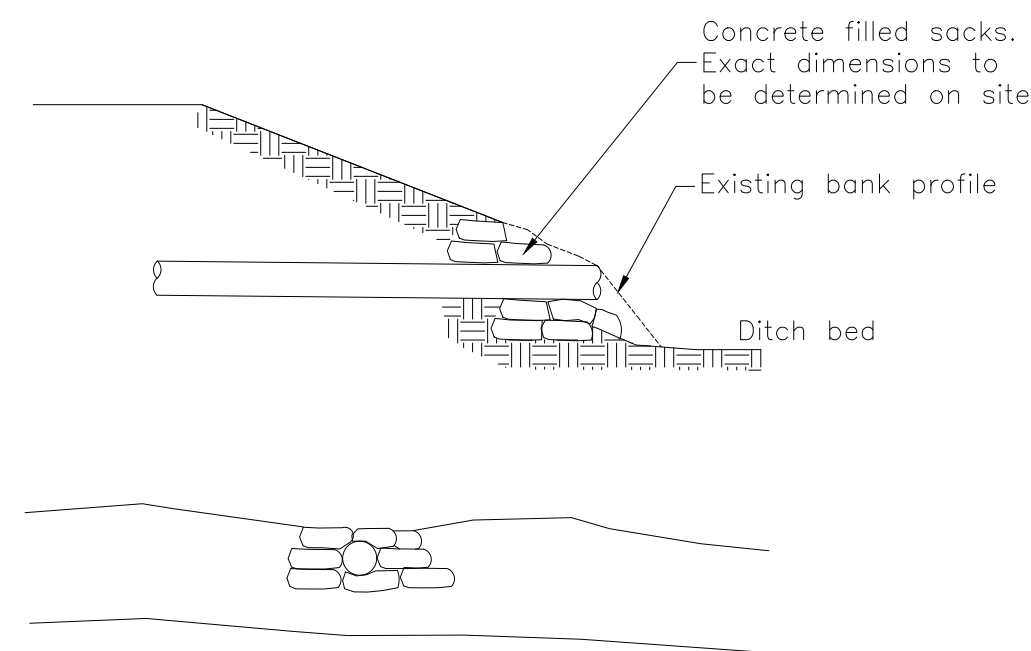
POLYPROPYLENE INSPECTION CHAMBER & COVER



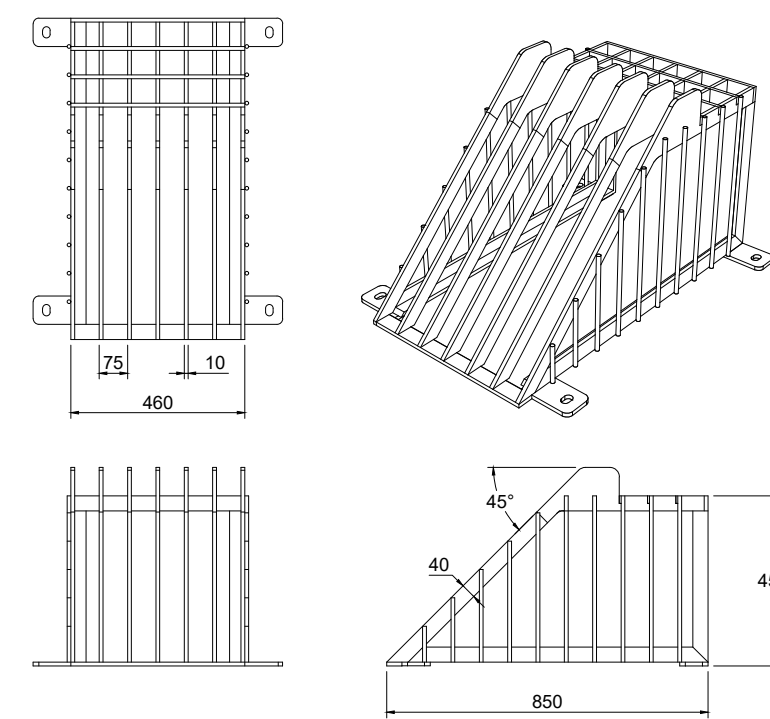
GRANULAR PIPE BEDDING AND SURROUND FOR UNLOADED APPLICATIONS AND TRAFFICKED AREAS WITH OVER 1.2M COVER



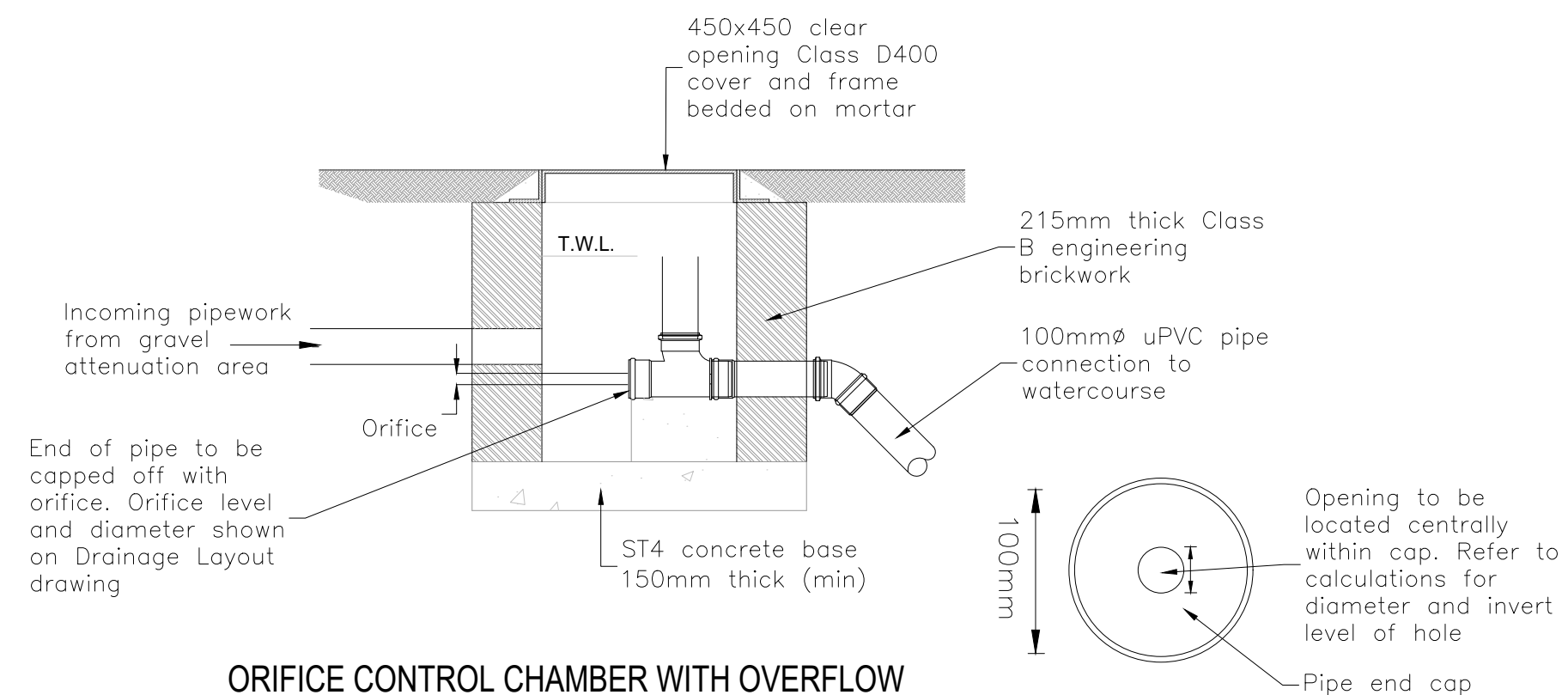
CONCRETE BEDDING AND SURROUND FOR TRAFFICKED AREAS <1.2M DEEP



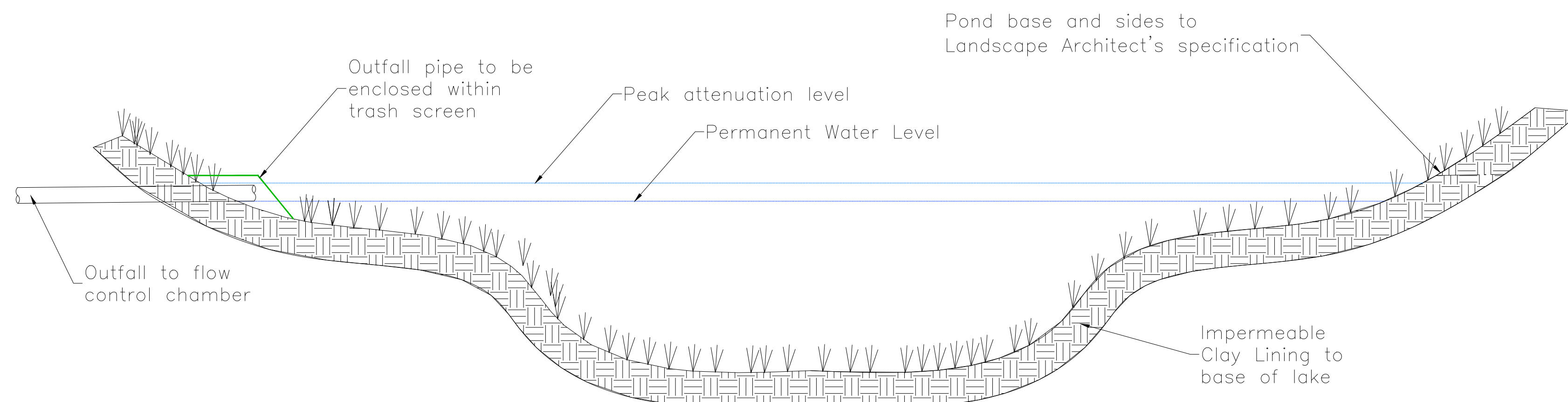
CONCRETE BAG HEADWALL



ALTHON 150mm CAGE TRASH SCREEN Or Similar Approved



ORIFICE CONTROL CHAMBER WITH OVERFLOW



TYPICAL POND SECTION

Refer to drainage layout and section drawings for detailed levels.
Pond construction/material specification in accordance with Landscape Architect/Lake Specialist.

Do not scale from this drawing.
Work from stated dimensions only.

Rev	DESCRIPTION	Dm	Date
1	FIRST ISSUE	AD	23.03.26
REVISIONS			
 Dixon Civils Drainage & Infrastructure Design www.dixoncivils.co.uk			
CLIENT			
D Guley			
JOB TITLE			
Proposed Lake Boundary Farm Melksham			
DRAWING TITLE			
Construction Details			
DATE	MARCH 2026	DRAWN	AD
DRAWING No.	1245-03-01	REV	NTS @ A1
SCALE			
ISSUED FOR			
PRELIMINARY ISSUE			
© This drawing is the copyright of Dixon Civils Limited. It may not be reproduced or amended without the written approval of Dixon Civils Limited.			

APPENDIX B

Drawings by others

Proposed Site Plan (A Harlow and Son)

DRAWINGS BASED ON TOPOGRAPHY & SITE BOUNDARY LIMITS INFORMATION PROVIDED BY OTHERS, IF ONSITE DISCREPANCIES ARISE, BRING TO A HARLOW & SONS ATTETNTION IMMEDIATELY

IF IN DOUBT,ASK - DO NOT SCALE - CHECK ON SITE DIMENSIONS.
SITE DIMENSIONS TO BE CHECKED PRIOR TO START - DISCREPANCIES TO BE RAISED WITH A HARLOW & SON

ALL DIMENSIONS ARE TO STRUCTURAL ELEMENTS & NOT TO APPLIED FINISHES



<u>Drawn by</u>	A Harlow & Son 01225 938329	
<u>Proposed Private Lake for</u> Mr D Guley at <u>Boundary Farm</u> <u>Berryfield Lane</u> <u>Melksham</u> <u>Wiltshire</u> <u>SN12 6EF</u>		
A1 Papersize		
<u>Scale</u>	1:500	<u>Drawing No AH2025/58</u>
<u>Date</u>	20th Nov 2025	

APPENDIX C

Calculations

Infodrainage Attenuation Calculations

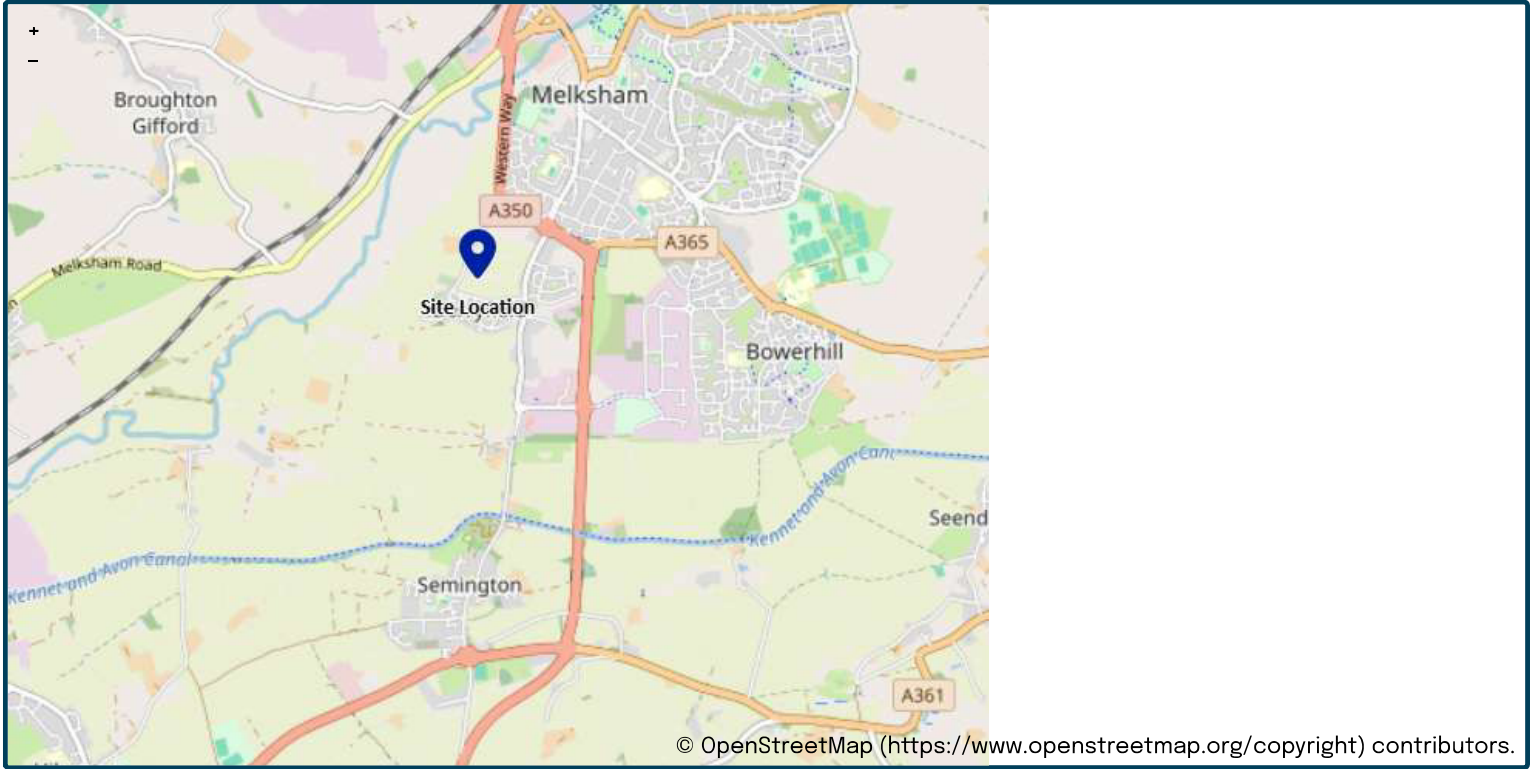
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	23/03/2026
Calculated by	ALAN DIXON
Reference	DC1245
Model version	2.2.3

Location

Site name	Boundary Farm
Site location	Melksham



Site easting (British National Grid)	389807
Site northing (British National Grid)	162411

Site details

Total site area (ha)	0.165	ha
----------------------	------------------------------------	----

Greenfield runoff

Method

Method	IH124
--------	-------

IH124

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	700	mm	700
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	0.8	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	8		8
1 year growth factor	0.78		
2 year growth factor	0.93		
10 year growth factor	1.49		
30 year growth factor	1.95		
100 year growth factor	2.43		
200 year growth factor	2.78		

Results

Method	IH124	
Flow rate 1 year (l/s)	0.6	l/s
Flow rate 2 year (l/s)	0.7	l/s
Flow rate 10 years (l/s)	1.2	l/s
Flow rate 30 years (l/s)	1.6	l/s
Flow rate 100 years (l/s)	1.9	l/s
Flow rate 200 years (l/s)	2.2	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 (2.2.3) 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.

Site: Boundary Farm Melksham	Date: 23/03/2026		
	Designed by: AD	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Project: Proposed Lake		



Lake Catchment Area

Type : Catchment Area

Area (ha)	0.165
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Site: Boundary Farm Melksham	Date: 23/03/2026		
	Designed by: AD	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Project: Proposed Lake		



Lake

Type : Pond

Dimensions

Exceedance Level (m)	100.000
Depth (m)	0.400
Base Level (m)	99.600
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	2.00
Total Volume (m³)	503.739

Depth (m)	Area (m²)	Volume (m³)
0.000	1209.37	0.000
0.400	1310.00	503.739

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Lake Catchment Area
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	(None)
Outlet Type	Orifice
Diameter (m)	0.035
Coefficient of Discharge	0.600
Invert Level (m)	99.600

Site: Boundary Farm Melksham	Date: 23/03/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Phase	Project: Proposed Lake			

Advanced

Perimeter	Circular
Length (m)	60.735
Friction Scheme	Manning's n
n	0.03

Site: Boundary Farm Melksham	Date: 23/03/2026		
	Designed by: AD	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Project: Proposed Lake		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Site: Boundary Farm Melksham	Date: 23/03/2026		
	Designed by: AD	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Project: Proposed Lake		



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Lake	FSR: 100 years: +40 %: 1440 mins: Winter	99.705	99.705	0.105	0.105	4.8	128.434	0.000	0.000	0.8	92.543	1759	74.504

Site: Boundary Farm Melksham	Date: 23/03/2026			 Dixon Civils Drainage & Infrastructure Design
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Project: Proposed Lake			

Status
OK



FOR MORE INFORMATION CONTACT US AT:

Enquiries@DixonCivils.com

01249 490813

www.DixonCivils.com