# Frodsham Solar

## Outline Drainage Strategy

**(Previously included as Section 11 and Appendix N, O and P of ES Vol 2 Appendix 9-1: Flood Risk Assessment and Drainage Strategy – AS-019, AS-021, AS-023, AS-025, AS-027)**

**~~January~~ March 2026**

Cubico
SUSTAINABLE INVESTMENTS

PINS Ref: EN010153
Document Ref: EN010153/DR/8.33
**Planning Act 2008; and Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations Regulation 5(2)(q)**

**Revision ~~P01~~P02**

# Document Control

| Revision | Date | Prepared By | Reviewed / Approved By |
|---|---|---|---|
| P01 | January 2026 | Waterco Ltd | A Russell |
| P02 | March 2026 | Waterco Ltd | A Russell |
| | | | |



**Prepared For:**
**Frodsham Solar Ltd**

**Prepared By: Waterco Ltd**

## CONTENTS



## TABLES



## APPENDICES

# 1.0 INTRODUCTION

## 1.1 Purpose of this Document

1.1.1 This document has been prepared by Waterco on behalf of Frodsham Solar Limited (‘the Applicant’) in relation to an application for a Development Consent Order (DCO) for the Frodsham Solar Project (‘the Proposed Development’). The application for the DCO will be submitted to the Planning Inspectorate, with the decision whether to grant a DCO being made by the Secretary of State for the Department for Energy Security and Net Zero (hereafter referred to as the ‘Secretary of State’) pursuant to the Planning Act 2008.

1.1.2 This document is submitted at Deadline 3 of the examination as per the **Rule 8 letter [PD-008]** issued by the Examining Authority (‘ExA’).

1.1.3 This Outline Drainage Strategy was originally included as part of **ES Vol 2 Appendix 9-1: Flood Risk Assessment and Drainage Strategy [AS-019]**. Section 11 and Appendices N, O and P of the Flood Risk Assessment and Drainage Strategy have been extracted and submitted as this, separate, Outline Drainage Strategy. This has been done to give clarity and sufficient control within the certified documents in terms of how the drainage arrangements for the Proposed Development will be provided.

1.1.4 Accordingly, Appendices N, O and P of **ES Vol 2 Appendix 9-1: Flood Risk Assessment and Drainage Strategy [AS-019]** have been renamed as Appendices A, B and C (respectively) of this Outline Drainage Strategy.

# 2.0 SURFACE AND FOUL WATER MANAGEMENT DRAINAGE STRATEGY

2.1.1 All drainage systems will be designed in accordance with the principles of CIRIA C753 publication ‘The SuDS Manual’ (2015).

2.1.2 The Site currently comprises a mixture of agricultural and drained marsh land, approximately half of which comprises former Manchester Ship Canal Dredging Deposit Grounds. Surface water runoff currently infiltrates into the ground or informally flows into existing watercourses on Site (rainwater runoff). The watercourses in the eastern extent of the Site discharge to the River Weaver via an EA operated pump. The watercourses in the elevated western extent of the Site discharge to the Manchester Ship Canal.

2.1.3 The proposed solar arrays will not create any significant change to the current surface water drainage regime and the majority of the Site will remain permeable. As vegetation becomes established under the PV Arrays there is likely to be a decrease in surface water runoff rates compared to the baseline scenario, as wildflower grassland provides better infiltration and water retention compared to the previous arable land use.

## 2.2 Surface Water Management from Solar Panels

2.2.1 The proposed ground-mounted solar arrays will be elevated above the ground on steel frames, ensuring the ground beneath each panel remains permeable. The solar arrays will be laid in rows with ‘rainwater’ gaps between the rows of panels which will allow water to drain to the permeable ground beneath.

2.2.2 Runoff from the panels will result in negligible erosion at the base of each panel due to proposed land use comprising wildflower grassland as well as the flat nature of the Site. The flat nature of the Site would prevent any overland flows from forming.

2.2.3 It is therefore considered that the solar arrays will not result in an increase in the surface water runoff rates and volumes and will not alter the existing greenfield drainage regime. This in accordance with paragraph 2.10.84 of NPS for Renewable for Renewable Energy (EN-3).

## 2.3 Surface Water Management from Supporting Infrastructure

2.3.1 The proposed PCU platforms will cover a minimal footprint and runoff from these will drain to a stone surround (filter trench or similar). The access tracks and any parking or turning areas will comprise porous stone material. If considered necessary at detailed design stage, filter drains would be provided adjacent to the roads to control any surface water runoff.

2.3.2 The proposed BESS compound and Frodsham Solar Substation compound will be formally drained. Given the impermeability of the underlying strata, it is proposed to discharge surface water from these compounds to an adjacent ordinary watercourse, as shown in **Appendix C**. Discharge will be made at a limited greenfield runoff rate.

2.3.3 Greenfield runoff rates have been estimated using the ICP SUDS method within MicroDrainage. A summary of the greenfield runoff rates is provided as **Appendix A**. The 1 in 1 year greenfield rate for the 2.49ha BESS compound area and substation is 10.6 l/s. A discharge rate of 10.6 l/s is therefore proposed.

2.3.4 In order to achieve a discharge rate of 10.6 l/s, attenuation storage will be required. Attenuation will be provided within the sub-grade of the compound's lined stone surfacing. An attenuation storage estimate has been provided using MicroDrainage software and is included as **Appendix B**.

2.3.5 An estimated storage volume of 2,201m$^3$ will be required to accommodate the 1 in 100 year plus 45% CC event. The storage estimate is based on a discharge rate of 10.6 l/s, storage within a sub-grade structure, an impermeable drainage area of 2.49ha and hydro-brake flow control.

2.3.6 Based on a compound area of 24,910m$^2$ and a void ratio of 30% (applicable to stone aggregate), a sub-grade depth of 295mm will be sufficient to provide the 2,201m$^3$ of storage required to accommodate the 1 in 100 year plus 45% CC event.

2.3.7 Perforated pipes will be laid within the stone sub-grade as to direct water towards the flow control device.

2.3.8 A concept drainage sketch detailing the proposed surface water discharge location for the Frodsham Solar Substation compound drainage system is included in **Appendix C**. Requirement 10 of the draft DCO sets out that full details of the surface water drainage strategy (which must be substantially in accordance with this Outline Drainage Strategy) must be approved by CWACC in consultation with the Lead Local Flood Authority.

## 2.4 Exceedance Flows

2.4.1 The proposed drainage system of the BESS and Frodsham Solar Substation compound will be designed to accommodate the 1 in 100 year plus 45% CC event. Storm events in excess of the 1 in 100 year plus 45% CC event will be permitted to produce shallow depth flooding within the BESS and substation compound. Any above ground flooding resulting from a drainage system exceedance event will be contained within the BESS and substation compound through consideration of the boundary treatment i.e. a raised kerb or earth bunding.

## 2.5 Overland Flows

2.5.1 Watercourses or raised flood defences form the boundaries of the SADA. The Site is flat which would prevent any significant overland flows from forming. In the unlikely event of overland flows occurring during extreme rainfall events, overland flow would be intercepted by the watercourses on the boundaries of the SADA, or contained on Site by raised ground (flood defences) and would not be directed off-Site. The existing runoff / overland flow regime will therefore not change.

## 2.6 Surface Water Treatment

2.6.1 In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), other roofs (applicable to the containers accommodating the battery units, PCUs and buildings within the Frodsham Solar Substation compound) have a 'low' pollution hazard level, with low traffic roads (applicable to the access roads and permeable surfacing within the proposed BESS compound and substation) also classified as having a 'low' pollution hazard level. Table 1 shows the pollution hazard indices for each land use.

**Table 1 – Pollution Hazard Indices**

| Land Use | Pollution Hazard Level | Total Suspended Solids (TSS) | Metals | Hydrocarbons |
|---|---|---|---|---|
| Other Roofs | Low | 0.3 | 0.2 | 0.05 |
| Low Traffic Roads | Low | 0.5 | 0.4 | 0.4 |

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.2
* Indices values range from 0-1.

2.6.2 The access roads, BESS compound and substation will be formed from permeable stone surfacing. Table 2 demonstrates that permeable surfacing will provide sufficient treatment.

**Table 2 – SuDS Mitigation Indices**

| | Mitigation Indices | | |
|---|---|---|---|
| Type of SuDS | Total Suspended Solids (TSS) | Metals | Hydrocarbons |
| Permeable Surfaces | 0.7 | 0.6 | 0.7 |

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.3

## 2.7 Fire Water Management

2.7.1 The implementation of the BESS introduces the potential risk of contaminated fire water runoff. To mitigate this risk, the following measures will be implemented:

i) An internal fire suppression system (sprinklers) will be built into the interior of each battery container unit.

ii) A designated drain (gully) on the concrete slab beneath each battery container unit will direct the fire water into a designated piped drain. The piped drain will discharge to a lined fire water lagoon within the BESS compound.

iii) A shut off valve will be placed on the fire water lagoon outfall and will be automated (set in the off position when fire water sprinklers are activated). This will prevent discharge of fire water to the wider water environment. An outfall from the fire water lagoon to the Site's drainage system is required to ensure the lagoon does not fill up with rainwater (ensuring the lagoon is empty and ready to accommodate fire water).

iv) Following a fire, contaminated flows will be collected from the fire water lagoon and transported by tanker to an appropriate treatment facility or would be or treated on Site and reused as firewater provision. The lagoon and drainage system would be cleaned before the valve from the firewater lagoon is reopened.

v) The base of the permeable stone surfacing in the BESS will be lined with an impermeable geotextile as a precautionary measure to prevent firewater polluting shallow / perched groundwater.

2.7.2 The proposed fire water management system will ensure fire water is dealt with by a designated system and separated from the Site's surface water drainage system.

## 2.8 Foul Water Drainage

2.8.1 Domestic foul water generated during the construction and operational phases will be tankered off Site to an appropriate wastewater treatment plant. No connection to the local sewer network is proposed.

## 2.9 Monitoring

2.9.1 Drainage features will be regularly monitored to ensure that they are operating effectively. The final surface water drainage strategy shall detail the maintenance schedule and the methods used to ensure the drainage features will continue to operate effectively and provide the necessary water quality controls.

# Appendix A: Greenfield Runoff Rates

| Waterco Ltd | | Page 1 |
| --- | --- | --- |
| Eden Court<br><br>Lon Parcwr Business Park<br>Denbighshire LL15 1NJ | 14740 - Frodsham Solar<br><br>ICP SUDS | |
| Date 09/04/2024<br><br>File | Designed by MW<br><br>Checked by AW | |
| XP Solutions | Source Control 2020.1.3 | |

ICP SUDS Mean Annual Flood

Input

Return Period (years) 100 Soil 0.450 Area (ha) 2.490
Urban 0.000
SAAR (mm) 758 Region Number Region 9

**Results l/s**

QBAR Rural 12.0
QBAR Urban 12.0

Q100 years 26.2

Q1 year 10.6
Q30 years 21.2
Q100 years 26.2

# Appendix B: MicroDrainage Simulations

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|---|---|---|
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| Date 04/10/2024<br>File 14740 - UPDATED.SRCX | Designed by MJW<br>Checked by AW | |
| XP Solutions | Source Control 2020.1.3 | |

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1763 minutes.

| Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Σ Outflow (l/s) | Max Volume (m³) | Status |
|---|---|---|---|---|---|---|---|
| 15 min Summer | 9.808 | 0.128 | 0.0 | 8.6 | 8.6 | 769.9 | Flood Risk |
| 30 min Summer | 9.844 | 0.164 | 0.0 | 10.4 | 10.4 | 1042.3 | Flood Risk |
| 60 min Summer | 9.881 | 0.201 | 0.0 | 10.6 | 10.6 | 1315.7 | Flood Risk |
| 120 min Summer | 9.916 | 0.236 | 0.0 | 10.6 | 10.6 | 1578.2 | Flood Risk |
| 180 min Summer | 9.937 | 0.257 | 0.0 | 10.6 | 10.6 | 1736.3 | Flood Risk |
| 240 min Summer | 9.952 | 0.272 | 0.0 | 10.6 | 10.6 | 1846.1 | Flood Risk |
| 360 min Summer | 9.971 | 0.291 | 0.0 | 10.6 | 10.6 | 1989.6 | Flood Risk |
| 480 min Summer | 9.983 | 0.303 | 0.0 | 10.6 | 10.6 | 2077.4 | Flood Risk |
| 600 min Summer | 9.990 | 0.310 | 0.0 | 10.6 | 10.6 | 2133.5 | Flood Risk |
| 720 min Summer | 9.995 | 0.315 | 0.0 | 10.6 | 10.6 | 2169.2 | Flood Risk |
| 960 min Summer | 9.999 | 0.319 | 0.0 | 10.7 | 10.7 | 2201.1 | Flood Risk |
| 1440 min Summer | 9.998 | 0.318 | 0.0 | 10.7 | 10.7 | 2191.7 | Flood Risk |
| 2160 min Summer | 9.992 | 0.312 | 0.0 | 10.6 | 10.6 | 2144.7 | Flood Risk |
| 2880 min Summer | 9.986 | 0.306 | 0.0 | 10.6 | 10.6 | 2097.8 | Flood Risk |

| Storm Event | Rain (mm/hr) | Flooded Volume (m³) | Discharge Volume (m³) | Time-Peak (mins) |
|---|---|---|---|---|
| 15 min Summer | 144.785 | 0.0 | 466.9 | 24 |
| 30 min Summer | 94.850 | 0.0 | 638.5 | 39 |
| 60 min Summer | 58.929 | 0.0 | 1112.8 | 68 |
| 120 min Summer | 35.248 | 0.0 | 1320.7 | 128 |
| 180 min Summer | 25.960 | 0.0 | 1436.8 | 188 |
| 240 min Summer | 20.834 | 0.0 | 1510.3 | 246 |
| 360 min Summer | 15.196 | 0.0 | 1590.0 | 366 |
| 480 min Summer | 12.105 | 0.0 | 1623.8 | 486 |
| 600 min Summer | 10.127 | 0.0 | 1632.0 | 604 |
| 720 min Summer | 8.742 | 0.0 | 1624.0 | 724 |
| 960 min Summer | 6.912 | 0.0 | 1580.3 | 962 |
| 1440 min Summer | 4.959 | 0.0 | 1472.9 | 1400 |
| 2160 min Summer | 3.556 | 0.0 | 2651.0 | 1716 |
| *2880 min Summer* | 2.813 | 0.0 | 2681.0 | 2084 |

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| Eden Court<br>Lon Parcwr Business Park<br>Denbighshire LL15 1NJ | 14740 - Frodsham Solar<br>Attenuation Storage<br>1 in 100 year + 45% CC event | Micro Drainage |
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Summary of Results for 100 year Return Period (+45%)

| Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Σ Outflow (l/s) | Max Volume (m³) | Status |
|---|---|---|---|---|---|---|---|
| 4320 min Summer | 9.972 | 0.292 | 0.0 | 10.6 | 10.6 | 1999.6 | Flood Risk |
| 5760 min Summer | 9.958 | 0.278 | 0.0 | 10.6 | 10.6 | 1894.0 | Flood Risk |
| 7200 min Summer | 9.945 | 0.265 | 0.0 | 10.6 | 10.6 | 1792.4 | Flood Risk |
| 8640 min Summer | 9.932 | 0.252 | 0.0 | 10.6 | 10.6 | 1696.3 | Flood Risk |
| 10080 min Summer | 9.920 | 0.240 | 0.0 | 10.6 | 10.6 | 1608.7 | Flood Risk |
| 15 min Winter | 9.808 | 0.128 | 0.0 | 8.6 | 8.6 | 769.9 | Flood Risk |
| 30 min Winter | 9.844 | 0.164 | 0.0 | 10.4 | 10.4 | 1042.7 | Flood Risk |
| 60 min Winter | 9.881 | 0.201 | 0.0 | 10.6 | 10.6 | 1316.0 | Flood Risk |
| 120 min Winter | 9.916 | 0.236 | 0.0 | 10.6 | 10.6 | 1578.6 | Flood Risk |
| 180 min Winter | 9.937 | 0.257 | 0.0 | 10.6 | 10.6 | 1736.6 | Flood Risk |
| 240 min Winter | 9.952 | 0.272 | 0.0 | 10.6 | 10.6 | 1846.1 | Flood Risk |
| 360 min Winter | 9.971 | 0.291 | 0.0 | 10.6 | 10.6 | 1988.9 | Flood Risk |
| 480 min Winter | 9.983 | 0.303 | 0.0 | 10.6 | 10.6 | 2076.2 | Flood Risk |
| 600 min Winter | 9.990 | 0.310 | 0.0 | 10.6 | 10.6 | 2132.0 | Flood Risk |
| 720 min Winter | 9.995 | 0.315 | 0.0 | 10.6 | 10.6 | 2167.8 | Flood Risk |

| Storm Event | Rain (mm/hr) | Flooded Volume (m³) | Discharge Volume (m³) | Time-Peak (mins) |
|---|---|---|---|---|
| 4320 min Summer | 2.031 | 0.0 | 2575.0 | 2904 |
| 5760 min Summer | 1.620 | 0.0 | 3429.1 | 3744 |
| 7200 min Summer | 1.366 | 0.0 | 3541.6 | 4536 |
| 8640 min Summer | 1.192 | 0.0 | 3621.2 | 5280 |
| 10080 min Summer | 1.065 | 0.0 | 3657.8 | 6056 |
| 15 min Winter | 144.785 | 0.0 | 466.9 | 24 |
| 30 min Winter | 94.850 | 0.0 | 638.5 | 38 |
| 60 min Winter | 58.929 | 0.0 | 1112.8 | 68 |
| 120 min Winter | 35.248 | 0.0 | 1320.9 | 126 |
| 180 min Winter | 25.960 | 0.0 | 1437.3 | 184 |
| 240 min Winter | 20.834 | 0.0 | 1511.2 | 242 |
| 360 min Winter | 15.196 | 0.0 | 1592.2 | 360 |
| 480 min Winter | 12.105 | 0.0 | 1627.4 | 476 |
| 600 min Winter | 10.127 | 0.0 | 1637.4 | 594 |
| 720 min Winter | 8.742 | 0.0 | 1631.2 | 708 |

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Summary of Results for 100 year Return Period (+45%)

| Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Σ Outflow (l/s) | Max Volume (m³) | Status |
|---|---|---|---|---|---|---|---|
| 960 min Winter | 9.999 | 0.319 | 0.0 | 10.7 | 10.7 | 2200.6 | Flood Risk |
| 1440 min Winter | 9.999 | 0.319 | 0.0 | 10.7 | 10.7 | 2196.2 | Flood Risk |
| 2160 min Winter | 9.989 | 0.309 | 0.0 | 10.6 | 10.6 | 2121.5 | Flood Risk |
| 2880 min Winter | 9.980 | 0.300 | 0.0 | 10.6 | 10.6 | 2056.0 | Flood Risk |
| 4320 min Winter | 9.959 | 0.279 | 0.0 | 10.6 | 10.6 | 1899.8 | Flood Risk |
| 5760 min Winter | 9.937 | 0.257 | 0.0 | 10.6 | 10.6 | 1733.5 | Flood Risk |
| 7200 min Winter | 9.916 | 0.236 | 0.0 | 10.6 | 10.6 | 1577.7 | Flood Risk |
| 8640 min Winter | 9.897 | 0.217 | 0.0 | 10.6 | 10.6 | 1436.6 | Flood Risk |
| 10080 min Winter | 9.880 | 0.200 | 0.0 | 10.6 | 10.6 | 1311.7 | Flood Risk |

| Storm Event | Rain (mm/hr) | Flooded Volume (m³) | Discharge Volume (m³) | Time-Peak (mins) |
|---|---|---|---|---|
| 960 min Winter | 6.912 | 0.0 | 1590.9 | 936 |
| 1440 min Winter | 4.959 | 0.0 | 1488.9 | 1374 |
| 2160 min Winter | 3.556 | 0.0 | 2658.2 | 1756 |
| 2880 min Winter | 2.813 | 0.0 | 2694.7 | 2196 |
| 4320 min Winter | 2.031 | 0.0 | 2621.7 | 3116 |
| 5760 min Winter | 1.620 | 0.0 | 3435.1 | 3976 |
| 7200 min Winter | 1.366 | 0.0 | 3551.5 | 4760 |
| 8640 min Winter | 1.192 | 0.0 | 3636.4 | 5544 |
| 10080 min Winter | 1.065 | 0.0 | 3680.8 | 6352 |

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| XP Solutions | Source Control 2020.1.3 | |

## Rainfall Details

| | |
|---|---|
| Rainfall Model | FEH |
| Return Period (years) | 100 |
| FEH Rainfall Version | 2013 |
| Site Location | GB 350792 378300 SJ 50792 78300 |
| Data Type | Point |
| Summer Storms | Yes |
| Winter Storms | Yes |
| Cv (Summer) | 1.000 |
| Cv (Winter) | 1.000 |
| Shortest Storm (mins) | 15 |
| Longest Storm (mins) | 10080 |
| Climate Change % | +45 |

## Time Area Diagram

Total Area (ha) 2.490

| **Time (mins) From:** | **To:** | **Area (ha)** | **Time (mins) From:** | **To:** | **Area (ha)** | **Time (mins) From:** | **To:** | **Area (ha)** |
|---|---|---|---|---|---|---|---|---|
| 0 | 3 | 0.830 | 3 | 6 | 0.830 | 6 | 9 | 0.830 |

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Model Details

Storage is Online Cover Level (m) 10.000

Porous Car Park Structure

| | |
|---|---|
| Infiltration Coefficient Base (m/hr) | 0.00000 |
| Membrane Percolation (mm/hr) | 1000 |
| Max Percolation (l/s) | 6919.4 |
| Safety Factor | 2.0 |
| Porosity | 0.30 |
| Invert Level (m) | 9.680 |
| Width (m) | 50.0 |
| Length (m) | 498.2 |
| Slope (1:X) | 10000.0 |
| Depression Storage (mm) | 5 |
| Evaporation (mm/day) | 3 |
| Membrane Depth (m) | 0 |

Hydro-Brake® Optimum Outflow Control

| | |
|---|---|
| Unit Reference | MD-SHE-0158-1060-0320-1060 |
| Design Head (m) | 0.320 |
| Design Flow (l/s) | 10.6 |
| Flush-Flo™ | Calculated |
| Objective | Minimise upstream storage |
| Application | Surface |
| Sump Available | Yes |
| Diameter (mm) | 158 |
| Invert Level (m) | 9.675 |
| Minimum Outlet Pipe Diameter (mm) | 225 |
| Suggested Manhole Diameter (mm) | 1200 |

| **Control Points** | **Head (m)** | **Flow (l/s)** |
|---|---|---|
| Design Point (Calculated) | 0.320 | 10.6 |
| Flush-Flo™ | 0.211 | 10.6 |
| Kick-Flo® | 0.291 | 10.1 |
| Mean Flow over Head Range | - | 7.4 |

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing

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| Date 04/10/2024<br>File 14740 - UPDATED.SRCX | Designed by MJW<br>Checked by AW | |
| XP Solutions | Source Control 2020.1.3 | |

Hydro-Brake® Optimum Outflow Control

calculations will be invalidated

| **Depth(m)Flo) (m) Flow (l/s)** | **(l/s)Depth (m)** | **Flow (l/s)Depth** | **(m) Flow(l/s)Depth** | |
|---|---|---|---|---|
| 0.100 | 5.71.200 | 19.83.000 | 30.87.000 | 46.8 |
| 0.200 | 10.61.400 | 21.43.500 | 32.97.500 | 48.4 |
| 0.300 | 10.31.600 | 22.84.000 | 35.28.000 | 50.0 |
| 0.400 | 11.81.800 | 24.14.500 | 37.48.500 | 51.6 |
| 0.500 | 13.12.000 | 25.35.000 | 39.49.000 | 53.1 |
| 0.600 | 14.32.200 | 26.55.500 | 41.49.500 | 54.6 |
| 0.800 | 16.32.400 | 27.76.000 | 43.3 | |
| 1.000 | 18.22.600 | 28.86.500 | 45.0 | |

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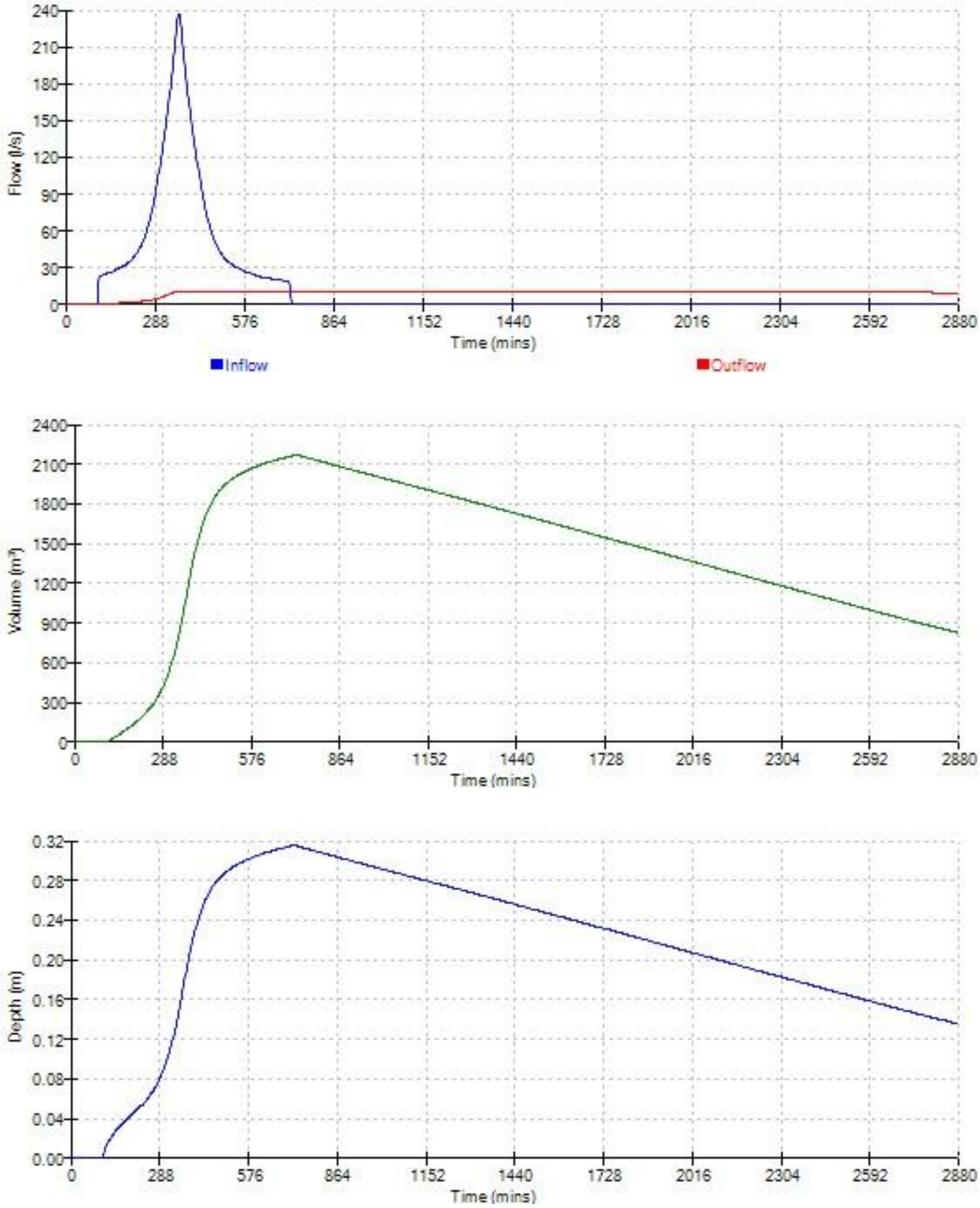
Event: 720 min Summer



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| Eden Court<br>Lon Parcwr Business Park<br>Denbighshire LL15 1NJ | 14740 - Frodsham Solar<br>Attenuation Storage<br>1 in 100 year + 45% CC event | Micro Drainage |
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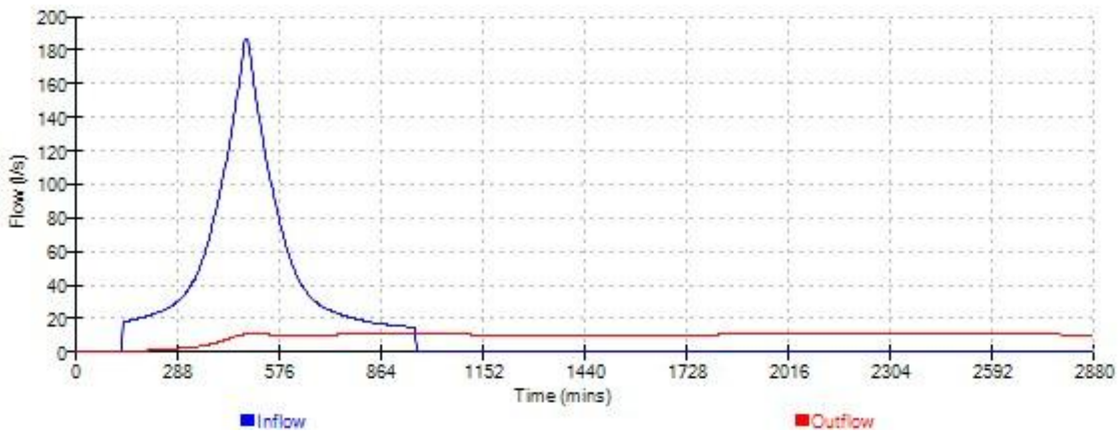
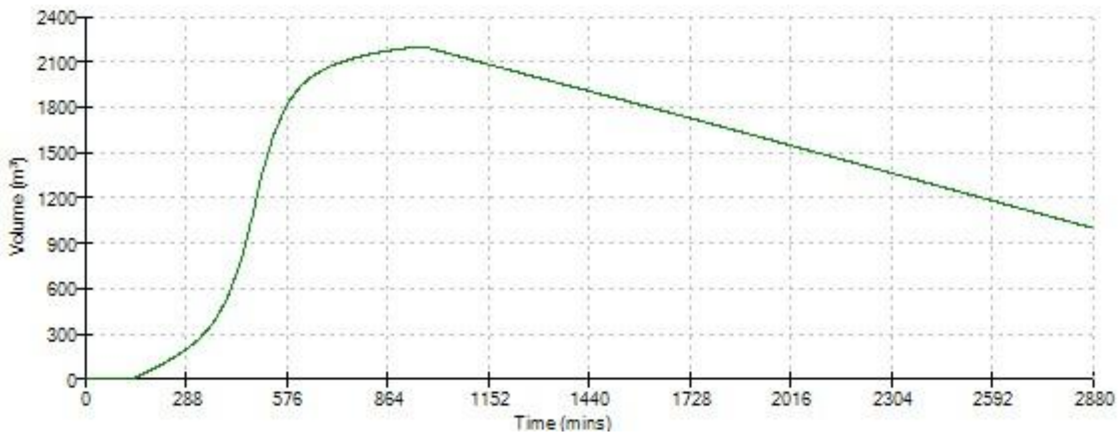
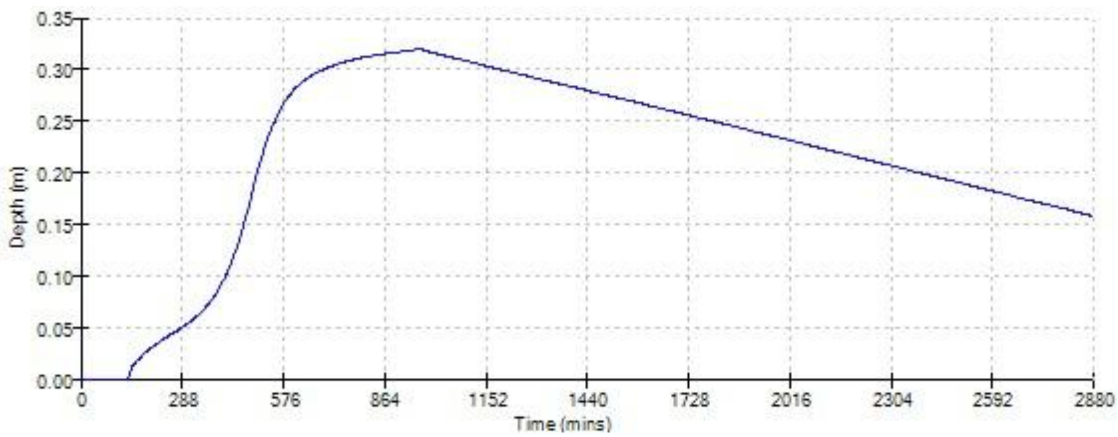
| XP Solutions | Source Control 2020.1.3 | |

Event: 960 min Summer

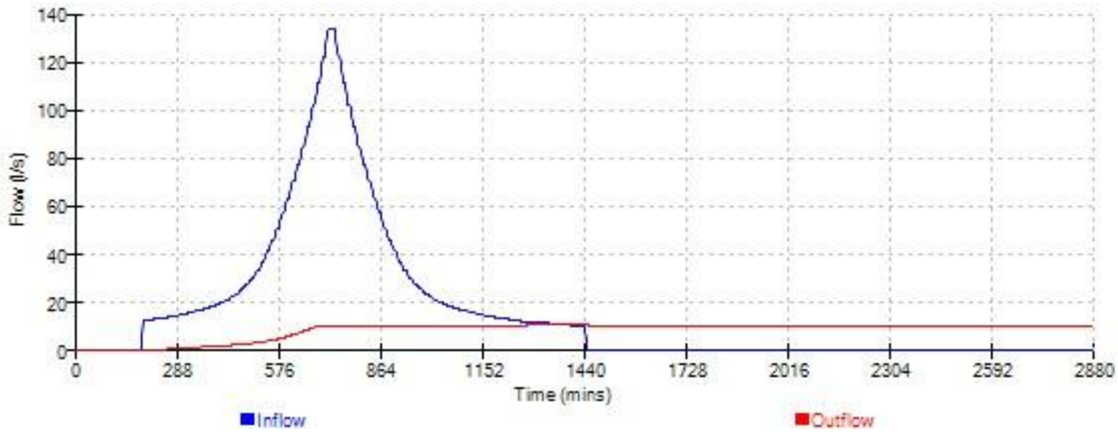


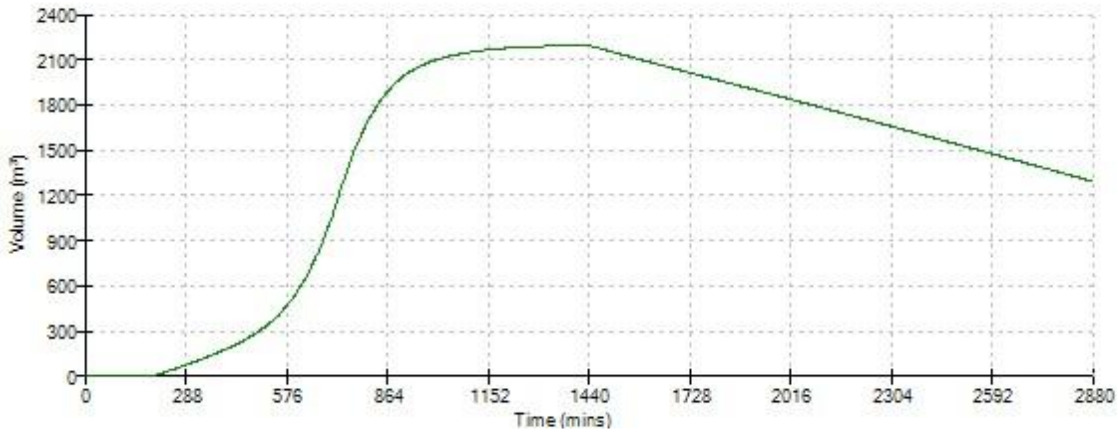



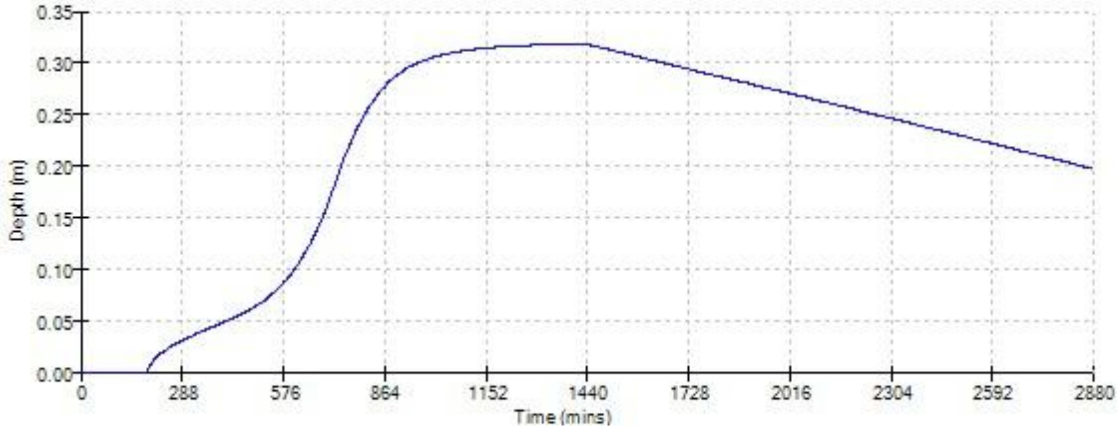



| Waterco Ltd | | Page 9 |
|---|---|---|
| Eden Court<br>Lon Parcwr Business Park<br>Denbighshire LL15 1NJ | 14740 - Frodsham Solar<br>Attenuation Storage<br>1 in 100 year + 45% CC event | Micro Drainage |
| Date 04/10/2024<br>File 14740 - UPDATED.SRCX | Designed by MJW<br>Checked by AW | |
| XP Solutions | Source Control 2020.1.3 | |

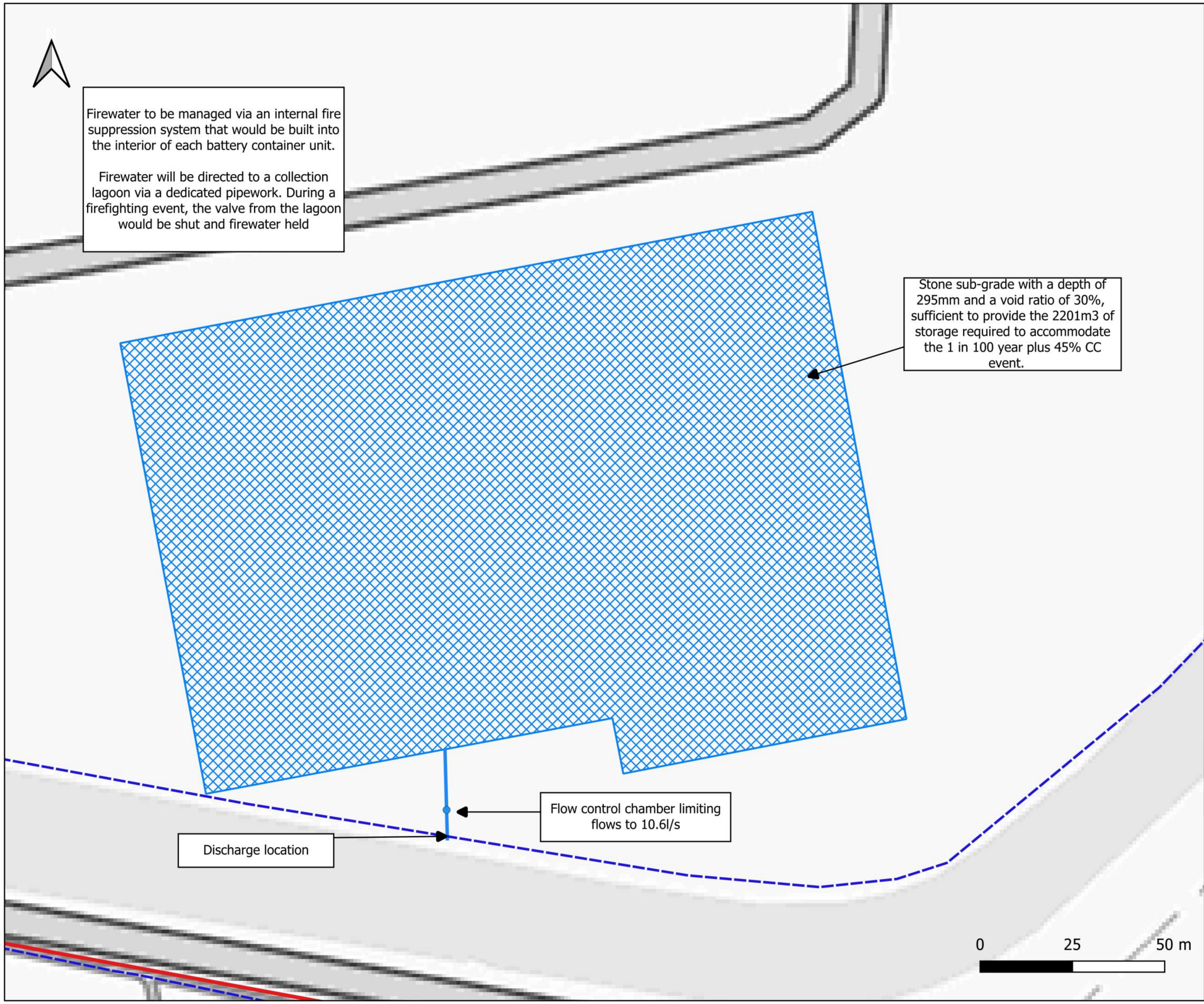
Event: 1440 min Summer



# Appendix C: Concept Drainage Sketch




Notes:
1) This sketch has not been subject to formal checks or approvals. Its validity and use must therefore be limited to discussion and information purposes only.
2) Unless otherwise noted the risks associated with this proposal are not considered to be extra ordinary and within the remit of an experienced and competent contractor.
3) All dimensions in millimetres and all levels in metres above ordnance datum unless shown otherwise.
4) This drawing is an ammendment of the 3272-01-SK005 Landscape Masterplan Draft Rev J by Axis. This drawing provides a concept only and is not intended for detailed design.

**LEGEND**

- Proposed Permeable Stone Surfacing
- Proposed Surface Water Drain
- Hydrobrake
- Ordinary Watercourses

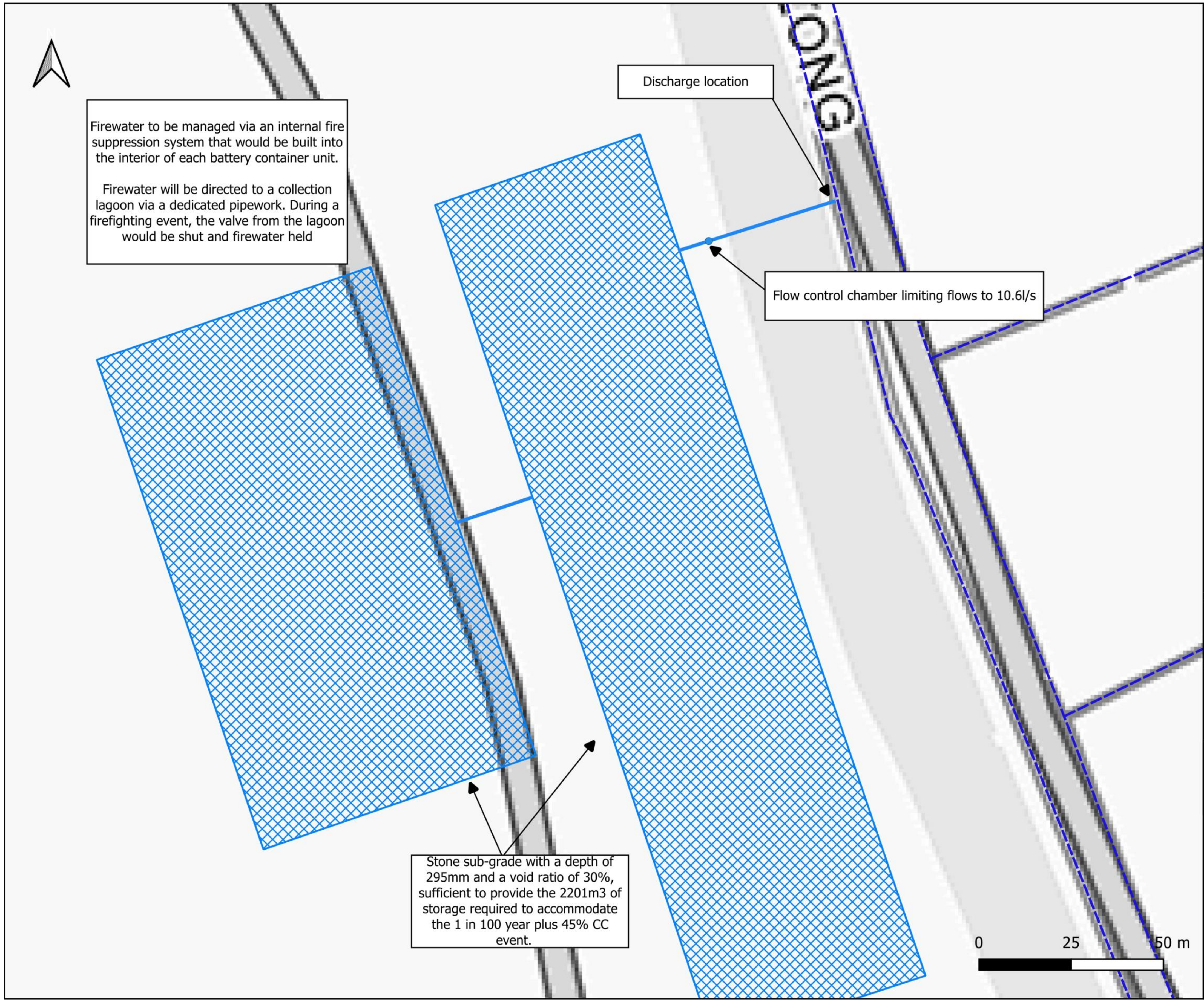
CLIENT:
Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
Concept Drainage Sketch - Option 1

| PLOT STATUS: | | | DATE: |
|---|---|---|---|
| SKETCH | | | 18-10-2024 |
| DRAWN: MW | CHECKED: AW | APPROVED: NJ | PLOT SCALE AT A3: 1:1000 |
| PLOT NAME: 14740_Concept_Drainage_Sketch | | | REVISION: - |




Notes:
1) This sketch has not been subject to formal checks or approvals. Its validity and use must therefore be limited to discussion and information purposes only.
2) Unless otherwise noted the risks associated with this proposal are not considered to be extra ordinary and within the remit of an experienced and competent contractor.
3) All dimensions in millimetres and all levels in metres above ordnance datum unless shown otherwise.
4) This drawing is an ammendment of the 3272-01-SK005 Landscape Masterplan Draft Rev J by Axis. This drawing provides a concept only and is not intended for detailed design.

**LEGEND**

- Proposed Permeable Stone Surfacing
- Proposed Surface Water Drain
- Hydrobrake
- Ordinary Watercourse

CLIENT:
Frodsham Solar Ltd

www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
Concept Drainage Sketch - Option 2

| PLOT STATUS: | | | DATE: |
|---|---|---|---|
| SKETCH | | | 18-10-2024 |
| DRAWN: MW | CHECKED: AW | APPROVED: NJ | PLOT SCALE AT A3: 1:1000 |
| PLOT NAME: 14740_Concept_Drainage_Sketch | | | REVISION: - |