Frodsham Solar

Environmental Statement: Volume 2
Appendix 9-2: Water Framework Directive Assessment

January 2026

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SUSTAINABLE INVESTMENTS

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Revision P02

Frodsham Solar

Frodsham Marsh, Frodsham, Cheshire West and Chester

Water Framework Directive Assessment

January 2026

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Introduction

This Water Framework Directive (WFD) Assessment has been prepared on behalf of Frodsham Solar Ltd by Waterco Ltd in respect of proposed solar farm development located on land to the north of the M56, Frodsham, Cheshire, WA6 7BQ. This report has been prepared in support of a Development Consent Order (DCO) application for consent to undertake a Nationally Significant Infrastructure Project (NSIP).

As part of the Proposed Development, works include the construction of multiple spanned watercourse crossings to facilitate access to land parcels within the solar farm development. Development will also include in-field solar arrays with associated access tracks, substation and battery energy storage system (BESS). The site (the Order Limits) covers an area of approximately 246ha and is located at National Grid Reference: 351000E, 378500N . A location plan and an aerial image are included in Appendix A.

For the purposes of the WFD assessment, a zone of influence of 1km around the site has been assessed. Within this report, this is referred to as the 'Study Area'. The 1km zone of influence includes all watercourses within and adjacent to the site, and hydraulically linked downstream waterbodies including the River Weaver, Manchester Ship Canal, River Mersey and the Hoolpool Gutter. This assessment also considers the underlying Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Groundwater body. No relevant receptors (watercourses) are identified upstream of the site.

The aim of this WFD Assessment is to understand and assess the impact the Proposed Development may have on the immediate waterbodies and any linked WFD waterbodies.

The purpose of this report is to provide sufficient information on the effects of the Proposed Development on the relevant River Basin Management Plan (and the water bodies therein) as well as any supplementary plans enabling the Secretary of State (SoS) to determine whether or not the Proposed Development has implications for the UK's obligations under the WFD.

This report should be read in conjunction with the following documents:

- ES Vol 2 Appendix 9-1: Waterco Flood Risk Assessment and Drainage Strategy [EN010153/DR/6.2]
- ES Vol 1 Chapter 9: Flood Risk, Drainage and Surface Water [EN010153/DR/6.1]
- ES Vol 1 Chapter 7: Terrestrial Ecology [EN010153/DR/6.1]
- ES Vol 1 Chapter 10: Ground Conditions [EN010153/DR/6.1]

An Outline Construction Environmental Management Plan (oCEMP) [EN010153/DR/7.5] has been prepared which outlines the principles, controls, and measures to be implemented during construction to reduce potential significant environmental effects from occurring. Where the Proposed Development relies on mitigation measures to avoid significant construction phase environmental effects, these measures have been outlined within the oCEMP.

Post-consent, this outline plan will be developed into a full plan which must be in substantial accordance with the outline and will require approval by CWaCC. The Proposed Development must be undertaken in accordance with the approved plan. This is secured via a Requirement in Schedule 2 of the draft DCO [EN010153/DR/3.1].

An outline Operational Environmental Management Plan (oOEMP) [EN010153/DR/7.6] has been prepared for the ongoing management and operation of the development and an outline Decommissioning Environmental Management Plan for the decommissioning phase. As with the oCEMP these outline plans will be developed into a full plan post consent, which must be in substantial accordance with the outlines and will require approval by CWaCC. The Proposed Development must be undertaken in accordance with the approved plans. This is secured via a Requirement in Schedule 2 of the draft DCO [EN010153/DR/3.1].

Assumptions and Limitations

All third-party published information and data is assumed to be correct, up to date and based on verified and accurate records, for example, Environment Agency (EA) flood mapping and British Geological Survey (BGS) geological mapping.

It is assumed that all required permits and formal approvals will be sought and obtained from relevant consultees.

A site walkover specifically pertaining to the WFD assessment has been undertaken by Waterco Ltd as part of this report. The purpose of the site walkover was to inspect the waterbodies, watercourses and proposed access crossing locations on site.

Legislation

Water Framework Directive 2000/60/EC

Published in December 2000, the Directive aims to preserve, restore and improve the water environment. It is a legal requirement within England and Wales, originally transposed into law through the Water Environment (Water Framework Directive) (England and Wales) (2003) to record data within River Basin Management Plans. River Basin Planning is managed in six-year cycles.

The environmental objectives of the WFD for surface waters include:

1. Prevent deterioration in the status of aquatic ecosystems, protect and improve the ecological condition of waters
2. Aim to achieve ‘good’ status for all waterbodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027
3. Meet the requirement of the WFD Protected Areas
4. Promote sustainable use of water as a natural resource
5. Conserve habitats and species that depend directly on water
6. Reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment
7. Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
8. Contribute to the mitigating effects on floods and droughts.

The Water Framework Environment Regulations 2017 (Water Framework Directive) (England and Wales)

The Water Environment Regulations (WER) 2017 (Water Framework Directive) (England and Wales transpose the Water Framework Directive into UK law.

The WFD protects surface waters including rivers, lakes, transitional waters (referred to in this advice as estuarine waters), coastal waters and groundwater.

The aims of the WFD are:

i. To enhance the status and prevent further deterioration of surface water bodies, groundwater bodies and their ecosystem

ii. to ensure progressive reduction of groundwater pollution

iii. to reduce water pollution, especially by Priority Substances and Certain Other Pollutants under Annex II of the Environmental Quality Standards Directive 2008/105/EC

iv. to support mitigating the effects of floods and droughts

v. to achieve at least good surface water status for all surface water bodies and good chemical status in groundwater bodies by 2015 (Article 4), or good ecological potential for artificial or heavily modified water bodies

vi. to support sustainable water use

Overarching National Policy Statement for Energy (EN-1)

This National Policy Statement ('NPS') sets out national policy for all energy infrastructure. In England, this NPS, in combination with any relevant technology specific NPSs, may be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended).

NPS for Renewable Energy (EN-3)

This NPS is part of a suite of energy infrastructure NPSs. It should be read in conjunction with EN-1. This NPS, together with EN-1, is the primary decision-making policy document for the Secretary of State on nationally significant onshore renewable electricity generating stations in England and Wales.

This NPS covers the following types of nationally significant renewable electricity generating stations:

- energy from biomass and/or waste including mixed waste containing non-renewable fractions (>50 MW in England and >350MW in Wales);
- pumped hydro storage (>50 MW in England and >350MW in Wales);
- solar photovoltaic (PV) (>50 MW in England and >350MW in Wales);

- offshore wind (>100MW in England and >350MW in Wales); and
- tidal stream (>100MW in England and >350MW in Wales).

NPS for Electricity Networks Infrastructure (EN-5)

This NPS, together with EN-1, is the primary decision-making guidance document for the Secretary of State when considering development consent applications for Nationally Significant Infrastructure Projects (NSIPs) for electricity networks infrastructure in England and Wales.

Directive on Environmental Quality Standards (EQSD) 2008/105/EC

This Directive establishes the environmental quality standards (EQS) for priority substances and certain other pollutants in surface waters.

With reference to the WFD, good chemical status is achieved when a water body complies with the EQS for all the priority substances and certain other pollutants listed in the EQSD.

Water Act 2014 and Water Resources Act 1991

This Act governs the control of water abstraction, discharge to water bodies, water impoundment, conservation and drought provision.

Flood and Water Management Act 2010

This Act provides details on the management of risks associated with flooding and coastal erosion.

Environmental Protection Act 1990

This Act provides details for identifying and dealing with waste, emissions, contaminated land and water resources.

The Land Drainage Act 1991

This Act establishes the regulation of ordinary watercourses by Local Authorities and Internal Drainage Boards. It outlines that a watercourse should be maintained by its owner so that the flow of water is not impeded. The riparian owner must accept the natural flow from upstream but does not need to carry out works to cater for increased flows which may result from works carried out upstream.

The Groundwater (Water Framework Directive) Direction 2016 (2016 No. 14)

This Directive is on the protection of groundwater against pollution and deterioration from hazardous substances and non-hazardous pollutants.

The Groundwater (England and Wales) Regulations 2009

This Regulation transposes 2006/118/EC into law in England and Wales.

Environmental Permitting (England and Wales) Regulations 2016

This Regulation provides a consolidated system of environmental permitting including the discharge of water

and groundwater activities.

The Environmental Damage (Prevention and Remediation) (England) Regulations 2015

This Regulation aims to prevent and remedy damage to a protected species, natural habitat, a site of special scientific interest, water or land.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

This Regulation transposes 2000/60/EC into law in England and Wales and revokes the WFD (England and Wales) Regulations 2003.

Guidance and Local Policy

PINS Advice Page on WFD Assessment: March 2025

This Advice Page sets out the PINS Guidance on carrying out WFD Assessment and sets out a three-stage process of carrying out the assessment. This report follows the structure suggested by the Advice Page.

North West River Basin District River Basin Management Plan: 2022

These reports outline the current baseline classification of waterbodies in the North-west River basin district, objectives and targets for water quality within waterbodies of the area, challenges / issues within the catchment which have impacts on water quality and how the objectives / targets will be achieved in future.

The environmental objectives covered by the plans are:

- preventing deterioration of the status of surface waters and groundwater
- achieving objectives and standards for protected areas
- aiming to achieve good status for all water bodies
- reversing any significant and sustained upward trends in pollutant concentrations in groundwater
- cessation of discharges, emissions and losses of priority hazardous substances into surface waters
- progressively reducing the pollution of groundwater and preventing or limiting the entry of pollutants

A range of measures are proposed within the North West RBMP to achieve environmental objectives. Some of these include (however not limited to) habitat restoration and species recovery, catchment partnerships, sustainable abstraction improvements and sewage treatment improvements as well as diffuse pollution control initiatives.

Cheshire West and Cheshire Council Local Plan (adopted January 2015)

This report contains the following policies in relation to flood risk management and surface water quality:

'Policy ENV1 - Flood Risk and Water Management

The Local Plan will seek to reduce flood risk, promote water efficiency measures, and protect and enhance water quality through the following mechanisms:

…Development proposals should comply with the Water Framework Directive by contributing to the North West River Basin Management Plan and Dee River Basin Management Plan objectives, unless it can be demonstrated that this would not be technically feasible.

Policy DM 40 Development and Flood Risk

In line with Local Plan (Part One) policy ENV 1, flood risk must be avoided or reduced by:

1. *locating development within areas of lower flood risk through the application of a borough-wide sequential test and then, where required, applying the exception test in line with the National Planning Policy Framework; and*

2. *ensuring development proposals in flood risk areas are actively managed and reduce flood risk by applying the sequential approach at site level.*

Where a site-specific Flood Risk Assessment is required in line with the National Planning Policy Framework (NPPF) (vi), this will be expected to demonstrate whether a Proposed Development is likely to be affected by current or future flooding (including effects of climate change) from any source.

Development proposals for sites that are at risk will only be supported where the site-specific Flood Risk Assessment shows that:

3. *the effects of climate change have been taken into account;*

4. *there is no loss in floodplain storage resulting from the development;*

5. *the development will not increase flood risk elsewhere;*

6. *there is no adverse effect on the operational functions of any existing flood defence infrastructure;*

7. *proposed resistance / resilience measures designed to deal with current and future risks are appropriate;*

8. *where applicable, appropriate Sustainable Drainage System (SuDS) techniques have been considered and are to be incorporated into the design of the site, in line with Local Plan (Part Two) policy DM 41; and*

9. *the development will be safe and pass the exception test, if applicable*

A Flood Risk Assessment will be required for development within a Critical Drainage Area (CDA) as notified by the Environment Agency. All development in a designated CDA will be required to incorporate measures to alleviate surface water flood risk through the layout and form of the development, including the appropriate application of SuDS to intercept and attenuate overland flow and drained water in line with Local Plan (Part

Two) policy DM 41 and the Council's Draft SuDS Design and Technical Guidance.

Flood risk should be considered at an early stage in deciding the layout and design of a site to provide an opportunity to reduce flood risk within the development. Applicants will be required to provide schemes to reduce flood risk on individual sites through flood resilient design and on site flood risk management measures. It is essential that the scheme proposed does not create any additional flood risk outside the development in any part of the catchment, either upstream or downstream.

Existing structures and other features that help to reduce the risk of flooding or mitigate its impacts should be protected. Their loss, alteration or replacement will only be permitted where there would be no increase in flood risk.

Where appropriate, the Council may request that phasing of development should be carried out to avoid any cumulative impacts of flood risk.

DM 43 - Water quality, supply and treatment

… development proposals will be supported where it can be demonstrated that the proposal will not cause unacceptable deterioration to water quality or have an unacceptable impact on water quantity (including drinking water supplies) or waste water infrastructure capacity by ensuring that:

1. *sufficient water resources are available and the proposal does not have a detrimental impact on the flow or quantity of groundwater;*
2. *development does not affect the water quality of surface or groundwater;*
3. *development does not cause unacceptable harm to biodiversity;.*
4. *opportunities to improve water quality are used where possible;*
5. *water efficiency methods are optimised;*
6. *wastewater infrastructure already exists or can be provided in time to serve the development. Development should connect to the nearest point of adequate capacity.*

The discharge of surface water to combined drainage systems will be regulated in accordance with requirements set by the relevant utility provider.

The Council will support the development or expansion of infrastructure associated with water supply, surface water drainage and wastewater treatment facilities where proposals are consistent with other relevant development plan policies such as the development strategy (including development in the Green Belt), flood risk, contamination, health and wellbeing and protection of the natural and built environment.'

Consultation

All engagement and consultation undertaken in relation to Flood Risk, Drainage & Surface Water is included

in Section 4 of ES Vol 1 Chapter 9: Flood Risk, Drainage and Surface Water [EN010153/DR/6.1] and ES Vol 2 Appendix 9-7 – Scoping and PEIR Consultation Responses[EN010153/DR/6.2].

Site Setting

Hydrological Setting

The catchment associated with the watercourses within the Solar Array Development Area (SADA) (refer to ES Vol 3 Figure 1-2 [EN010153/DR/6.3]) covers an area of approximately 14.57 square kilometres. The catchment terrain is primarily flat and low lying, typical of marshland environments. The catchments upstream extent is characterised by an urban area, namely the town of Frodsham.

The site is intersected by several ditches and designated EA 'Main Rivers', namely Red Wall Ditch, The Lum, Marsh Green and Ship Street Course. The watercourses within the SADA form part of Frodsham Marshes. A map showing the location of all watercourses and waterbodies on site is included as Appendix D. The ditches in the eastern extent of the SADA drain to EA main rivers. The EA main rivers within the SADA culminate in the easternmost extent of the site where flows are then pumped into the River Weaver via an EA pumping station.

Several waterbodies (ponds and ditches) are identified within the western extent of the site, within Cell 3 of the Manchester Ship Canal Dredging Deposit Grounds, and immediately north of that cell. This is the area of the proposed Non-Breeding Birds Mitigation Area (NBBMA). Ditches in this area drain west and discharge to the Manchester Ship Canal.

The western half of the SADA forms three cells (Cell 1, Cell 2 and Cell 5) of dredging ground and is elevated above surrounding ground. The majority of this area drains to the NBBMA and subsequently to the Manchester Ship Canal. This area's flat topography and elevation relative to surrounding land limits surface water flow accumulation and drainage patterns, resulting in a small catchment area. Water flow from the eastern edge of this area is accommodated by the watercourses in the eastern extent of SADA.

Land west of the site comprises Ince Marsh which is served by a number of ditches and EA main rivers. Flows from Ince Marsh are discharged to the Manchester Ship Canal via an EA pumping station (Ince Pumping Station) located approximately 3.37km south-west of the site.

The River Weaver (WFD waterbody) flows along the northern and eastern boundaries of the SADA. The River Weaver flows north-west and joins the Manchester Ship Canal (WFD waterbody) to the north of the site. The Manchester Ship Canal joins the River Mersey approximately 12.7km north-west of the SADA. The River Mersey (WFD waterbody) is located approximately 250m north-west of the SADA at its nearest point and flows north-west. The River Mersey is tidally influenced in this location.

The Weaver Navigation is located approximately 315m east of the SADA at its nearest point and is separated from the site by the River Weaver. The Hoolpool Gutter (WFD waterbody) is located approximately 2.45km west of the SADA, however intersects the site boundary at approximate NGR: 347624, 376819.

Key potential influences on water quality include tidal fluctuations and seasonal variations, impacting salinity

and runoff patterns. The surrounding agricultural land use is predominantly grazing by livestock, with arable land located within the east and south-eastern extent of the SADA, which could lead to an elevated concentration of nutrients and pesticides within runoff. There were no visual signs of contamination or pollution within the surface waterbodies on site during 2no. site visits undertaken in September 2023 and April 2024.

Topography

Topographic levels to metres Above Ordnance Datum (m AOD) have been derived from a 1m resolution Environment Agency (EA) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). A review of LiDAR data shows that the western extent of the SADA is situated at an elevated level between 8.8m AOD and 12m AOD. The remainder of the site forms lower lying land and is relatively flat with levels varying from 4.67m AOD to 5.1m AOD. A LiDAR extract is included in Appendix E.

Ground Conditions

Published Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by Tidal Flat deposits comprising clay, silt and sand. The superficial deposits are identified as being underlain by the Helsby Sandstone Formation, the Wilmslow Sandstone Formation and the Chester Formation (sandstone)

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

Numerous BGS borehole records are located within the site. BGS borehole records generally indicate a layer of topsoil, underlain by a layer of clay, with thin layers of silt and sand at the bottom of excavated boreholes.

Historical BGS borehole reference SJ57NW318 is located at NGR: 351096, 378754. This record identifies slightly sandy clay topsoil from ground level to 0.3metres below ground level ('m.bgl'). Firm to stiff grey mottled orange sandy (find-medium) silty clay is identified between 0.3m.bgl to 3m.bgl. This is underlain by dark grey silty fine and medium sand to the base of the borehole (4.0m.bgl). Water was struck at 1.20m.bgl.

Historical BGS borehole reference SJ57NW316 is located at NGR: 351697, 378684 and identifies similar strata. Grass onto dark brown slightly sandy (fine to coarse) clay topsoil is encountered from ground level to 0.2m.bgl. Soft to firm orange brown mottled grey slightly sandy silty clay is identified between 0.2m.bgl to 2.30m.bgl. Soft black slightly sandy (fine-medium) clayey silt is identified below this to the base of the borehole (4.70m.bgl). Water was struck at 2.80m.bgl.

A borehole location plan together with the aforementioned borehole records are included in Appendix F.

Within the western half of the site, comprising the Manchester Ship Canal Dredging Grounds, borehole records derived from the wind farm show made ground comprising a mix of sandy slit and sandy silty clay to depths of between 5.45m.bgl and 9.0m.bgl. This was typically followed by medium dense gravelly silty sand with occasional bands of silty clay to the base of the boreholes to 35m.bgl. Organic silty clay transitioning into clayey fibrous peat is recorded at depths of circa 12m.bgl to circa 17m.bgl.

Hydrogeology

According to the EA's Aquifer Designation data, obtained from MAGIC's online mapping [accessed April 2025], the tidal flat deposits are classified as Secondary Undifferentiated Aquifers. Secondary Undifferentiated Aquifers are assigned in 'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.

The underlying Wilmslow, Chester and Helsby Sandstone Formations are described as Principal Aquifers. Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

The EA's 'Source Protection Zones' data, obtained from MAGIC's online mapping [accessed April 2025], indicates that the site is not located within a Groundwater Source Protection Zone. There are no EA registered or private water abstractions located on the Site.

Site Investigations

A Stage 1 Geo-Environmental Assessment has been undertaken by Smiths Grant LLP in May 2024 (ES Vol 2 Appendix 10-1 [EN010153/DR/6.2]). The reports key findings are as follows:

'MSC Deposit Ground Cells 1,2, 3 & 5

The western third of the SADA has been subject to a long history of tipping of material dredged from the nearby Manchester Ship Canal, with dredgings recorded to a maximum depth of 10.3m bgl. Below the dredgings, ground conditions within this area have been confirmed to comprise alluvial silts and organic peat deposits to depths of around 12m bgl, followed by glaciofluvial sands overlying glacial till encountered at around 20m bgl… Although the dredgings have generally been tipped above surrounding ground level, the groundwater is likely to be in hydraulic connectivity with the surrounding aquifer within the superficial deposits. This area has since been developed as part of the Frodsham Wind Farm.

The dredgings sampled and analysed as part of ground investigations for the Wind Farm have not revealed elevated contaminant concentrations exceeding either a commercial or POS Park end use other than a single sample of dredging fill…

… Hydrocarbon odours of varying strengths were recorded in the logs of approximately one third of exploratory holes within previous investigation in the MSCDG dredging cells extending into the natural underlying soils in specific areas…No observations of free product or staining has, however, been recorded to date and whilst hydrocarbon odours of varying strengths have been reported, these are well below commercial / POSpark generic assessment criteria…

…Asbestos fibres have been encountered in a small proportion of sampled dredging fill materials and associated topsoil, all of which, have returned containing <0.001% asbestos. A JIWG asbestos risk assessment has assessed the asbestos risk as being low which mainly relates to the construction phase where ground disturbance will take place…

…Soil leachate has exceeded Environmental Quality Standards (EQS) for select heavy metals and PAHs, and groundwater has reflected similar. This shows that the contaminants within the dredgings are to a certain extent leachable and mobile and that a pollutant linkage already exists to groundwater. Given that the dredging materials have been present for between 60 and 80 years, over such a timescale, it is envisaged that significant leaching of contaminants between soils and groundwater/surface water will have already occurred.

Dissolved methane has been recorded within sampled ground and surface waters and ground gas monitoring within the MSCDG Cells has reported up to 60% v/v methane and up to 40% v/v carbon dioxide although maximum corresponding flows were reported only up to 2.6l/hr. Flows of ground gas could increase as a result of land draining and disturbance. The assessment has concluded that a medium/Low risk exists in conjunction with the build-up of both asphyxiant and flammable ground gases within enclosed spaces (including BESS and SADA control compound plus trenching during construction).

The main receptors within the proposed NBBMA are wading birds…Nearby surface watercourses are also a prominent receptor for leachable contaminants within the dredging infill. A qualitative contaminant risk assessment has previously been undertaken within this area…associated with the development of the Frodsham Wind Farm which exists in MSCDG cells 1 and 5 plus off Site on MSCDG Cell 4…Selected heavy metals and PAHs were identified within surface waters on the NBBMA (including three ponds which had been lined with clay). This shows that the contaminants within the dredgings are to a certain extent leachable and mobile and that a pollutant linkage already exists to nearby surface water. It is considered that creation of the NBBMA will present a relatively low and insignificant impact upon the wading birds…'

Further information is available in the Stage 1 Geo-Environmental Assessment.

A site investigation for the eastern extent of the SADA was undertaken in June 2024. No notable contamination was identified across this area.

Local Drainage Setting

Public sewer records have been obtained from United Utilities (UU) and are included in Appendix G. The UU sewer records show that there are no public sewers crossing the site.

The site currently encompasses Frodsham Marsh which comprises a series of ditches / watercourses. The water level in the ditches is regulated by Environment Agency owned pumping stations. It is understood that 2no. 900 l/s pumping stations are in operation which discharge flows to the River Weaver. One of the pumping stations is located in the easternmost extent of the site.

A photographic record showing the ditches/ watercourses on site is included in Appendix H.

Flood Risk

The Environment Agency (EA) 'Flood Map for Planning' (Appendix B) shows that the western extent of the site is located within Flood Zone 1 - an area outside of the extreme flood extent, considered to have a less than 0.1% annual probability of flooding. The remainder of the site is located within Flood Zone 3a – an area

considered to be at flood risk with a 1% (1 in 100) or greater annual probability of flooding from rivers and / or a 0.5% (1 in 200) or greater annual probability of flooding from the sea. The site is shown to be in an area which is protected by flood defences.

The development site is located in an area which benefits from flood defences in the form of engineered embankments along the northern and eastern boundaries of the site (adjacent to the River Weaver).

Modelled outputs for fluvial and tidal flood events have been obtained from the EA and additional hydraulic modelling has been undertaken by Waterco. The eastern extent of the SADA is at flood risk of flooding from the River Weaver (fluvial flooding) and River Mersey (tidal flooding). The flooding is exacerbated should the flood defences fail. The western extent of the site which is situated at a higher elevation is flood free during all considered flood events. The location of the grid connection points to the north of the River Weaver are shown to be flood free during all considered events. Full details of fluvial and tidal flood risk to the site are contained within the associated Waterco Flood Risk Assessment and Drainage Strategy (ES Vol 2 Appendix 9-1: Waterco Flood Risk Assessment and Drainage Strategy [EN010153/DR/6.2])

The EA 'Flood Risk from Surface Water' map (Appendix B) indicates that the majority of the site is at very low risk of surface water flooding, meaning it has a less than 0.1% annual probability of flooding. There are isolated pockets of land across the site shown to be at high, medium and low risk of surface water flooding. High risk is identified as having greater than 3.3% annual probability of flooding. Medium risk is identified as having between a 3.3% and 1% annual probability of flooding. Low risk of surface water flooding is identified as having between a 1% and 0.1% annual probability of flooding.

The flood risk identified by EA mapping is limited in extent and is associated with surface water ponding within topographical low points on site. The proposed solar arrays will be elevated above ground levels on supporting structures, with no inverters or equipment susceptible to flood damage located within the surface water flood extent.

There are no records of groundwater flooding at or near to the site. BGS borehole records indicate that the site is underlain by form to stiff clay. The impervious nature of the underlying deposits will limit any vertical migration of groundwater.

There are no public sewers in the immediate vicinity of the site. There are no records of sewer flooding affecting the site. The risk of sewer flooding is therefore considered to be very low.

The EA 'Flood Risk from Reservoirs' map (Appendix B) shows that when river levels are normal, there is no risk of flooding from reservoirs. The EA mapping shows that when there is also flooding from rivers, the site is at risk of flooding from a failure of reservoirs. The EA state that reservoir flooding is extremely unlikely to happen. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, the EA ensure that reservoirs are inspected regularly, and essential safety work is carried out.

Ecological Site Investigations

ES Vol 1 Chapter 7: Terrestrial Ecology [EN010153/DR/6.1] presents information on terrestrial ecological

features (including aquatic features) relating to the Proposed Development. Key points of relevance from the baseline section are:

'There are six statutory designated sites with qualifying terrestrial ecology interest located within 2 km of the Main Development Area (extending to 10 km for internationally protected sites)…

The Main Development Area is located within three non-statutory designated sites for nature conservation; Frodsham, Helsby and Ince Marshes Local Wildlife Site (LWS), Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS. A further eight LWSs are located within 2 km of the Main Development Area…

The Main Development Area is also located within several Natural England (NE) defined SSSI Impact Risk Zones (IRZ)…

Existing records of HPI, as listed under Section 41 of the NERC Act, or Priority Habitats, as listed on the Cheshire Region Biodiversity Action Plan (Local Biodiversity Action Plan; LBAP), within 2 km of the Main Development Area include records of reedbeds, deciduous woodland, coastal saltmarsh, coastal and floodplain grazing marsh, lowland calcareous grassland, traditional orchard, mudflats, wood-pasture and parkland, lowland fens, lowland meadows, purple moor grass and rush pastures and lowland heathland…

Three areas of ancient woodland habitat listed on Natural England's Open Data Geoportal ancient woodland inventory are present within 1 km of the Main Development Area; located 0.58 km, 0.66 and 0.86 km east…

The desk study returned three records of bats within 2 km of the Main Development Area, comprising noctule bat, common pipistrelle and pipistrelle sp… No trees with features suitable to support roosting bats were identified during the PEA or during either the 2023 or 2024 extended UKHab surveys. A number of buildings were assessed as having low suitability to support roosting bats during the PEA…

Linear features surrounding the Main Development Area, such as hedgerows, tree lines, ditches and watercourses also offer favourable habitats for foraging/commuting bats…

RECORD returned a single record of otter within 2 km of the Main Development Area…

[redacted]

RECORD returned eight records of water vole within 2 km of the Main Development Area…

The majority of watercourses and ditches present within and adjacent to the Main Development Area are considered to offer suitable habitat for water vole. Although no evidence of water vole was recorded during the September 2024 water vole survey…water vole has been incidentally observed within the Main Development Area during ornithology surveys…

A single record of common toad was returned, located directly adjacent to the SPEN/National Grid Substation; two records of common frog were returned, located 1.22 km northeast and 1.64 km south. No records of GCN were recorded within 2 km of the Main Development Area…

All ditches and waterbodies on and within 500 m of the Preliminary Site Boundary, where accessible, were subject to an HSI survey and water samples were collected from 21 of the most suitable and safely accessible waterbodies/ditches and analysed for the presence of GCN eDNA, in 2022. No positive eDNA results were recorded. Furthermore, reptile surveys were undertaken on the Preliminary Site Boundary between March and June 2022 and no GCN were recorded using the refugia traps. Therefore, it is considered that GCN are reasonably unlikely to be present within the Main Development Area…

RECORD returned no records of reptiles within 2 km of the Main Development Area…

RECORD returned no records of protected or notable fish species within 2 km of the Main Development Area. Watercourses and ditches located within and immediately adjacent to the Main Development Area may support notable fish species. Eels are likely to be present within permanently wet waterbodies (including ditches) that are hydrologically connected to any main watercourse…

RECORD returned 2,128 records of invertebrates within 2 km of the Main Development Area; of these, one species is listed under Schedule 5 of the Wildlife and Countryside Act; comprising a single record of white-letter hairstreak located approximately 1 km east of the Main Development Area…

RECORD returned records of the following species listed under Schedule 9 of The Wildlife & Countryside Act 1981 within 2 km of the Main Development Area; rhododendron, montbretia, Himalayan balsam, Japanese knotweed and Chinese muntjac. Himalayan balsam, variegated yellow archangel, New Zealand pygmyweed and cotoneaster species have been recorded within the Main Development Area.'

Specific species surveys have also been undertaken by a number of consultancies, which provide greater detail on presence and status of priority protected species within the site. Detailed survey methodologies and limitations are presented in the appendices of ES Vol 1 Chapter 7: Terrestrial Ecology [EN010153/DR/6.1].

Other Designations and Considerations

According to MAGIC's online mapping (accessed April 2025) designated sites which are within 1km of the site are as follows:

- Mersey Estuary Sites of Special Scientific Interest (SSSI) covers the north-western extent of the site (Canal Pools in the proposed Bird Mitigation Area).
- Mersey Estuary Special Protection Area 60m north-west
- Mersey Estuary (Ramsar Site) 60m north-west
- Frodsham Railway and Road Cuttings SSSI 386m south-east
- River Weaver (Dane to Frodsham) NVZ

- The Mersey Forest
- Liverpool, Manchester and West Yorks Greenbelt
- Drinking Water Safeguard Zones (Groundwater) 510m south-east
- Source Protection Zone III - Total Catchment 700m south-east
- Grade II Listed buildings within 1km
- Castle Park Frodsham 525m south-east (Historic Non-Statutory Designation)

Mapping showing the locations of the designated sites within 1km of the Proposed Development is included in Appendix I.

Scheme Proposals

The Proposed Development is for in-field solar arrays with associated access tracks, substation and battery energy storage system (BESS). The Proposed Development also includes the associated infrastructure for connection to the local electricity distribution network, as well as a private wire electricity connection which could facilitate a connection to nearby businesses that would utilise the renewable energy generated by the Proposed Development.

The Proposed Development includes an ecological mitigation area which is being provided to mitigate effects on non-breeding birds, for which the Mersey Estuary Special Protection Area (SPA) is designated for. This area is located to the west of the SADA and is referred to as the Non-Breeding Bird Mitigation Area (NBBMA). A Skylark Mitigation Area is proposed to the south of Moorditch Lane. There would be no development in this area, with the mitigation limited to the management of land for the benefit of skylark.

The Canal Pools to the north of Cell 3 of the MSC Dredging Deposit Ground may be re-engineered as part of the NBBMA proposal, to provide additional grassland and a water storage area which will be used to manage water levels within the NBBMA. This will also enable the removal of New Zealand Pigmyweed which is present within the Canal Pools.

Proposed development plans are included in Appendix J.

The majority of the site will remain permeable, with land beneath the solar panels retained as grassland. Access tracks will be formed from permeable surfacing, with the existing access tracks in the western extent of the site (serving the wind turbines) retained. The Proposed Development has an operational lifespan of up to 40 years.

To facilitate the development, access crossings will need to be constructed over the watercourses. Plans identifying the watercourse crossing locations are provided in Appendix K. 3no. Main River crossings are proposed (plan reference, CP17, CP14 and CP22). Multiple other crossing points are proposed over ordinary watercourses. The new crossings will be in the form of an open span bridge structure which will not impact on the channel capacity as set out in ES Vol 2 Appendix 9-1: Flood Risk Assessment and Drainage Strategy

[EN010153/DR/6.2].

A detailed description of the Proposed Development is provided in ES Vol 1 Chapter 2: The Proposed Development [EN010153/DR/6.1].

WFD Screening (Stage 1)

The purpose of screening is to identify the extent to which the Proposed Development is likely to affect WFD water bodies within the zone of influence (up to 1km at its furthest point). A buffer zone plan to establish the zone of influence, key features and all relevant WFD waterbodies on a map or plan is included in Appendix L.

The unnamed watercourses on site have the potential to be affected by works undertaken as part of the Proposed Development. The watercourses in the eastern extent of the site (and location of SADA) join the River Weaver in the south-easternmost extent of the site (NGR: 352357, 379165). The River Weaver is classified as a WFD waterbody. The River Weaver flows north-west in this location and joins the Manchester Ship Canal. The watercourses in the western extent of the site (bird mitigation area) drain to the Manchester Ship Canal, a designated WFD waterbody. The Manchester Ship Canal is located immediately north-west of the site and flows south-west. The Manchester Ship Canal joins the River Mersey approximately 12.7km north-west of the SADA. The River Mersey is located approximately 250m north-west of the SADA at its nearest point and flows north-west. It is considered that the Manchester Ship Canal and the River Mersey could also be affected by the works undertaken on site. The Hoolpool Gutter (WFD waterbody) is located approximately 2.45km west of the SADA, however traverses the access road in which the Protos Private Wire Connection will be laid.

The WFD designation for the River Weaver is the Weaver (Dane to Frodsham) Water Body (Water body ID: GB112068060500), which has a catchment area of 61.276km^2.

The Manchester Ship Canal is located within the North West AWB Management Catchment. The Waterbody ID for the Manchester Ship Canal Water Body is GB71210004, which has a length of 38.688km.

The River Mersey is located within the North West Transitional and Coastal (TraC) Management Catchment. The waterbody ID for the Mersey Estuary is GB531206908100, which covers a surface area of 81.791 km^2.

The WFD designation for the Hoolpool Gutter is the Peckmill Brook, Hoolpool Gutter at Ince Marshes Water Body (Waterbody ID: GB112068060330), which has a catchment area of 26.42km^2.

The site is located within a WFD designated groundwater body, namely the Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Water Body (Water body ID: GB41101G202600).

Without mitigation, the above referenced WFD surface water and groundwater bodies could be impacted during the construction, operational and decommissioning phases. As such, all the above referenced WFD surface water and groundwater bodies have been screened in for assessment of potential effects.

Local WFD Water Bodies

The Weaver (Dane to Frodsham) waterbody is identified as part of the WFD River Waterbody Catchments Cycle 3. Classifications for this waterbody have been obtained from the EA and are included in Table 1.

Table 1 – Weaver (Dane to Frodsham) Classifications

Water Body			Weaver (Dane to Frodsham) Water Body
Water Body ID			GB112068060500
Catchment Area			61.276 km^2
Length			29.847 km
Overall Chemical Classification			Fail
Overall Ecological Classification			Moderate
Hydromorphological Designation			Heavily Modified
Parameter			**2022**
Ecological	Biological quality elements		Bad
		Invertebrates	Bad
		Macrophytes and Phytobenthos Combined	Good
	Physio-chemical quality elements		Moderate
		Ammonia (Phys-Chem)	Moderate
		Biochemical Oxygen Demand (BOD)	High
		Dissolved Oxygen	Good
		pH	High
		Phosphate	Moderate
		Temperature	High
	Hydromorphological Supporting Elements		Not High
		Hydrological Regime	Not High
	Supporting elements (Surface Water)		Moderate
		Mitigation Measures Assessment	Moderate or less
	Specific pollutants		High
		2,4-dichlorophenol	High
		2,4-dichlorophenoxyacetic acid	High
		Arsenic	High
		Chlorothalonil	High
		Chromium (VI)	High
		Copper	High
		Iron	High
		Linuron	High
		Manganese	High
		Pendimethalin	High
		Zinc	High
Chemical	Priority Hazardous Substances		Fail (2019)
		Benzo(a)pyrene	Good (2019)
		Benzo(b)fluoranthene	Good (2019)
		Benzo(g-h-i)perylene	Good (2019)
		Benzo(k)fluoranthene	Good (2019)
		Cadmium and Its Compounds	Good (2019)

		Dioxins and dioxin-like compounds	Good (2019)
		Endosulfan	Good (2019)
		Heptachlor and cis-Heptachlor epoxide	Good (2019)
		Hexabromocyclododecane (HBCDD)	Good (2019)
		Hexachlorobenzene	Good (2019)
		Hexachlorobutadiene	Good (2019)
		Hexachlorocyclohexane	Good (2019)
		Mercury and Its Compounds	Fail (2019)
		Perfluorooctane sulphonate (PFOS)	Good (2019)
		Polybrominated diphenyl ethers (PBDE)	Fail (2019)
		Quinoxyfen	Good (2019)
		Tributyltin Compounds	Good (2019)
	Priority Substances		Fail (2019)
		1,2-dichloroethane	Good (2019)
		Aclonifen	Good (2019)
		Alachlor	Good (2019)
		Atrazine	Good (2019)
		Bifenox	Good (2019)
		Cybutryne	Good (2019)
		Cypermethrin (Priority hazardous)	Fail (2019)
		Dichlorvos (Priority)	Good (2019)
		Diuron	Good (2019)
		Fluoranthene	Good (2019)
		Lead and Its Compounds	Good (2019)
		Nickel and Its Compounds	Good (2019)
		Simazine	Good (2019)
		Terbutryn	Good (2019)
		Trichlorobenzenes	Good (2019)
		Trichloromethane	Good (2019)

The Manchester Ship Canal Water Body is identified as part of the WFD Artificial Waterbody Catchments Cycle 3. Classifications have been obtained from the EA and are included in Table 2.

Table 2 – Manchester Ship Canal Classifications

Water Body			Manchester Ship Canal
Water Body ID			GB71210004
Length			38.688km
Overall Chemical Classification			Fail
Overall Ecological Classification			Moderate
Hydromorphological Designation			Artificial
Parameter			**2019**
Ecological	Supporting elements (Surface Water)		Moderate
		Mitigation Measures Assessment	Moderate or less
		Arsenic	High
		Copper	High
		Permethrin	High
		Zinc	High
Chemical	Priority hazardous substances		Fail
		Benzo(a)pyrene	Good
		Dioxins and dioxin-like compounds	Good
		Heptachlor and cis-Heptachlor epoxide	Good
		Hexabromocyclododecane (HBCDD)	Good
		Hexachlorobenzene	Good
		Hexachlorobutadiene	Good
		Hexachlorocyclohexane	Good
		Mercury and Its Compounds	Fail
		Perfluorooctane sulphonate (PFOS)	Good
		Polybrominated diphenyl ethers (PBDE)	Fail
		Tributyltin Compounds	Fail
	Priority Substances		Good
		1,2-dichloroethane	Good
		Atrazine	Good
		Benzene	Good
		Diuron	Good
		Fluoranthene	Good
		Lead and Its Compounds	Good
		Napthalene	Good
		Pentachlorophenol	Good
		Simazine	Good
		Trichloromethane	Good
	Other Pollutants		Good
		Carbon Tetrachloride	Good
		Tetrachloroethylene	Good
		Trichloroethylene	Good

The Mersey Estuary waterbody is identified as part of the WFD Transitional Waterbody Catchments Cycle 3. Classifications for this waterbody have been obtained from the EA and are included in Table 3.

Table 3 – Mersey Estuary Classifications

Water Body			Mersey Water Body
Water Body ID			GB531206908100
Catchment Area			81.791 km^2
Overall Chemical Classification			Fail
Overall Ecological Classification			Moderate
Hydromorphological Designation			Heavily Modified
Parameter			**2022**
Ecological	Biological quality elements		Moderate
		Invertebrates	Moderate
		Macroalgae	High
		Phytoplankton	Moderate
	Physio-chemical quality elements		Moderate
		Dissolved Inorganic Nitrogen	Moderate
		Dissolved Oxygen	Good
	Hydromorphological Supporting Elements		Not High
		Hydrological Regime	Not High
	Supporting elements (Surface Water)		Moderate
		Mitigation Measures Assessment	Moderate or less
	Specific pollutants		Moderate
		2,4-dichlorophenol	High
		2,4-dichlorophenoxyacetic acid	High
		Arsenic	High
		Chlorothalonil	High
		Chromium (VI)	High
		Copper	High
		Diazinon	High
		Dimethoate	High
		Iron	High
		Linuron	High
		Mecoprop	High
		Pendimethalin	High
		Permethrin	High
		Phenol	High
		Toluene	High
		Triclosan	High
		Zinc	Moderate

Chemical	Priority Hazardous Substances		Fail (2019)
		Anthracene	Good (2019)
		Benzo(a)pyrene	Good (2019)
		Benzo(b)fluoranthene	Fail (2019)
		Benzo(g-h-i)perylene	Fail (2019)
		Benzo(k)fluoranthene	Good (2019)
		Cadmium and Its Compounds	Good (2019)
		Di(2-ethylhexyl)phthalate (Priority hazardous)	Good (2019)
		Dioxins and dioxin-like compounds	Good (2019)
		Endosulfan	Good (2019)
		Heptachlor and cis-Heptachlor epoxide	Fail (2019)
		Hexabromocyclododecane (HBCDD)	Good (2019)
		Hexachlorobenzene	Good (2019)
		Hexachlorobutadiene	Good (2019)
		Hexachlorocyclohexane	Good (2019)
		Mercury and Its Compounds	Fail (2019)
		Nonylphenol	Good (2019)
		Pentachlorobenzene	Good (2019)
		Perfluorooctane sulphonate (PFOS)	Good (2019)
		Polybrominated diphenyl ethers (PBDE)	Fail (2019)
		Quinoxyfen	Good (2019)
		Tributyltin Compounds	Good (2019)
		Trifluralin (Priority hazardous)	Good (2019)
	Priority Substances		Fail (2019)
		1,2-dichloroethane	Good (2019)
		Aclonifen	Good (2019)
		Alachlor	Good (2019)
		Atrazine	Good (2019)
		Benzene	Good (2019)
		Bifenox	Good (2019)
		Chlorfenvinphos	Good (2019)
		Chlorpyrifos	Good (2019)
		Cybutryne	Good (2019)
		Dichloromethane	Good (2019)
		Dichlorvos (Priority)	Fail (2019)
		Diuron	Good (2019)
		Fluoranthene	Good (2019)
		Isoproturon	Good (2019)
		Lead and Its Compounds	Good (2019)
		Napthalene	Good (2019)
		Nickel and Its Compounds	Good (2019)
		Octylphenol	Good (2019)
		Pentachlorophenol	Good (2019)

		Simazine	Good (2019)
		Terbutryn	Good (2019)
		Trichlorobenzenes	Good (2019)
		Trichloromethane	Good (2019)
	Other Polllutants		Good (2019)
		Aldrin, Dieldrin, Endrin & Isodrin	Good (2019)
		Carbon Tetrachloride	Good (2019)
		DDT Total	Good (2019)
		Tetrachloroethylene	Good (2019)
		Trichloroethylene	Good (2019)
		para - para DDT	Good (2019)

The Peckmill Brook, Hoolpool Gutter at Ince Marshes waterbody is identified as part of the WFD River Waterbody Catchments Cycle 3. Classifications for this waterbody have been obtained from the EA and are included in Table 4.

Table 4 - Peckmill Brook, Hoolpool Gutter at Ince Marshes Classifications

Water Body		Peckmill Brook, Hoolpool Gutter Water Body
Water Body ID		GB112068060330
Catchment Area		26.42 km^2
Length		7.712 km
Overall Chemical Classification		Fail (2019)
Overall Ecological Classification		Moderate
Hydromorphological Designation		Not designated artificial or heavily modified
Parameter		**2022**
Ecological	Biological quality elements	Moderate
	Fish	Moderate
	Macrophytes and Phytobenthos Combined	Moderate
	Physio-chemical quality elements	Moderate
	Acid Neutralising Capacity	High
	Ammonia (Phys-Chem)	Poor
	Dissolved Oxygen	High
	pH	High
	Phosphate	Poor
	Temperature	High
	Hydromorphological Supporting Elements	Not High
	Hydrological Regime	Not High
	Specific pollutants	High
	Zinc	High
Chemical	Priority Hazardous Substances	Fail (2019)
	Benzo(a)pyrene	Good (2019)

		Dioxins and dioxin-like compounds	Good (2019)
		Heptachlor and cis-Heptachlor epoxide	Good (2019)
		Hexabromocyclododecane (HBCDD)	Good (2019)
		Hexachlorobenzene	Good (2019)
		Hexachlorobutadiene	Good (2019)
		Mercury and Its Compounds	Fail (2019)
		Perfluorooctane sulphonate (PFOS)	Good (2019)
		Polybrominated diphenyl ethers (PBDE)	Fail (2019)
	Priority Substances		Good (2019)
		Cypermethrin (Priority)	Good (2019)
		Fluoranthene	Good (2019)

The Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Groundwater body classifications have been obtained from the EA and are included in Table 5.

Table 5 - Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Classifications

Water Body			Wirral and West Cheshire Permo-Triassic Sandstone Aquifers
Water Body ID			GB41101G202600
Surface Area			409.936 km^2
Groundwater Area			40993.591 ha
Overall Status			Poor
Overall Quantitative Classification			Good
Overall Chemical Classification			Poor
Parameter			**2019**
Quantitative	Quantitative Status element		Good
		Quantitative Dependent Surface Water Body Status	Good
		Quantitative GWDTEs test	Good
		Quantitative Saline Intrusion	Good
		Quantitative Water Balance	Good
Chemical	Chemical Status element		Poor
		Chemical Dependent Surface Water Body Status	Good
		Chemical Drinking Water Protected Area	Poor
		Chemical GWDTEs test	Good
		Chemical Saline Intrusion	Good
		General Chemical Test	Good
	Supporting elements (Groundwater)		
		Prevent and Limit Objective	Active
		Trend Assessment	Upward Trend

Background to Surface Water Body Status

Chemical Status

Chemical status is defined by compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances, in accordance with the Environmental Quality Standards Directive (2008/105/EC). This is categorised as either good or fail. Surface waterbodies are monitored for priority substances only when there are known discharges of these pollutants; otherwise they are classified as having good status.

Ecological Status

Ecological status is defined as the overall health of the waterbody. It reflects the extent to which the biological chemical and physical characteristics of a waterbody deviate from a natural or undisturbed state. Ecological status is assigned on a scale of High, Good, Moderate, Poor and Bad, and is determined based on the following four main classification elements:

- Biological: Assesses the condition of aquatic flora and fauna including fish populations, phytoplankton, macroalgae and angiosperms.
- Hydromorphological: Assesses the physical structure and elements such as flow condition, sediment composition and movement and river continuity. If the hydromorphological elements do not support High status, then the maximum achieve ecological status of the water body is limited to Good.
- Physio-Chemical: Assesses chemical and physical parameters that support biological communities including nutrient levels, dissolved oxygen and temperature. This element can only influence a waterbody's overall status from Moderate to High.
- Specific Pollutants: Assesses the concentration of specific pollutants not covered under chemical status but that may affect aquatic systems. The specific pollutant assessment can only impact an overall water body status from Moderate through to High.

Background to Groundwater Body Status

Quantitative Status

Quantitative status is determined by the amount of groundwater available as baseflow to rivers and water dependent ecosystems, as well as the volume of groundwater accessible for human activities such as drinking water agriculture and industry.

This is classified as either Good or Poor, based on the following elements:

- Saline Intrusion: This assesses the extent to which the groundwater body is affected by saline water intrusion from groundwater abstraction activities.
- Surface water status: This assesses how groundwater abstraction affects the connected surface

waterbodies, ensuring groundwater use does not harm their ecological status.

- Groundwater-dependent terrestrial ecosystems (GWDTEs): This assesses whether groundwater levels and availability are sufficient to support ecosystems that rely on groundwater for their survival.
- Water balance: This assesses the balance between groundwater recharge and discharge, ensuring that extraction does not exceed the rate at which the groundwater body replenishes itself.

Chemical Status

Chemical status is defined by the concentration of specific pollutants, the quality of groundwater feeding into watercourses and abstracted for its designated uses e.g. drinking water. This is classified as either Good or Poor, based on the following elements:

- Saline Intrusion: This assesses the extent to which the groundwater body is affected by saline intrusion from groundwater abstraction activities.
- Surface water status: This assesses how groundwater abstraction affects the connected surface waterbodies, ensuring groundwater use does not harm their chemical status.
- Groundwater-dependent terrestrial ecosystems (GWDTEs): This assesses whether the chemical quality of the groundwater is adequate to support ecosystems that rely on groundwater for their survival.
- Drinking Water Protected Areas (DrWPAs): This assesses whether the groundwater body fails to meet the DrWPA objectives defined in Article 7 of the WFD or is at risk of failing in the future.
- General Chemical Test: This assesses whether contamination or pollution has reached levels that has or will compromise the strategic use of groundwater.

WFD Scoping (Stage 2)

The purpose of scoping stage is to identify the risks (effects) from the Proposed Development's activities to receptors based on the identified WFD waterbodies. The WFD Scoping (Stage 2) considers the potential risks during both the construction phase of the scheme and during its operation. Where risks have been considered, but the potential effect is considered to be negligible, this has been stated. Risks to the following aspects of the WFD waterbodies have been considered in this section:

- Hydromorphology
- Biology
- Water Quality
- Invasive Non-Native Species

The decommissioning stage is likely to have comparable potential impacts to those anticipated during the construction phase. Consequently, a separate assessment of the decommissioning stage has not been included. However, new baseline surveys should be undertaken prior to decommissioning to ensure that any changes in environmental conditions are appropriately considered and addressed. An outline Decommissioning Environmental Management Plan (oDEMP) [EN010153/DR/7.7] has been prepared to support the DCO application, and it will provide a framework for the management of environmental impacts during the decommissioning phase of the Proposed Development. The oDEMP sets out monitoring and auditing activities which would be used to ensure mitigation measures are carried out, recorded and effective.

Risks to Hydromorphology

The hydromorphology of a watercourse / water body / groundwater could be impacted by the Proposed Development. Table 6 outlines the potential hydro-morphological effects of the Proposed Development on the watercourses on site (and consequentially the River Weaver, River Mersey and Manchester Ship Canal WFD waterbodies), Hoolpool Gutter which traverses the access road, and underlying groundwaters (including the Wirral and West Cheshire Permo-Triassic Sandstone Aquifers).

Table 6 – Potential Effects on Hydromorphology

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	**Suspended Solids** Increased fine sediment supply to watercourses can occur during construction works. This may result from: • Runoff from vegetation free surfaces • Plant and vehicle washing	A possible short-term increase in turbidity and siltation may occur. Increased sediment delivery may affect any sites of ecological importance located downstream.

	• Works to span watercourses with new access road crossings. • Infilling of the ponds in the northern area • Any additional earthworks (i.e creation of wetland in NBBMA)	A reduction in morphological diversity of the channel bed due to smothering by fine sediment as a result of increased fine sediment supply.
Construction	**Vegetation Clearance** Vegetation clearance during construction may reduce the stability of the river channels, increasing the potential for erosion and associated sediment release. Sediment release is likely to be greatest where vegetation clearance is required on slopes.	A temporary /short-term increase in supply of fine sediment through bank instability, especially during the winter months is likely. Reduced morphological diversity due to loss of tree roots and/or woody debris. Woody debris within the channel can encourage the formation of different geomorphological features such as riffles, deposits and pools. In addition, smothering of the bed by silt as a result of increased fine sediment supply can cause a loss in the morphological diversity of the bed. Increased sediment delivery may affect any sites of ecological importance located downstream.
Operational	**Runoff Rates** Increase in runoff rates due to the installation of PV arrays and associated infrastructure (including BESS compound)	The installation of PV Arrays do not have the potential to significantly increase surface water runoff rates compared to the baseline scenario as vegetation under the panels acts to slow the transfer of run-off. Furthermore, the level gradient of the site reduces the risk of overland flow routes occurring. As vegetation becomes established under the PV Arrays there is likely to be a decrease in surface water runoff rates and a reduction in the potential for sediment and agricultural chemicals (e.g., phosphates and nitrates) to transfer into the wider hydrological catchment compared to the baseline scenario. Areas of hardstanding (i.e. BESS compound and substation) will be served by a drainage system which incorporates Sustainable Drainage Systems (SuDS) mechanisms to prevent an increase in surface water runoff.
Construction	**Temporary damming and pumping**	A potential temporary change in sediment transport patterns, which can result in changes to channel morphology and bed stability.

	A 'dry construction' method is proposed for the construction of access road crossings.	
Operational	**Access crossings** The new crossings will be in the form of an open span prefabricated bridge structure which will not impact on the channel capacity.	The impact on hydromorphology would be negligible.

Risks to Biology

The biological habitats and fish and other species within the zone of influence can be impacted by the Proposed Development. Table 7 outlines the potential biological effects of the Proposed Development on the watercourses on site (and consequentially River Weaver, River Mersey and Manchester Ship Canal WFD waterbodies), Hoolpool Gutter which traverses the access road, and underlying groundwaters.

Table 7 – Potential Effects on Biology

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	**Suspended Solids** Increased fine sediment supply to watercourses is likely to occur during construction works. This may result from: • Runoff from vegetation free surfaces • Plant and vehicle washing • Works to span watercourses with new access road crossings. • Infilling of the ponds in the northern area • Any additional earthworks	Fine sediment has the potential to smother benthic organisms (removing prey from the food chain), increase turbidity (reducing light penetration for plant growth) and clog fish gills and spawning habitats (increasing mortality of reducing spawning success). Suspension of silt and changes to the hydrology in the channel during construction can affect the ecology downstream. It can take time for habitats to recover for example for silt deposited to be washed out of sensitive habitats. Many macro-invertebrates are sensitive to sedimentation; sediment deposition in areas usually free of sediment can affect the composition and abundance of macro-invertebrate species present.
Construction	**Vegetation Clearance** Vegetation clearance during construction may reduce the stability of the river channels, increasing the potential for erosion and associated sediment release. Sediment release is	The loss of vegetation from riparian areas and in channel habitats reduces the complexities of habitats required by biological receptors.

	likely to be greatest where vegetation clearance is required on slopes.	
Construction	**Pollutants from construction vehicles and machinery** The use of machinery and vehicles on or within the vicinity of the development area during the construction phase has the potential to allow uncontrolled releases of pollutants such as fuel, cement dust, solvents and oils.	If not properly maintained and managed, pollutants from construction vehicles and machinery have the potential to harm aquatic life.
Construction	**Incorrect disposal of waste materials** Uncontrolled released of waste materials (e.g. plastic packaging etc) from the construction phase could be incorrectly "disposed" of along the banks of the unnamed watercourses.	Incorrect disposal of waste materials has the potential to harm aquatic vegetation and organisms.
Construction	**Incorrect disposal of wastewater** Incorrect disposal of domestic wastewater from welfare facilities for the construction team. Incorrect disposal of contaminated water in the event of a fire at the BESS.	Incorrect disposal of wastewater has the potential to harm aquatic vegetation and organisms.
Construction	**Noise & Vibration from Piling activities** Many aquatic species including eel and other fish species are sensitive to noise and vibrations generated by piling activities.	Noise can propagate over long distances underwater, negatively affecting fish and other aquatic species. For species with strong reliance on sound, this can lead to disorientation and altered behavioural changes. Vibration can disturb sediment in riverbeds, causing potential disruption to spawning grounds.
Construction	**Temporary damming and pumping** This 'dry construction' method is proposed for the construction of access road crossings.	Significant changes in flow patterns can have potential impact on the habitat suitability for aquatic species, by disrupting spawning areas and sheltering habitats. Changes to sediment transport processes can occur, thus leading to potential for smothering of benthic habitats

Operational	**Release of pollutants from the schemes surface water drainage system (BESS drainage system).** Pollutants such as suspended solids or contaminated fire water (in the event of a fire) could be released to the watercourses on site if no mitigation is in place.	Potential to harm aquatic vegetation and organisms due to toxicity from chemicals, oxygen depletion and habitat smothering from sediment.
Operational	**Electromagnetic impacts from electrical wires beneath watercourses** Electromagnetic fields may negatively affect the behaviour of aquatic organisms.	Cables will be routed via the open span bridges crossings therefore the impact on aquatic biology would be negligible.

Risk to Water Quality

There is potential for the Proposed Development to impact on the water quality of a watercourse / water body / groundwater. Table 8 outlines the potential water quality effects of the Proposed Development on the watercourses on site (and consequentially River Weaver and Manchester Ship Canal WFD waterbodies), Hoolpool Gutter which traverses the access road, and underlying groundwaters.

Table 8 – Potential Effects on Water Quality

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	**Pollutants from construction vehicles and machinery** The use of machinery and vehicles on or within the vicinity of the development area during the construction phase has the potential to allow uncontrolled releases of pollutants such as fuel, cement dust, solvents and oils.	Accidental leakages and spillages during the construction phase can have short to medium term effect on the unnamed watercourses on & adjacent to the site and underlying groundwater. As the surface water may be in hydraulic continuity with the underlying groundwater aquifers, relatively significant pollution events may have an effect on the groundwater.
Construction	**Incorrect disposal of waste materials** Uncontrolled released of waste materials (e.g. plastic packaging etc) from the construction phase could be incorrectly "disposed" of along the banks of the unnamed watercourses.	

Construction	**Incorrect disposal of wastewater** Incorrect disposal of domestic wastewater from welfare facilities for the construction team.	
Construction	**Sediment Pollution** Deterioration in water quality as a result of a release of sediments associated with the construction works.	Water quality may be reduced by increased turbidity.
Operational	**Release of pollutants from the schemes surface water drainage system (BESS drainage system).** Pollutants such as suspended solids or contaminated fire water (in the event of a fire) could be released to the watercourses on site if no mitigation is in place	Introduction of hazardous chemicals can cause a deterioration in water quality. High level of organic pollutants in firewater can deplete dissolved oxygen levels, leading to 'dead zones'. Increased turbidity and potential shifts in pH levels
Operational	**Reduced use of chemical fertilizer and pesticides / herbicides.** Change in land use from arable land to SADA.	The risk of agricultural diffuse pollution would be reduced from the change in land use, as the application of chemical fertilisers and pesticides / herbicides will no longer take place within the SADA.
Operational	**Pollution from damaged PV Modules / leakages from the PV Modules** Due to the composition of the PV module surfaces, they are likely to remain intact both at the surface and underside near the racking system, even in the event of damage and not leak.	The impact on the hydrological environment would be negligible.
Operational	**Pollution from maintenance activities /vehicles**	The impact on the hydrological environment would be negligible.

Potential Effects of Invasive Non-Native Species (INNS)

The effects of INNS on a watercourse / water body can be impacted by the Proposed Development. Several INNS have been recorded on site including Variegated Yellow Archangel, New Zealand Pigmyweed and

Cotoneaster. Table 9 outlines the potential effects of the Proposed Development on the unnamed watercourses on site.

Table 9 – Potential Effects on INNS

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	**Removal of Invasive Species** Clearance of vegetation to facilitate the construction works, may result in the removal and disturbance of Variegated Yellow Archangel, New Zealand Pigmyweed (NZPW) and Cotoneaster species (recorded on the site) and soils which they are currently growing in.	Incorrect clearance, removal and disposal of INNS can result in unintentional spreading of invasive species which may migrate and colonise downstream banks and adversely affect native habitats, including the new proposed water storage area.
Construction	Non-native invasive species may be unintentionally introduced to the Study Area (or translocated within it) through contaminated equipment.	Introduction of INNS to the Study Area may result in unintentional spreading of these non-native invasive species which may colonise the Study Area, and downstream of the Study Area, and adversely affect native habitats.

Providing the mitigation measures identified in the following section (Stage 3 - Impact Assessment) are implemented, the potential effects are anticipated to be negligible.

WFD Impact Assessment (Stage 3)

Impacts of the Proposed Scheme on WFD Compliance

Following the identification of potential impacts during the scoping stage, this section assesses the likelihood and significance of these effects on the unnamed watercourses on site, the River Weaver, River Mersey, Manchester Ship Canal, Hoolpool Gutter (WFD waterbodies), and underlying WFD groundwater body.

Construction and Operational Phase Mitigation

Construction Phase Mitigation

An outline Construction Environmental Management Plan (oCEMP) [EN010153/DR/7.5] has been prepared which outlines the principles, controls, and measures to be implemented during construction to reduce potential significant environmental effects from occurring. As set out above the development of a full plan and its implementation would be a Requirement of the DCO.

In order to minimise the risk of deleterious effects of the Proposed Development on the identified waterbodies, and to ensure that the Proposed Development is WFD compliant, the following mitigation measures are recommended during the construction phase.

Water Quality Monitoring

The oCEMP provides for surface water sampling and analysis so that a water quality baseline can be established prior to the construction works commencing, with confirmatory water quality data obtained immediately following completion of the works, to demonstrate that the construction phase has not had a detrimental effect on water quality and confirm that no remedial measures are required.

Sediment

To prevent fine sediment entering the watercourses, construction activities, including storage of materials, should occur away from the watercourses where possible. Development proposals include a minimum 10m buffer from development to watercourses (excluding access road crossings). When construction activities, including stockpiling and storage of materials, occur in close proximity to a watercourse (minimum 10m from a watercourse) they should be separated from the watercourse with barriers (e.g. silt fences) to prevent suspended silt within surface runoff entering the watercourse. An example of a silt fence is provided in Figure 1.

Figure 1: Silt Fence (source siltbuster.co.uk)

The extent of vegetation clearance would be limited to only the areas necessary to facilitate the construction of the scheme. This would reduce the amount of sediment released during clearance and the potential release of sediment from bare ground following clearance.

Timing of works would be carefully considered. If possible, the construction of watercourse crossings should be carried out during periods of low flow to reduce the risk of scour and erosion around structures and reduce runoff from the construction area. It should be noted however that minimal flow was observed within the watercourse channels on site therefore scour and erosion risk is considered to be minimal.

The risk of sedimentation to watercourses will be reduced through the design of the watercourse access road crossings. By installing open span structures (as opposed to culverts) during construction, no longitudinal or latitudinal modifications will be made to the channel. All cable crossings would be integrated within bridge crossing locations. A 'dry construction' method is proposed if this is deemed necessary to construct the crossings. Flows upstream and down stream of the crossing point would be dammed and over pumped, to allow the open span structure i.e bridges to be constructed. This involves temporarily damming the ditch upstream and downstream of the crossing, typically using sandbags or straw bales, and pumping water out of the section where the cables are to cross. The majority of drainage ditches across the Site do not have any noticeable flow within them. As such, where the is no discernible direction of flow, over pumping of water from the upstream side to the downstream side would not be required. However, where there is flow this would be undertaken. To mitigate the effects of siltation, temporary sediment traps installed to hold any sediment that may be dislodged during pumping, preventing it from being deposited unnaturally downstream. Silt netting will also be implemented within the channel to help capture any residual sediment. Most of the watercourses on site exhibited low flow conditions, and as such the impact is not anticipated to be significant. During construction, the footings will be positioned away from the bank edge to mitigate potential bank erosion.

To facilitate the creation of wetland habitats, and enhancement of grazing habitats, the canal pools in the northern extent of Cell 3 will be drained. The drained water will be discharged to the Manchester Ship Canal. A settlement tank will be used to allow for suspended solids in the discharge to settle out of the water prior

to discharge to the Manchester Ship Canal. The system would also contain filters to prevent the spread of New Zealand Pigmy Weed (albeit noting that New Zealand Pigmy Weed is killed by saline water, which is the case at this point in the Manchester Ship Canal). Accumulated solids formed at the bottom of the tank would be subject to periodic removal and burial on-site in accordance with the New Zealand Pigmy Weed control strategy (removal frequency subject to site conditions and tank size). An example of a settlement tank is provided in Figure 2. A Fish Rescue Plan would also be implemented prior to draining the ponds.

Figure 2: Settlement Tank with Pumped Inflow

Invasive Non-Native Species

As noted above a New Zealand Pigmy Weed control strategy would be implemented to ensure that the works at the Site do not cause the spread of New Zealand Pigmy Weed in accordance with the Wildlife and Countryside Act 1981. Appropriately experienced vegetation clearance contractors would be appointed to ensure that suitable measures are put in place to prevent further distribution of invasive plants in the local area. Removal and disposal would take place in accordance with the EA guidance document Treatment and Disposal of Invasive Non-native Plants: RPS 178 (April 2019). Where invasive non-native species are identified, efforts would be made not to spread these species within the site or to accidentally spread them to other sites. Relevant biosecurity measures would be implemented to reduce this risk and to reduce the risk of introducing invasive non-native species to the site.

In addition to specific biosecurity measures, it is important to limit the movement of livestock around the ponds and in particular the crossing point which is currently the only physical barrier preventing NZPW from spreading into the adjacent ponds.

Contamination

Potential contamination risks can be mitigated by ensuring that a suitably experienced and competent contractor is employed to undertake the works. The contractor would ensure that all method statements are prepared with due consideration to minimising the release of potentially contaminative materials / compounds such as fuel, oils and chemicals, which could have a significant impact in the vicinity and downstream of the construction site. Contractors would also provide / implement the necessary measures needed to be in place to prevent the accidental release of pollutants into the watercourse and onto surrounding land. Details of the pollution prevention measures which should be put in place are included in Appendix M.

Further guidance on good practice is provided in the documents below:

- CIRIA Report C741 (January 2015) Environmental Good Practice on site guide (fourth edition); and
- Pollution Prevention for Businesses: Pollution prevention for businesses - GOV.UK (www.gov.uk)

Domestic foul water generated from the site during the construction phase will be tankered off site to an appropriate wastewater treatment plant.

With regards to excavation works in Cell 3 the superficial geology in this area comprises of canal dredgings. Preliminary testing of the soils show that there are some contaminants present which could leach from the soils. ES Vol 1 Chapter 10: Ground Conditions [EN010153/DR/6.1] provides further information the management, mitigation and monitoring measures that would be put in place to ensure the movement and placement of soils do not harm water resources. This may involve remediation via lime/cement stabilisation. Any works in this area would be undertaken subject to a Materials Management Plan (MMP) or a Deposit for Recovery (DfR) Permit.

Aquatic/ Semi Aquatic Species

Pre-construction surveys would be undertaken to identify any protected species (e.g. otter, water vole) which may be present in the sections of watercourses affected. Species specific mitigation would be applied where necessary under the supervision of the Ecological Clerk of Works.

With regards to open span watercourse crossings, a ‘dry construction’ method where flows upstream and downstream of the crossing point are dammed and over pumped, to allow the open span structure i.e bridges to be constructed. To mitigate any potential impacts on aquatic life, pumps would be equipped with appropriately sized mesh filters to avoid entrapment of any fish / eels that may be present. The section of water between the dams would be inspected for fish and other aquatic life such as eels. Where appropriate a fish rescue plan would be executed. By consideration of the mitigation measures proposed to address sedimentation in relation to this activity, the impact on the channel bank and bed will be negligible, and consequently the impact on aquatic / semi aquatic species is considered negligible.

Piling works will be subject to a Piling Risk Assessment (PRA) which will adopt the appropriate methods / techniques to reduce noise, and vibration impacts on sensitive aquatic receptors. Measures could include the

use of noise mitigation technologies and vibration monitoring to ensure that levels remain within acceptable thresholds that minimise disturbance to aquatic life. This will all be presented within a Foundation Works Risk Assessment and outline CEMP, to be produced at detailed design.

For more detailed mitigation measures relating to ecology and Aquatic/ Semi Aquatic Species, reference should be made to specific species surveys and appraisals.

Providing the mitigation measures identified above are implemented, the proposed scheme will have a negligible effect on the identified water bodies during both the construction and operational phases.

Construction Phase Residual Risks

Implementing the measures detailed in this report, together with good construction practice as set out below, will ensure that the residual effects of the construction of the Proposed Development on WFD waterbodies are negligible in respect of all indicators and so therefore no deterioration to their status will be caused

In addition to the measures stated above, the following standard practice control measures will be put into place to reduce the likelihood of runoff, siltation and pollution occurring in the nearby watercourses:

- Haul roads will be designed so that the length is kept to a minimum, while still serving its purpose. The gradient will be shallow to reduce runoff velocity. Existing roads (within the wind farm) will be used.
- Oil and any other potential pollutants will be stored a minimum of 10m away from waterbodies.
- Concrete / cement mixing and washing areas will be located a minimum of 10m from waterbodies.
- Containers will be placed on drip trays to collect any small spillages and prevent entrainment of oils and hydrocarbons within surface water runoff.
- Any soils contaminated during the course of the works should be excavated and disposed of correctly in accordance with current waste disposal legislation.
- Refuelling activities will be carried out a minimum of 10m away from any watercourse or drain. An emergency spill kit will be located near the refuelling area.
- Waste materials and debris will be tidied up as work progresses.

Where contamination is suspected, a suitability experienced operative would be appointed to undertake appropriate mitigation works.

Operational Phase Mitigation

Runoff

National Policy Statement for Renewable Energy Infrastructure (EN-3) states *'As solar PV panels will drain to*

the existing ground, the impact will not, in general, be significant.'

The proposed solar arrays will not create any significant change to the current surface water drainage regime and the vast majority of the site will remain permeable. Runoff from the panels will result in negligible erosion at the base of each panel due to proposed planting regime comprising wildflower grassland, as shown on the indicative Environmental Masterplan ES Vol 3 Figure 2-3: (a-e) Illustrative Environmental Masterplan [EN010153/DR/6.3] and as described in the Outline Landscape and Ecological Management Plan [EN010153/DR/7.13].

Surface water runoff from the proposed BESS compound and substation will discharge to an adjacent watercourse at a limited greenfield discharge rate. Attenuation will be provided in the sub-grade of the compound's stone surfacing and will be sized to accommodate the 1 in 100 year plus 45% CC event. The Flood Risk Assessment & Drainage Strategy provided at ES Vol 2 Appendix 9-1: Waterco Flood Risk Assessment and Drainage Strategy [EN010153/DR/6.2] provides further detail and drainage calculations for the surface water management within the Frodsham Solar Substation and the BESS.

Sediment

The risk of sedimentation will be minimised in the design i.e. through use of spanned structures as opposed to culverts on watercourse access road crossings. This will minimise disturbance to the watercourse and minimise erosion and scour risks in the operational phase.

Ground beneath the panels will be grassed and vehicular movements on grassed areas will be minimal. This will reduce the risk of soil compaction and erosion.

The preparation of a regular maintenance plan (Secured through the Operational Environmental Management Plan), detailing frequent inspection and clearance of debris and overgrown vegetation from watercourses (as required), will ensure the development has negligible impact on the hydrological flows of watercourses within the study area.

Contamination

In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), other roofs (applicable to the containers accommodating the battery units) 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 10 shows the pollution hazard indices for each land use.

Table 10 – 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

The access roads, BESS compound and substation will be formed from permeable stone surfacing. The base of the permeable stone surfacing in the BESS will be lined with an impermeable geotextile. This, together with a perimeter bund, will prevent mobilisation of potentially contaminated water in the event of a fire to the underlying aquifer. Table 11 demonstrates that permeable surfacing will provide sufficient treatment to minimise the risk of contamination.

Table 11 – 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

The implementation of the BESS introduces the potential risk of contaminated fire water runoff. To mitigate this risk, the following measures will be implemented as part of the Surface Water Drainage Strategy:

- The base of the permeable stone surfacing in the BESS will be lined with an impermeable geotextile.
- An internal fire suppression system (sprinklers) will be built into the interior of each battery container unit.
- 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.
- 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 sites 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).
- Following a fire, contaminated flows will be collected from the fire water lagoon and transported by tanker to an appropriate treatment facility.

Groundwater monitoring and sampling will be conducted, along with a risk assessment, and remediation measures will be implemented if the above actions fail following a fire.

During the operation phase, there would be renewal of equipment across the site over the lifetime of development. An outline Operational Environmental Management Plan (oOEMP) [EN010153/DR/7.6] has been prepared for the ongoing management and operation of the development.

Operational Phase Residual Risks

Implementing the measures detailed in this report will ensure that the residual effects of the operation of the Proposed Development on WFD waterbodies are negligible in respect of all indicators and so therefore no deterioration to their status will be caused.

Conclusions

Impact of the Proposed Development on WFD Compliance

The environmental objectives of the North West River Basin Management Plan are as follows:

- preventing deterioration of the status of surface waters and groundwater
- achieving objectives and standards for protected areas
- aiming to achieve good status for all water bodies
- reversing any significant and sustained upward trends in pollutant concentrations in groundwater
- cessation of discharges, emissions and losses of priority hazardous substances into surface waters
- progressively reducing the pollution of groundwater and preventing or limiting the entry of pollutants

As detailed in Table 12, the Proposed Development includes proposals/measures to achieve all of the above and is therefore WFD compliant.

Table 12 – Compliance with WFD objectives

Environmental Objective	How have these Objectives been achieved
Preventing deterioration of the status of surface waters and groundwater	Proposed construction phase and operational phase mitigation measures detailed as part of this report.
Achieving objectives and standards for protected areas	Reduced sedimentation and contamination to the Mersey Estuary Site of Special Scientific Interest (SSSI) (covering the canal pools in the north-western extent of the site). Avoidance of pollution entering watercourses on the Site which ultimately flow into the Mersey Estuary SPA, Ramsar and SSSI.
Aiming to achieve good status for all water bodies	No increase in sediment loading from development due to proposed mitigation but a reduction from the cessation of ploughing activity on arable land. This will help achieve good status.
Reversing any significant and sustained upward trends in pollutant concentrations in groundwater	Change of land use from arable farmland to SADA will result in the cessation of pesticide/herbicide and insecticide application, thereby reducing nutrient leaching to underlying groundwater.
Cessation of discharges, emissions and losses of priority hazardous substances into surface waters	Change of land use from arable farmland to SADA will result in the cessation of pesticide/herbicide and insecticide application, thereby reducing nutrient runoff to water bodies.

Progressively reducing the pollution of groundwater and preventing or limiting the entry of pollutants	Change of land use from arable farmland to SADA will result in the cessation of pesticide/herbicide and insecticide application, thereby reducing nutrient leaching to underlying groundwater.

Appendix A Location Plan and Aerial Image

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

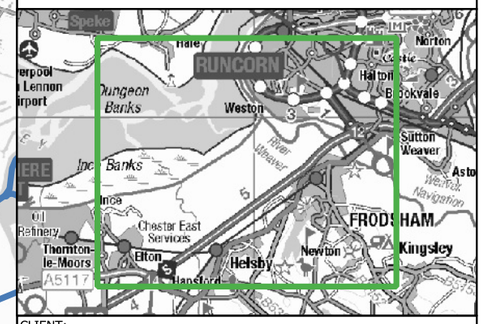
- Site Boundary
- Land Not Within Site Boundary
- Watercourses
- Waterbodies

RIVER MERSEY

MANCHESTER SHIP CANAL

RIVER WEAVER

0 600 1,200 1,800 2,400 3,000 m



CLIENT:
Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
Location Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

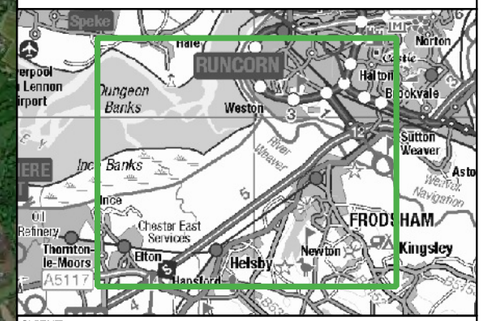
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:30000

PLOT NAME:	REVISION:
14740_Location_Plan	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Land Not Within Site Boundary



CLIENT:
Frodsham Solar Ltd

waterco
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SCHEME:
Frodsham Solar

PLOT TITLE:
Aerial Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:30000

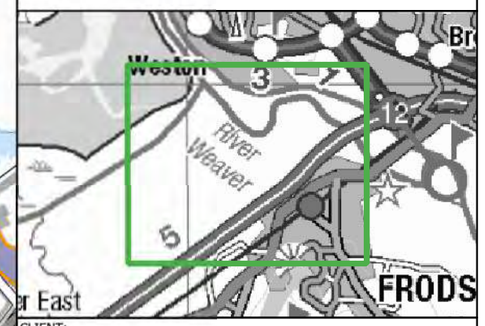
PLOT NAME:	REVISION:
14740_Aerial_Plan	-

Appendix B EA Maps & Correspondence

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- AIMS Spatial Flood Defences
- Main River
- Flood Zone 1
- Flood Zone 2
- Flood Zone 3



CLIENT:
Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
EA Flood Map for Planning
Data published March 2025

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
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PLOT NAME:	REVISION:
14740_EA_FMfP	-

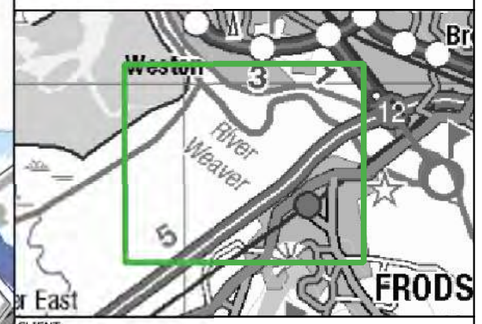
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary

Present Day Extents (defended)

- Rivers and sea 1 in 30
- Rivers 1 in 100, Sea 1 in 200
- Rivers and sea 1 in 1000



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CLIENT:
Frodsham Solar Ltd

www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
EA Flood Map for Planning - Present Day Extents - Rivers and Sea (defended)
Data published March 2025

PLOT STATUS:			DATE:
FINAL			30-04-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
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PLOT NAME: 14740_EA_FMfP_RS_PD_DEF

REVISION: -

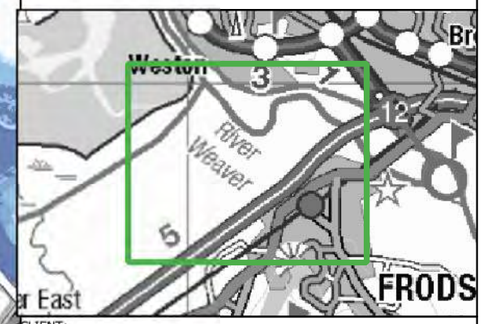
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary

Climate Change Extents (defended)

- Rivers and sea 1 in 30
- Rivers 1 in 100, Sea 1 in 200
- Rivers and sea 1 in 1000



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CLIENT:
Frodsham Solar Ltd

waterco
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SCHEME:
Frodsham Solar

PLOT TITLE:
EA Flood Map for Planning - Climate Change Extents - Rivers and Sea (defended)
Data published March 2025

PLOT STATUS:			DATE:
FINAL			30-04-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
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PLOT NAME: 14740_EA_FMfP_RS_CC_DEF
REVISION: -

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Present Day Extents (undefended)

Rivers 1 in 100, Sea 1 in 200

Rivers and sea 1 in 1000

0 200 400 600 800 1,000 m

CLIENT:
Frodsham Solar Ltd

www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
EA Flood Map for Planning - Present Day Extents - Rivers and Sea (undefended)
Data published March 2025

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
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PLOT NAME:	REVISION:
14740_EA_FMfP_RS_PD_UNDEF	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Climate Change Extents (undefended)

Rivers 1 in 100, Sea 1 in 200

Rivers and sea 1 in 1000

0 200 400 600 800 1,000 m

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CLIENT:
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SCHEME:
Frodsham Solar

PLOT TITLE:
EA Flood Map for Planning - Climate Change Extents - Rivers and Sea (undefended)
Data published March 2025

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:12000

PLOT NAME:	REVISION:
14740_EA_FMfP_RS_CC_UNDEF	-

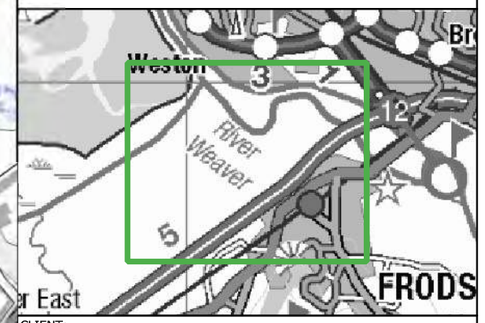
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary

Annual Likelihood of Flooding

- 1 in 30
- 1 in 100
- 1 in 1000



CLIENT:	Frodsham Solar Ltd
	www.waterco.co.uk
SCHEME:	Frodsham Solar
PLOT TITLE:	EA Flood Map for Planning - Present Day Extents - Surface Water Data published January 2025
PLOT STATUS: FINAL	DATE: 30-04-2025
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PLOT NAME: 14740_EA_FMfP_SW_PD	REVISION: -

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

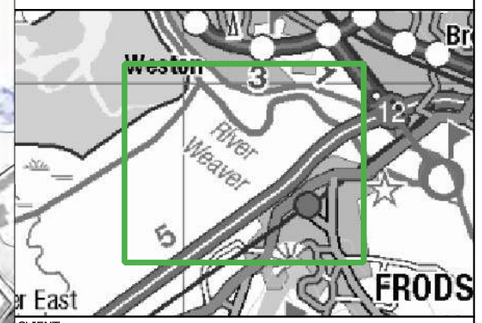
Site Boundary

Annual Likelihood of Flooding

1 in 30

1 in 100

1 in 1000



CLIENT:

Frodsham Solar Ltd

www.waterco.co.uk

SCHEME:

Frodsham Solar

PLOT TITLE:

EA Flood Map for Planning - Climate Change Extents - Surface Water
Data published January 2025

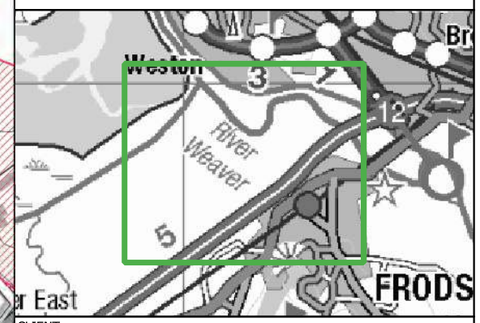
PLOT STATUS:			DATE:
FINAL			30-04-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:

PLOT NAME:	REVISION:
14740_EA_FMfP_SW_CC	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- When river levels are normal
- When there is also flooding from rivers



CLIENT:
Frodsham Solar Ltd

www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
EA Flood Risk from Reservoirs
Data revised March 2025

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:12000

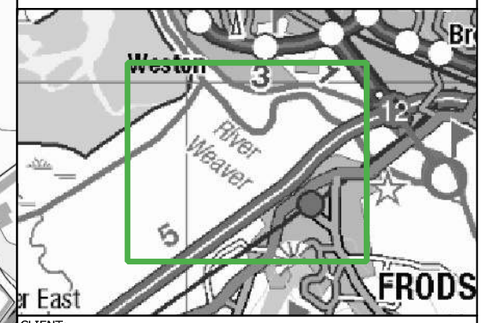
PLOT NAME:	REVISION:
14740_EA_Flood_Risk_from_Reservoirs	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise
2) The Historic Flood Map is a GIS layer showing the maximum extent of individual Recorded Flood Outlines from river, the sea and groundwater springs that meet a set criteria. It shows areas of land that have previously been subject to flooding in England. This excludes flooding from surface water, except in areas where it is impossible to determine whether the source is fluvial or surface water but the dominant source is fluvial.
3) If an area is not covered by the Historic Flood Map it does not mean that the area has never flooded, only that the EA do not currently have records of flooding in this area that meet the criteria for inclusion.
4) The Historic Flood Map takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding. It will include flood extents that may have been affected by overtopping, breaches or blockages.

LEGEND

Site Boundary

Historic Flood Map



CLIENT:	Frodsham Solar Ltd
	www.waterco.co.uk
SCHEME:	Frodsham Solar
PLOT TITLE:	EA Historic Flood Risk Data revised February 2025
PLOT STATUS: FINAL	DATE: 30-04-2025
DRAWN: JP / CHECKED: AW / APPROVED: NJ	PLOT SCALE AT A3: 1:12000
PLOT NAME: 14740_EA_Historic_Flood_Risk	REVISION: -

[redacted]
AXIS
Unit 11 (Well House Barns)
Bretton
Chester
CH4 0DH

Our ref: XA/2024/100115/01-L01
Your ref: 01WFD

Date: 23 July 2024

Draft Water Framework Directive Assessment (non-statutory)

Frodsham Marshes, Frodsham, Cheshire West and Chester

Thank you for consulting us on the *'Water Framework Directive Assessment'* (dated 11 June 2024, reference 14740-WFD-02 revision 02) by Waterco.

Planning policy
In regards to the Overarching National Policy Statement for Energy (EN-1), we would like to highlight the following paragraph:

'Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment, and how this might change due to the impact of climate change on rainfall patterns and consequently water availability across the water environment, as part of the ES or equivalent' (5.16.3)

The National Planning Policy Framework (NPPF) states:

'*To protect and enhance biodiversity and geodiversity, plans should:*

b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.' (paragraph 185)

Decommissioning
As part of WFD Scoping (Stage 2), it is stated:

'a separate assessment of the decommissioning stage has not been included' for the above topics as they are *'likely to have comparable potential impacts to those anticipated during the construction phase'* (p.19).

We require decommissioning effects to be considered in relation to hydromorphology and biology, as there will be other, additional impacts, compared to the construction phase.

In regards to biology, the ecological baseline for the site will have changed by the time of the development's decommissioning. New baseline surveys will be required to ensure there is no damage caused by decommissioning works, and allow enhancements to be made where possible.

In regards to hydromorphology, any decommissioning works should ensure that there are no alterations to the geomorphology of watercourses. Infrastructure left in-situ after decommissioning, could impact future river movement, becoming an impediment to natural processes.

Biodiversity
The River Weaver (Dane to Frodsham) (GB112068060500), a 'Heavily Modified Water Body', has several WFD mitigation measures in place that should be considered whilst assessing the impacts of this project. Specific mitigation measures are set for each River Basin District to achieve the environmental objectives of the WFD. These measures are to mitigate impacts that have been, or are being caused by human activity, and to enhance and restore the quality of the existing ecological networks, preventing deterioration in ecological status or potential. Mitigation measures must be delivered through the River Basin Management Plan. The inter-cumulative effects of this development, and others in the area, should be considered.

The proposed 'Bird Mitigation Area (cell 3)' is considered as mitigation for impacts to the Mersey Estuary/Ramsar site's Functionally Linked Land. The mitigation area can only be considered partially in the BNG metric calculations for the Frodsham Solar Project's BNG contributions. Please view this guidance for more details: What you can count towards a development's biodiversity net gain - GOV.UK (www.gov.uk).

We need to see the following documents in due course:

- Biodiversity Net Gain Plan
- Habitat Management and Monitoring Plan
- Landscape and Ecological Management Plan
- River Condition Assessment
- Invasive Non-Native Species Management Plan

Ecological Site Investigations
An Invasive Non-Native Species (INNS) Management Plan will be needed for New Zealand Pigmy Weed, Cotoneaster and other INNS present.

Page 9 states that the majority of the ditches and waterbodies on the site are unsuitable for otters. However, it is important to note that otters may still use the ditches for dispersal within their territory.

It is stated on page 9 that it is unlikely for Great Crested Newts to be present on site. It cannot be assumed that Great Crested Newts are not present on site. We'd need surveys to confirm their absence or presence on site.

Aquatic/semi aquatic species

Page 27 states that the impact of proposed open watercourse crossings will be negligible on channel banks and beds, and therefore aquatic and semi aquatic species. We do not agree with this statement; the Impact of crossings will need to be assessed in each area they are proposed, and their design will need to be informed by river condition assessments of each watercourse.

Opportunities for WFD objectives and BNG

The colocation of several NSIPs in the Northwest of England presents an opportunity for co-delivery of WFD objectives, and BNG facilitated by the Cheshire Local Nature Recovery Strategy (LNRS). We recommend that you engage with Cheshire West and Chester Council on this matter.

Sustainable drainage systems

In regards to utilizing SuDs to manage surface water runoff, we recommend reviewing the '*Using SuDs to reduce nitrogen in surface water runoff*' guidance by CIRIA [redacted]

Fisheries

The majority of large ditches have been scoped out for fish with no baseline fish survey data to support this approach.

European eel form part of the fish assemblage in WFD watercourses associated with the proposed development area. If not included within the baseline data, there is the potential that eel will be impacted by activities associated with construction and decommissioning of the site. As a result, this could lead to the deterioration in the ecological classification or preventing a WFD waterbody from achieving good status.

Where baseline fish data has not been obtained, it should be assumed that European eel are present in any permanently wet water body (including ditches), that are hydrologically connected to any main watercourse. As well as any assessment of impacts to fish in general, impacts on European eel and associated habitat should be assessed. This should be included within the WFD assessment submitted as part of the Development Consent Order (DCO).

Impacts on fish from noise and vibration associated with construction, particularly piling and any Horizontal Directional Drilling (HDD) excavations, has not been included within the WFD assessment.

Increased noise from noisy construction activities, such as piling, may have a behavioural impact that could impede on migration and spawning of fish, or at worst cause fish mortality. This in turn could lead to the deterioration in the ecological classification, or prevent a WFD waterbody from achieving good status.

The WFD assessment should include an assessment of the impact on fish from noisy construction and decommissioning activities. If it is assumed that noisy construction activities, including piling, will not have an impact on fish, then evidence to support this assumption should be presented.

Geomorphology

We note that there will be an overhead cable over the River Weaver. For other watercourses, we need clarification if there will be any cable crossings and whether they'd be overground or underground. We would have a preference for underground cables, using trenchless methods.

We note that open span watercourse crossings are proposed for this development. It needs to be evidenced that their design has been informed by river condition assessments, to ensure that there is no impact to the watercourse's banks and beds.

General considerations

The following are general guiding principles to consider when designing watercourse crossings, to avoid negatively affecting geomorphology and natural processes:

- Avoid unnecessary interference with natural processes. For instance, encourage use of trenchless techniques such as HDD to minimise the likelihood of cables entering the water environment.
- Ensure watercourse crossing design is informed by assessment of fluvial processes and geomorphology. For example, the depth of HDD crossing should consider the likelihood of vertical channel change.
- Avoid designs which present legacy risks to natural processes and geomorphology beyond the project lifespan. For example, infrastructure such as access tunnels which are left in-situ after decommissioning could be exposed by future river movement, becoming an impediment to natural processes.
- Consider opportunities to deliver WFD mitigation measures as part of the design.
- Avoid preventing delivery of mitigation measures, such as avoiding bringing cables to surface level in floodplains earmarked for future river restoration.

Groundwater and contaminated land

The site is located within a WFD designated groundwater body, the Wirral and West Cheshire Permo-Triassic Sandstone Aquifers Water Body (Water body ID: GB41101G202600).

BESS firewater drainage

The Battery Energy Storage System (BESS), and potential pollution risks from firewater in this area, are one of the main considerations in relation to the protection of this groundwater body.

The WFD assessment has identified this risk. As a result, the following measures have been proposed:

- The base of the permeable stone surfacing in the BESS will be lined with an impermeable geotextile.
- Bunding around the perimeter of the BESS will be installed to contain contaminated firewater.
- A shut off valve will be installed on the final manhole chamber of the surface water system serving the BESS, to prevent the release of water from the BESS to the watercourse.
- Following a fire, contaminated flows will be collected from the final chamber on the drainage system, and transported by tanker to an appropriate treatment facility.

These measures are acceptable. However, we would also like to see the inclusion of a requirement to monitor, sample, risk assess and, if required, remediate groundwater, if the above measures fail following a fire.

Foundation works risk assessment

The WFD assessment does not mention the possible risks associated with piled foundations. These foundations may be adopted for the installation of the infrastructure at the site. In some cases, the foundations may be 9 metres deep. Depending on the method of piling, this has the

potential, in areas of known contamination, to create pathways for the migration of contaminants into the underlying aquifer and groundwater body.

A foundation works risk assessment should therefore be included in future WFD assessments, or included as part of the Construction Environment Management Plan (CEMP), to ensure that the groundwater body is protected from contamination.

Pollution measures
We find the draft pollution measures in Appendix K incorporated into the scheme to be rudimentary. We would expect to see this document being used to inform the production of a more comprehensive CEMP/Outline CEMP, to be submitted with the DCO application.

Water Quality
We welcome the proposal to include firewater containment at the BESS. For this mitigation to be effective, the mechanism for closing the shut off valve must be appropriate for the proposed firefighting system. If firewater or firefighting agents are to be applied automatically to battery units if a fire is detected, then operation of the shut off valve must also be automatic.

If firewater is to be applied by the Fire and Rescue Service upon their arrival at the site, then a Battery Safety Management Plan should reflect the requirement for the valve to be shut off manually.

The site also has the potential to impact the Weaver Navigation (canal section Frodsham to Weston Point Docks) waterbody, however this has not been assessed.

Flood risk
Please refer to our response letter regarding the Flood Risk Assessment Draft (dated 01 July 2024, ref.XA/2024/100097/01-L01).

We recommend consulting with the local internal drainage board in regards to surface water flooding.

Yours sincerely

[redacted]
Planning Specialist

Direct e-mail NITeam@environment-agency.gov.uk

Appendix C LLFA Correspondence

Frodsham Solar – Water Framework Directive Assessment, Waterco, June 2024

LLFA comments provided on 22nd July 2024

The LLFA have the following comments:

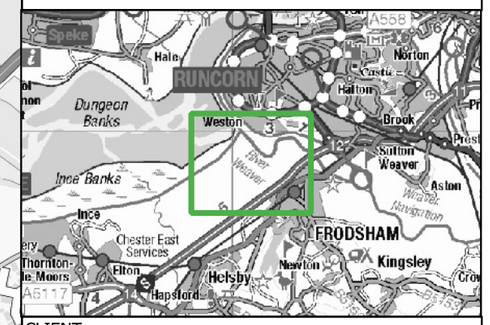
- The WFD states that appropriate pollution and firefighting measures are proposed as part of the BESS. A plan and section of the proposed shut off valve on the final manhole chamber and assessment of lead time for tanker to remove contaminated water along with the capacity of the bunded area of the BESS to contain the contaminated water in the event of fire should be provided.
- Locations of access crossings of ordinary watercourses has not been provided. A location plan, structural drawing and method of construction is required for each crossing.
- BESS is to be formally drained with connection into watercourse. A plan of outfall to watercourse and method of construction should be provided.
- A construction environmental management plan including surface water management during construction should be provided for review to manage mobilisation of sediment and release of hydrocarbons and other pollutants into watercourses.

Appendix D Watercourse & Waterbodies Map

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Ditches (Ordinary Watercourses)
- Main Rivers



CLIENT:
Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
Watercourse Plan (Ince Marshes)

PLOT STATUS:	DATE:
FINAL	14-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:12000

PLOT NAME:	REVISION:
14740_Watercourse_Plan	-

0 400 800 1,200 1,600 m

Appendix E Topographical Data

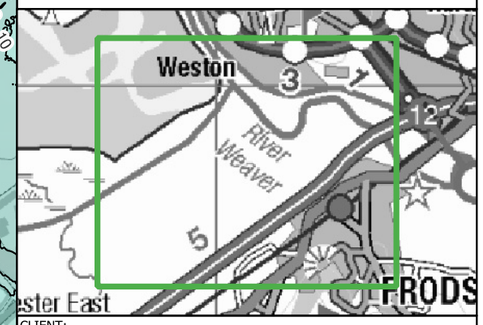
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Land Not Within Site Boundary
- Site Levels (m AOD)

Ground Elevations (m AOD)

- <= 0
- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40
- > 40



0 500 1,000 1,500 2,000 m

CLIENT:
Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
LiDAR Plan
1m Resolution
Data from Environment Agency

PLOT STATUS:			DATE:
FINAL			30-04-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
IH	AP	LS	1:15000

PLOT NAME: 14740_LiDAR_Plan
REVISION: -

Appendix F Historical BGS Borehole Records and Location Plan

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Land Not Within Site Boundary
- BGS Historical Borehole Record

SJ57NW155
SJ57NW63
SJ57NW72
SJ57NW70
SJ57NW41
SJ57NW42
SJ57NW17/C
SJ57NW15/I
SJ47NE23
SJ57NW17/B
SJ57NW316
SJ57NW15/H
SJ57NW154
SJ57NW17/A
SJ57NW15/G
SJ57NW15/F
SJ47NE5
SJ57NW15/E
SJ57NW15/D
SJ57NW112
SJ47NE92

Weaver Navigation
Weston
Rocksavage
Clifton
River Weaver
Newtown
FRODSHAM
Marsh Green
Overton
Netherton

0 500 1,000 1,500 2,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2024)
CONTAINS BRITISH GEOLOGICAL SURVEY MATERIALS © UKRI (2024).

CLIENT: Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME: Frodsham Solar

PLOT TITLE: Historical BGS Borehole Location Plan
Data from British Geological Survey (BGS)

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AP	LS	1:15000

PLOT NAME:	REVISION:
14740_BGS_Borehole_Location_Plan	-

Window Sampler Hole Log

Soil Mechanics

Drilled RT Logged DAS Checked NH	Start 23/03/2010 End 23/03/2010	Equipment, Methods and Remarks Competitor 130 Hand Dug Inspection Pit to 1.20m. Windowless Sampling to 4.70m.	Depth from to Diameter Casing Depth	Ground Level +5.12 mOD Coordinates E 351697.81 National Grid N 378684.98 Chainage	

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water

Strata

Description	Depth, Level (Thickness)	Legend	Backfill/ Instruments
Grass onto dark brown slightly sandy CLAY. Sand is fine to coarse. (TOPSOIL)	0.20 +4.92		
Soft to firm orange brown mottled grey slightly sandy silty CLAY.	(2.10)		
Soft black slightly sandy clayey SILT. Sand is fine to medium.	2.30 +2.82		1
4.50 m Brown lenses becoming sandy.	(2.40)		
EXPLORATORY HOLE ENDS AT 4.70 m	4.70 +0.42		SP

Depth	Type & No	Records	Date Casing	Time Water

Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
1	2.80	-	-

Depth Related Remarks *
From to (m)

Chiselling
Depths (m) Time Tools used

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project Ince Marshes
Project No. F0604-10
Carried out for Entec UK Ltd

Borehole
DP6
Sheet 1 of 1

Window Sampler Hole Log

Soil Mechanics

Drilled RT Logged DAS Checked NH	Start 23/03/2010 End 23/03/2010	Equipment, Methods and Remarks Competitor 130 Hand Dug Inspection Pit to 1.20m. Windowless Sampling to 4.00m.	Depth from / to / Diameter / Casing Depth	Ground Level +4.68 mOD Coordinates E 351096.05 National Grid N 378754.64 Chainage

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water

Strata

Description	Depth, Level (Thickness)	Legend	Backfill/ Instruments
Grass onto soft brown slightly sandy CLAY. Sand is fine to medium. (TOPSOIL)	(0.30) 0.30 +4.38		
Firm to stiff grey mottled orange slightly sandy silty CLAY. Sand is fine and medium.	(2.70)		
Dark grey silty fine and medium SAND. 3.60 m Becoming clayey.	3.00 +1.68 (1.00)		
EXPLORATORY HOLE ENDS AT 4.00 m	4.00 +0.68		SP

Depth	Type & No	Records	Date Casing	Time Water

Groundwater Entries

No.	Struck (m)	Post strike behaviour	Depth sealed (m)
1	1.20	-	-

Depth Related Remarks *

From / to (m)

Chiselling

Depths (m) / Time / Tools used

Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	Ince Marshes
Project No.	F0604-10
Carried out for	Entec UK Ltd

Borehole

DP8

Sheet 1 of 1

Appendix G UU Sewer Plans

[redacted]

Waterco Ltd
Waterco Ltd., Lon Parcwr
Ruthin,
LL15 1NJ

FAO:

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: Frodsham DCO Site
Our Ref: UUPS-ORD-440732
Date: 19/10/2022

Dear Sirs

Location: Frodsham

I acknowledge with thanks your request dated 18/10/2022 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

[redacted]

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
5609		FO		100			VC	14.20486	
5803		FO		150			VC	8.43585	
5701	8.92	FO	5.84	375			VC	70.66515	1 in 228
3722		FO		100			VC	13.04521	
3706		FO	0	150			VC	14.01998	
3711		CO		150			VC	40.04392	
3724		CO		150			VC	7.164462	
3801		FO	0	150			VC	65.45002	
3810		FO		150			VC	12.29659	
2502		FO	0	300			VC	46.67237	
3504	11	SW	9	300			VC	25.19176	1 in 51
2802		FO	0	225			VC	17.57057	
2804		FO	0	225			VC	4.960748	
2703		FO	0	525			VC	4.606973	
9602		FO	0	825			CO	90.33146	
9602		FO	0	825			CO	90.33146	
1701		FO	0	825			CO	88.68379	
1706		FO	0	300			VC	38.46999	
2606	8.29	FO	6.49	300			VC	31.99076	1 in 44
5503		FO		100			VC	9.221305	
2608	8.55	SW	7.41	150			VC	18.27494	1 in 141
2604	8.45	FO	6.55	300			VC	19.16367	1 in 319
5002	5.54	OV	4.32	600			CO	100.2451	1 in 132
4715		FO		100			VC	7.392374	
3602	9.07	FO	6.11	225			VC	75.58701	
3806		FO		150			VC	9.127151	
3505	11.28	SW	9.61	300			VC	21.05529	1 in 35
3601	9.87	FO	6.54	225			VC	75.03185	1 in 153
4602		FO		150			VC	16.11696	
3604		FO		150			VC	20.68856	
2801	6.3	FO	5.07	225			VC	26.17624	
3609		FO		150			VC	16.52928	
0701		FO	0	825			CO	91.14423	
1702	6.23	FO	4.58	825			CO	49.28206	
1709		CO		100			VC	7.525078	
1703	6.32	FO	4.63	750			CO	7.609185	
1802	6.36	FO	4.91	225			VC	27.08744	1 in 143
2813		FO		225			VC	18.29765	
1705	6.32	FO	0	825			CO	5.857551	
2501		FO		300			VC	75.71774	
2601	7.67	FO	6.05	300			VC	22.01085	
2706		FO		150			VC	18.46855	
3501	10.12	FO	0	300			VC	22.96575	
3501	10.12	FO	7.35	300			VC	32.12695	
2605	9.36	FO	6.81	300			VC	33.57264	1 in 129
2609	8.08	SW	7.28	225			VC	16.94958	
5813		FO		100			VC	9.671432	
4716		FO		100			VC	2.83041	
4714		FO		100			VC	8.786653	
4710		FO		150			VC	23.12665	
5812		FO		150			VC	3.466064	
5602	9.99	FO	9.08	225			VC	106.678	1 in 35
3703		FO	0	150			VC	12.80248	
3704		FO	0	150			VC	9.980081	
4702	7.7	FO	5.35	450			VC	25.32203	1 in 7
4701		FO	0	300			VC	5.566359	
3718		FO		100			VC	21.01167	
3816		FO		150			VC	8.765599	
3802		FO	0	150			VC	19.96502	
3803		SW	0	150			VC	30.82368	
3503	10.48	SW	8.51	300			VC	19.79734	1 in 24
3818		FO		150			VC	1.361994	
3804		SW	0	150			VC	25.1101	
3717		FO		100			VC	3.57296	
2701	6.76	FO	0	525			VC	65.04765	
2811		FO		100			VC	5.2248	
3701		SW	0	525			VC	92.79592	
1712		CO		100			VC	14.95358	
1704	6.32	FO	0	825			CO	4.507605	
2607		FO	0	300			VC	53.92633	
2503		SW	0	300			VC	128.7925	
2602		FO	0	300			VC	34.34456	
2613		FO		150			VC	8.965567	
2610	9.13	SW	7.78	150			VC	14.14365	1 in 38
3811		FO		150			VC	9.502913	
4704	8.22	FO	5.46	450			VC	23.11703	1 in 330
3725		CO		150			VC	13.37344	
3705		SW	0	150			VC	51.9594	
2401	13.98	FO	12.58	300			VC	65.8687	
3502		FO	0	300			VC	28.59952	
2504	9.28	SW	7.68	300			VC	26.45662	
3618		FO		150			VC	5.068946	
3610		FO		150			VC	5.450648	
2803		FO	0	225			VC	16.05879	
1711	6.32	SW	5.42	375			VC	13.74158	
2805		FO	0	225			VC	33.82488	
2808		FO		100			VC	2.144567	
2807		FO		100			VC	11.78185	
2702		FO	0	525			CO	41.47945	
3707		FO	0	150			VC	9.145327	
3708		FO	0	150			VC	6.599735	
3710		FO	0	150			VC	6.674916	
3709		FO	0	150			VC	8.819818	
1601	7.25	SW	6.25	375			VC	127.3428	1 in 153
2603	8.2	FO	5.73	300			VC	46.7978	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined blue - surface water
brown - foul purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforecd Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

Frodsham,

OS sheet Number: SJ5177NW
Scale: 1:1250 **Date:** 19/10/2022
Nodes: 95
Sheet: 1 of 5

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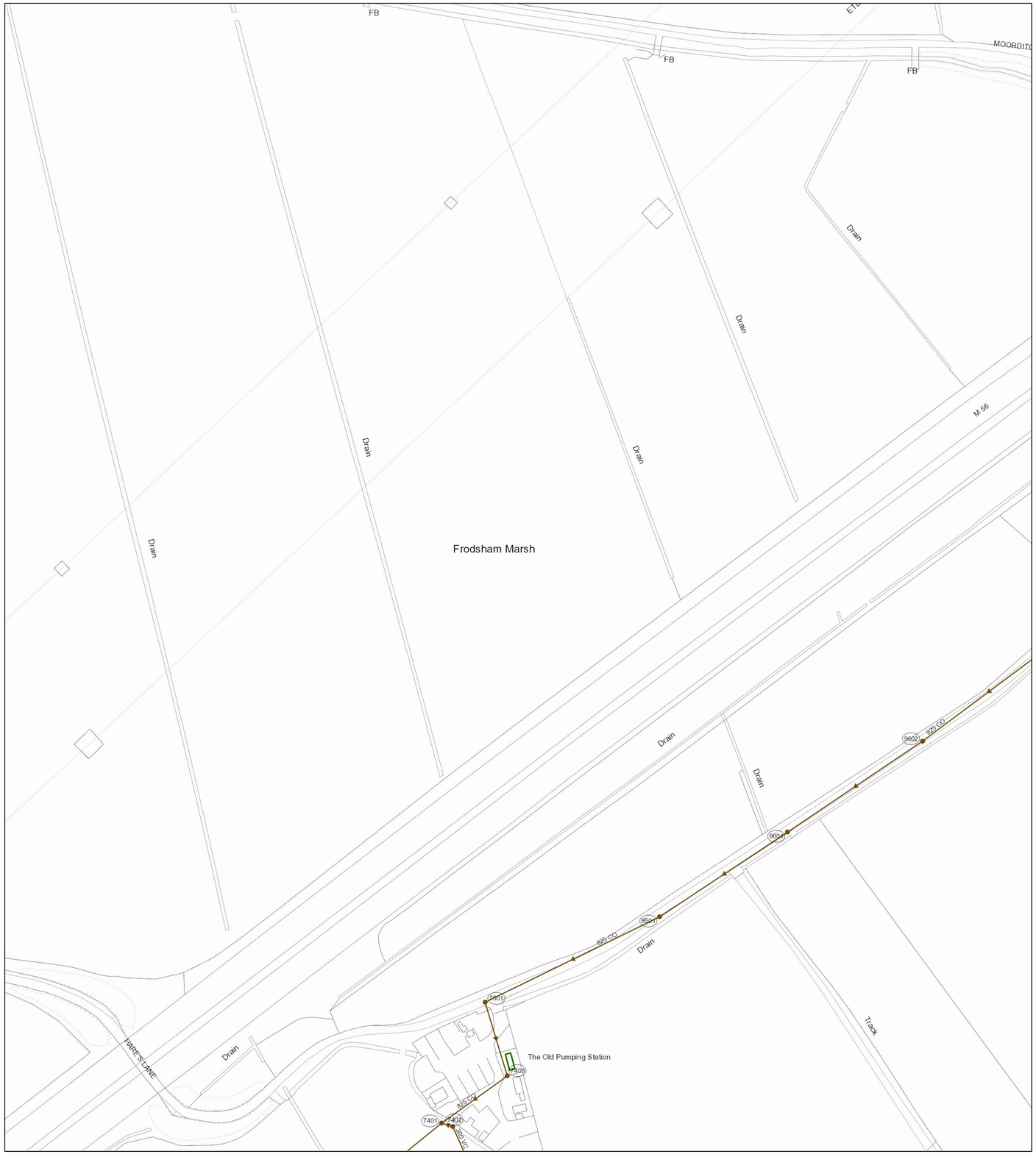
SEWER RECORDS

United Utilities
Water for the North West



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
9602		FO	0	825			CO	90.33146	
9602		FO	0	825			CO	90.33146	
0701		FO	0	825			CO	91.14423	
7402		FO	0	300			VC	6.391189	
7501	5.56	FO	4.16	825			CO	42.7268	
7401		FO	0	825			CO	68.88691	
7403		FO	0	825			CO	44.78925	
8501	5.82	FO	4.24	825			CO	107.8091	1 in 1797
9601		FO	0	825			CO	85.06628	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:

red - combined blue - surface water

brown - foul purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforecd Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

Frodsham,

OS sheet Number: SJ5077NE

Scale: 1:1250 **Date:** 19/10/2022

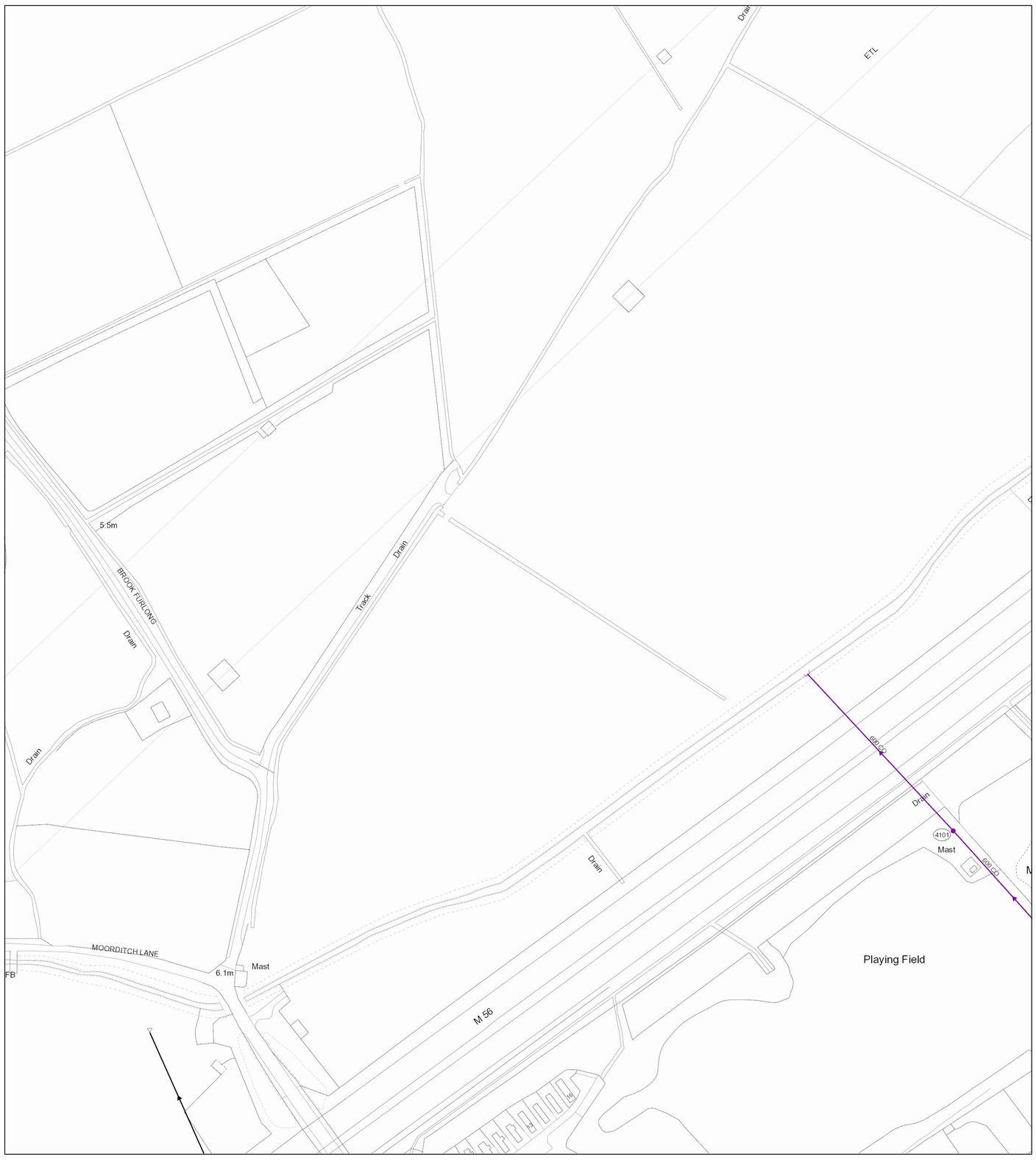
Nodes: 9

Sheet: 2 of 5

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West



The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
4101	5	OV	3.56	600			CO	118.7363	
4101	5	OV	3.56	600			CO	118.7363	
5002	5.54	OV	4.32	600			CO	100.2451	1 in 132

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:

red - combined blue - surface water
brown - foul purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforecd Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

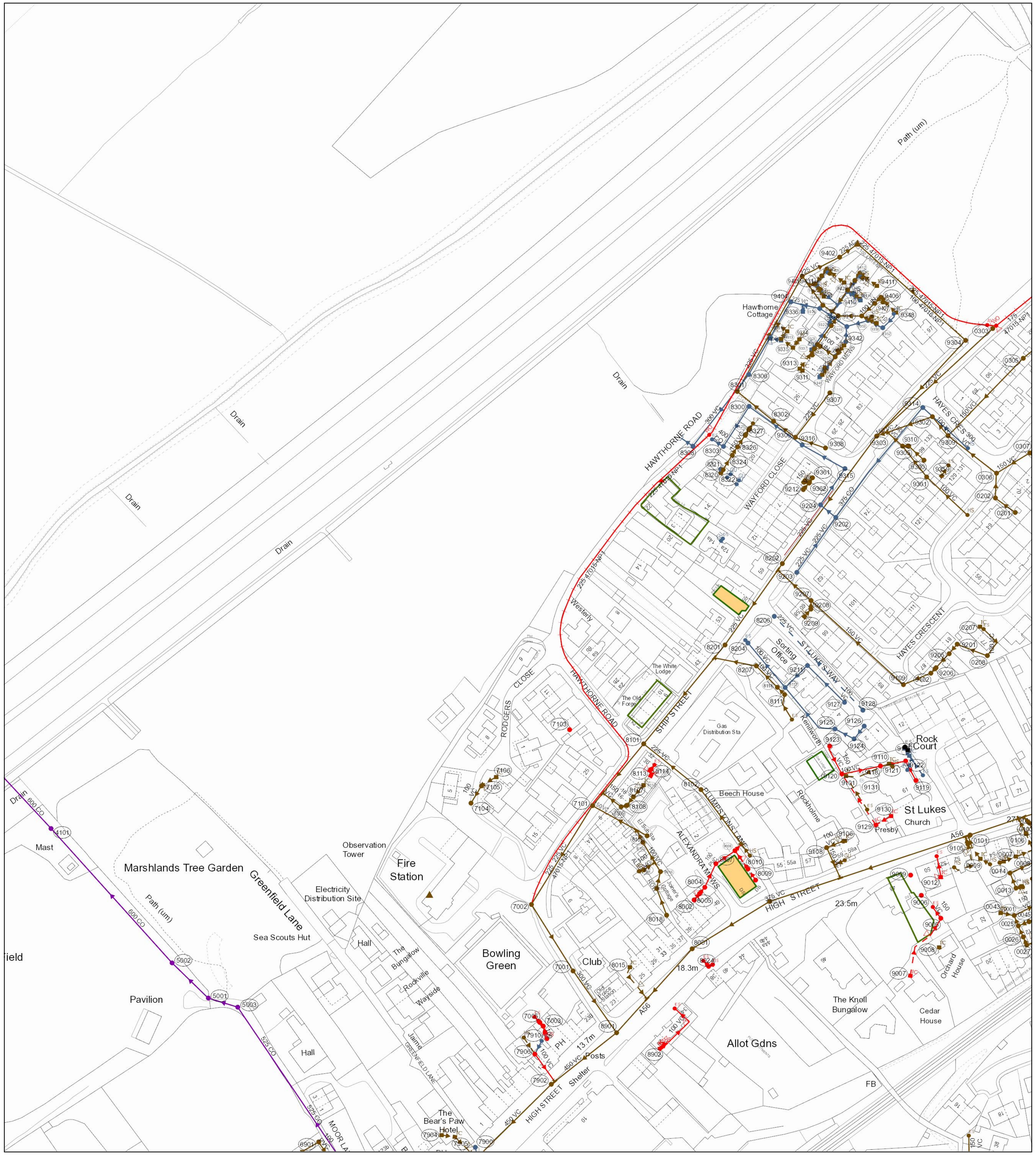
Frodsham,

OS sheet Number: SJ5178SW
Scale: 1:1250 **Date:** 19/10/2022
Nodes: 3
Sheet: 3 of 5

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West



The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
9301		FO	0	100			VC	21.87039	
0306		FO	0	150			VC	33.88778	
0307	18.14	FO		150			VC	21.63214	
9109		FO		150			VC	69.25225	
9206		FO		100			VC	4.122075	
9205		FO		100			VC	10.60659	
9326		FO		100			UN	1.776262	
9319	9.73	SW	7.86	225			VC	17.92425	1 in 25
9417		SW		0			UN	16.45549	
9414		FO		0			UN	14.74317	
9433		SW		100			UN	12.41623	
9431		FO		0			UN	3.661262	
9125		SW		100			VC	37.98496	
9208		FO		150			VC	4.849283	
9124		SW		100			VC	12.12792	
8009		CO		100			VC	7.587949	1 in
9315		SW	0	375			CO	27.10956	
8325		FO		150			VC	4.09925	
8308		SW	5.95	300			VC	7.971007	1 in 57
8324		FO		150			VC	5.55124	
8301	8.27	FO	6.26	225			VC	73.46395	1 in 1837
9316		SW	0	375			CO	36.29829	
9212		FO		150			VC	4.640605	
8201	14.76	FO	12.34	225			VC	71.02592	1 in 68
8207		FO		100			VC	23.70897	
8103		FO	0	150			VC	34.68409	
8101	12.57	FO	11.3	225			VC	44.54639	
0026		FO		0			UN	6.713656	
0001		FO		150			VC	20.02878	
7001	13.15	FO	9.81	300			VC	41.89144	1 in 78
7002	12.05	FO	0	300			VC	43.50714	
8008		CO		225			VC	5.110874	
7906		CO		100			VC	18.82048	
7910		CO		100				4.306648	1 in
5003		OV	0	600			CO	17.13785	
7105		FO		100			VC	11.17522	
0303	14.63	FO	13.44	225			VC	87.78675	1 in 200
0305		FO	0	150			VC	59.85818	
9349		FO		0			UN	12.90197	
9412		FO		100			UN	4.800912	
9309	15.42	FO	0	100			VC	13.76012	
0201	19.17	FO	17.42	150			VC	13.60005	1 in 25
9126		SW		100			VC	9.029962	
9318		FO		100			UN	3.085499	
9338		SW		0			UN	4.709406	
9317	9.46	FO	7.71	150			VC	10.39895	1 in 25
9320	9.03	SW	7.14	225			VC	16.63931	1 in 64
9403	8.31	FO	6.81	225			VC	23.16421	
9429		FO		100			UN	4.685051	
8111		FO		100			VC	5.92374	
9211		SW		100			VC	17.36347	
9127		SW		100			VC	29.03016	
0013		FO		0			UN	8.951546	
9306	12.12	FO	8.99	225			VC	15.07	1 in 22
8303		SW		400			CO	7.310983	
8300		SW	0	375			CO	26.43642	
9404	8.7	SW	6.87	300			VC	46.63095	1 in 101
9207		FO		150			VC	25.00072	
9362		FO		150			VC	3.611343	
9204		SW	0	375			CO	24.14692	
8102	15.56	FO	14.46	225			VC	40.6277	1 in 13
8202	15.09	FO	12.66	225			VC	55.10688	1 in 172
8117		SW		100			VC	32.1483	
8118		FO		100			VC	16.50045	
8109		FO		150			VC	12.78242	
8001	18.06	FO	14.46	375			VC	62.59281	1 in 21
8007		CO		100			PVC	12.95022	
8105		FO		100			VC	7.63149	
6901		FO		100			PVC	11.48974	
9304	14.23	FO	13.33	225			VC	72.48062	1 in 302
9342		SW		0			UN	8.600156	
9352		SW		100			UN	9.223797	
9314		SW	1.77	375			CO	77.77087	
9310		FO	0	150			VC	11.30561	
9305		FO	0	100			VC	3.39	
9121		CO		100			VC	14.15416	
0208		FO		100			VC	17.87272	
9321		FO		0			UN	12.84834	
9401	9.04	FO	7.29	150			VC	19.83315	1 in 19
9432		SW		100			UN	4.346026	
9402		FO	0	225			AC	12.50819	
9128		SW		225			VC	71.644	
0103		FO		150			VC	4.69601	
9308	12.93	FO	0	225			VC	17.62615	
8322		FO		150			VC	1.983302	
8302	11.5	FO	8.25	225			VC	25.94224	1 in 9
8326		FO		150			VC	7.617781	
8327		FO		150			VC	3.75416	
9303	13.86	FO	13.02	225			VC	87.97233	1 in 244
9203		SW	0	225			VC	37.37154	
7101		FO	0	225			VC	64.31643	
0027		FO		0			UN	4.798621	
0025		FO		0			UN	6.169337	
9005		CO		150			VC	7.543643	
8901	14.91	FO	9.15	450			VC	46.26556	
8024		CO		150			VC	4.279051	
8003	21.44	FO	17.43	375			VC	50.40717	1 in 17
8005		CO		100			PVC	4.696909	
8016		FO		100			VC	19.06324	
7005		CO		100				4.203877	1 in
4101	5	OV	3.56	600			CO	118.7363	
4101	5	OV	3.56	600			CO	118.7363	
9353		SW		0			UN	12.06661	
9413		FO		100			UN	6.668446	
9407		FO		100			UN	10.09305	
9406		FO		100			UN	4.776564	
9302	14.41	FO	13.42	150			VC	26.3063	
9300		FO	0	100			VC	11.60772	
0202	18.08	FO	16.83	150			VC	13.73225	
9120		CO		100			VC	21.86162	
9102		FO	0	150			VC	16.56826	
9201		FO		100			VC	6.810092	
9325		FO		100			UN	10.19262	
9322		FO		0			UN	6.772485	
9430		FO		100			UN	5.852401	
9123		CO		150			VC	17.27767	
0101		FO	0	375			VC	117.0392	
9108		FO		150			VC	18.44142	
9122		CO		100			VC	12.33348	
0014		FO		0			UN	15.38127	
9307		FO	0	225			VC	31.26491	
8306	8.4	SW	6.41	300			VC	50.27789	1 in 109
8321		FO		150			VC	9.608068	
9202		SW	0	375			CO	11.00638	
8204		SW		100			VC	2.262661	
0045		FO		0			UN	6.341251	
8018		FO		100			VC	15.80643	
8017		FO		100			VC	9.49321	
8004		CO		100			PVC	14.36445	
8022		FO		100			VC	7.411078	
8108		FO		150			VC	3.352512	
8107		FO		150			VC	5.814806	
7902	12.58	FO	10.48	450			VC	59.93533	1 in 76
7003		CO		100				2.784468	1 in
5001	6.06	OV	4.66	600			CO	28.0391	1 in 82
5002	5.54	OV	4.32	600			CO	100.2451	1 in 132

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water
brown - foul, purple - overflow

Manhole, Head of System, Extent of Survey, Rodding Eye, Inlet, Discharge Point, Vortex, Penstock, Washout Chamber, Valve, Air Valve, Non Return Valve, Soakaway, Gully, Cascade, Flow Meter, Hatch Box, Oil Interceptor, Summit, Drop Shaft, Orifice Plate

Side Entry Manhole, Outfall, Screen Chamber, Inspection Chamber, Bifurcation Chamber, Lamp Hole, T Junction / Saddle, Catchpit, Valve Chamber, Vent Column, Vortex Chamber, Penstock Chamber, Network Storage Tank, Sewer Overflow, Ww Treatment Works, Ww Pumping Station, Septic Tank, Control Kiosk

Change of Characteristic

MANHOLE FUNCTION

FO Foul
SW Surface Water
CO Combined
OV Overflow

SEWER SHAPE

CI Circular | TR Trapezoidal
EG Egg | AR Arch
OV Oval | BA Barrel
FT Flat Top | HO HorseShoe
RE Rectangular | UN Unspecified
SQ Square

SEWER MATERIAL

AC Asbestos Cement
BR Brick
PE Polyethylene
RP Reinforced Plastic Matrix
CO Concrete
CSB Concrete Segment Bolted
CSU Concrete Segment Unbolted
CC Concrete Box Culverted
PSC Plastic / Steel Composite
GRC Glass Reinforced Plastic
DI Ductile Iron
PVC Polyvinyl Chloride
CI Cast Iron
SI Spun Iron
ST Steel
VC Vitrified Clay
PP Polypropylene
PF Pitch Fibre
MAC Masonry, Coursed
MAR Masonry, Random
U Unspecified

Address or Site Reference:

Frodsham,

OS sheet Number: SJ5178SE
Scale: 1:1250
Date: 19/10/2022
Nodes: 136
Sheet: 4 of 5

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned	Foul	Surface Water	Combined	
				Public Sewer
				Private Sewer
				Section 104
				Rising Main
				Sludge Main
				Overflow
				Water Course
				Highway Drain

All point assets follow the standard colour convention:

red - combined **blue - surface water**
brown - foul **purple - overflow**

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
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- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforecd Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

Frodsham,

OS sheet Number: SJ5078SE
Scale: 1:1250 **Date:** 19/10/2022
Nodes: 0
Sheet: 5 of 5

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West

Appendix H Photographic Record

PHOTOGRAPHIC LOG

Photo No.1	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351116, 378161 (facing east) Main watercourse flowing in the southern extent of the site (D5) Heavily overgrown.	

Photo No. 2	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351033, 378242 (facing south-west) Unnamed ditch (D7) running along the western extent of Brook Furlong. Heavily overgrown.	

Photo No.3	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351206, 378321 (facing north-east) Main river flowing through the center of the site (W2) Heavily overgrown.	

Photo No. 4	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351199, 378371 (facing north-east) Main river flowing through the center of the site. (W2) Heavily overgrown.	

Waterco	**PHOTOGRAPHIC LOG**
Photo No.5	**14740 – Frodsham DCO Scheme**
Date: 21/09/2023 **Description:** Approximate NGR: 351040, 378306 (facing south) Unnamed watercourse (D1) flowing east to form confluence with the Main River (W2)	

Waterco	**PHOTOGRAPHIC LOG**
Photo No.6	**14740 – Frodsham DCO Scheme**
Date: 21/09/2023 **Description:** Approximate NGR: 351107, 378349 (facing south) Unnamed watercourse (D4) flowing east to form confluence with the Main River (W2)	

PHOTOGRAPHIC LOG

Photo No.7	**14740 – Frodsham DCO Scheme**
Date: 21/09/2023	
Description: Proposed crossing between D4 and W2.	

PHOTOGRAPHIC LOG

Photo No.8	**14740 – Frodsham DCO Scheme**
Date: 21/09/2023	
Description: Approximate NGR: 351190, 378469 Existing crossing between D3 and W2. Heavily overgrown.	

Photo No.9	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351161, 378583 Proposed crossing (D2 & W2) Heavily overgrown	

Photo No. 10	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351188, 378470 Existing crossing between D3 and W2. Watercourse heavily overgrown.	

Photo No.11	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351155, 378575 (facing west) Unnamed watercourse (D1)	

Photo No. 12	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351158, 378577 (facing east) Unnamed watercourse (D1)	

Photo No.13	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Field north of watercourse D9 (facing eastwards)	

Photo No. 14	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351049, 378894 (facing southwards) Where D9 forms confluence with W2 (Main River). Heavily overgrown	

PHOTOGRAPHIC LOG

Photo No.15	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** . Approximate NGR: 351156, 378940 (facing west) Watercourse D11. Heavily overgrown	

Photo No. 16	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351134, 379005 (facing north-east) Watercourse D11 Heavily overgrown	

PHOTOGRAPHIC LOG

Photo No.17	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** River Wear Flood Defense (High ground) located along the northern site boundary (Approximate NGR: 351048, 379026)	

Photo No. 18	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351002, 378992 (Facing north) Unnamed watercourse (Main River) located south of the River Weaver flood defences on the northern site boundary. (W1)	

Photo No.19	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351824, 378615 (Facing south-east) W1 (Main River). Heavily overgrown. Photograph taken from existing crossing.	

Photo No. 20	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351821, 378615 (Facing north-west) W1 (Main River) Photograph taken from existing crossing.	

PHOTOGRAPHIC LOG

Photo No.21	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351508, 378487 (Facing south-east) D13. Heavily overgrown. Restricted access to ditch due to dense vegetation	

Photo No. 22	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351380, 378553 (Facing north) D14 & D5. Heavily overgrown. Restricted access to ditch due to dense vegetation	

PHOTOGRAPHIC LOG

Photo No.23	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351556, 378806 (Facing south-east) W1 (Main River) & D5 confluence Existing crossing (culvert improvements proposed)	

Photo No. 24	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351550, 378801 (Facing south-east) D5 flowing east into W1 (Main River). Heavily overgrown.	

PHOTOGRAPHIC LOG

Photo No.25	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** . Approximate NGR: 351554, 378805 (Facing north) W1 (Main River	

Photo No. 26	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351523, 378943 (Facing north) Photograph taken from existing crossing (Improvements proposed) W1	

Photo No.27	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351523, 378945 (Facing southwards) W1 culvert. Heavily overgrown	

Photo No. 28	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351504, 378955. (Facing south) Two existing watercourse crossings (Proposed improvements) D9 heavily overgrown.	

PHOTOGRAPHIC LOG

Photo No.29	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351341, 378942 (Facing west) Existing crossing over D10 (Proposed improvements)	

Photo No. 30	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351337, 378942 (Facing north) D10 – Heavily Overgrown Restricted access to channel due to dense vegetation	

PHOTOGRAPHIC LOG

Photo No.31	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351810, 378988 (Facing east) Crossing over D23.	

Photo No. 32	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351840, 379041 Second crossing over D23.	

PHOTOGRAPHIC LOG

Photo No.33	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351797, 379191 Existing crossing over D22.	

Photo No. 34	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351801, 379195 (Facing south-east) D22. Heavily overgrown.	

PHOTOGRAPHIC LOG

Photo No.35	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351799, 379197 (Facing north-west) D22. Heavily overgrown.	

Photo No. 36	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351805, 379203 River Weaver flood defense (high ground) along the eastern site boundary.	

Photo No.37	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351861, 379051 (Facing north-east) Crossing over D24.	

Photo No. 38	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** D32. Restricted access to channel due to dense vegetation Proposed crossing.	

PHOTOGRAPHIC LOG

Photo No.39	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** Approximate NGR: 351908, 378836 D32 (further downstream) Heavily overgrown.	

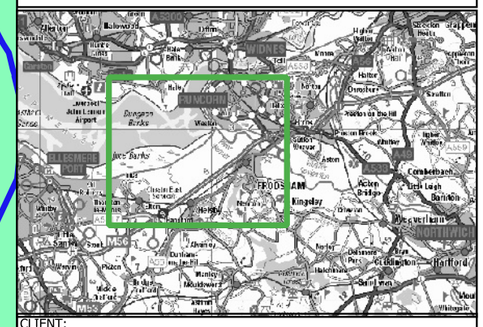
Photo No.40	14740 – Frodsham DCO Scheme
Date: 21/09/2023 **Description:** D30 at NGR: 349652 , 378376 Facing north.	

Appendix I Designations Mapping

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Green Belt



CLIENT:

Frodsham Solar Ltd

waterco

www.waterco.co.uk

SCHEME:

Frodsham Solar

PLOT TITLE:

Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

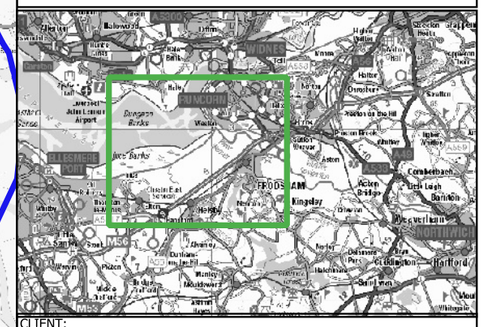
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_Green_Belt	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Drinking Water Safeguard Zones



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SCHEME:
Frodsham Solar

PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

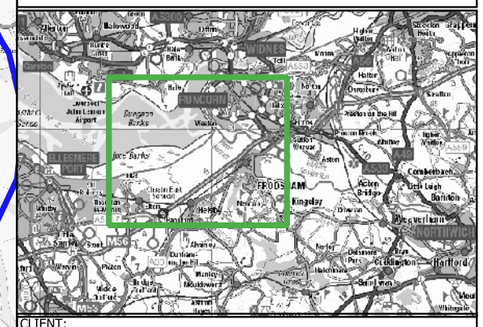
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_Drinking_Water_Safeguard_Zone	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Listed Building



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SCHEME:
Frodsham Solar

PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_Listed_Buildings	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km ZoI
- Nitrate Vulnerable Zones

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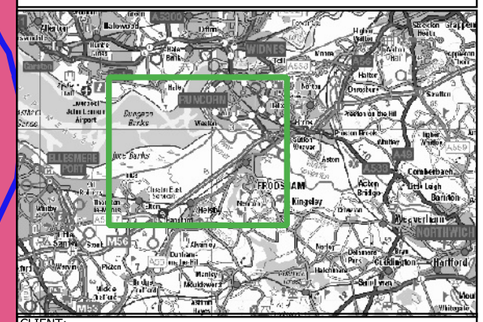

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SCHEME:
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PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

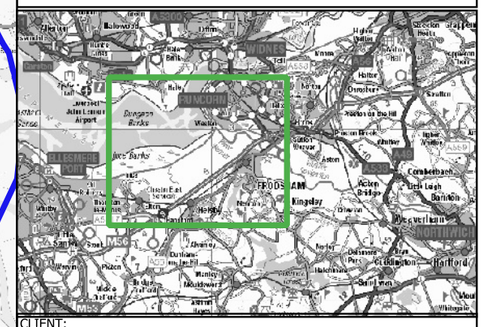
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_NVZ	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Ramsar Site



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SCHEME:

Frodsham Solar

PLOT TITLE:

Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

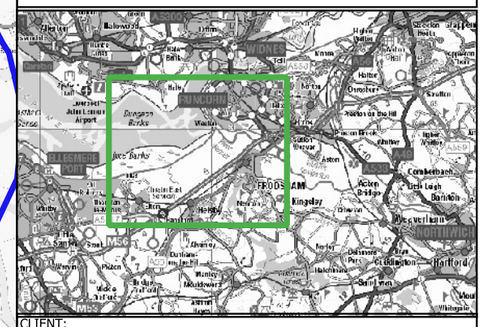
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_Ramsar	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Registered Park and Gardens



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SCHEME:
Frodsham Solar

PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

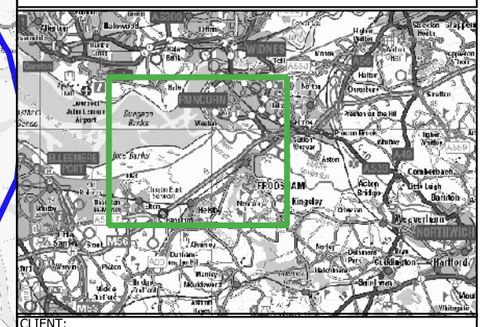
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_Registered_Park_and_Gardens	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Special Protection Areas



0 0.5 1 km

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SCHEME:
Frodsham Solar

PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

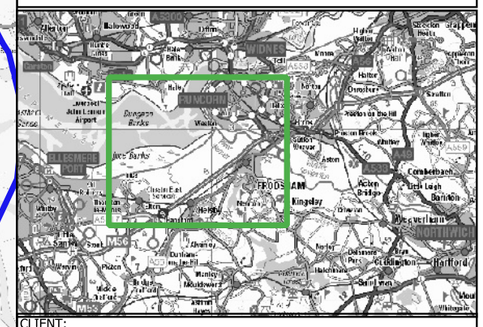
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_SPA	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km ZoI
- Zone I - Inner Protection Zone
- Zone I - Subsurface Activity
- Zone II - Outer Protection Zone
- Zone II - Subsurface Activity
- Zone III - Total Catchment
- Zone III - Subsurface Activity



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PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_SPZ	-

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Land Not Within Site Boundary
- Site Boundary
- 1km Zol
- Sites of Special Scientific Interest

Mersey Estuary

Flood Brook Clough

Mersey Estuary

Frodsham Railway and Road Cuttings

Frodsham Railway and Road Cuttings

Frodsham Railway and Road Cuttings

Beechmill Wood and Pasture

Beechmill Wood and Pasture

Dunsdale Hollow

0 0.5 1 km

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SCHEME:
Frodsham Solar

PLOT TITLE:
Designations Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
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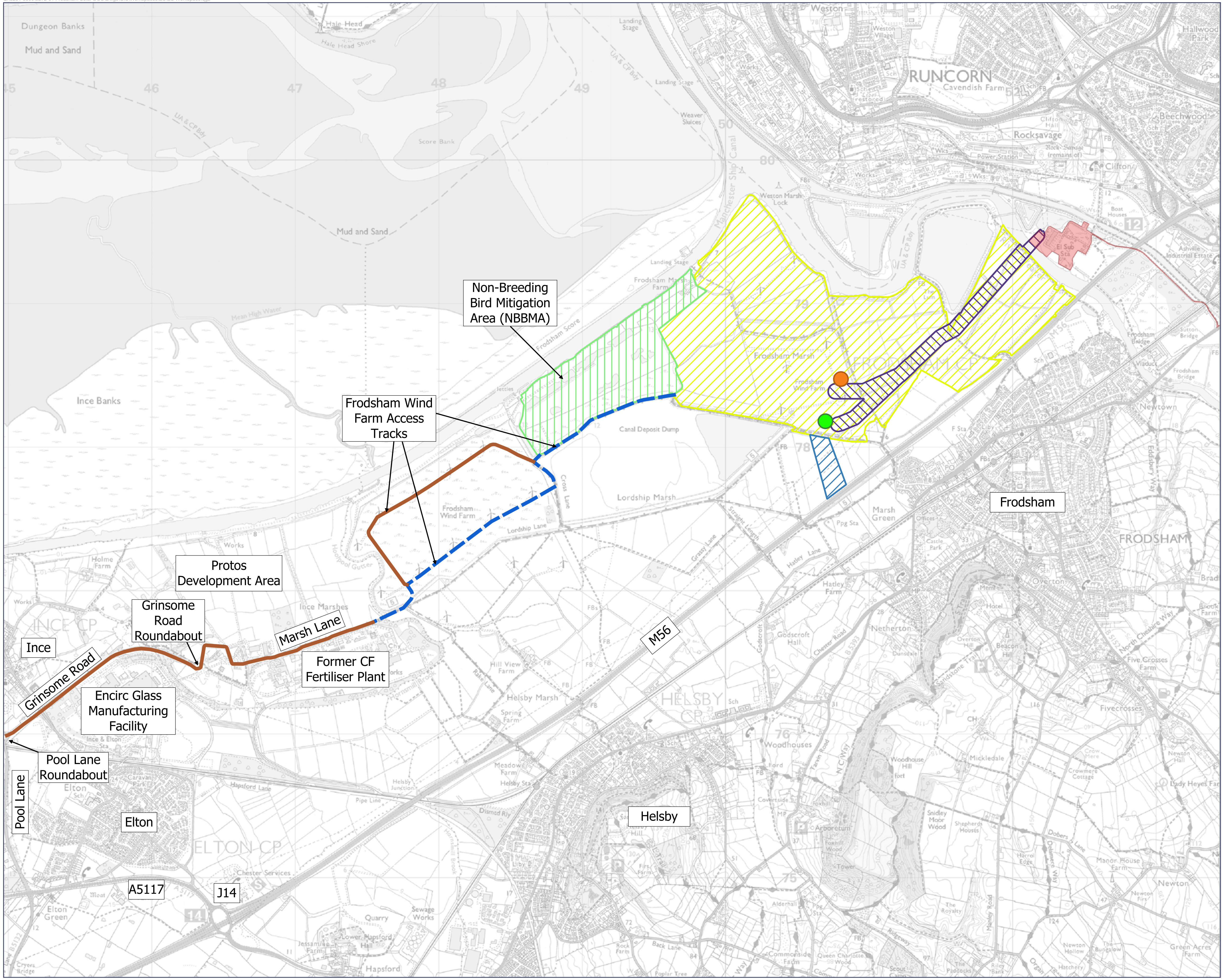
PLOT NAME:	REVISION:
14740_SSSI	-

Appendix J Proposed Development Plans



Solar Array Development Area

SPEN / National Grid Substation and Access to the Substation Compound

SPEN Grid Connection

Skylark Mitigation Area

Main Site Access with Private Wire Connection

Main Site Access without Private Wire Connection

BESS and Substation Compound (Option 1)

BESS and Substation Compound (Option 2)

Case Reference: EN010153
Document Reference: EN010153/DR/6.3
Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Environmental Statement: Volume 3

Project

FRODSHAM SOLAR

Figure Number

Figure 1-2

Figure Title

The Proposed Development Areas

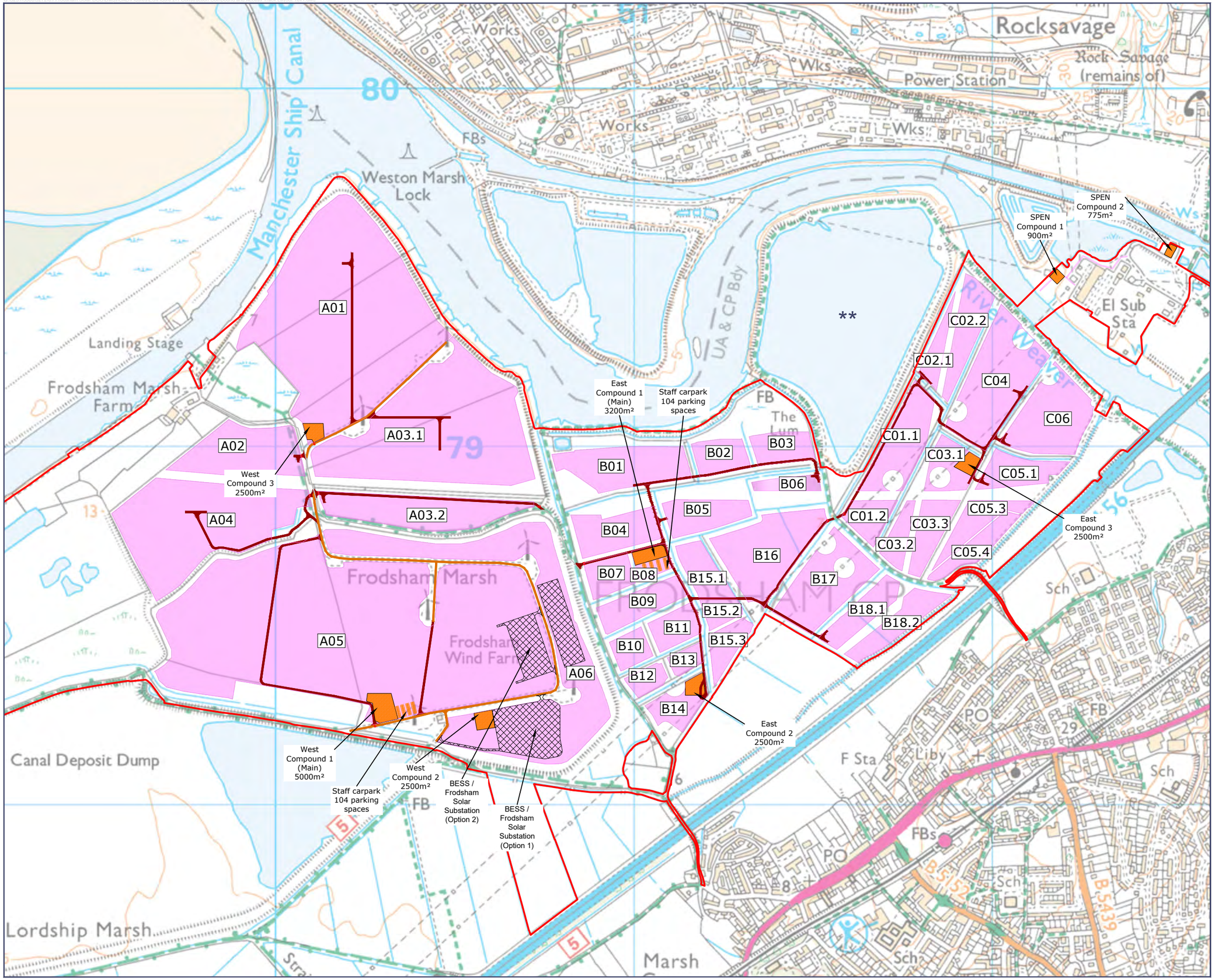
Scale

1:25000@A3

0 500 1,000 1,500 2,000 2,500 m

Date

May 2025



Order Limits

Solar PV Array Areas

Access Track - Existing

Indicative Proposed Access Track Positions

Temporary Access Track for SPEN Substation

Indicative Location of Principal Construction Compounds

** Not open water - area now covered with grassland and scrub, see Figure 1-4

Case Reference: EN010153
Document Reference: EN010153/DR/6.3
Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Environmental Statement: Volume 3

Project

FRODSHAM SOLAR

Figure Number

Figure 2-1

Figure Title

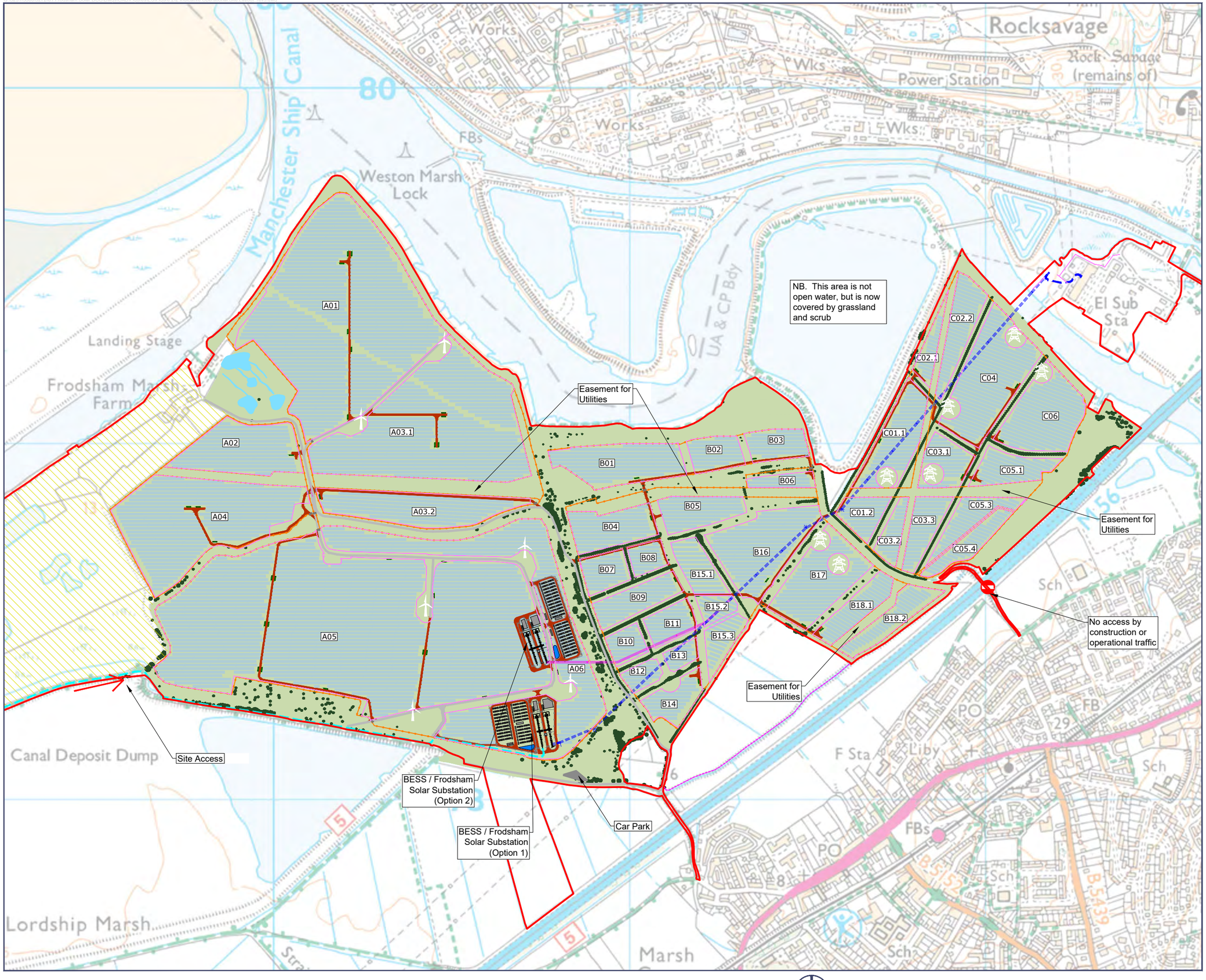
Indicative Construction Compound and Access Track Layout

Scale

1:10,000 @A3

Date

May 2025



N

0 500 750 1000m

- Order Limits
- Permanent Fencing
- Access Track - Existing
- Access Track - Proposed
- Solar PV Tables
- A00.0 Panel Reference Area
- Power Conversion Unit (Inverter / Transformer Station)
- Proposed 132kV Overhead Line to SPEN Substation (Option 1)
- Proposed 132kV Overhead Line to SPEN Substation (Option 2)
- Proposed 132kV Underground Line to SPEN Substation
- Proposed 132kV Underground Line to nearby businesses
- Non-Breeding Bird Mitigation Area
- Existing Trees and Hedgerows
- Areas of landscape management and habitat creation

Case Reference: EN010153
Document Reference: EN010153/DR/6.3
Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Project

FRODSHAM SOLAR

Figure Number

Figure 2-2

Figure Title

Indicative Operational Site Layout

Scale

1:10,000 @A3

Date

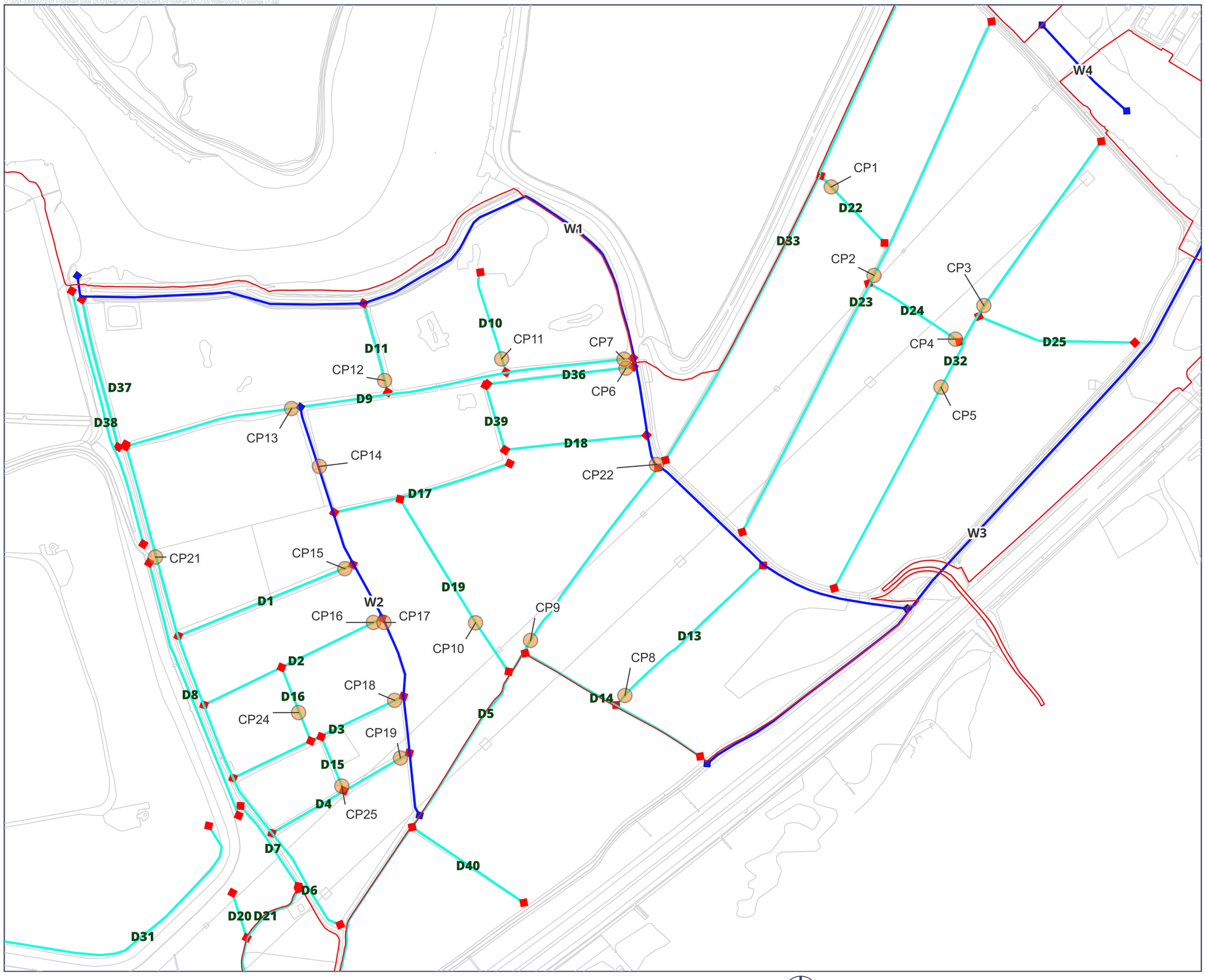
May 2025

Appendix K Watercourse Crossings Plan

Crossing Point Ref.	Watercourse Ref. D# - Ordinary Watercourse W# - Main River	Crossing	
		Existing or New	Type
CP1	D22	Existing	Replacement open span vehicular crossing, with MV and LV cable crossing.
CP2	D23	New	New open span vehicular crossing and MV and LV cable crossing.
CP3	D32	New	New open span vehicular crossing and MV cable crossing.
CP4	D24	New	New open span vehicular crossing and MV cable crossing.
CP5	D32	New	New open span vehicular crossing and MV cable crossing.
CP6	D36	New	New open span vehicular crossing and MV and LV cable crossing.
CP7	D9	Existing	Replacement open span vehicular crossing, with MV and LV cable crossing.
CP8	D13	New	New open span vehicular crossing and MV cable crossing.
CP9	D5	New	New open span vehicular crossing and MV cable crossing.
CP10	D19	New	New open span vehicular crossing and MV cable crossing.
CP11	D10	New	Replacement open span vehicular crossing, with MV and LV cable crossing.
CP12	D11	New	New open span vehicular crossing and MV cable crossing.
CP13	D9	New	New open span vehicular crossing and MV cable crossing.
CP14	W2	Existing	Replacement open span vehicular crossing, with MV and LV cable crossing.

Crossing Point Ref.	Watercourse Ref. D# - Ordinary Watercourse W# - Main River	Crossing	
		Existing or New	Type
CP15	D1	New	New open span vehicular crossing, with MV and LV cable crossing.
CP16	D2	Existing	Replacement open span vehicular crossing, with MV cable crossing.
CP17	W2	New	New open span vehicular crossing, with MV cable crossing.
CP18	D3	Existing	Replacement open span vehicular crossing, with MV cable crossing.
CP19	D4	New	New open span vehicular crossing, with MV and LV cable crossing.
CP20	Not used		
CP21	D6	New	New open span vehicular crossing, with MV cable crossing.
CP22	W1	New	Replacement open span vehicular crossing, with MV cable crossing.
CP23	D3	Existing	Retain existing vehicular crossing.
CP24	D16	Existing	Retain existing vehicular crossing, new LV cable crossing.
CP25	D15	Existing	Retain existing vehicular crossing, new LV cable crossing.

Q:\3251-3300\3272-01 Frodsham Solar DCO\Dwgs\GIS\Workspaces\ES\Frodsham DCO ES Watercourse Crossings v1.qgz



Order Limits

Crossing Points

Main Rivers

Ditches

N

0 100 200 300 400 500 m

0344 8700 007
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axis

Project

Frodsham Solar Environmental Statement

Figure Number

Appendix 2-1 Figure 1

Figure Title

Indicative Watercourse Crossing Points

Scale

1:5000@A3

Date

April 2025

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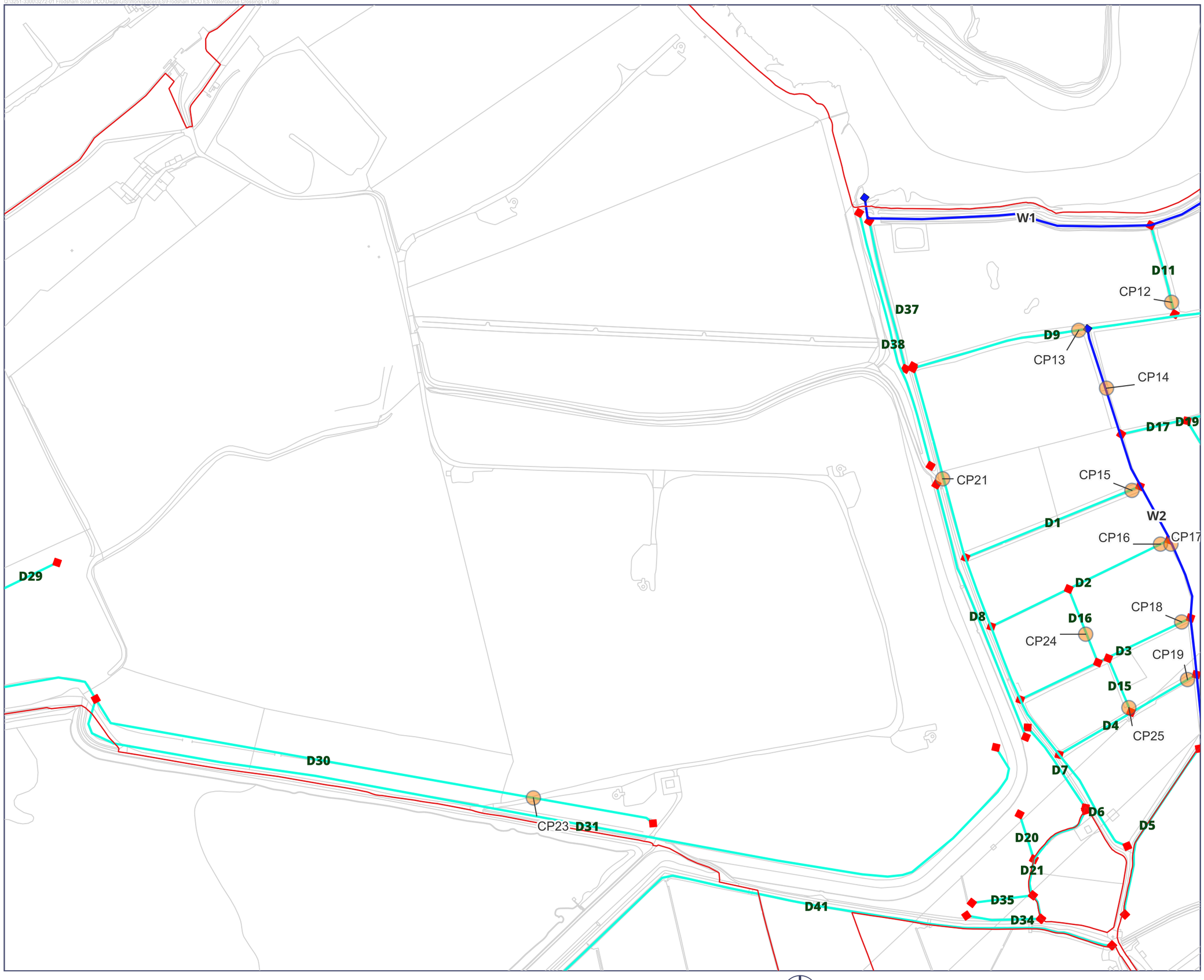

Order Limits

Crossing Points

Main Rivers

Ditches

N

0 100 200 300 400 500 m

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Project

Frodsham Solar Environmental Statement

Figure Number

Appendix 2-1 Figure 2

Figure Title

Indicative Watercourse Crossing Points

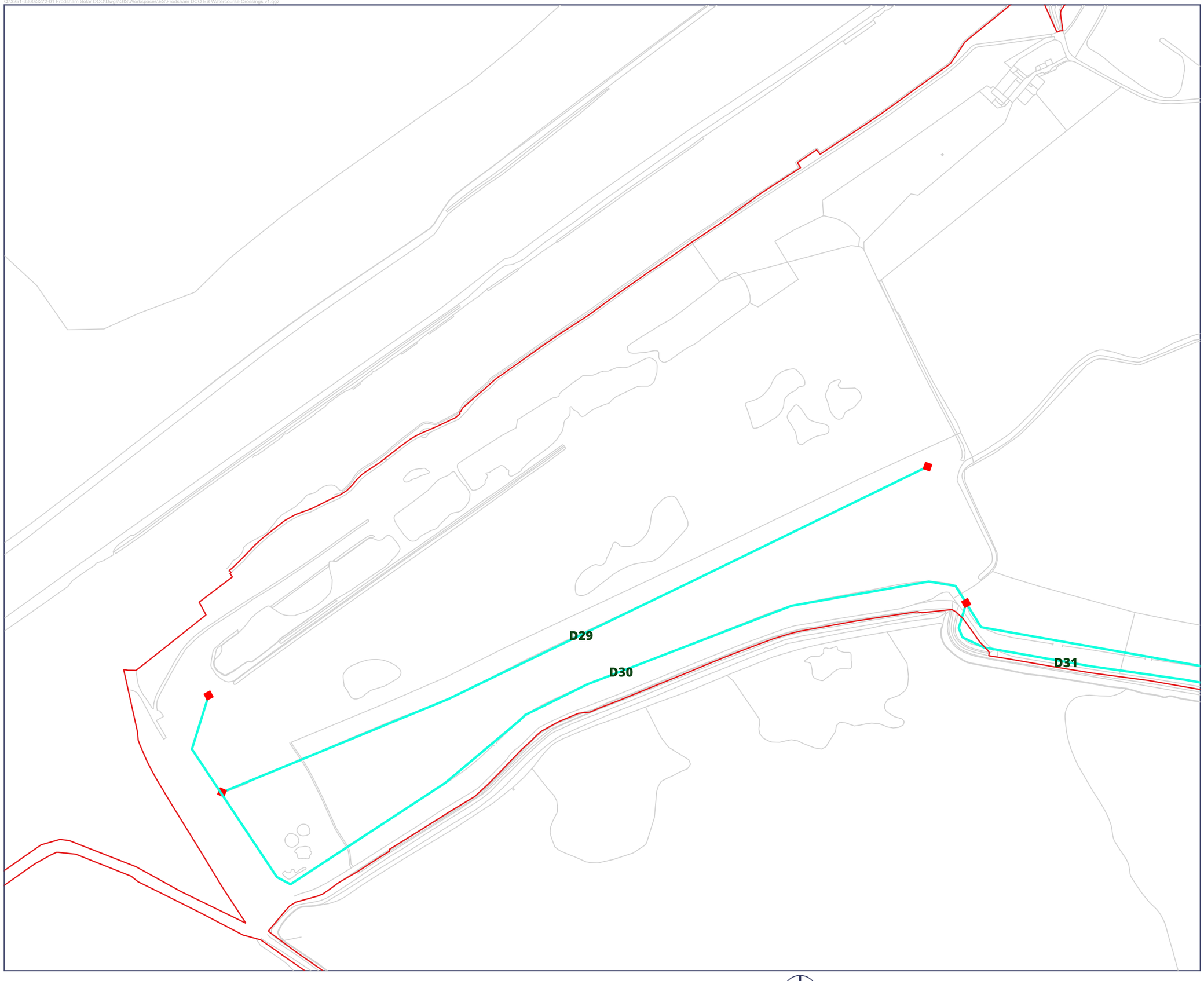
Scale

1:5000@A3

Date

April 2025

Q:\3251-3300\3272-01 Frodsham Solar DCO\Dwgs\GIS\Workspaces\ES\Frodsham DCO ES Watercourse Crossings v1.qgz



Order Limits

Ditches

N

0 100 200 300 400 500 m

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Project

Frodsham Solar Environmental Statement

Figure Number

Appendix 2-1 Figure 3

Figure Title

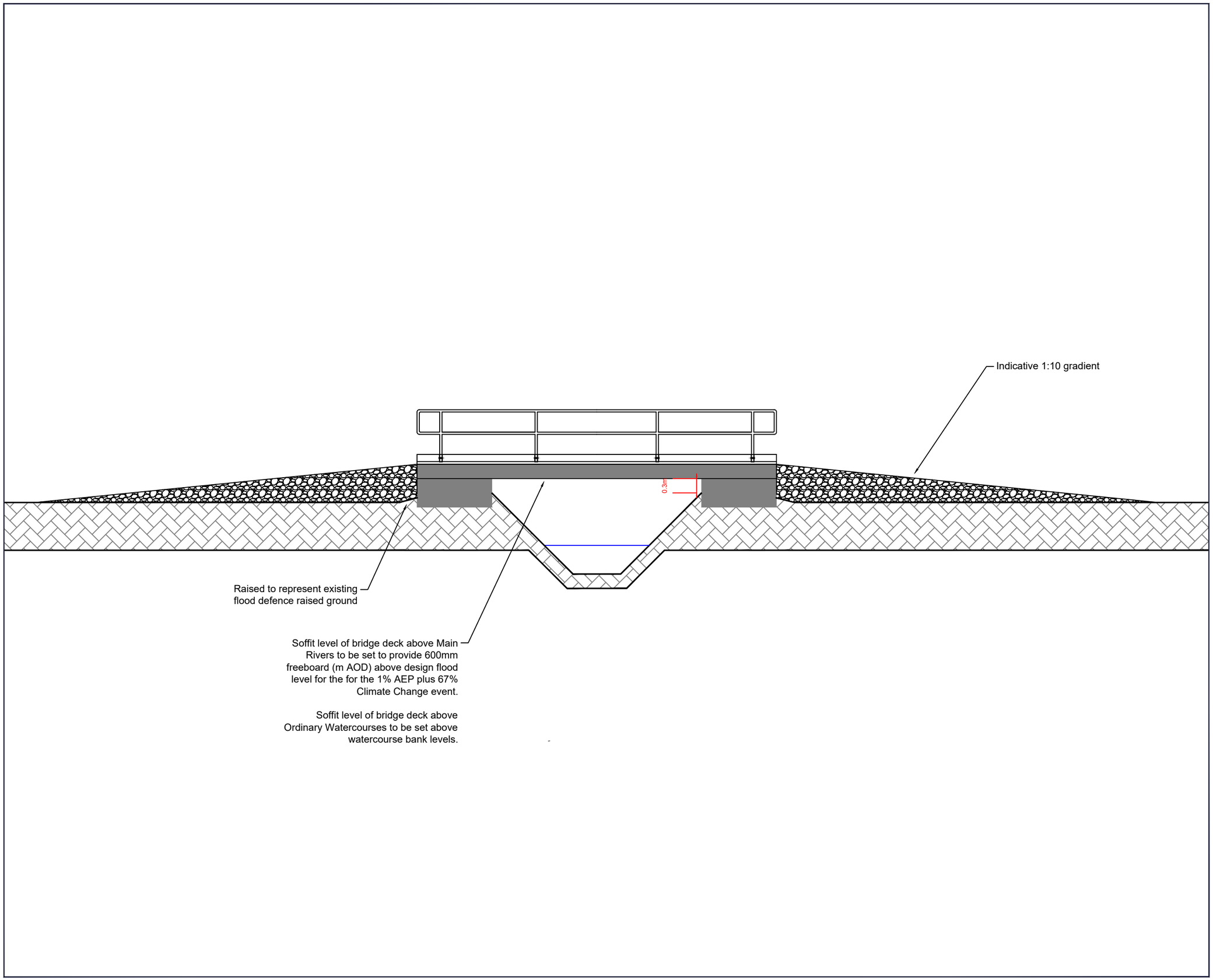
Indicative Watercourse Crossing Points

Scale

1:5000@A3

Date

April 2025



N

0 1 2 3 4 5 6 7 m

Case Reference: EN010153
Document Reference: EN010153/DR/6.3
Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Document

Environmental Statement: Volume 3

Project

FRODSHAM SOLAR

Figure Number

Figure 2-5j

Figure Title

Indicative Permanent Watercourse Crossing

Scale

1:75 @A3

Date

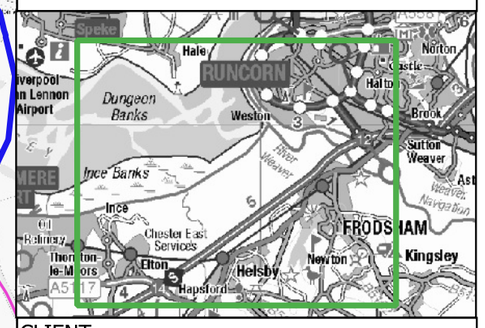
May 2025

Appendix L Buffer Zone Plan

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- 1km Zone of Influence Plan
- Land Not Within Site Boundary
- Site Boundary
- Mersey Estuary
- Weaver (Dane to Frodsham)
- Peckmill Brook, Hoolpool Gutter at Ince Marshes
- Manchester Ship Canal



CLIENT:
Frodsham Solar Ltd

waterco
www.waterco.co.uk

SCHEME:
Frodsham Solar

PLOT TITLE:
Zone of Influence Plan

PLOT STATUS:	DATE:
FINAL	30-04-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MW	AW	NJ	1:32000

PLOT NAME:	REVISION:
14740_Zone_of_Influence_Plan	-

0 1 2 km

Appendix M Pollution Control Measures

Typical pollution control measures to be considered during the construction phase; the list below is best practice, is not exhaustive and reference to the appropriate and relevant guidance should also be undertaken on more complex schemes:

- Potentially contaminating liquids, such as oils and fuel, should be stored a minimum of 10m away from the watercourse, and any drainage system inlets (gullies etc.) and constructed runoff interception ditches.

- Potentially contaminating liquids should be stored in a suitably bunded contained if present in a bulk container. Smaller container volumes should be stored on a drip tray or in a closed storage unit when not in use. The storage of fuel and oils on site will be in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001.

- Trade materials, chemicals and hazardous substances will be stored safely and securely, a minimum of 10m from waterbodies and within an impermeable bunded area.

- Equipment should be regularly checked to ensure that leakage from hydraulic lines and engines does not occur.

- Bank excavation /restoration where possible should carried out operating from the bank rather than the watercourse

- Spill kits should be available on site at all times and operatives should be trained in how to use them.

- Any soils contaminated during the course of the works should be excavated and disposed of correctly in accordance with current waste disposal legislation. Where gross contamination occurs, professional advice should be sought immediately.

- Bins should be provided on site for debris.

- Plant / Vehicle washing will be carried out in designated locations a minimum of 10m away from the waterbody. The area should be lined and should not be allowed to discharge into a watercourse or infiltrate to groundwater.

- In any event of expected heavy rain, pouring concrete and other activities which increase the risk of contaminating runoff and should not be undertaken

- Stockpiles of excavated land and materials should be positioned a minimum of 10m away from waterbodies. Stockpiles of fine materials i.e. topsoil, sand etc. should be covered or seeded (where appropriate) to prevent erosion from rainfall and silt accumulation from runoff.

- Mixing and washing will be undertaken within a designated impermeable area. Washout areas will be contained to prevent contaminated water entering waterbodies or groundwater. Contaminated water will be collected and tankered offsite by a licensed contractor.