Frodsham Solar

Outline Construction Environmental Management Plan

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1.0 INTRODUCTION

1.1 Background

1.1.1 This outline Construction Environmental Management Plan (oCEMP) has been prepared for the construction phase of the Frodsham Solar Project (hereafter referred to as 'the Proposed Development').

1.1.2 The Proposed Development is classified as a Nationally Significant Infrastructure Project (NSIP) and therefore Frodsham Solar Limited ('the Applicant') is applying for a Development Consent Order (DCO) to construct, operate and decommission the Proposed Development. The Proposed Development is 'EIA development' as defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations')[i], requiring an Environmental Impact Assessment (EIA).

1.1.3 The purpose of this oCEMP is to set out how the necessary environmental mitigation and monitoring, identified as part of the EIA and set out in the Environmental Statement (ES), will be delivered during the construction of the Proposed Development, and ensure that this mitigation is secured and embedded into project delivery.

1.1.4 This oCEMP is concerned with the construction phase of the Proposed Development, the following documents cover the separate operational and decommissioning phases:

- Operational phase – **outline Operational Environmental Management Plan** (oOEMP) **[EN010153/DR/7.6]**; and
- Decommissioning phase – **outline Decommissioning Environmental Management Plan** (oDEMP) **[EN010153/DR/7.7]**.

1.1.5 If the DCO is granted, this oCEMP will be developed into a final Construction Environmental Management Plan (CEMP) once a contractor is appointed. The final CEMP(s) produced for any phase of the Proposed Development (see paragraph 2.4.6 below for more information) will be in substantial

accordance with this oCEMP, as set out by Requirement 12 of the **draft DCO [EN010153/DR/3.1]**, and approved by Cheshire West and Chester Council before construction commences.

1.1.6 Nothing in this oCEMP will prevent the modification or omission of the control measures set out in section 4 and 5 where the construction methodology means that the measures can be so modified or omitted. This will be confirmed (including confirming that the absence or change to such control measures will not lead to any materially new or materially different effects which are worse than those reported in the ES) at the time of submission of the final CEMP for approval.

1.2 Document Structure

1.2.1 This oCEMP is structured as follows:

- **Introduction** – provides an introduction to the document and defines the structure of the oCEMP;
- **Description of Development** – provides a summary of the Site and Site Context, a description of the Proposed Development, and sets out a summary of the expected construction activities, staffing, and equipment;
- **Roles & Responsibilities** – sets out the roles and responsibilities that will need to be defined at the construction phase, and identifies stakeholders relevant to the environmental management of the construction phase;
- **Construction Environmental Management** – sets out principles and site rules to be applied in the construction of the Proposed Development, and how communication with third parties will be undertaken during construction;
- **Environmental Mitigation Measures** – sets out the environmental management and mitigation measures that are required to address the effects of the Proposed Development during the construction phase, as relied on or identified in the ES;

- **Implementation of Management Plan** – provides a summary of the key requirements that must be within the final CEMP to ensure successful implementation of this oCEMP; and
- **Monitoring and Maintenance** – sets out the procedures for monitoring and ensuring compliance with the final CEMP, as well as requirements for record keeping.

1.3 Relationship with Other Management Plans

1.3.1 This oCEMP is part of a framework of environmental management documents that will be implemented during the construction phase of the Proposed Development. The final CEMP will work alongside several other specific management plans, which provide further details on mitigation and management measures.

1.3.2 The following will be developed separate to the final CEMP, pursuant to DCO Requirements:

- **Construction Traffic Management Plan (CTMP)**: This plan will manage the movement of construction traffic by setting out strategies for routing, scheduling, access control, and mitigation measures, minimising disruption to local roads, ensuring safety, and reducing environmental impacts throughout the construction phase of the project.
- **Construction Groundwater and Surface Water Management Plan (GWSWMP)**: This plan will detail site-wide measures for drainage, rainfall runoff management, and groundwater interaction, including flood risk mitigation and the containment of firewater runoff from the Battery Energy Storage System (BESS). It will be informed by the Flood Risk Assessment (FRA) and Drainage Strategy.
- **Public Rights of Way Management Plan (PRoWMP)**: This plan will ensure the maintenance of existing PRoWs, the implementation of new permissive paths, and the provision of wayfinding signage to guide public access across the site.

- **Landscape and Ecology Management Plan (LEMP)**: This plan will set out measures for landscape planting, habitat management, and biodiversity net gain, ensuring that mitigation planting and screening vegetation are effectively maintained.
- **Non Breeding Bird Mitigation Strategy:** This plan will set out the detail of the implementation and management measures for the Non Breeding Bird Mitigation Area. It will also include a New Zealand Pygmyweed control and management strategy.
- **Battery Safety Management Plan (BSMP):** To outline fire safety, containment measures, and emergency response procedures for the BESS system. This will be accompanied by an Emergency Response Plan.
- **Soil Management Plan (SMP)**: This plan will ensure the sustainable management of soils and materials by setting out strategies for handling, storage, reuse, and disposal, minimising waste, preventing contamination, and protecting soil health throughout the construction phase of the project. This will be connected with a site-wide Materials Management Plan to be produced under the Definition of Waste Code of Practice (DoWCoP).
- **Skills, Supply Chain and Employment Plan (SSCEP)**: This plan will ensure local economic benefits by setting out strategies for local job creation, workforce training, and engagement with regional suppliers throughout the construction, operation, and decommissioning phases of the Proposed Development.
- **Ground Conditions Investigations and Assessments Strategy**: This document will present the strategy for any further ground conditions surveys, assessment and reporting required prior to construction. This will include any necessary remediation strategies and the approach taken to materials management.
- **Archaeological Mitigation Strategy**: This document will present the strategy for further archaeological investigation prior to construction, including for a written scheme of archaeological investigation to be consulted on with Cheshire Archaeology Planning Advisory Service.

1.3.3 The following plans will form part of the final CEMP, or be submitted alongside it:

- **Invasive Non-Native Species Management Plan (INNSMP):** This plan will outline monitoring and control measures for invasive species, ensuring that species such as New Zealand Pygmyweed, Himalayan balsam and American Mink are effectively managed to protect biodiversity.
- **Environmental Incident Management and Pollution Prevention Plan (EIMP):** This protocol will set out a structured response framework for fuel or chemical spills, unexpected contamination events, and pollution control measures to prevent impacts on watercourses and groundwater.
- **Unexpected Contamination Protocol (UCP):** If unexpected contamination is encountered during construction, this protocol will detail the procedures for risk assessment, reporting, remediation, and verification.
- **Flood Warning and Evacuation Plan (FWEP):** This plan will set out flood preparedness measures, warning systems, and emergency response actions in the event of extreme weather-related flooding.
- **Unexploded Ordnance (UXO) Management Plan (UXOMP):** This plan will set out control and response measures to mitigate for potential UXO within the Site.
- **Construction Noise Management Plan (CNMP):** This plan will set out measures to control and manage noise impacts during the construction phase of the Proposed Development.
- **Construction Dust Management Plan (CDMP):** This plan will set out measures to control and reduce dust during the construction phase of the Proposed Development.
- **Construction Waste Management Plan (CWMP):** This plan will set out procedures for the management of operational waste, ensuring compliance with the Waste Hierarchy and regulatory requirements.
- **Fish Rescue Plan:** This plan will ensure the appropriate removal, handling, and relocation of fish during dewatering works, while complying

with environmental regulations and minimising harm to native aquatic species.

1.3.4 Each of these plans will contain specific monitoring and reporting requirements, which will be reviewed regularly by the Site Manager, Environmental Manager, and relevant regulatory authorities. Monitoring results will be documented as part of the compliance framework for the construction phase.

1.3.5 If the DCO is granted, each of the outline plans submitted with the Application will be developed into a final document once a contractor is appointed, with approval by Cheshire West and Chester Council prior to construction (following consultation on each plan as set out in the DCO).

1.3.6 The CEMP and the associated management plans will be reviewed and updated periodically to ensure continued compliance with regulatory requirements and best practice standards.

2.0 THE PROPOSED DEVELOPMENT

2.1 The Proposed Development

2.1.1 The Proposed Development comprises a new solar energy generating station and an associated on-site Battery Energy Storage System (BESS) on land at Frodsham Marsh, Frodsham, Cheshire West and Chester ('the Site'). The Proposed Development also includes the associated infrastructure for connection to the local electricity distribution network, as well as a private wire electricity connection that would enable local businesses to utilise the renewable energy generated by the Proposed Development.

2.1.2 The current design for the Proposed Development would enable the generation of approximately 147 megawatts (MW) of electricity, as well as the storage of approximately 100 MW of electricity in a BESS. The precise generating capacity and storage capacity would be subject to detailed design, but it should be noted that at present the grid connection offer from the District Network Operator (DNO) is for 100 MW export and 50 MW import. As noted above, the Proposed Development would also be capable of exporting electricity directly to local businesses.

2.1.3 Subject to obtaining the necessary consents, construction is anticipated to commence in early 2028 and be completed in mid-2030. The Proposed Development comprises a temporary development with an operational phase of up to 40 years. Decommissioning activities would therefore commence in 2070, 40 years after final commissioning.

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

2.2 The Site

2.2.1 The Site is located approximately 500 m to the north of the centre of Frodsham Town Centre within the administrative area of Cheshire West and Chester Council (CWaCC).

2.2.2 The Site is defined by a single red line boundary that covers all land expected to be included within the Proposed Development, which in total is approximately 337.5 ha and is shown on **ES Vol 3 Figure 1-1 Site Location [EN010153/DR/6.3]**. This is also referred as the 'Order limits'.

2.2.3 The Site contains all of the principal elements of the Proposed Development which are illustrated on **ES Vol 3 Figure 1-2 Proposed Development Areas [EN010153/DR/6.3]** and includes:

- **'Solar Array Development Area'** – which would include solar photovoltaic modules and support frames, internal access tracks, cabling, inverters, transformers, the solar array substation (known as the 'Frodsham Solar Substation') and the BESS;
- **'Main Site Access'** – which would be routed from the west via the Pool Lane roundabout and the access tracks used for the Frodsham Wind Farm. There would be no access to the Site from Frodsham during construction, operation or decommissioning other than for emergency vehicles, and access to a potential new public car parking area proposed on Moorditch Lane;
- **'SPEN Frodsham Substation'** – which is included along with access into the substation in order to provide the Grid Connection;
- **'SPEN Grid Connection'** – which would link the on-site Frodsham Solar Substation to the Scottish Power Energy Networks ('SPEN') Frodsham Substation;
- **'Private Wire Connection'** – which includes land to facilitate future electricity connections to businesses located south-west of the Proposed Development;
- **'Non-Breeding Bird Mitigation Area'** – which includes land that would be used to mitigate for the potential impacts of the Proposed Development on wetland bird species; and
- **'Skylark Mitigation Area'** – which includes land that would be used to mitigate for the potential impacts of the Proposed Development on skylark.

2.3 Site Context

2.3.1 In the eastern half of the Solar Array Development Area (i.e. the area to the east of Brook Furlong), fields tend to be enclosed by dense hedgerows and tree belts. In the western half of the Solar Array Development Area, the Site is more open, with only occasional trees and remnant sections of hedgerow. There are areas of scrub and woodland present on the embankments of the Manchester Ship Canal (MSC) dredging deposit cells.

2.3.2 The landform across the Site is largely flat and low-lying alongside the Mersey Estuary, however, engineered embankments associated with flood defences and the M56 motorway are present around and through the Site. The eastern half of the Site lies within an area at potential risk of flooding, but which benefits from flood defences along the River Weaver. There are a series of drains which dissect the agricultural and former agricultural land in the eastern half of the Site.

2.3.3 There are large areas of industrial development along this section of the River Mersey corridor, including power stations, oil refineries, chemical and manufacturing sites, and Frodsham Wind Farm.

2.3.4 The closest settlement to the Site is Frodsham on the south side of the M56 motorway. To the south-west of Frodsham lies Helsby, approximately 2 km from the Solar Array Development Area. Both Frodsham and Helsby lie at the foot of the northern extent of the Cheshire Sandstone Ridge, which rises to a height of approximately 150m to the south of Frodsham and Helsby.

2.3.5 To the north and north-east of the Site, on the north bank of the River Weaver / Weaver Navigation, lies Runcorn and the settlements of Weston and Beechwood, located approximately 1 km from the Solar Array Development Area.

2.3.6 The nearest residential properties to the Solar Array Development Area are within Frodsham beyond the M56 motorway to the south / south-east. Properties on Hawthorn Road and Wayford Mews are located approximately

140m from the Solar Array Development Area. Other properties within 350m of the Solar Array Development Area include those on Williams Way (230m distant) and Waterside Drive (290m distant). Two residential caravan sites are also located off Brook Furlong to the north-west of Frodsham (north of the M56). These lie adjacent to the draft Order limits. Both sites have been developed without planning permission.

2.3.7 A series of Public Rights of Way (PRoW) cross the Site. The PRoW network includes footpaths and restricted byways, which allow access by foot, horseback and cyclists. A national cycle route runs along a section of the Main Site Access and along part of the southern edge of the Site.

2.3.8 The Site is crossed by a series of utilities. The utilities that cross the Site include several above and below ground high voltage electricity transmission lines, high pressure gas lines, water distribution mains, telecommunication lines and private pipelines associated with nearby petrochemical plants. There are also proposals for new utilities across the Site which include a Carbon Dioxide pipeline and a Hydrogen pipeline. The Applicant is in discussion with the developer of these projects to ensure that none of the schemes will prevent the physical development of the others.

2.3.9 The Solar Array Development Area is designated as a Local Wildlife Site and lies within the Green Belt.

2.3.10 The Mersey Estuary to the north of the Site is designated as a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), and Ramsar site. The SSSI also covers a strip of land approximately 100m wide on the southern side of the Manchester Ship Canal, the eastern 500m of which lies within the Non-Breeding Bird Mitigation Area within the Site.

2.4 Construction Phasing

2.4.1 The construction phase is expected to last for approximately 30 months, based on experience of constructing other similar-scale installations. Subject

to securing a Development Consent Order in Summer 2026, it is anticipated that works would start on Site in January 2028 and be completed in mid-2030.

2.4.2 The construction of the Proposed Development is likely to be split into different sub-projects / packages to enable the development to be delivered in the most efficient manner. In relation to the solar PV array areas, this is likely to be split into two main sub-projects; the western array area and the eastern array area. The western array area will comprise the solar PV array areas to the west of Brook Furlong i.e. the fields on the former MSC Dredging Deposit Ground (Solar PV Array Areas A01 to A06, with reference to **ES Vol 3 Figure 2-1 Indicative Construction Site Layout [EN010153/DR/6.3]**). The eastern array will comprise the solar PV array areas to the east of Brook Furlong i.e. the agricultural land on the Frodsham Marshes area of the Site (Solar PV Array Areas B01 to B18, and C01 to C06). There are also likely to be separate packages of work for the Substation and BESS, the 132kV connection to the SPEN Frodsham Substation and the 132kV Private Wire connection. The sub-projects / packages will likely be managed such that they are happening in staggered overlapping programme in order to build out the Proposed Development in the most efficient way possible whilst minimising environmental effects. **ES Vol 2 Appendix 2-2 Indicative Construction Phasing and Resource Schedule [EN010153/DR/6.2]** illustrates the indicative phasing utilised for the purposes of the EIA.

2.4.3 The construction of the NBBMA would be undertaken at the beginning of the development programme.

2.4.4 As set out above NBBMA is anticipated to take 6 months to construct and would be created and functional in advance of construction works commencing within the SADA. This would ensure that displaced (bird) populations have alternative areas of habitat available during the construction of the NBBMA. It should be noted that the buildings at Marsh Farm, to the east of the NBBMA, would be retained for agricultural use.

2.4.5 Construction of the NBBMA will be scheduled outside the peak non-breeding bird season (i.e. construction works would be undertaken March - October inclusive). In order for the NBBMA to be deemed functional and therefore work on the construction of the SADA to commence the following must be achieved:

i) All work to complete the NBBMA would need to be completed;
ii) the entire NBBMA area should be available to support SPA bird species for which it is designed, and
iii) the area vacated by personnel and machinery, before the start of the next wintering bird season, at which point the area could be used by over-wintering birds.

2.4.6 The primary construction stages are set out below. The activities within each key phase are described in an approximate sequential order, however, many of the activities will occur in parallel due to the scale of the Proposed Development:

i) Construction of the NBBMA;

ii) Enabling Works;

a. Establishment of temporary welfare facilities within construction compound(s);
b. Liaison with key utility companies to implement necessary safeguarding measures;
c. Set up of any temporary Public Right of Way Management requirements; and
d. Improvement works to Main Site Access route from Grinsome Road/Marsh Lane;

iii) Construction of the Eastern Array;

a. Establishment of construction compounds and car parking;
b. Construction of internal access roads, crossings, fencing and surfacing;
c. Undertake necessary earthworks to create development platforms;

d. Delivery of solar PV modules and structures
e. Erection of solar PV mounting structures;
f. Installation of the solar PV modules and associated cabling;
g. Construction of the PCU foundations;
h. Interconnecting 33kV trenching works and cabling;
i. PCU Installation;
j. Commissioning works; and
k. Establishment of other minor ancillary works and landscaping.

iv) Construction of the Western Array;

a. Establishment of construction compounds and car parking;
b. Construction of new, and improvement of existing, internal access roads, crossings, fencing and surfacing;
c. Undertake necessary earthworks to create development platforms;
d. Delivery of solar PV modules and structures
e. Erection of solar PV mounting structures;
f. Installation of the solar PV modules and associated cabling;
g. Construction of the PCU foundations;
h. Interconnecting 33kV trenching works and cabling;
i. PCU Installation;
j. Commissioning works; and
k. Establishment of other minor ancillary works and landscaping.

v) Construction of the BESS and Frodsham Solar Substation;

a. Establish construction compound and welfare facilities;
b. Construction of internal access roads, fencing and surfacing;
c. Construction of foundations and drainage works;
d. Erection of buildings;
e. BESS container and balance of plant installation;
f. Cabling;
g. HV equipment installation works;
h. Testing and commissioning; and
i. Establishment of other minor ancillary works e.g. lighting, security systems, final external works and landscaping.

vi) Construction of the 132 kV SPEN Substation Grid Connection;

a. Establish construction compound and welfare facilities;
b. Trident pole foundations and erection;
c. Trenching works on terminal ends of 132kV Frodsham SPEN Substation connection;
d. Stringing of 132kV on Trident poles;
e. HV equipment installation in SPEN Substation; and
f. Testing and commissioning.

vii) Construction of the 132 kV Private Wire Grid Connection;

a. Excavation of trench in sections;
b. Excavation and construction of Jointing Chambers in sections;
c. Cable pulling between Jointing Chambers;
d. Connecting of cables within Jointing Chambers; and
e. Testing and commissioning of grid connection.

2.4.7 There could be multiple CEMPs prepared in substantial accordance with this oCEMP to be developed for those different phases. Such CEMPs will provide for co-ordination between contractors for the different phases. References to 'the CEMP' or 'the final CEMP' in this outline CEMP should therefore be taken to include any individual CEMP that may be prepared.

2.4.8 The programme for the works within any one phase will be set out in detail within the final CEMP and would be prepared cognisant of any other construction works that are being undertaken at the same time e.g. within other phases of the Proposed Development or other nearby developments which could result in cumulative construction effects (see paragraphs 4.1.60 to 4.1.64.

Permitted Preliminary Works

2.4.9 There are a range of preliminary works that are required to enable the main construction works to commence on the various phases of construction set out above. These enabling works include the initial mobilisation and access

to the site, and individual enabling works for specific phases of the development.

2.4.10 Within the **draft DCO [EN010153/DR/3.1]** these works are identified as the "permitted preliminary works" and the following activities:

i) environmental surveys, geotechnical surveys, intrusive archaeological surveys and other investigations for the purpose of assessing ground conditions;
ii) receipt and erection of construction plant and equipment;
iii) removal of plant and machinery;
iv) above ground site preparation for temporary facilities for the use of contractors;
v) remedial work in respect of any contamination or other adverse ground conditions;
vi) diversion and laying of apparatus;
vii) the provision of temporary means of enclosure and site security for construction;
viii) the temporary display of site notices or advertisements;
ix) Work No. 8; and
x) site clearance (including vegetation removal, demolition of existing structures or buildings).

2.4.11 The Applicant has thoroughly evaluated the permitted preliminary works and, following assessments within the EIA process, concluded that the environmental impact of these activities does not necessitate the mitigation outlined in the Requirements set out in Schedule 2 of the draft DCO to be in place before they can proceed.

2.4.12 Notwithstanding the above, the Applicant has identified some Requirements deemed necessary to have been discharged for certain permitted preliminary works to commence and this is accounted for in the drafting of the DCO Requirements. The Applicant has also outlined best practice measures to be

adopted when undertaking the permitted preliminary works, aimed at reducing potential adverse impacts on environmental receptors. These measures are detailed in **ES Vol 2 Appendix 2-3: Permitted Preliminary Works [EN010153/DR/6.2]**. Compliance with the measures in this appendix is secured by a Requirement in the DCO.

2.5 Construction Staff

2.5.1 During the period of peak construction activity, between months 2 and 19, there will be a need for approximately 159 staff on-site on weekdays, on average, and 79 staff on Saturdays. The period of activity requiring the maximum number of staff on site will occur between months 12 and 18, peaking in month 12 when there will be a maximum of approximately 243 staff per weekday, and 122 staff at weekends. The workforce will be distributed across the Site with work happening in parallel across the sub-projects / packages described above.

2.5.2 An indicative workforce resource schedule is presented in **ES Volume 2 Appendix 2-2 Indicative Construction Phasing and Resource Schedule [EN010153/DR/6.2]**.

2.6 Construction Compounds

2.6.1 It is anticipated that there would be two main construction compounds and four smaller secondary compounds to facilitate the construction works within the SADA. Two additional compounds would be provided to the north of the River Weaver for the purposes of the SPEN Grid Connection works and one in Cell 3 for the NBBMA.

2.6.2 Construction compounds would be created using a semi-permeable hardcore / gravel mix laid on a geomembrane. Where the compounds are located in areas that would eventually be covered with solar PV arrays, they would not be removed but would be covered by the solar array at the end of construction as it is anticipated that they could be re-used when decommissioning takes place.

2.6.3 Where practicable, utility supplies would be taken from main supply utility connections; however, where this is not possible, utilities would be provided from temporary facilities such as the use of generators, water bowsers, local wastewater storage and transport of waste to an approved off-site disposal point.

2.6.4 The main compounds would include the main site offices, site security, employee parking and the main site welfare, together with a fenced laydown area for storing plant, material, equipment and components. Dedicated waste storage, fuel and oil chemical stores, concrete washout areas and refuelling stations would be provided within the main compounds. Temporary buildings, potentially double stacked to reduce footprint, would be installed to provide:

i) Site office space
ii) Toilets and showers
iii) Canteen facilities
iv) Drying room
v) Storage and security offices

2.6.5 The smaller satellite construction compounds would include areas for storing plant, material, equipment and components. Additionally, it is expected that there would be multiple mobile welfare units (toilets, drying rooms and canteen units) that would move around the Site as work progresses. These mobile units would have their own independent power (generally diesel generators) and lighting. As with the compounds, lighting would only be used during periods of low light conditions during the prescribed working hours.

2.7 Construction Traffic, Plant and Site Access

2.7.1 The construction access route to the Site will be from the west, leading from Pool Lane roundabout. Pool Lane provides access via the dualled A5117 to Junction 14 of the M56 and Junction 10 of the M53. Vehicles accessing the Site will turn onto Grinsome Road (a private road) from Pool Lane roundabout and travel east towards Protos for approximately 1.5 km, routing north at

Grinsome Road Roundabout, along Road 1 of Protos. Vehicles will then turn east along Marsh Lane which provides access to Frodsham Wind Farm. The Frodsham Wind Farm access tracks provide access to the Solar Array Development Area. No HGVs will be routed though the towns/villages of Frodsham, Helsby, Ince or Elton.

2.7.2 The access to the SPEN Frodsham Substation will be via the A56 Chester Road, where a dedicated private access road leads to the substation complex. All construction traffic will be directed east along the A56, where onwards connections to the strategic highway network, including Junction 12 of the M56, can be made.

2.7.3 No construction traffic will be permitted to route through Frodsham. As such there will be no construction access into the Site from Brook Furlong or Weaver Lane, where they originate in Frodsham town.

2.7.4 An **Outline Construction Traffic Management Plan (oCTMP) [EN010153/DR/7.4]** is provided with the DCO application. The oCTMP sets out the measures proposed to be used to minimise the impact of construction traffic on local communities by defining the routes that construction traffic must take, any timing restrictions in relation to the use of certain routes, and the penalties to contractors if the oCTMP is not adhered to. It also sets out that a Construction Traffic Management Plan Working Group would be established to manage and co-ordinate the traffic associated with the multiple infrastructure projects being proposed near the Site.

2.7.5 Abnormal Indivisible Loads (AIL) are considered loads that cannot be delivered using traditional vehicles i.e. 40ft articulated truck with road haulage limits of 44T. The exact machinery and equipment required for the construction works will be determined during the detailed design stage. However, it is anticipated there will be a need for AIL deliveries for items such as high voltage transformers, cable drums, cranes. This is considered further in the **Transport Assessment [EN010153/DR/7.3]**.

2.7.6 The two proposed access points described above are of a high standard and are regularly used by HGVs, with the main access into the Solar Array Development Area designed for the construction and maintenance of the Frodsham Solar Farm. As such, there is no requirement for any works to be undertaken to the public highway to facilitate access to the Site.

2.7.7 There is predicted to be an average of 16 two-way delivery-related HGV movements per weekday (8 in / 8 out) and 8 on Saturdays (4 in / 4 out) between the Main Site Compounds and the Main Site Access across the construction phase. HGV movements are expected to peak at up to 46 two - way movements per weekday and 22 on Saturdays with these occurring in Month 13.

2.7.8 There is predicted to be an average of 110 two-way staff-related movements (LGVs) per day (55 in / 55 out) to / from the Main Site Compounds and the Main Site Access across the construction phase. LGV movements are expected to peak at up to 244 two-way movements per day (122 in / 122 out) with these occurring in Month 13.

2.7.9 Prior to the construction phase, the Principal Contractor will be responsible for seeking to implement a collection / drop off service using minibuses, as set out in the **outline Construction Traffic Management Plan [EN010153/DR/7.4]**.

2.7.10 Further detail of traffic movements associated with HGVs and LDVs are provided within the **Transport Assessment [EN010153/DR/7.3]**.

2.7.11 Typical vehicles, plant and machinery that are assumed to be required during the construction phase will likely include:

- Articulated Lorries;
- Low Loaders;
- Tipper Trucks;
- Concrete Mixer Lorries;
- Mobile cranes;

- Fuel Tankers;
- Water Tankers;
- Vacuum Tankers;
- Excavators;
- Telehandlers;
- Push press piling rigs;
- Power generators;
- Vibrating rollers;
- Cable pullers; and
- Skips.

3.0 ROLES AND RESPONSIBILITIES

3.1 Site Team

3.1.1 The following are key Site roles during the construction phase that will have responsibility for management of environmental impacts, with responsibilities for each role also set out (this list is not definitive and additional roles and responsibilities may be added to the final CEMP):

- **Principal Contractor** – This is a formal role established in the CDM Regulations (2015)[ii]. The Principal Contractor will be appointed by Frodsham Solar Limited and have responsibility for co-ordinating the construction phase of the Proposed Development.
- **Site Manager** – The Principal Contractor will identify a Site Manager who will have overall responsibility for implementation of the final CEMP and all other DCO and legislative requirements.
- **Quality Manager** – The Quality Manager will have responsibility for quality assurance and compliance, document management and record keeping, inspections for quality control, management of risks, and process improvement related to quality control and assurance. For the final CEMP, they will have responsibility for quality assurance of procedures and for management of documentation, records, and monitoring of the systems relating to the same.
- **Health and Safety Manager** – responsible for the monitoring and control of health and safety, and the rules and regulations arising from this.
- **Environmental Manager** – The Environmental Manager has responsibility for management of environmental matters related to the construction phase of the Proposed Development, including ensuring compliance with legislation, ensuring that mitigation, management and monitoring measures are implemented, and that best practice is applied during works. The Environmental Manager will be a point of contact with environmental bodies and other third parties as required to perform their duties.

- **Environmental Clerk of Works** – The Environmental Clerk of Works (ECoW) will be a suitably qualified environmental professional responsible for on-site management and monitoring of environmental impacts including for soil management, pollution control, noise and dust monitoring, and surface water.
- **Ecological Clerk of Works** – The Ecological Clerk of Works (EcoCoW) will be a suitably qualified ecologist (with specific ornithological experience) responsible for on-site managing and monitoring of the works in relation to habitats, protected species, and other wildlife.
- **Archaeological Clerk of Works** – The Archaeological Clerk of Works (ACoW) will be a suitably qualified archaeologist responsible for overseeing the implementation of archaeological works during construction.
- **Flood Warden** – The Flood Warden will be responsible for preparation, management, and response to flood incidents, inclusive of reacting to flood warning and alerts.
- **Community Liaison Officer** – The Community Liaison Officer will ensure that the Community Liaison Group (CLG) is established and will be the point of contact for the CLG, ensuring that regular updates are issued during the construction of the Proposed Development.

3.1.2 These roles and responsibilities are indicative and will be confirmed in the final CEMP.

3.2 Stakeholders

Community Liaison Group

3.2.1 A Community Liaison Group (CLG) will be formed prior to construction. During the construction phase, the purpose of the CLG will be to allow interested community members and bodies to be regularly updated on construction progress and activities. Meetings will be held with the CLG where the Community Liaison Officer will provide updates on the work, any changes that may occur (e.g. due to unforeseen circumstances), and other useful

information (e.g. movement of large loads, upcoming road works etc.). The CLG will allow local residents to raise issues with the Community Liaison Officer and to act as a forum to discuss relevant issues for the construction of the Proposed Development. Membership will be open to the following non-exhaustive groups:

- Town/Parish Councils;
- Local Businesses; and
- Local Community Groups.

4.0 CONSTRUCTION ENVIRONMENTAL MANAGEMENT

4.1.1 This section of the oCEMP sets out the general principles and control measures that will be employed on Site during the construction phase, which are applicable to all aspects of the Proposed Development.

Construction Hours of Work

4.1.2 Construction operations will generally be limited to 08:00 to 18:00hrs Monday to Friday and 08:00 to 13:00hrs Saturday, with no construction work on Sundays or Bank Holidays. Construction workers will typically arrive in the hour prior to start of construction and leave in the hour after construction work ceases. Construction staff will therefore arrive at the Site between 07:00 and 08:00 and depart between 18:00 and 19:00 during weekdays.

4.1.3 There may be occasional instances where operations are required outside the above times e.g. delivery of abnormal loads, fit out of internal equipment within the substations, other quiet non-intrusive works such as electrical testing, commissioning and inspection. In such instances it may be necessary to agree a modification to the working hours with CWaCC.

4.1.4 CWaCC shall only permit works outside the hours stated in paragraph 4.1.2 which do not cause noise that is audible at the boundary of the Order limits and do not give rise to any materially new or materially more adverse environmental effects compared to those identified in the environmental statement.

4.1.5 The only exception to the above is where emergency works are required, where such works occur CWaCC must be notified of those works within 72 hours of their commencement.

Site Security

4.1.6 The Site will be secured by temporary fencing (such as Heras fencing) during the construction phase, with overall management of security resting with the Principal Contractor. All plant and materials will be secured to prevent theft or

vandalism. Remote monitoring and intrusion detection is likely to be managed via the use of deterrent systems such as 'Armadillo' camera security units.

Protection of the Public

4.1.7 In addition to the responsibilities set out under the Construction (Design and Management) Regulations 2015, the Principal Contractor will be alert to the risk of works being accessed by unauthorised members of the public and will ensure that site security is maintained at a high standard across the Site to ensure that the risk of access by trespassers is minimised.

4.1.8 A high standard of 'housekeeping' will also be maintained across the Site to reduce risks to trespassers in the event that they do gain access to the Site. Construction compounds and material storage areas will be fully secured within the Site, and all materials, equipment, and plant will be fully secured when not in use, and in particular at the end of each working day.

4.1.9 Where public rights of way cross the Site or interact with construction access routes, these will be suitably managed to protect the public. Management of public rights of way is likely to involve the use of mesh fencing or Heras fencing and temporary gates as appropriate to clearly demarcate and separate public rights of way from construction traffic and activities. Where necessary, banksmen will be utilised during construction where construction traffic is required to cross a PRoW.

4.1.10 Further details of how public rights of way will be managed during the construction phase are set out in the **outline Public Rights of Way Management Plan [EN010153/DR/7.9]** which has been prepared and submitted with the application . In accordance with the **draft DCO [EN010153/DR/3.1]**, no phase of the Proposed Development may commence construction until a Public Rights of Way Management Plan, which must be in substantial accordance with the outline PRoWMP, is submitted to and approved by Cheshire West and Chester Council. .

Signage

4.1.11 Health and Safety Signage will be positioned on the Site perimeter and around the construction site guiding traffic and pedestrians, and giving warnings of potential dangers and hazards (e.g. Warning: Construction site, No authorised access, Caution: construction traffic, and public/pedestrian directional signage etc.). Within the Site and at access points signage will be erected setting out required conduct within the Site boundaries (e.g. Site Safety conduct signage, PPE instruction signage, Danger: Overhead Wires etc.).

Inductions

4.1.12 All site visitors and operatives will be directed in the first instance to West Compound 1 (main) as shown on **ES Vol 3 Figure 2-1: Indicative Construction Site Layout [EN010153/DR/6.3],** here they will be required to sign in and undergo a suitable induction.

4.1.13 Inductions will be completed as appropriate for the role and in accordance with best practice approaches prior to commencing work or visiting site. Records of inductions and competencies will be held on site.

4.1.14 Risk assessments and methods statements will be produced for all activities and they will be site-specific. Operatives will be briefed on method statements and risk assessments relevant to their work prior to their commencing work. Copies of the Risk Assessments and Method Assessments will be held on site and will be available for use and inspection.

4.1.15 Operatives and visitors will be required to sign in and out every day.

Deliveries

4.1.16 All deliveries will be directed to the Site Entrance from Junction 14 of the M56 and Junction 10 of the M53 via the A5117 and the Pool Lane Roundabout to the main construction compounds in the Site. Drivers will be required to report to the Site Office during working hours. When the Site is not open for

deliveries, delivery vehicles will not be permitted to circulate, queue, or wait on the public highway.

4.1.17 The access to the SPEN Frodsham Substation will be via the A56 Chester Road, where a dedicated private access road leads to the substation complex. All construction traffic will be directed east along the A56, where onwards connections to the strategic highway network, including Junction 12 of the M56, can be made. No construction traffic will be permitted to route through Frodsham, Helsby, Ince or Elton.

4.1.18 HGV deliveries to the Site will be allocated a delivery slot which they will be required to comply with. Delivery slots will be allocated by the Site Manager. A banksman will be made available to assist HGV drivers in accessing the Site.

Health and Safety

4.1.19 The requirement for comprehensive health and safety assessments are an essential part of the construction process, with the CDM Regulations 2015 setting out requirements and responsibilities. Thus, a CDM Coordinator will be required to be appointed by the Principal Contractor prior to any construction work commencing, and health and safety assessments will be required to be produced as part of the Construction Phase Plan required under the CDM Regulations 2015.

4.1.20 Weekly meetings will be held to review matters related to health and safety. The Health and Safety Manager will ensure that they or a suitably qualified member of their organisation regularly visits the Site to monitor health and safety matters. Monitoring reports will be produced and provided after these visits.

4.1.21 Reportable accidents and dangerous occurrences will be reported in accordance with RIDDOR[iii].

4.1.22 In line with other requirements in this section, appropriately licensed contractors will be appointed to undertake groundworks, a safe system of working will be established prior to the commencement of works, and PPE/RPE suitable for the tasks must be worn by operatives.

4.1.23 The Site lies close to a number of Control of Major Accident Hazards (COMAH) industrial sites and a number of pipelines carrying hazardous substances cross the Site. The necessary site induction and safety instructions must be adopted to ensure staff and visitors are aware of the evacuation and safety procedures in the event of an emergency. The DCO contains protective provisions relating to the pipelines crossing the Site and the limitations / requirements set out in those protective provisions would be observed throughout the construction period to ensure the health and safety of site workers, visitors and the public using the PRoW on the Site.

4.1.24 During the site induction, all relevant Site Operatives will be briefed on the Health and Safety Executive's Guidance Note GS 6 Avoidance of Danger from Overhead Electric Lines.

Pollution and Contamination

4.1.25 General measures are set out in the following section to address potential contamination within the Site, and these must be followed by Site Operatives during the construction phase of the Proposed Development to ensure that the potential for impacts from contamination is adequately addressed and mitigated.

4.1.26 A watching brief shall be maintained and documented for unexpected land contamination in accordance with an agreed Unexpected Contamination Protocol which would be prepared as part of, or to accompany the final CEMP. Should any unforeseen gross or widespread contamination be encountered on Site, then works shall stop immediately within the affected area while further investigation is carried out. An appropriately qualified contaminated land specialist should be contacted immediately. The specialist will attend the

Site, examine the potential contaminative materials (including taking samples where required of the material or soil), and provide advice as to required actions (if any). If significant unexpected contamination is identified CWaCC, and where necessary, the Environment Agency, shall be notified promptly in writing confirming risk assessment, investigation, and if necessary, the remediation and validation measures to be undertaken. Following the implementation of the approved remediation strategy, a verification report, based on the data collected as part of the remediation strategy and demonstrating the completion of the remediation measures, will be provided to CWaCC and the Environment Agency.

4.1.27 Given the nature of ground conditions across the Site, described in **ES Volume 1 Chapter 10 Ground Conditions [EN010153/APP6.1]**, a DCO Requirement requires that a ground conditions investigations and assessments strategy is submitted to and approved by CWaCC, with such approval to be in consultation with the Environment Agency.

4.1.28 All accidents, incidents and near misses (including spills, dust, noise pollution etc) will be reported to the Site Manager immediately. These will be recorded and investigated as appropriate. Details to be recorded will include: a description of the incident, potential contributory causes, adverse effects, measures implemented to mitigate adverse effects, and effectiveness of measures implemented to prevent incidents happening again.

Unexploded Ordnance

4.1.29 **ES Vol 2 Appendix 10-1 Stage 1 Geo-Environmental Assessment [EN010153/DR/6.2]** has identified the potential for unexploded ordnance (UXO) at the Site. The risk of encountering UXO on the majority of Manchester Ship Canal Dredging Deposit Ground (MSCDDG) Cell 1 and the most northerly section of MSCDDG Cell 5 is classed as high with the remainder of the Site classed as having a medium risk.

4.1.30 During the intrusive investigation associated with the Frodsham Wind Farm, UXO clearance using magnetometers were undertaken both on the ground surface and as drilling progressed and a toolbox talk was provided to site personnel. It is understood that no UXO was found during the ground investigation.

4.1.31 An UXO Management Plan will be prepared prior to construction commencing as part of, or to accompany the final CEMP. All works across the Site will be required to accord with the UXO Management Plan, and site-specific UXO Awareness Briefings will be given to all operatives undertaking intrusive works.

4.1.32 In certain areas identified by the UXO Management Plan, an Intrusive Magnetometer Survey of all pile locations and excavations will be undertaken down to the maximum bomb penetration depth.

4.1.33 An UXO Specialist will be available at all times during the construction phase to monitor works as required using visual recognition and instrumentation, and to respond to reports of suspicious objects. The UXO Management Plan will include details of an appropriate emergency response plan, which will be developed prior to the construction phase commencing and will form part of the final CEMP.

4.1.34 If UXO is identified, it will be necessary for the UXO specialist to determine an appropriate management procedure. This could involve retention on site if it is deemed safe, excavation and removal off-site, or controlled detonation. The UXO Management Plan will provide that any such management procedure must include necessary control measures to protect human health and the environment (including in particular in relation to ornithological receptors). For example, this could include timing detonations to minimise impacts on wintering birds through disturbance.

Asbestos

4.1.35 Free fibres of asbestos (amosite or chrysotile) were recorded within near surface samples of made ground collected from MSCDDG Cell 5 and from the NBBMA. Quantification of the fibres for all soil samples analysed across all investigations were reported at less than limit of detection. An asbestos risk assessment undertaken has identified an overall low risk from the asbestos identified within the MSCDDG Cells. An asbestos awareness toolbox talk is to be implemented at Site induction. If material suspected as asbestos containing material (ACM) is identified, then measures as stipulated within the Unexpected Contamination Protocol will be implemented.

Welfare Provision

4.1.36 Full welfare facilities will be provided by the Principal Contractor (as required by the CDM Regulations 2015) and these must be in place prior to construction work commencing. The welfare facilities must be placed in convenient locations within each of the construction compounds on the Site, and as a minimum these will comprise the following: offices, welfare facilities, a toilet block, and stores. The main construction compounds will include additional/larger facilities reflecting their role.

Lighting

4.1.37 Lighting during construction will need to be sufficient to satisfy health and safety requirements, whilst ensuring impacts on the surrounding environment, including from sky glow, glare and light spillage, are minimised.

4.1.38 Artificial lighting will generally only be used during the hours of darkness, low levels of natural light or during specific construction tasks to ensure the health, safety and welfare of those on site, including construction staff and visitors.

4.1.39 Appropriate lighting will be installed and operated to ensure that:

- access/egress points are clearly visible during operational hours;
- staff and visitors can move safely around the Site;

- site security can be monitored and maintained; and
- sufficient area lighting is provided for the Site office and laydown areas.

4.1.40 Lighting towers will be required during winter months at each of the construction compounds. There may also be a requirement for mobile task lighting at some of the construction locations e.g. PCUs, transformer units, BESS compound and Substation compound. Lighting will not be operated outside of the specified construction working hours. Lighting will utilise directional fittings and cowls to minimise outward light spill and glare.

4.1.41 A sensitive lighting strategy to reduce potential impacts on biodiversity will be adopted across the Site as set out in Table 5-3. The sensitive lighting strategy should ensure that lighting is not directed towards the NBBMA. When task lighting is required suitable measures should be implemented to avoid unnecessary lighting spill into adjacent habitats e.g. through the use of appropriate lighting strength, cowls and hoods.

Utilities

4.1.42 Statutory undertakers will be engaged in regard to the existing and proposed utilities infrastructure (e.g. gas pipelines, water mains, electricity cables etc.) set within or around the Site and to agree safe working methods around that infrastructure. This will include agreeing required offsets around that 'utilities infrastructure' where no solar farm infrastructure may be placed and where set working practices must be followed. The **draft DCO [EN010153/DR/3.1]** includes protective provisions for the protection of existing utilities. Pre-construction surveys are to be undertaken to accurately map the presence of utilities infrastructure on the Site.

Emergencies, Fire Plan, and Special Site Instructions

4.1.43 Emergency planning will be developed in consultation with the relevant local authority emergency planning officer, emergency services including the local fire and rescue service, as well as the Environment Agency in relation to responding to flood warnings and events.

4.1.44 An Emergency Response Plan will detail the procedures for responding to incidents and emergencies on site, and any reporting.

4.1.45 A notice displaying emergency contact details will be displayed in a prominent location onsite – such as within the Site office. External notices providing emergency contact details will be placed at prominent locations around the perimeter of the Site.

4.1.46 During site induction, all personnel must be advised of the firefighting equipment on site and the escape routes and procedures.

Certification of Mobile Plant

4.1.47 All plant will have the appropriate certification and checks with copies held on file on site. All plant will be regularly inspected and maintained, and records of these inspections will be held on file on site.

Waste Management

4.1.48 The Waste Hierarchy must be applied by any person who produces, keeps or manages waste per the duty set out in the Waste (England and Wales) Regulations 2011[iv]. The Waste Hierarchy requires any person managing waste to first consider waste prevention, then preparing material for re-use or recycling, and only then use waste recovery methods (i.e. firstly energy recovery and then waste disposal as the last option). Thus, the waste hierarchy must be applied when managing the construction phase of the Proposed Development.

4.1.49 Detail of measures to minimise, re-use, and control waste are set out later in this document and will be detailed in a Construction Waste Management Plan (CWMP) that will form part of the final CEMP. However, briefly, the Principal Contractor will:

- Take all reasonable steps to minimise the volume of waste generated by the construction phase of the Proposed Development (e.g. reduce and re-use);

- Separate main waste streams and segregate them to maximise opportunities of re-use and recycling; and
- Where waste is to be removed from the Site to a waste facility then fully licensed waste carriers will be used and waste will be taken to licensed facilities.

Surface Water Management

4.1.50 A Construction Groundwater and Surface Water Management Plan (GSWMP) will be prepared that sets out measures for the site wide management of surface water, rainfall run off, ground water, and site drainage during construction.

4.1.51 The GSWMP will set out the proposed management measures for surface water quality and management of surface water (including the rate and volume of surface water run off during construction).

Flood Risk

4.1.52 The Proposed Development has been designed to account for flood risk as set out in **ES Vol 2 Appendix 9-1: Flood Risk Assessment and Drainage Strategy [EN010153/DR/6.2]**.

4.1.53 To manage the residual risk of flooding to Site Operatives, a Flood Warning and Evacuation Plan will be developed and a Flood Warden will be appointed, who will be familiar with the Site and risk, and will ensure that Site Operatives are alerted when there is a risk of flooding and that work in impacted areas is rescheduled or stopped in advance of any such event. The Flood Warden will liaise with the Environment Agency to receive appropriate flood warnings in advance of any potential flood event.

Liaison with the Public

4.1.54 Neighbouring residents will be kept informed about the progress of works on the Site throughout the duration of the construction phase of the Proposed Development via the Community Liaison Group. Regular communications will

be sent to them to provide updates on the work, any changes that may occur (e.g. due to unforeseen circumstances) and other useful information (e.g. movement of large loads, establishment of road works etc.). These will also include details of a contact telephone number and the project website.

4.1.55 A contact telephone number will be maintained throughout the duration of works (including an outside of working hours [out of hours] number for use if required) to allow members of the public, local businesses, and other such parties to make enquiries or to raise a complaint. The telephone number provided to local residents and businesses will be maintained at all times whilst the development works are taking place in order to respond to any enquiries and complaints.

4.1.56 A project website will be maintained throughout the duration of works to allow members of the public, local businesses, and other such parties to view updates on the project, make enquiries or raise a complaint.

4.1.57 A display board will be placed in a prominent location at the Site (e.g. at an appropriate location on Marsh Lane and also at the Main Compound Entrance), and regular smaller site boards will be placed at key points on the Site boundary. The display board shall provide detail on the works being undertaken and notices/summary information as the current stage of works and upcoming work. All site boards shall include detail of works being undertaken, the contact telephone number (including the out of hours number), the project website and a postal address where enquiries/complaints may be sent.

4.1.58 Any complaints arising from the Site during the construction phase will be addressed by the Site Manager. A Complaints Register will be maintained, and this will include the following:

i) Complainant's details;
ii) Date and time of the complaint;
iii) Cause(s) of the complaint; and

iv) Action taken to resolve the complaint, and date and time of the same, or reasons for any unresolved complaints (including where no issue is found).

4.1.59 The Complaints Register will be regularly reviewed by the Site Manager as part of monitoring of the CEMP to ensure that it is being followed, that any issues are identified, and to monitor compliance with its Management and Mitigation Measures. It will also be made available to CWaCC to inspect on request.

Land Access and Collaborative Working

4.1.60 The Applicant is committed to proactive collaboration throughout the construction phase with Cadent Gas and Eni (Hynet projects), and with other developers of major projects that interact with the Order limits, and will co-ordinate where practicable on construction programmes and environmental mitigation measures.

4.1.61 In the event that it becomes clear, pre construction of the Proposed Development, that the construction phases of the Proposed Development will overlap with one or both of the HyNet projects, the Applicant will establish a joint working group. This group will include inviting representatives from the construction teams of the relevant projects and from CWaCC. The purpose of the working group will be to coordinate and agree construction programming to prevent significant cumulative/in-combination effects, with particular emphasis on potential impacts on the Mersey Estuary SPA. Each developer will be responsible for incorporating the agreed programme and mitigation measures into their respective Construction Environmental Management Plans (CEMPs), which will then be subject to approval by CWaCC in accordance with the relevant requirement or planning condition. The process of approving the respective CEMPs will provide CWACC with the necessary control to ensure that the combined works proceed in an agreed manner and avoid significant effects occurring.

4.1.62 Requirement 12 of the draft DCO secures the preparation and implementation of a CEMP by the Applicant, which must be in substantial accordance with this Outline CEMP. Accordingly, the Applicant is committed to establishing and participating in the proposed cross-development working group. However, the Applicant cannot compel the participation of other developers. Their involvement will depend on their respective development consents, which should include equivalent conditions or requirements reflecting these collaborative commitments.

4.1.63 To assist in the above, the Applicant has committed to use reasonable endeavours to co-ordinate the construction, maintenance and operation of the authorised development with the construction, maintenance and operation of the Cadent Gas project ('HyNet North West Pipeline Project') where that project is brought forward. Such reasonable endeavours would not require the Applicant to delay the Proposed Development to wait for the HyNet North West Pipeline Project' to commence development, but will require the Applicant to:

- undertake consultation with Cadent on the detailed design and programming of the Proposed Development as compared to the detailed design and programming of the Hynet North West Pipeline Project;
- undertake the detailed design and programming of the Proposed Development in a manner that gives reasonable regard to information made available to the undertaker by Cadent in response to that consultation;
- have reasonable regard to the proposed programme of works for the HyNet North West Pipeline Project as may be made available to the Applicant by Cadent and facilitating a co-ordinated approach to the programme, land assembly, and the carrying out of the Proposed Development and the HyNet North West Pipeline Project where reasonably practicable;

- provide a point of contact for continuing liaison and co-ordination throughout the construction and operation of the Proposed Development and the Hynet North West Pipeline Project; and

- undertake specific consultation with Cadent in respect of the approach to environmental mitigation to be delivered as part of the Proposed Development and the environmental mitigation to be delivered as part of the HyNet North West Pipeline Project in the programming of the Proposed Development and the development of the detailed landscape and ecological management plan and detailed CEMP to be submitted pursuant to the DCO.

4.1.64 In relation to programming and cooperation the CEMP will provide that:

- Construction works would not be undertaken in Cells 1, 2 and 5 at the same time as the works being undertaken to create the NBBMA or construction of the pipeline in Cell 3;

- Should the Proposed Development and the Eni Runcorn pipeline be undertaking construction in Cells 1, 2, and 5, the Applicant would communicate with the developer of the Eni Runcorn pipeline (whether through the aforementioned working group, or separately) to enable that the works for both projects would be phased in order to avoid any potentially significant cumulative arising, for example, avoiding noisy activities from both projects being undertaken close to the boundary of the NBBMA at the same time. The details of the specific phasing agreed between the parties would be set out in the detailed CEMP submitted to CWaCC for approval; and

- In respect of the Cadent Hynet Hydrogen pipeline: as set out above, the applicants will co-ordinate construction programmes and environmental mitigation where practicable. In particular, this will include the requirement to control noise impacts within specified distances of the NBBMA within the core non breeding bird period Nov-February (inclusive).

4.1.65 The Principal Contractor will ensure that the operation of the Manchester Ship Canal is not interrupted during any point of the construction phase, and that the Manchester Ship Canal Company always has access to their land.

4.1.66 During each phase of the Proposed Development the Applicant will ensure that the requirements of the Proposed Development do not prevent access being available at all times to Hover Force Limited land.

4.1.67 The Principal Contractor will ensure that access is available at all times to Marsh Farm, The Lum, the Frodsham Pumping Station, the former sewage outfall, the dedicated Skylark Mitigation Area, and the operational Frodsham Wind Farm, which are to be retained within the Order limits.

Best practice measures

4.1.68 The Considerate Constructors Scheme (CCS) will be adopted for the Proposed Development. This standard includes best practice measures that go beyond statutory compliance and thus will further reduce pollution and nuisance from the Proposed Development.

Monitoring & Implementation Arrangements

4.1.69 The Site Manager will be responsible for the day-to-day management of the Site and will ensure that all restrictions / provisions noted in this CEMP are undertaken. Details of general monitoring requirements are set out later in this document.

Decommissioning

4.1.70 The design and construction of the Proposed Development will be undertaken with regard to the future decommissioning phase, recognising that decisions made during early design and construction can influence the scale and nature of environmental effects when the infrastructure is ultimately removed. The Applicant is therefore committed to adopting design measures and construction practices that facilitate efficient, low-impact decommissioning

and reduce environmental effects that may arise at later stages in the development.

4.1.71 During detailed design and construction, the Applicant will consider whether components can be installed, configured or recorded in a way that enables their straightforward removal, treatment or recycling at the end of their operational life. This includes, where practicable, selecting construction methodologies and materials that reduce the need for intrusive works during decommissioning and that limit the potential for impacts on soil structure and quality, pollution in terms of noise, air and the water environment and biodiversity.

4.1.72 The detailed CEMP shall include a specific section describing how construction-stage methods and decisions will be informed by, and will facilitate, eventual decommissioning. This will set out the measures incorporated into the construction process that will reduce potential environmental effects during decommissioning works.

4.1.73 Examples of such measures include the use of conduits, ducts or cable routes designed to enable future cable replacement or removal without the need for extensive excavation. By routing cables within accessible protective conduits, the need for trenching during the operational period and potentially decommissioning can be avoided or substantially reduced, thereby lowering potential effects on soils, drainage features and ecological receptors.

4.1.74 The design of foundations, footings and support structures will consider the ability to remove components fully and efficiently during decommissioning. For piled foundations, installation techniques and materials will be selected with consideration for their ease of removal, avoiding methods that would inhibit extraction. This approach reduces the need for cutting-off piles below ground and therefore helps maintain soil integrity and future land use flexibility.

4.1.75 In accordance with the Construction (Design and Management) Regulations 2015, the design during the construction stage will fully consider health and safety throughout the entire project lifecycle. The design must identify and mitigate foreseeable risks not only related to construction activities but also concerning the operation, maintenance, and eventual decommissioning of the Proposed Development. These principles may often guide the construction methodology and environmental controls needed to minimise the environmental impacts of the Proposed Development, such design considerations will be outlined in the CEMP.

5.0 ENVIRONMENTAL MITIGATION MEASURES

5.1.1 The following tables set out outline mitigation and management measures that will as a minimum form part of the final CEMP. These have been prepared using detail set out in the ES of required measures for each topic. These measures are secured via the requirements of the **draft DCO [EN010153/DR/3.1]**, and a final CEMP will be prepared by the Principal Contractor prior to construction commencing.

Table 5-1: Summary of the construction mitigation and management measures – Climate change

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impacts upon on-site workers from extreme weather events and conditions	Weather conditions will be actively monitored, with forecasts reviewed daily to inform site operations. This includes proactive planning to account for the possibility of extreme weather events including the use of extreme weather alert systems.	Monitor logging of weather forecasts and distribution to staff/contractors, and reaction to same, as part of CEMP monitoring.
	Risk Assessment Method Statements (RAMS) will be developed for site activities, ensuring appropriate safety measures are in place for adverse weather conditions.	Monitor Risk Assessment Compliance and performance as part of CEMP monitoring.
	Staff will be provided with climate-appropriate PPE and trained in extreme weather response protocols.	Monitor compliance of staff/contractors with Health and Safety rules, site rules, and use of PPE as part of CEMP monitoring.

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Damage to equipment from extreme weather events / climate conditions	Construction materials will be chosen to be resilient to expected climatic extremes and comply with appropriate safety standards and weather conditions, in order to account for climate change. Construction materials would be covered when stored for protection.	Monitor choice/specification of materials and performance of same as part of CEMP monitoring. Monitor specification of ventilation systems for the electrical systems as part of CEMP monitoring.
Release of greenhouse gas emissions during construction	Sustainable construction methods (including adoption of the Considerate Constructors Scheme) will be adopted as far as practicable, including: • Regular planned maintenance of the construction plant and machinery will be carried out to optimise efficiency. • Implementing measures to decrease fuel use by maximising efficiencies, avoiding engine idling and checks made to ensure they conform to current UK emissions standards. • All members of the supply chain providing a carbon reduction plan where feasible.	Set required frequencies for maintenance of construction plant and machinery, and monitor performance of the same.
Embodied emissions from material used in construction of scheme	The embodied carbon of materials and components will be factored into the procurement process, and where reasonably practicable lower-carbon or locally sourced materials will be selected, in order to minimise the Proposed Development's lifecycle greenhouse gas emissions.	Set defined measures and benchmarks in CEMP for measuring embedded carbon and levels of recycled materials in products and materials. Monitor and record chosen material and products against those benchmarks.

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Re-use of material where possible, measures for recycling of materials	This matter is dealt with in Table 5-11 in respect of measures for waste.	Follow monitoring measures set out in Table 5-11.
Flooding of site in event of flood defences failure	This matter is dealt with in Table 5-4 in respect of measures for hydrology and flood risk	Follow monitoring measures set out in Table 5-4.
Impacts to peat from construction and excavation works	This matter is dealt with in Table 5-5 in respect of ground conditions. Although no significant peat impacts are envisaged mitigation measures such as the use of low-pressure piling machinery will be used should detailed site investigation prior to construction identify any areas of peat at depths of less than 5m. Further ground investigation will be carried out across the Site prior to construction. If surface-level peat (or other peat) that has the potential to be impacted by the Proposed Development be identified during the further investigations, a Peat Management Plan will be prepared setting out the mitigation measures to be adopted to avoid or minimise impacts on peat.	Follow monitoring measures set out in Table 5-5.

Table 5-2: Summary of the construction mitigation and management measures – Landscape and visual

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Loss of vegetation during construction	A pre-commencement survey of vegetation prior to construction will be undertaken to establish the extent to which any vegetation removal may be needed and identify required root protection zones.	Appropriate survey/s undertaken, and compliance with measures regularly recorded via an appropriate method to be determined in the CEMP. The final CEMP will detail the frequency of monitoring.
Damage to trees / vegetation	Existing trees and vegetation will be retained and protected (in accordance with British Standard (BS) 5837:2012, and following an Arboricultural survey undertaken to the same standard prior to construction commencing) via construction exclusion zones and tree protective fencing. If trees must be removed to enable construction, as specified in the **Arboricultural Assessment [EN010153/DR/7.15]**, tree removals should be limited to the minimum necessary to achieve the required design outcome.	
Visibility of construction activities	Site to be kept tidy and organised, materials to be delivered on 'as needed' basis to prevent unnecessary stockpiles. Temporary site lighting during construction that is required to enable safe working during hours of darkness will be designed, as far as reasonably practicable, so as not to cause a nuisance outside of the Site. Standard best practice measures will be employed to minimise light spill, including glare. Upon completion of construction works in each phase or sub-phase (as defined in Requirement 3 of the **draft DCO [EN010153/DR/3.1]**, the Principal Contractor will promptly remove all temporary stockpiles, plant and machinery, signage, or other equipment, and will ensure the site is in a neat, safe, and tidy condition.	
Disruption to users of Public Rights of Way	Refer to Table 5-7 Tourism and Recreation.	-

Table 5-3: Summary of the construction mitigation and management measures –Terrestrial Ecology & Ornithology

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impacts to off-site habitats, including designated sites for nature conservation. Impacts to retained on-site habitats including hedgerows, watercourses and ponds.	Working areas will be clearly delineated to prevent accidental encroachment beyond the working area. Sensitive habitats and sites (e.g. designated sites for nature conservation) will be clearly signed to avoid accidental incursion. Fencing would be erected to demarcate the working area in order to protect sensitive ecological or hydrological features (which could potentially support key ornithological features) during all elements of the construction stages of the project. This would include screening around the SADA so as to ensure disturbance of the NBBMA and River Weaver is minimised during construction. Best practice measures will be implemented to control dust, run-off, noise, light, vibration, and vehicle movements, as set out in the air quality, noise, and traffic tables of this outline CEMP. An **outline Soil Management Plan [EN010153/DR/7.10]** has been prepared and will be developed into a final Soil Management Plan in accordance with Requirement 16 of the **draft DCO [EN010153/DR/3.1]** to ensure that soil is returned in order of removal, inclusive of removing, storing, and reinstatement of turf layer. Track matting will also be installed in any areas of vehicle/plant tracking and where equipment is placed. Lighting to be used only where required, and if used to be task specific and directed away from boundary habitats including woodland, hedgerows and watercourses. Protect and retain existing trees and vegetation (in accordance with British Standard (BS) 5837:2012 and the **Arboricultural Assessment [EN010153/DR/7.15]**, and prepare an Arboricultural Method Statement to be agreed with CWaCC. If trees must be removed to enable construction, as specified in the **Arboricultural Assessment [EN010153/DR/7.15]**, tree removals should be limited to the minimum necessary to achieve the required design outcome.	An EcoCoW will be appointed for the Construction Phase who will review and monitor all works on Site. Recording of required surveys and actions/activities arising. Log to be kept of all site inductions including on outcomes of pre-construction surveys/checks.

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	Non-tidal watercourses to include a minimum 10m buffer, excluding new crossing points, in which no works (other than landscaping and access) are to occur. Tidal watercourses to include a minimum 16m buffer, excluding new crossing points, in which no works (other than landscaping and access) are to occur. Hedgerows or areas of substantial vegetation to include a minimum 6m buffer, excluding new crossing points, in which no works (other than landscaping and access) are to occur. Retained ponds and reedbeds to include an 8m buffer in which no works (other than landscaping) are to occur.	
Protection of wildlife (general measures).	Trenches will be backfilled or covered overnight or otherwise fitted with a means of escape to prevent entrapment, such as planks or ramps. Where used, ramps will be no greater than 45 degrees in angle. Best practice measures will be implemented to control dust, noise, light, vibration, and vehicle movements, as set out in the air quality, noise, and traffic tables of this outline CEMP. A sensitive lighting strategy will be put in place to manage temporary lighting used during the construction phase. Lighting to be used only where required, and if used it is to be task specific and directed away from boundary habitats including woodland, hedgerows and watercourses. The sensitive lighting strategy will be informed by current guidance for bats, *Guidance Note 08/23: Bats and Artificial Lighting at Night (2023).* Fencing (including temporary Heras fencing) to have suitably sized (c 0.2m x 0.25m) gaps or mammal gates at regular intervals, and in suitable locations, to allow access and free movement by small mammals. The location of gaps/gates will be determined during pre-commencement surveys.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impacts to qualifying species of the Mersey Estuary SPA, Ramsar and SSSI.	An Outline Non-Breeding Bird Mitigation Strategy (oNBBMS), for the creation and management of habitats for wetland birds, is provided in Appendix B of the **oLEMP [EN010153/DR/7.13]**. Construction works would be phased so that different parts of the SADA will be worked on at different times to minimise effects on birds, including qualifying species of the Mersey Estuary SPA, Ramsar and SSSI. To avoid and minimise cumulative disturbance within the Order Limits, construction of the NBBMA will be completed and the area functional in advance of works within the SADA; 'functional' has been defined in agreement with Natural England as follows: • All physical works within the NBBMA are completed; • The entire NBBMA area is available to support SPA bird species for which it is designed; and • The entire NBBMA is free from construction-related disturbance Construction of the NBBMA will be scheduled outside the peak non-breeding bird season (i.e. construction would be undertaken March-October inclusive). During March and October there will be ECoW oversight, real-time monitoring and adaptive management would be used in these months to ensure should there be any unexpected concentrations of SPA species that works are appropriately managed to reduce disturbance e.g. changes to sequencing, temporary suspension of works, or the introduction of additional acoustic barriers. Work within the Western SADA , particularly the area directly adjacent to the NBBMA in Cell 2 and Cell 1, will be completed outside of the sensitive non-breeding period where possible (Nov-Feb inclusive). The programming for construction works in these areas will be included within the Construction Environmental Management Plan.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	Noise mitigation measures such as use of acoustic screening such as hoarding, hay bales may be required in the following scenarios to avoid adverse effects on qualifying species of the SPA: i) When construction works to create the NBBMA within Cell 3 lie within 80m of the eastern boundary of Cell 3 during weekdays, or within 110m on Saturdays; ii) Site preparation, PV installation, or general construction activities within 180 m of Cell 3's eastern boundary during the core non-breeding bird period (Nov-Feb); and iii) Saturday morning works within 120 m of the SSSI north of Cells 2 and 3 during the core non-breeding bird period (Nov-Feb). An Ecological Clerk of Works (ECoW) will oversee the implementation of works, including undertaking behavioural monitoring and bird counts. If works are undertaken within the distance specified above, during the peak non-breeding bird season, then a programme of real-time monitoring and adaptive management should be put in place to ensure effective mitigation. A protocol will be required to be included within the CEMP that will detail the monitoring methods, thresholds for action (e.g. numbers exceeding 1% of the relevant SPA population), and the process for determining whether construction activity of the Proposed Development should proceed, be modified or be suspended. Possible adaptive management measures may include changes to sequencing, temporary suspension of works, or the introduction of additional acoustic barriers. Outside the sensitive period of November to February (inclusive) the ECoW would be consulted for any works occurring within the distances specified above.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Damage to bird nests or disturbance of breeding birds.	Vegetation clearance within the nesting bird season (March to August inclusive) to be avoided where reasonably practicable. Any vegetation to be cleared during the nesting bird season must first be checked by the EcoCoW. If a nest is located an appropriate buffer zone (species-specific) will be enforced. Nesting bird checks will be undertaken by a suitably qualified ecologist/ornithologist or the EcoCoW prior to commencement of works, and during different phases of work or at different times during the nesting bird season, depending on the timing of construction activities. The Skylark Mitigation Area will be in place and functional prior to the development of the SADA.	
Damage or destruction of bat roosts.	Protect and retain existing trees and vegetation in accordance with British Standard (BS) 5837:2012 and the **Arboricultural Assessment [EN010153/DR/7.15]**, and prepare an Arboricultural Method Statement to be agreed with CWaCC. If trees must be removed to enable construction, as specified in the **Arboricultural Assessment [EN010153/DR/7.15]**, tree removals should be limited to the minimum necessary to achieve the required design outcome. Any trees where works are required to be subject to pre-construction survey by the EcoCoW to assess any bat roost potential and appropriate mitigation measures (e.g., soft fell), further survey and/ or licensing to be undertaken. A 10m exclusion shall be implemented around buildings and structures (including the Manchester Ship Canal ventilation shafts). If works cannot be re-designed or micro sited to avoid this exclusion zone then appropriate surveys, as advised by an ecologist, depending on anticipated level of impact, would be undertaken. This may include endoscope inspections and/or emergence surveys. The results of these surveys will inform any mitigation requirements	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Killing/ injury of amphibians and/ or reptiles.	Clearance of suitable terrestrial habitat (e.g., tussocky grassland) to be undertaken following a toolbox talk and a two-stage cut. Hedgerow removal to be subject to a hand search by the EcoCoW prior to removal. Any suitable refugia (e.g., rubble piles) to be dismantled by hand under the watching brief of the EcoCoW. Stored materials to be kept on pallets raised off the ground to discourage use as a refuge.	
Damage to water vole burrows	A pre-construction survey for water vole (terrestrial and aquatic) will be undertaken at all locations where ditch/ watercourse crossings are proposed or where work will take place within 5m of a ditch/watercourse/pond. Where necessary, works will only proceed under an appropriate licence issued by Natural England. RAMS will be implemented during the construction phase to safeguard water voles.	
Disturbance of otter	Construction works across the SADA will be phased, such that at any time there will be areas of the SADA free from construction activities, ensuring free movement and access to commuting, foraging and resting areas. A pre-construction survey for otters (terrestrial and aquatic) will be undertaken at all locations where ditch/ watercourse crossings are proposed or where work will take place within 5m of a ditch/watercourse/pond. Where necessary, works will only proceed under an appropriate licence issued by Natural England. RAMS will be implemented during the construction phase to safeguard otters.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Injury/killing of fish	Where the 'dry crossing technique' is required for the creation of a new or widened access crossing, the section of water between the 'dams' will be inspected for fish and other aquatic life such as eels. Prior to dewatering, the coffer-dammed area will be inspected using electric fishing and/or fine mesh seine netting to ensure all fish, including juveniles, are safely relocated. Where appropriate a fish rescue plan will be executed. Pumps will be fitted with 2mm aperture screens to prevent entrainment of elvers and glass eel. A Fish Rescue Plan will include details dewatering methods to include the use of fish-safe meshes to be installed over any pumps, monitoring of water pH, and siltation. The fish rescue plan will form a part of the final CEMP. If, during the construction phase, invasive non-native fish species are identified within the existing ponds within the NBBMA, or within the network of ditches in the SADA, any non-native invasive species caught during the works would be humanely dispatched, and not re-released into the retained/new ponds, or the network of ditch downstream of a dry crossing. Measures to control run-off and pollution set out within Tables 5-4 and 5-5 and elsewhere in the oCEMP to be followed.	
Spread of Invasive Non-Native Species (INNS)	Prior to the commencement of construction, a botanical invasive species walkover survey will be undertaken during an appropriate time of year (May to October) in order to assess the spread of invasive species within the Main Development Area. Any areas of identified as containing INNS will be suitably demarcated to ensure site staff are aware of its presence and avoid work in such areas without approval from the EcoCoW and inform production of an INNS Management Plan.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	A botanical invasive species treatment programme will be implemented by a licensed and experienced invasive species contractor, which will follow a detailed method statement set out in an Invasive Non-Native Species Management Plan produced prior to commencement of works to ensure that the INNS are not spread during works, that any soil containing them is managed appropriately, and that a long-term eradication or control programme is undertaken within the Main Development Area. If herbicide is used to control invasive species, the INNSMP must contain measures to ensure that the use of chemical herbicides do not enter watercourses or groundwater. For the NBBMA, a New Zealand Pygmyweed Control and Management Strategy will be produced prior to commencement of work as part of the Non-Breeding Bird Mitigation Strategy. This shall set out detail to ensure that New Zealand Pygmyweed is not spread during works, that arisings from the NBBMA are managed appropriately, and that a long-term control programme is undertaken within the NBBMA. Should further areas of spread / other invasive species be encountered on-Site prior to or during construction, the advice of the appointed EcoCoW will be sought, and appropriate measures taken in order to achieve legislative compliance. The EcoCoW will ensure that a toolbox talk is provided to contractors on avoidance / good practice measures required to avoid facilitating the spread of INNS.	
Damage to badger setts or disturbance of badger using a sett.	A pre-construction survey for badger will be undertaken prior to work commencing in any new location within the Site (and 30m beyond the Site boundary where access allows) to identify any newly excavated badger setts. Where necessary, works will only proceed under an appropriate licence issued by Natural England. Any works within 20m of a badger sett (30m for large, tracked machinery) to be undertaken following the watching brief of the EcoCoW. Where an active sett is	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	present a 20m buffer will be retained from it with Heras fencing or similar installed, with no works to be undertaken within this area unless covered under a specific method statement and agreed by the EcoCoW. Where avoidance measures cannot reasonably be implemented and setts are likely to be impacted, these will be closed under a Natural England licence during the appropriate season (July to November inclusive). Soil stockpiles should be located at least 30m from any existing badger setts and outside known badger foraging areas or movement corridors. All soil stockpiles should be inspected for badger setts prior to the removal of the stockpile or the reworking of the soils. Should a suspected badger sett be identified the EcoCoW should be notified.	

Table 5-4: Summary of the construction mitigation and management measures – Flood Risk, Drainage and Surface Water

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Increased sedimentation in runoff from construction earthworks areas and other exposed ground.	A Construction Groundwater and Surface Water Management Plan (GSWMP) will be prepared as part of the final CEMP that sets out measures for the site wide management of surface water, rainfall run off, ground water, and site drainage. This will include a Method Statement and Monitoring Plan for all excavation works within the NBBMA The GSWMP will operate alongside the final CEMP, with both ensuring the proper management and maintenance of their respective aspects of the Proposed Development. A minimum buffer distance of 10 m from watercourses, will be observed for all infrastructure. This is with the exception of access tracks, cable crossings and drainage ditches. The minimum 10m exclusion zone will be maintained and demarcated using Heras fencing. All reasonably practicable measures will be taken to prevent the mobilisation and deposition of sediment from construction activities to any existing watercourse. In the first instance, any major construction works around watercourses will be minimised during heavy precipitation events and carried out during dry months where practicable. Where works within a watercourse or ditch are required when they are in flow, then flow will be maintained by damming and over pumping, with the feature reconnected only once works are complete. Immediately prior to reconnection, features such as silt fencing or geotextiles will be installed to capture mobilised sediment and will only be removed once the watercourse has returned to a settled state. The watercourse must also be reinstated to the condition that it was in prior to work commencing on it. Where there is a risk of silt entering a watercourse e.g. works within 10m of a watercourse, silt fencing and where appropriate, filter strips will be utilised to trap and filter run-off from excavation works, which includes foundations for the structures, cable trenches and access roads.	Temporary drainage features will be regularly monitored throughout construction. Specific details of this monitoring will be confirmed in the final CEMP. The silt fencing, filter strips and silt matting will be monitored by the ECoW and will be replaced whenever necessary. Requirements for watercourse quality monitoring will be agreed with CWaCC. This will include details of all baseline, construction phase and post construction (operational phase) monitoring, which will involve both visual assessments and quality testing.

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	Silt matting may be placed at the outfall of settlement ponds (where these are utilised) to filter sediment during heavy rainfall events. Tracks within the Site and any other hard surfaces will be kept clean to prevent mud and sediment accumulating on these surfaces that may then mobilise in rainfall events. Any wastewater that is produced during the construction phase from activities such as dewatering, will be disposed of in accordance with relevant legislation and will not be discharged directly to surface or foul drains without appropriate licences in place. A settlement tank will be used to allow for suspended solids in the discharge from any water drained from the existing ponds required to deliver the NBBMA to settle out prior to discharge to the Manchester Ship Canal. Accumulated solids forming at the bottom of the tank require periodic removal (removal frequency subject to site conditions and tank size). As soon as possible after construction, preparation, seeding and protection (where required) will be carried out to encourage revegetation on all bare ground and thus prevent erosion.	
	For the dewatering of coffer-dammed sections of watercourses or ‘dry crossing’ areas there is the potential for an increase in fine sediment entering watercourses. To mitigate for this, a Silt Buster or equivalent sediment filtration system will be used where prolonged dewatering is required to prevent silt-laden water from entering watercourses. Water will be gradually removed from coffer-dammed sections to allow sediment to settle, reducing sudden releases of high-silt-content water. Once water is removed, temporary stabilisation measures such as coir rolls, biodegradable matting, or silt fences will be used to prevent sediment wash-off.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	Timing of works will be carefully considered. If practicable, 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. Footings will be positioned away from the bank edge to mitigate potential bank erosion.	
	The trenching to lay the private wire connection underground cabling will be undertaken within the footprint of the existing access roads.	
Chemical and fuel spillages	Equipment and spill kits will be provided to contain and clean up any spills to minimise the risk of pollutants entering watercourses. Where there are instances of either fuel, oil or solvents being stored temporarily on Site, these containers will all be stored within bunded areas located a minimum of 10m from watercourses or site drainage system to prevent leaching of contaminants and covered where possible, to prevent the accumulation of rainwater and to prevent accidental damage. Additional precautions will be taken during plant operation in any areas where there is storage of fuels or chemicals. Machinery and plant to be maintained and regularly checked for oil leaks. An Environmental Incident Management and Pollution Prevention Plan will be produced prior to construction activities commencing and will be reviewed and updated regularly by the Principal Contractor. Training will be provided to site workers as part of induction processes and will be updated as necessary. This plan will contain information relating to the location of spill kits and any sensitive receptors, as well as the procedure for incident response. In the unlikely event of any incident, the Site Manager will be notified and will work to coordinate remedial actions.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Foul Drainage	There will be no unapproved discharge of foul drainage from the Site either to groundwater or any surface waters, whether direct or via a soakaway. Sewage and foul water will be collected in appropriate collection tanks. Regular collection and disposal of sewage and foul water will be conducted by a licensed company.	
Flood Risk	Implementation of a Flood Warning and Evacuation Plan to anticipate potential flood events (e.g. through monitoring of weather forecasts, flood alerts and warnings and toolbox talks on training on dangers of extreme weather conditions such as flooding etc.). Where risk of flooding is high, steps will be taken to reduce the potential impacts of flooding (e.g. cessation of work in areas of flood risk, evacuation of the Site, movement of equipment and materials to areas not at risk of flooding etc).	Logging of checks on flood risk indicators. Where flood event occurs monitoring of effectiveness of measures in the Emergency Response Plan, and recording of the same.
	Real-time vibration detection systems will be used adjacent to flood defence assets to ensure structural integrity remains within safe limits.	Environmental Manager to review system logs from vibration detection systems daily, with alerts triggered if pre-defined thresholds are exceeded.
	Main River bridge crossings CP14 and CP17 (as described in Environmental Statement: Volume 2 Appendix 2-1: Indicative Watercourse Crossing Schedule (inc. figures) (APP-050) will be designed and constructed to provide a 600mm freeboard between the bridge soffit and top bank level, and abutments will be set 2m back from the bank. At main river crossing CP22 the bridge will be designed and constructed to provide a 300mm freeboard between the bridge soffit and top bank level on the western bank of the crossing. The top of the bank on the eastern bank of the crossing will be lowered locally to accommodate construction with freeboard between the bridge soffit and top bank level set to a maximum practicable separation. Both abutments of CP22 will be set 2m back	. Any monitoring requirements would be confirmed by the Environment Agency pursuant to their approvals under the Protective Provisions

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	from the bank. The design of the main river crossings will be subject to approval by the Environment Agency prior to construction pursuant to their Protective Provisions.	
Water Quality	A water quality baseline will be established prior to the construction works commencing, with confirmatory water quality data obtained at agreed periods during, and immediately following completion, of the works. The surface water monitoring positions and parameters of testing shall be set out in the CEMP. This is required, to demonstrate that the construction phase does not have a detrimental effect on water quality, confirm that no remedial measures are required and ensure that any pollution events (potentially offsite) are identified. The GWSWMP will focus on the NBBMA where significant earthworks will take place but will also include a programme of monitoring of groundwater and surface water over the remaining areas of the Site where dredging materials are to be excavated and disturbed. It is considered that the proposed monitoring will be undertaken over an agreed period during and following completion of construction, long-term monitoring beyond one year after construction is not considered likely to be required.	Appropriate survey/s undertaken, and compliance with measures regularly recorded, with monitoring by the ECoW. The CEMP will detail the frequency.
	Temporary haul roads will be designed to minimise length while still serving their purpose. The gradient will be shallow to prevent increased runoff velocity, and if possible, bunds and / or discrete ditches will be constructed to intercept runoff. Haul roads will be regularly sprayed to control dust in dry and windy conditions. If any section of a haul road is hard-surfaced, it will be swept regularly to prevent the accumulation of dust and mud. Plant and wheel washing will take place in designated locations. Dirty water will be contained within sealed storage tank(s) and will not be allowed to discharge into a watercourse or infiltrate to groundwater. Some proprietary vehicle washing systems offer a recycling facility, which filter and settle solids, with effluents	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	being pumped back into the system. The solid waste materials from this process need to be treated as contaminated waste due to the high hydrocarbon content.	
Panel support resilience to flood water	The detailed design of the PV panel supports shall ensure that the foundations and the supports are structurally resilient to the estimated flood depths and velocities which could be experienced by panels that are located within the high risk flood zones on the Site.	N/A

Table 5-5: Summary of the construction mitigation and management measures – Ground conditions

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Localised contamination from made ground	Measures to avoid, reduce or minimise impacts during the construction phase from potential localised contamination in made ground on the Site. This will be informed by **ES Vol 2 Appendix 10-1 Stage 1 Geo-Environmental Assessment [EN010153/DR/6.2]**, supplemented with additional Site investigation and assessment during the detailed design phase, a remedial strategy, and as agreed with CWaCC. The measures will include but not be limited to the following:- • Implementation of the measures set out in the **outline Soil Management Plan [EN010153/DR/7.9]** which will be developed into a final Soil Management Plan in accordance with Requirement 15 of the **draft DCO [EN010153/DR/3.1]**. • An Unexpected Contamination Protocol will be developed and included in the final CEMP as follows: 1. In the event that contaminated land is found at any time when carrying out the Proposed Development, which was not previously identified in the environmental statement, then no further development (unless otherwise approved in writing by the relevant planning authority) shall be carried out within the identifiable perimeters of the area in which the suspected contamination is located. It must be reported as soon as reasonably practicable to the relevant planning authority, and where necessary, the Environment Agency, and the Applicant must complete a risk assessment of the contamination in consultation with the relevant planning authority, and where necessary, the Environment Agency. 2. Where the Applicant determines that remediation of the contaminated land is necessary, a written scheme and programme for the remedial measures to be taken to render the land fit for its intended purpose must be submitted to and approved in writing by	Appropriate survey/s undertaken, and compliance with measures regularly recorded via an appropriate method to be determined in the CEMP, with monitoring by the ECoW. The CEMP will detail the frequency. Sampling and analysis to be undertaken in accordance with Material Management Plan (as part of the Soil Management Plan) and the remedial strategy which will be supported by a controlled waters risk assessment. Appropriate verification to be completed in accordance with a verification implementation plan as presented within a remedial strategy.

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	the relevant planning authority, following consultation with the Environment Agency. 3. Remediation must be carried out in accordance with the approved scheme under sub-paragraph (2). 4. Following the implementation of the remediation strategy approved under sub-paragraph (2), a verification report, based on the data collected as part of the remediation strategy and demonstrating the completion of the remediation measures must be produced and supplied to the relevant planning authority and the Environment Agency. • A Foundation Works Risk Assessment (FWRA) will be prepared to assess risks associated with piling and ground disturbance activities associated with any foundation work, particularly in areas of known or potential contamination. This will include: o Characterisation of soil and groundwater conditions based on site investigation data. o Mitigation of dust emissions through dampening techniques and on-site dust suppression systems. o Prevention of silt-laden or contaminated runoff, using sediment barriers, settlement ponds, and filtration systems to ensure compliance with water quality standards. o A monitoring programme to assess the effectiveness of mitigation measures and detect any adverse environmental effects. • A Piling Risk Assessment (PRA) will be produced, as informed by the current and proposed site investigation. The PRA will adopt the most suitable piling technique which is likely to entail a method where generation of arisings is minimal (to reduce likelihood of exposure to construction	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	workers) and methods to reduce the likelihood of contaminant remobilisation during piling; • Asbestos awareness and management protocol to be implemented; • Monitoring of groundwater conditions during NBBMA construction works, and for a set period thereafter; • An assessment of peat depths across the Site arising from the investigation and assessment undertaken during the detailed design phase. Identification of any necessary mitigation to protect any peat resources identified. • A management and monitoring plan to monitor and mitigate any adverse effects to wading birds will be prepared for the NBBMA area which will be approved by regulatory authorities prior to implementation, this shall include monitoring of water quality within surrounding surface watercourses, and surveying such as invertebrate abundance monitoring; • Works within the NBBMA and SADA within the MSCDDG Cells to be informed by a groundwater risk assessment prior to commencement of construction which will include the requirement for baseline, construction and completion of works groundwater and surface water monitoring with the scope to be agreed with the EA. This will ensure disturbance is minimised and potential remobilisation of contaminants to groundwater is prevented or reduced; • A Materials Management Plan (MMP) / Deposit for Recovery (DfR) will be prepared once the detailed design is finalised and will be agreed with regulatory authorities prior to implementation. This will need to demonstrate compliance with the Definition of Waste Code of Practice (DoWCoP). If it is not possible to comply with the requirements of DoWCoP a Deposit for Recovery Permit will be obtained, • Any workers entering underground confined spaces such as below ground excavations or underground cable runs/ducts (applicable to both	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	construction and operational phases) will use gas and vapour alarms and comply with confined spaces working procedures and protocols; • Specification of personal protective equipment (PPE) together with implementing good site housekeeping, hygiene and other good practice site health and safety protocols to ensure safety of Site Operatives. Measures set out in the final CEMP will be in compliance with and reflect any requirements identified within the final Soil Management Plan (SMP), Materials Management Plan, or Deposit for Recovery (DfR) Permit which may be required to undertake the works proposed within the NBBMA.	
Ground gases	If permanent ground-bearing enclosed structures are adopted for buildings (e.g. BESS, Frodsham Solar Substation, Power Conversion Units), then an appropriate gas monitoring programme would be undertaken at the detailed design stage prior to the construction of the buildings to assess whether gas protection measures are required within the design of the structures.	Appropriate survey/s undertaken to inform design and if required post construction monitoring.
Dust, debris and litter generation	Dust suppression during dry and windy conditions, good housekeeping during construction to reduce potential impacts of litter, dust and debris generation.	Appropriate survey/s undertaken, and compliance with measures regularly recorded via an appropriate method to be determined in the CEMP, with monitoring by the ECoW. The CEMP will detail the frequency.
Generation of silty and otherwise contaminated run-off	Provision of silt traps and similar within the vicinity of nearby surface watercourses.	Routine monitoring / observations of surface watercourses as necessary as part of surface water management plan with daily

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	Implementation of Environmental Incident Management and Pollution Prevention Plan to be included as part as CEMP to include, amongst other information, contact with appropriate regulatory authorities.	record keeping, with monitoring by the ECoW. Monitoring may suggest sampling but visual observation may be acceptable. Monitoring and sampling as detailed within Environmental Incident Management Plan to be included as part as CEMP.
Encountering ground water when excavating	Groundwater management practices will be adopted where groundwater is encountered. Dewatering practices may include a series of cut-off trenches and pumping employing best engineering practices.	Monitoring excavations and recording occasions where groundwater is encountered and measures taken to manage the same.
Soil erosion or ground instability	The bund separating MSCDDG Cells 3 and 5 is noted to be spalling in some areas. To protect its structural integrity: • No excavation or piling will take place within 10m of the bund toe unless a geotechnical risk assessment is completed. • Surface water drainage will be managed to prevent erosion or weakening of bund materials.	n/a
	Existing and proposed vegetation along embankments will be subject to regular maintenance in accordance with the oLEMP to prevent root destabilisation.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impacts on existing services	Implementation of appropriate stand-offs from existing services crossing the Site. Services should be surveyed prior to construction, and exclusion measures adopted where necessary (e.g. fencing) or sensitive working methods implemented.	Use of vibration monitors during excavation and piling works is risk assessment consider this to be necessary.
Pollution caused from generation of foul sewage within construction compounds	All foul sewage generated from welfare facilities will be collected within a sealed system to be uplifted and tankered for disposal/treatment at a suitably licensed off-site facility at a suitable frequency.	Monitoring and maintenance of foul sewage systems as stipulated within the oCEMP.
Leaks and spillages of fuel and chemicals required for construction phase	The storage of fuels or chemicals required during the construction phase will be limited to diesel generators to provide power to the compound area and above ground diesel and ad-blue tanks / fuel tankers for re-fuelling Site plant. Such fuel storage will be housed appropriately and bunded, refuelling will be limited to designated re-fuelling areas and a suitably stocked spill-kit will be retained within the compound areas as part of a standard construction compound requirement.	Monitoring and maintenance of fuel and chemicals storage as stipulated within the oCEMP, with monitoring by the ECoW.

Table 5-6: Summary of the construction mitigation and management measures – Cultural Heritage and Archaeology

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impacts to archaeology	Pursuant to DCO Requirement, an Archaeological Mitigation Strategy will be agreed with Cheshire Archaeology Planning Advisory Service to determine the scope of pre-construction archaeological investigation in the land east of Brook Furlong and for a purposive borehole survey that will be undertaken within the southern, central and southeastern parts of the Site (outside the areas of previous canal dredging deposition). An Archaeological Clerk of Works shall oversee the implementation of the WSI prior to construction. The Private Wire Connection will be delivered within the footprint of the existing access tracks, thereby avoiding impacts on any unknown buried archaeology.	Monitoring requirements will be set out in the WSI and compliance with measures regularly recorded via an appropriate method to be determined in the CEMP. The CEMP will detail the frequency.
Loss of non-designated heritage assets	The possible ventilation shafts within the Site (Asset 316 in **ES Vol 2 Appendix 11-2: Gazetteer of Heritage Assets and Events [EN010153/DR/6.2]**) would be subject to a programme of recording (likely a photographic survey) if they require demolition. This will allow for the partial mitigation of their demolition via preservation by record. Any ventilation shafts which do not need to be lost / damaged to facilitate the construction and operation of the Proposed Development will be retained. Any shafts which are not impacted by the solar array would be retained and fenced during construction to avoid damage.	

Table 5-7: Summary of the construction mitigation and management measures – Tourism & Recreation

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impact upon leisure and recreation businesses utilising adjoining land	Access via Brook Furlong by construction traffic will be specifically excluded except in emergencies.	Regular monitoring of measures to prevent access by construction traffic to Brook Furlong to ensure access does not take place.
Disruption to users of Public Rights of Way	There will be no permanent development on a PRoW which will prevent its use, with any development limited to that below ground (e.g. cable routing). Construction access will be restricted from regular use of the PRoW network, with vehicles segregated from PRoW where necessary. A Public Right of Way Management Plan and a CTMP will manage access to avoid and minimise PRoW disruption. An **outline Public Right of Way Management Plan [EN010153/DR/7.9]** has been prepared and will be developed into a final Public Right of Way Management Plan prior to the start of construction in accordance with Requirement 15 of the **draft DCO [EN010153/DR/3.1]**. This sets out the measures for ensuring safety of PRoW users while minimising disruption to PRoW as much as possible.	The appointed contractor will undertake such monitoring as is necessary. Further details to be confirmed in the CEMP and Public Right of Way Management Plan.
Damage to the Public Right of Way network	PRoW within the Site, including the section of the NCN5 that runs through the Site, would be improved at the end of the construction period to repair any damage and potholes arising from the construction works.	
Disruption to users of National Cycle Network (NCN)	Construction traffic will be held from using the National Cycle Network route through the Site whilst cyclists are using the route.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Disruption to river traffic	Sufficient height clearance no lower than the nearest existing headroom limitation (the bridge circa 300m downstream of the proposed cable crossing location) across the River Weaver will be maintained to allow river traffic to continue to operate with particular reference to overhead cabling between the Site and the SPEN Frodsham Solar Substation, except for a short period of closure (during the working day only) when cables are strung. The contractor shall provide at least 3 months' advance notice to the recreational clubs (including Weaver Sailing and Ski Club and Frodsham Kayaking) on the River Weaver of any closure of the River Weaver. Notices shall also be published in local newspapers and online community resources e.g. Frodsham Town Council newsletters of scheduled closures.	Ensure sufficient height clearance retained over River Weaver and monitor as required.
Disruption to local residents, businesses, and community facility use	Measures to mitigate the effects of visual impacts during construction are outlined in Table 5-2: Landscape and visual. Measures to mitigate the effects of traffic during construction are outlined in Table 5-8 Traffic and Transport. Measures to mitigate the effects of noise during construction are outlined in Table 5-9 Noise and Vibration. Measures to mitigate the effects on air quality during construction are outlined in Table 5-10 Air Quality.	Ensure measures set out in tables referred to followed.

Table 5-8: Summary of the construction mitigation and management measures – Traffic and Transport

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Increased traffic flows, including HGVs, on the roads leading to the Site. Severance and intimidation associated with increased construction traffic and abnormal loads.	An **outline Construction Traffic Management Plan** (oCTMP) **[EN010153/DR/7.4]** has been prepared as part of the application for development consent, and Construction Traffic Management Plan(s) (CTMP) will be prepared prior to the commencement of construction activities in accordance with a Requirement of the **draft DCO [EN010153/DR/3.1]**. The oCTMP sets out measures including restrictions on delivery hours, on-site parking and manoeuvring arrangements, routing strategies, staff parking, signage, access for abnormal loads, and co-ordination with other developments. Construction traffic will be routed to avoid traffic passing through the urban residential areas of Frodsham, Ince or Elton. A booking system will be used to manage arrivals and departures to the Site to ensure proper operation of Marsh Lane. Construction deliveries by HGVs will be co-ordinated to avoid highway peak hours. Construction staff will be encouraged to consider ways of travelling to the Site by means other than individual private car through a Construction Worker Travel Plan forming part of the CTMP. This will include car sharing where possible, and exploring the provision of staff minibuses to transport workers to the Site.	The appointed contractor will undertake such monitoring as is necessary. Further details to be confirmed in the CTMP.
Impact upon users of PRoW within the Site.	Construction access will be restricted from regular use of the PRoW network, with vehicles segregated from PRoW where necessary. A Public Right of Way Management Plan and a CTMP will manage access to avoid and minimise PRoW disruption and maintain safety of PRoW users. An **outline Public Right of Way Management Plan [EN010153/DR/7.9]** has been prepared and will be developed into a final Public Right of Way Management Plan prior to the start of construction in accordance with Requirement 15 of the **draft DCO [EN010153/DR/3.1]**.	The appointed contractor will undertake such monitoring as is necessary. Further details to be confirmed in the CEMP and in a Public Right of Way Management Plan.

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Access to Marsh Lock	The Applicant will liaise with the Canal and River Trust pre and during construction to confirm vehicle numbers and any traffic measurement requirements on the access road to SPEN Frodsham Substation, ensuring that at all times access is able to be made to Marsh Lock.	The appointed contractor will undertake such monitoring as is necessary. Further details to be confirmed in the DEMP.

Table 5-9: Summary of the construction mitigation and management measures – Noise and Vibration

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impact of noise arising from construction activities at noise sensitive receptors (NSR).	Work will be undertaken in accordance with a Construction Noise Management Plan (CNMP), which will be prepared as part of the final CEMP. Best practical measures will be employed in accordance with BS5228-1:2009+A1:2014 to control noise generation (e.g. using equipment that is regularly maintained, where practicable use equipment fitted with silencers or acoustic hoods). Piling rigs will be carefully chosen to minimise noise and vibration at ecological receptors, such as the use of non-percussive mini piling rigs. Construction plant and machinery will be switched off when not in use. Where practicable, broadband noise reverse alarms will be used on mobile plant.	Appropriate survey/s undertaken to show compliance with noise threshold guidance, and compliance with measures regularly recorded via an appropriate method to be determined in the CEMP and CNMP. The CEMP and CNMP will detail the frequency. Ecological Clerk of Works (ECoW) will oversee the

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	One-way system/turning circles and/or use of a banksman will be utilised to avoid/reduce the need for reverse alarms. Drivers of mobile plant will be instructed to avoid un-necessary banging of excavator 'buckets' and avoid un-necessary excessive revving of engines. Vehicles arriving or exiting site will be advised to follow the 'quiet deliveries demonstration scheme'.	implementation of works in close proximity to the NBBMA and when works within the NBBMA lie within 110m of the eastern boundary of Cell 3. This will include undertaking behavioural monitoring and bird counts.
Impact of noise arising from construction activities at ecological receptors.	Mitigation measures may be required in the following scenarios to avoid adverse effects on qualifying species: i) When construction works to create the NBBMA within Cell 3 lie within 80m of the eastern boundary of Cell 3 during weekdays, or within 110m on Saturdays; ii) Site preparation, PV installation, or general construction activities within 180 m of Cell 3's eastern boundary during the core non-breeding bird period (Nov-Feb); and iii) Saturday morning works within 120 m of the SSSI north of Cells 2 and 3 during the core non-breeding bird period (Nov-Feb inclusive). The mitigation measures to be employed may include the use of acoustic screening such as hoarding, hay bales, or equivalent barriers capable of achieving of 5–10 dB attenuation. Outside the sensitive period of November to February (inclusive) the EcoCoW would be consulted for any works occurring within the distances specified above to confirm the need for mitigation measures to be employed. This may be influenced by the time of year, the number of birds recorded as being present and seasonal variations in weather conditions.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impact of vibration arising from construction activities at vibration sensitive receptors.	Careful choice of any likely piling rigs to minimise noise and vibration (e.g. non-percussive piling rigs).	

Table 5-10: Summary of the construction mitigation and management measures – Air Quality

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impact of dust arising from construction activities on the Site.	Implementation of Best Practice Measures to control and manage dust emissions. Measures to be derived as recommended for a high-risk site in the Institute of Air Quality Management (IAQM) guidance on the assessment of dust from construction. Hierarchy for mitigation to be prevention, suppression then containment. A complete list of mitigation measures is set out in Table 7.1 of **ES Vol 2 Appendix 4-2: Construction Dust Assessment [EN010153/DR/6.2]** to include: - Develop and implement a Construction Dust Management Plan (CDMP) with such CDMP to provide that: - excavation and earthworks areas to be stripped as required to minimise exposed areas; - minimisation of drop heights during earthworks and material handling activities; - completed earthworks and other exposed areas to be covered with topsoil and re-vegetated as soon as practical to stabilise surfaces; - stockpiles of loose materials to be retained for the shortest time possible and to be clearly delineated; - use of enclosed chutes, conveyors and covered skips; - provision of year-round clean water supply for dust suppression; - use of water bowsers with suitable spray bars (or similar) on site to dampen down internal haul routes and exposed areas, particularly during prolonged dry weather.	A CDMP will be developed and agreed with appropriate stakeholders and form part of the final CEMP. Compliance with measures to be regularly recorded via an appropriate method to be set out in the final CEMP.
	Other measures in relation to internal haulage movements will include:	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	- regular compaction, grading and maintenance of on-site non-metalled internal haulage routes; - regular inspections of the Site access, other access points, crossing points and local access points; - provision and enforcement of internal site speed limit of 10mph within the Main Development Area, NBBMA and internal haulage routes; - provision and enforcement of internal site speed limit of 20mph along the unbound stretch of the Main Site Access along Marsh Lane; - sheeting of all incoming / outgoing vehicles carrying loose loads; - provision of wheel cleaning facilities at appropriate locations before exit on the public highway.	
Impacts of gaseous emissions from use of on-site plant and non-road mobile machinery (NRMM)	Where possible use only equipment compliant with at least Stage IIIB of the NRMM (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018[v].	Compliance with measures to be regularly recorded via an appropriate method to be set out in the CEMP.

Table 5-11 Summary of the construction mitigation and management measures – Waste

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
Impact of waste arising from construction activities on the Site.	All reasonable actions will be taken by the contractor to minimise the volume of waste produced as a result of construction. This can be through reducing consumption, reuse, using resources efficiently, and designing for longevity.	A Construction Waste Management Plan (CWMP) shall be developed and agreed with appropriate stakeholders and form part of the CEMP. Compliance with all measures regularly recorded via an appropriate method to be set in the CEMP and CWMP, with monitoring by the ECoW.
	Implementation of measures to reduce waste through control over materials procurement, to include:- - Just-in-time material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste; and - Attention to material quantity requirements to avoid over-ordering and generation of waste materials due to surplus.	
	Waste from construction activity (site offices & welfare facilities, maintenance of construction vehicles, packaging from incoming materials, other waste from construction of fencing, access roads and other supporting infrastructure, etc.) to be separated/segregated into main waste streams and stored appropriately prior to collection by an approved waste contractor.	
	Waste to be collected by an approved, licensed third party waste facility for recycling and disposal.	
	Re-use of material and waste arising from site clearance and construction to be secured wherever possible. Where materials excavated on-site are initially unable to meet the re-use criteria, they will either be treated to make them suitable for use or, as a last resort, disposed off-site as waste. Reuse of excavated material within the Site, will be undertaken in accordance with the measures set out in the **outline Soil Management Plan [EN010153/DR/7.10]**.	

Potential Impact being managed / mitigated	Mitigation and/or management measure to be implemented	Requirement for monitoring
	Toxic and / or hazardous waste must be treated by an authorised operator. Transportation of hazardous waste will also require an authorised carrier.	
	The volume of waste streams generated by the Proposed Development to be estimated and monitored, and goals set with regards to the waste produced, re-use and recycling, and off-site disposal.	

6.0 IMPLEMENTATION OF MANAGEMENT PLAN

6.1.1 The final CEMP will define all responsibilities, roles and actions required for implementation of the measures that are set out in this outline CEMP. These will include as a minimum:

i) The team roles and responsibilities, and the named individuals fulfilling those roles. An organogram and contact directory will also be included;
ii) The procedures required for monitoring, inspection and reporting of site operations;
iii) Document control systems and procedures;
iv) Details of the communication strategy and the proposed Community Liaison Group (stakeholders and third party);
v) Details of the required training for key personnel on environmental topics relevant to the Proposed Development and CEMP. This will include details on toolbox talks and on-site briefings required to ensure that relevant staff and Site Operatives are aware of the requirements for environmental control and procedures for the same, and that they have the required level of knowledge to deliver them;
vi) Details of measures to ensure that staff and personnel are advised of changes to circumstances as work progresses on the Proposed Development; and
vii) Procedures for environmental emergencies.

7.0 MONITORING AND MAINTENANCE

7.1 Monitoring

7.1.1 To ensure and demonstrate compliance with the measures set out in the final CEMP, monitoring and reporting will take place throughout the construction phase of the Proposed Development. This process will also include oversight of the resulting reporting to ensure that corrective action is taken where necessary. Details of monitoring, inspection and audits to be undertaken will be provided in the final CEMP.

7.1.2 The Environmental Manager will be present on site throughout the construction phase. They will observe site activities and in particular will attend when new activities first occur, to ensure compliance with the final CEMP, raise deviations where they occur, and to monitor actions and conditions on the Site. They will also undertake regular walkover surveys of the Site to monitor compliance with the final CEMP. They will also undertake regular inspections, as required by the final CEMP, and overall audits of the final CEMP to ensure compliance with its requirements. They will also meet regularly with the Site Manager to discuss the construction programme and any issues arising from that or their inspection/monitoring activities. They will also undertake day-to-day contact with relevant local authorities and other regulatory agencies (such as the Environment Agency).

7.1.3 All activities observed by the Environmental Manager, the results of surveys and inspections undertaken by them, and reports produced by them will be documented and logged in a logbook available for inspection on request by Cheshire West and Chester Council.

7.1.4 Where complaints are received from members of the public these will be logged by the Site Manager in a record keeping system. These logs will include details of the complaint, and actions arising from the same.

7.1.5 Similarly, where matters or complaints are raised by the CLG, these will be logged by the Community Liaison Officer in a record keeping system. These

logs will include details of the matter/complaint, and actions arising from the same.

7.1.6 All complaints will be reviewed by the Site Manager, Community Liaison Officer and Environmental Manager, and the result of the review and any corrective actions taken will be logged. The Complaints Log will be reviewed by the Site Manager for signs of wider on-going issues and where these are identified corrective action will be taken.

7.2 Record keeping

7.2.1 A Quality and Safety Management Systems (QMS) and Environmental Management System (EMS) will be provided by the Principal Contractor. These will be certified in line with the ISO 14001 standards.

7.2.2 Those systems will ensure that records are kept of monitoring, recording, and implementing of environmental management measures for the Proposed Development. This is vital to ensuring that the Proposed Development is delivered with a high standard of environmental control throughout the construction phase, and that corrective actions are undertaken.

7.2.3 A central record keeping system will be established (by the Quality Manager, or a suitable person with delegated responsibility for the same) which will provide a repository for procedures, checklists, reports and other such measures required for the EMS and QMS. This will include maintaining records of inspections, audits, or other such activity undertaken by internal or external parties undertaking audit of the CEMP and measures therein. These will include the following records as a minimum:

i) Licences, approvals, and other similar regulatory documentation;
ii) Environmental surveys;
iii) Environmental equipment test records; and
iv) Records of routine site inspections.

7.2.4 Details of incidents, breaches of the final CEMP, or complaints from third parties, and corrective action taken in respect of the same.

7.2.5 A full review of the final CEMP will be undertaken at regular intervals by the Environmental Manager and Site Manager and as required to respond to specific issues that may arise. Where a review identifies an issue that requires additional control measures or mitigation be added to the final CEMP, or amendment to an existing control measure or mitigation, then these changes will be made only after the agreement of Cheshire West and Chester Council has been obtained, in consultation with the Environment Agency and (in respect of Work No. 6C) Natural England.

7.2.6 The records held in respect of the final CEMP will be made available for the purposes of monitoring compliance with the final CEMP where a request is made by Cheshire West and Chester Council and if necessary, by the Environment Agency or Natural England.

8.0 REFERENCES

[i] HMSO (2017). Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572 [Last Accessed: 17 September 2024]

[ii] HMSO (2015). The Construction (Design and Management) Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/51 [Last Accessed: 17 September 2024]

[iii] HMSO (2013). The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013. Available at: https://www.legislation.gov.uk/uksi/2013/1471 [Last Accessed: 17 September 2024]

[iv] HMSO (2011). Waste (England and Wales) Regulations 2011. Available at: https://www.legislation.gov.uk/uksi/2011/988 [Last Accessed: 17 September 2024]

[v] HMSO (2018). The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. Available at: https://www.legislation.gov.uk/uksi/2018/764 [Last Accessed: 17 September 2024]

Appendix A – Supplementary Management Plans

The outline Construction Environmental Management Plan (oCEMP) states that the final Construction Environmental Management Plan (CEMP) will be supported by a series of supplementary management plans and strategies.

The following table lists the management plans and strategies described within the oCEMP, along with a summary of what these documents are expected to contain when submitted for final approval to the relevant planning authority under Requirement 15.

Plan or Strategy Title	Description
Sensitive Lighting Strategy	The construction lighting regime is set out at paragraphs 4.1.32 to 4.1.36 of the oCEMP. Lighting during construction is to be sufficient for health and safety, but artificial lighting will generally only be used during hours of darkness, low natural light, or specific construction tasks, and will not be operated outside the specified working hours. It is explicitly required that lighting uses directional fittings and cowls to minimise outward light spill and glare. The sensitive lighting strategy will be prepared to describe the methods used to reduce potential impacts on biodiversity across the Site. Measures to be adopted include that lighting should not be directed towards the Non-Breeding Bird Mitigation Area (NBBMA) and that task lighting should incorporate appropriate strength, cowls and hoods to avoid unnecessary light spill into adjacent habitats such as woodland, hedgerows and watercourses. The sensitive lighting strategy will be informed by current guidance for bats, Guidance Note 08/23: Bats and Artificial Lighting at Night (2023).
Invasive Non-Native Species Management Plan (INNSMP)	The INNSMP will outline monitoring and control measures for invasive species, ensuring that species such as New Zealand Pygmyweed, Himalayan balsam, and American Mink are effectively managed to protect biodiversity. Table 5-3 of the oCEMP provides additional detail on the matters that will be covered and the general approach to the management of INNS, including pre-commencement surveys, demarcation of areas of invasive species, provision of an invasive treatment programme, the need for appropriate soil management, specific requirement to consider New Zealand Pigmy Weed in the NBBMA, toolbox talks and measures to ensure any herbicide does not enter watercourses.

Plan or Strategy Title	Description
Ground Conditions Investigations and Assessments Strategy	The Ground Conditions Investigations and Assessments Strategy is described in the oCEMP as the strategy for further ground conditions surveys, assessment and reporting required prior to construction and that it will include any necessary remediation strategies and the approach taken to materials management. Table 5-5 of the oCEMP lists out the measures that would be included in the strategy, which includes additional site investigation, assessment of peat depths across the Site, remediation strategy, verification implementation plan, foundation works risk assessment, piling risk assessment, asbestos awareness and management protocol, groundwater monitoring, groundwater risk assessment, materials management plan, confined spaces working protocol and specification of personal protective equipment.
Environmental Incident Management and Pollution Prevention Plan (EIMP)	The EIMP is a protocol that will set out a structured response framework for fuel or chemical spills, unexpected contamination events, and pollution control measures to prevent impacts on watercourses and groundwater. Paragraphs 4.1.39 to 4.1.40 describe the approach to pollution incidents, with Table 5-4 providing further detail on the measures to be implemented at the site to reduce and control such incidents. These measures would be detailed within the EIMP, including the provision of spill kits, storage requirements for fuel, oil, and chemicals, as well as protocols for plants and machinery and training requirements.
Flood Warning & Evacuation Plan (FWEP)	An outline FWEP has been prepared which sets out the principles for the production of a FWEP that would be adopted throughout the construction, operational and decommissioning periods. It includes a description of the flood risk at the site, guidance on the status of flood alerts and weather warnings, measures and protocols to be adopted in preparation for a flood at the site, what should occur at the site in the event of a flood, and emergency contact details.
Construction Groundwater and Surface Water Management Plan (GSWMP)	Table 5-4 of the oCEMP outlines the GSWMP will establish measures for managing surface water, rainfall runoff, ground water, and site drainage across the site. This will include a Method Statement and Monitoring Plan for all excavation activities within the NBBMA. The GSWMP will specify measures to reduce the risk of pollution, such as maintaining vegetation cover, phasing and timing of soil stripping, and minimising the exposure period of soils. It will also detail sediment and surface water flow management practices, including measures like managing temporary flow pathways, using filter strips, silt fences,

Plan or Strategy Title	Description
	temporary siltation ponds, check drains on the upslope of tracks and earthworks, and siltation settlement tanks, where appropriate. The GSWMP will specify measures to control spill risk from fuels, oils, concrete and chemicals via bunded storage, designated refuelling and washout areas, drip trays, spill kits and staff training. It will also specify the monitoring requirements for surface water quality before and during construction. The GSWMP would incorporate measures that overlap with the EIMP, and these plans would be carefully coordinated.
Unexpected Contamination Protocol (UCP)	Paragraph 1.3.3 of the oCEMP sets out that the UCP will be prepared to define the protocol in case unexpected contamination is encountered during construction, it will detail the procedures for risk assessment, reporting, remediation, and verification. Table 5-4 of the oCEMP details what will be included in the UCP and outlines the approach to notifying the relevant agencies, completing risk assessments / additional investigations, and, if necessary, remediation and verification.
Unexploded Ordnance Management Plan (UXOMP)	The UXOMP is identified in paragraph 1.3.3 of the oCEMP as setting out the control and response measures to mitigate for potential UXO within the Site. Paragraphs 4.1.23–4.1.24 of the oCEMP describe the core principles of what the protocol will include. It identifies that an Intrusive Magnetometer Survey of all pile locations and excavations will be undertaken down to the maximum bomb penetration depth in areas identified as at risk of UXO being present. A UXO Specialist will be available to monitor works as required using visual recognition and instrumentation, and to respond to reports of suspicious objects. The UXO Management Plan will include details of an appropriate emergency response plan and management measures to protect human health and the environment. The UXOMP will be informed by the Detailed Unexploded Ordnance Risk Assessment undertaken by 1st Line Defence that is contained at Appendix F of Environmental Statement: Volume 2 Appendix 10-1: Stage 1 Geo- Environmental Assessment Part (APP-096 and APP-097).
Construction Noise Management Plan (CNMP)	The CNMP is identified in paragraph 1.3.3 of the oCEMP and will specify measures to control and manage noise impacts during the construction phase of the Proposed Development. As detailed in Table 5-9 of the oCEMP, best practical measures will be employed in accordance with BS5228-1:2009+A1:2014 to control noise generation, with the table listing various

Plan or Strategy Title	Description
	measures that would be implemented. The CNMP will identify specific measures deemed necessary for the plant and equipment used. It will also outline the measures required for managing noise that could affect the NBBMA, as set out in Table 5-9. Additionally, the CNMP will specify any surveys needed to demonstrate compliance with noise threshold guidance and the noise limits identified in the Noise Impact Assessment (Environmental Statement: Volume 2 Appendix 4-1: Noise Impact Assessment (APP-054).
Fish Rescue Plan	The Fish Rescue Plan is identified in paragraph 1.3.3 of the oCEMP and will ensure the appropriate removal, handling, and relocation of fish during dewatering works, while adhering to environmental regulations and minimising harm to native aquatic species. Table 5-3 of the oCEMP details the principles of the measures that would be included in the Fish Rescue Plan. Before dewatering any ditches or waterbodies, these habitats will be inspected using electric fishing and/or fine mesh seine netting to ensure all fish, including juveniles, are safely relocated. The fish rescue plan will specify that pumps will be fitted with 2mm aperture screens to prevent entrainment of elvers and glass eels, will require humane dispatching and it will outline dewatering methods such as the use of fish-safe meshes to be installed over any pumps.
Construction Dust Management Plan (CDMP)	The CDMP is identified in paragraph 1.3.3 of the oCEMP and will set out measures to control and reduce dust during the construction phase of the Proposed Development. Table 5-10 of the oCEMP outlines the approach to managing construction dust, highlighting several methods that would be used to control it and that would be incorporated into the CDMP. Environmental Statement: Volume 2 Appendix 4-2: Construction Dust Assessment (APP-055) states that dust management will follow the Institute of Air Quality Management (IAQM) guidance for high-risk sites and specifies the types of measures to be included within the CDMP. The CDMP will implement the IAQM hierarchy, specifying how dust risks are prevented (for example through phasing and minimising exposed ground), suppressed (e.g. damping down, speed limits, wheel-washing, covering of stockpiles) and contained (e.g. screening and enclosure where appropriate), and if required how monitoring will be carried out, including trigger levels and actions. It will also address communication and complaint handling, linking to the oCEMP's quality and environmental management systems and complaints procedure.

Plan or Strategy Title	Description
Construction Waste Management Plan (CWMP)	The CWMP is identified in paragraph 1.3.3 of the oCEMP as setting out the procedures for managing operational waste, ensuring compliance with the Waste Hierarchy and regulatory requirements. The CWMP will document the types of waste that will be generated and how these wastes will be managed in accordance with the waste hierarchy. The CWMP will describe measures to reduce waste arisings and the process for managing waste to maximise its potential for being managed as high up the waste hierarchy as possible. Table 5-11 of the oCEMP lists several of the measures that will be included in the CWMP, and the plan will expand on these and set out in detail how they will be implemented, recorded, and monitored during the construction phase.