Connah's Quay Low Carbon Power

Preliminary Environmental Information Report
Volume II, Chapter 3: Description of the Existing Environment

Uniper

The Planning Act 2008
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
PINS Reference: EN010166
September 2024

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3. Description of the Existing Environment

3.1 Overview

3.1.1 The Proposed Development is located approximately 0.6 kilometres (km) north-west of Connah's Quay in Flintshire, north-east Wales. The Main Site is centred at national grid reference 327347, 371374, and the Proposed Development is wholly within the administrative area of Flintshire County Council (FCC), except for an area within Ellesmere Port (Manchester Ship Canal) which is located within Cheshire West and Chester (CWaC) Council and is under consideration for shipborne deliveries of Abnormal Indivisible Loads (AIL) during construction.

3.1.2 The Proposed Development Site boundary ('the Indicative Site Boundary') is shown on **Figure 3-1: Indicative Site Boundary (PEIR Volume III) (sheets 1-10).** This boundary is provisional and for the purposes of the Preliminary Environmental Information Report (PEIR). The final Site boundary for the purposes of the Development Consent Order (DCO) Application (referred to as the 'Order Limits'), including land for associated connections, and including AIL offloading areas and transport routes (referred to collectively as 'Temporary AIL Work Areas'), will be refined through on-going studies of opportunities and constraints and following technical engagement with relevant stakeholders., including land for associated connections and Temporary AIL Work Areas, will be refined through on-going studies of opportunities and constraints and following technical engagement with relevant stakeholders.

3.1.3 This chapter is supported by the following figures in PEIR Volume III:

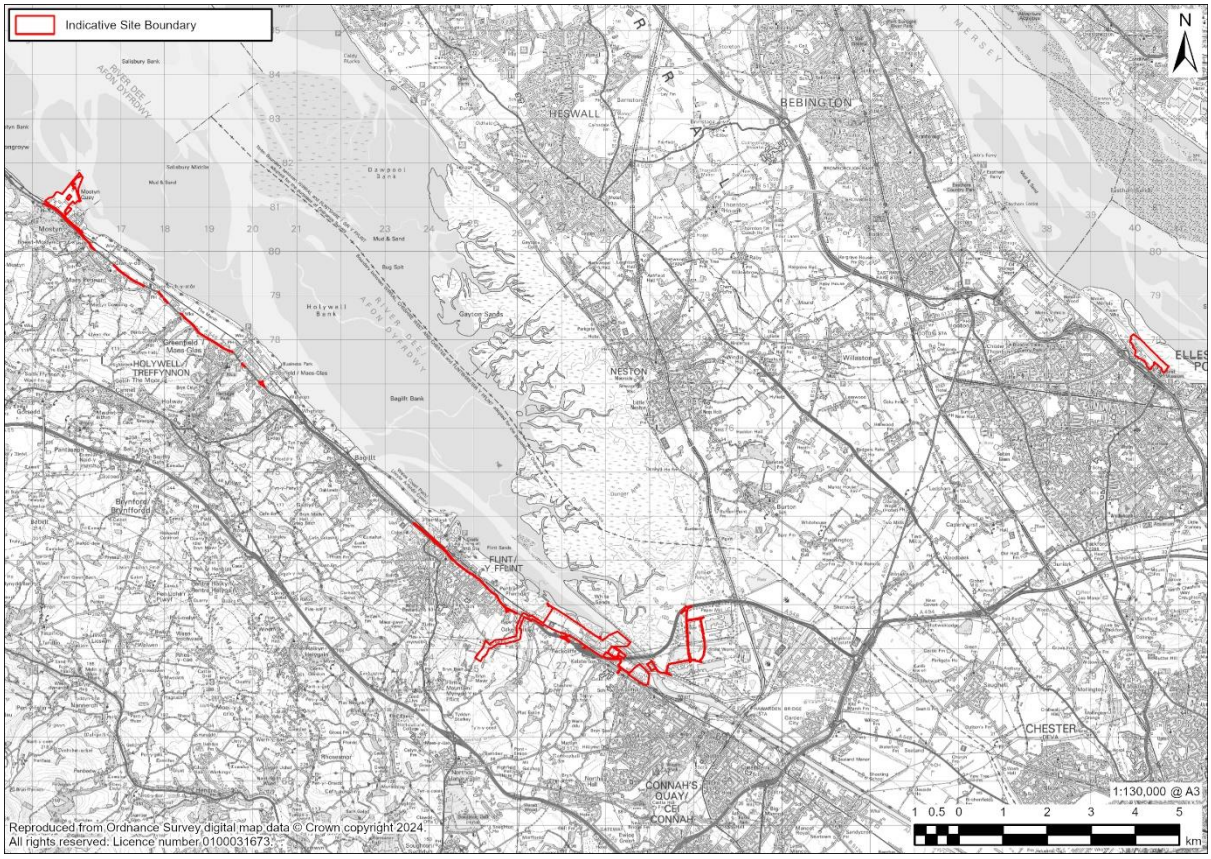
- **Figure 3-1: Indicative Site Boundary**;
- **Figure 3-2: Areas Described in the PEIR**;
- **Figure 3-3: Key Environmental Constraints (Centred on the Main Site)**;
- **Figure 3-4: Key Environmental Constraints (Centred on Port of Mostyn)**;
- **Figure 3-5: Key Environmental Constraints (Centred on Ellesmere Port (Manchester Ship Canal))**;
- **Figure 3-6: Marine Area (Centred on Water Connection Corridor and Connah's Quay North)**;
- **Figure 3-7: Marine Area (Centred on Port of Mostyn)**; and
- **Figure 3-8: Key Environmental Constraints (Centred on A548)**.

3.2 The Site

Indicative Site

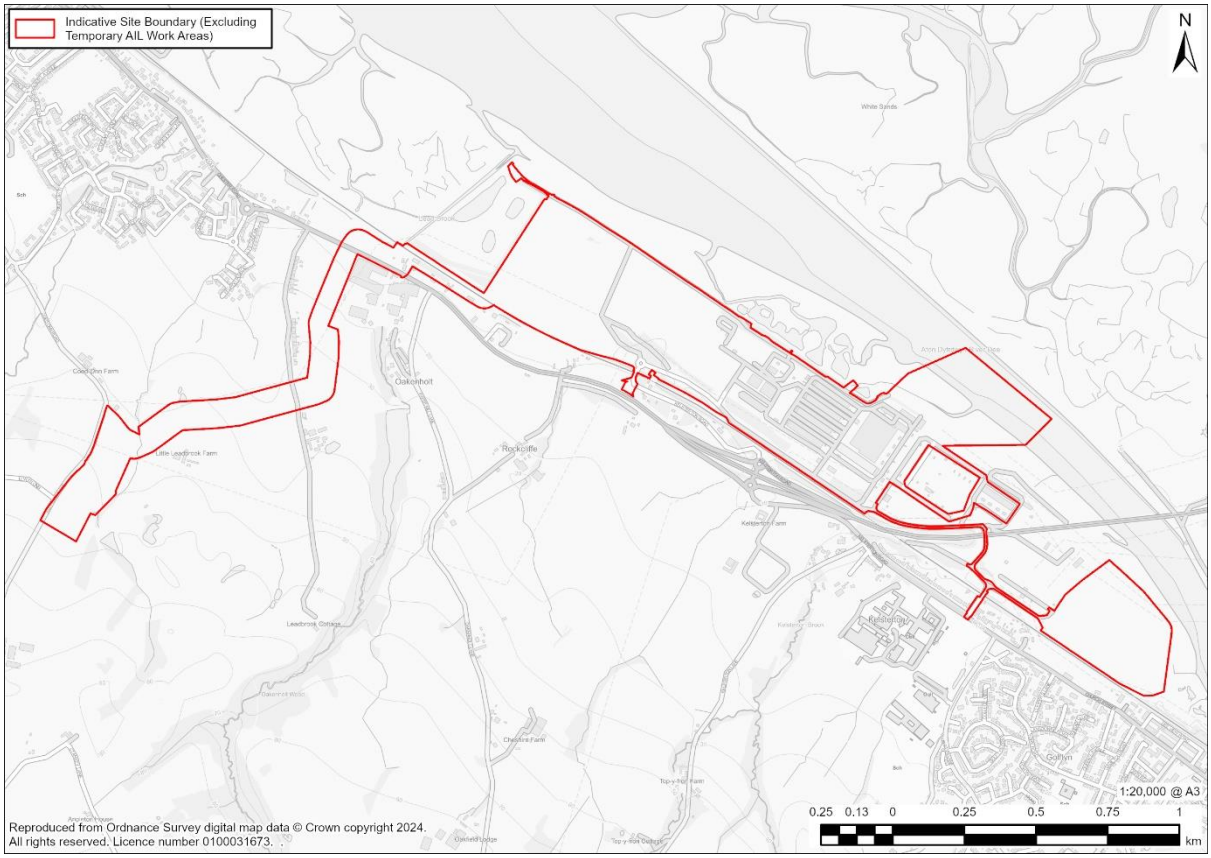
3.2.1 The Indicative Site Boundary shown in **Plate 3-1** encompasses a total area of approximately 187 hectares (ha) and remains preliminary at this stage.

Plate 3-1: Indicative Site Boundary for PEIR



3.2.2 Around 106 ha of the Indicative Site Boundary is focussed on the Main Site, construction areas and connection corridors shown in **Plate 3-2** below (the 'Indicative Site Boundary (Excluding the Temporary AIL Work Areas)'), with a further 80 ha of land included for the Temporary AIL Work Areas.

Plate 3-2: Indicative Site Boundary (Excluding the Temporary AIL Work Areas) (sheets 6, 7, 8, and 9 within Figure 3-1 (PEIR Volume III))



3.2.3 **Figure 3-1 (PEIR Volume III) Sheets 2-10** illustrate the Indicative Site Boundary, including 'satellite' areas under consideration in relation to AIL movements. Further detail on each of these is provided in **Chapter 5: Construction Programme and Management**.

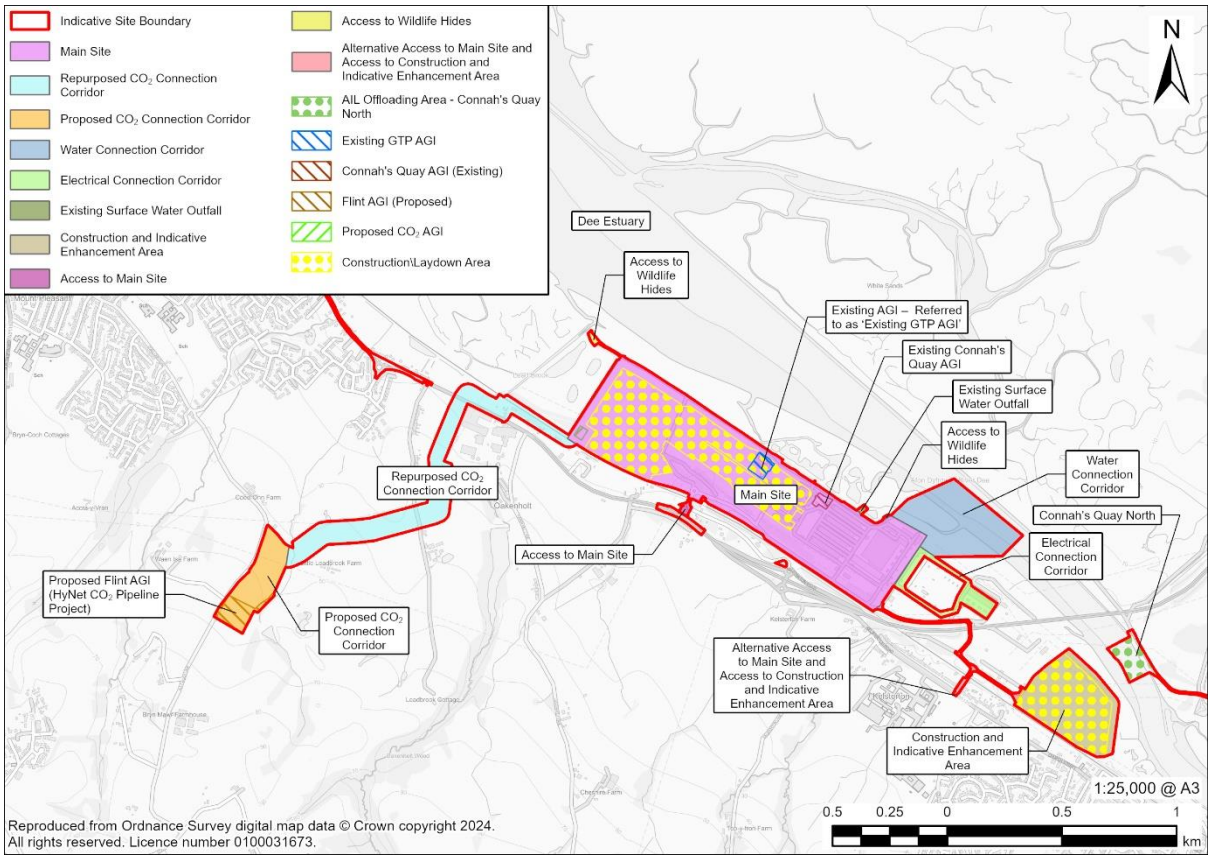
Areas Described in this Preliminary Environmental Information Report

3.2.4 For the purposes of this PEIR, the Indicative Site Boundary is divided into the following areas of permanent and temporary land use (the proposed uses are described in more detail in **Chapter 4: Proposed Development** and **Chapter 5: Construction Programme and Management** and shown on **Figure 3-2** (**PEI Report Volume III**)) reproduced in **Plate 3-3**:

- Main Site (includes the 'Main Site Laydown Areas' for temporary use during construction);
- Repurposed Carbon Dioxide (CO_2) Connection Corridor;
- Proposed CO_2 Connection Corridor;
- Water Connection Corridor;
- Electrical Connection Corridor;
- Existing Surface Water Outfall;
- Construction and Indicative Enhancement Area (C&IEA);
- Access to Main Site;

- Access to Wildlife Hides;
- Alternative Access to Main Site and Access to C&IEA; and
- Temporary AIL Work Areas.

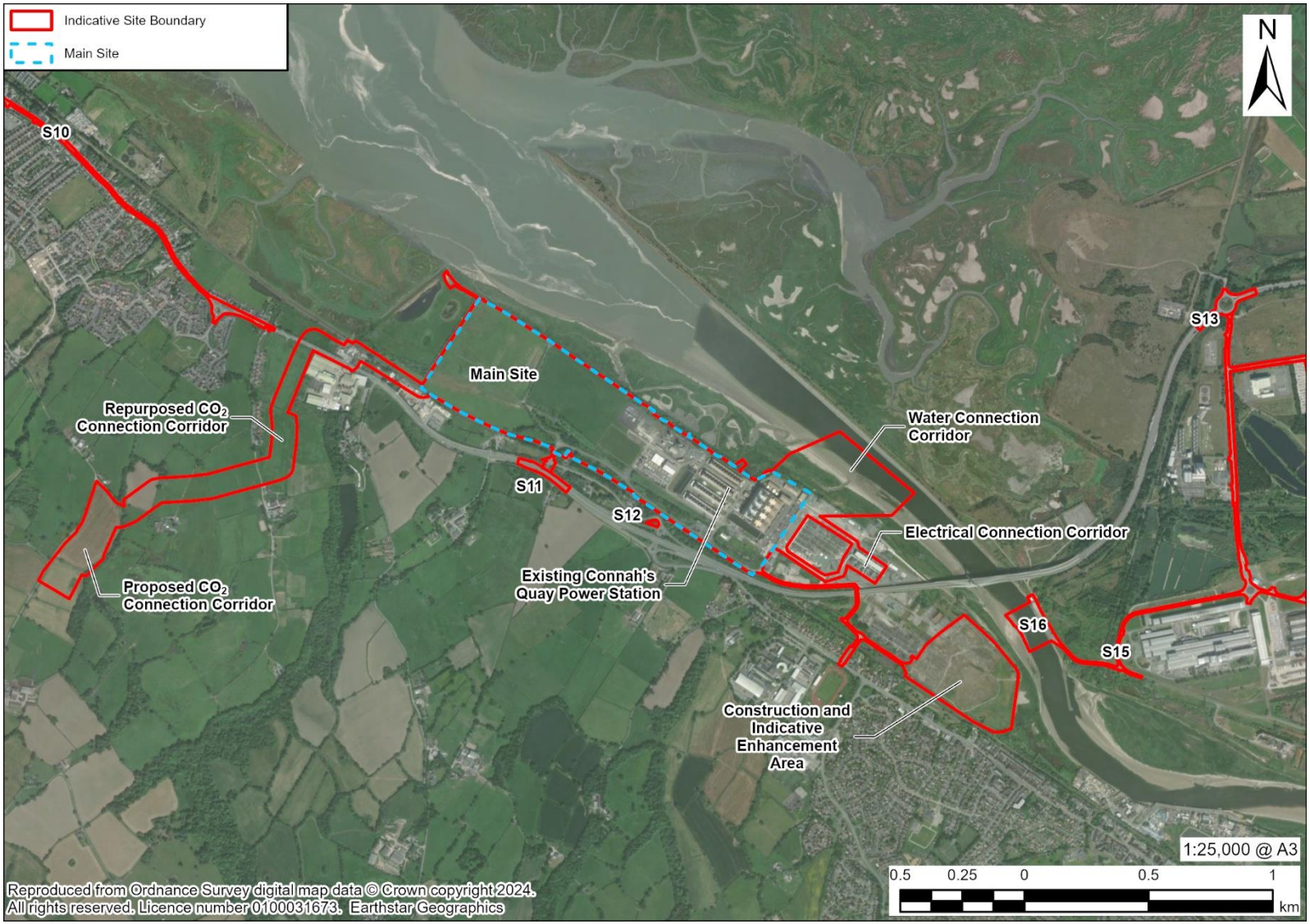
Plate 3-3: Areas described in the PEIR (centred on Main Site)



3.3 Existing Land Use

3.3.1 An aerial image showing existing land-use within the Main Site and connection corridors described in this section is shown on **Figure 3-1: Indicative Site Boundary (Sheet 07 of 10) (PEIR Volume III)** reproduced in **Plate 3-4** below**.**

Plate 3-4: Aerial Photograph centred on Main Site (reproduced from Figure 3-1)



Main Site

3.3.2 The Main Site, which has an indicative area of approximately 56.5 ha, includes operational parts of the existing Connah's Quay Power Station site to the south-east and agricultural fields to the north-west.

3.3.3 The existing Connah's Quay Power Station is owned and operated by Uniper and accessed from the A548 via Kelsterton Road. The existing power station is a four-unit combined cycle gas turbine (CCGT) plant capable of providing 1,380 megawatts (MW; referred to as MWe for electrical output) of dispatchable power exported to the National Grid.

3.3.4 The existing gas-fired CCGT generating station also includes supporting infrastructure, including settlement ponds, cooling towers, and water treatment plant, in addition to buildings for storage and workshops, administration and staff welfare, security facilities, internal access roads, and parking. Cooling water abstraction and discharge points for the existing Connah's Quay Power Station are located in the Dee Estuary, within the proposed Water Connection Corridor, adjacent to the Main Site.

3.3.5 Construction and operation of the existing Connah's Quay Power Station was authorised via a Section 36 consent granted in 1993 under the Electricity Act 1989 (Ref 3-1) ('the existing Connah's Quay Power Station S36 consent'). Operation of the existing Connah's Quay Power Station is controlled by an Environmental Permit, under the jurisdiction of Natural Resources Wales (NRW).

3.3.6 The existing gas-fired Connah's Quay Power Station receives natural gas from the National Transmission System (NTS) via a dedicated spur ('the Dee Pipeline') from Burton Point Above-Ground Installation (AGI) that passes under the Dee Estuary and links to the existing Connah's Quay AGI (hereafter referred to as 'Connah's Quay AGI') located in the east of the Main Site.

3.3.7 Until June 2023, natural gas was also received from Liverpool Bay via a dedicated pipeline to the existing Gas Treatment Plant (GTP) located on the Main Site, via a separate AGI, located in the north-central part of the Main Site (referred to as the 'Existing GTP AGI').

3.3.8 The gas supply from Liverpool Bay has now ceased due to depletion of gas reserves in the off-shore fields and will not be available for the Proposed Development. It is therefore proposed that the Existing GTP AGI will be demolished as described in **Chapter 5: Construction Programme and Management**.

3.3.9 An existing 400 kilovolt (kV) high-voltage overhead electrical transmission line ('the HV overhead line') runs parallel to the south-west border within the Main Site as shown on **Figure 3-3: Key Environmental Constraints (Centred on the Main Site)** in PEIR Volume III.

3.3.10 Two additional 132 kV high-voltage overhead electrical distribution lines ('distribution overhead lines') cross into the Main Site from across the A548, one across the Access to Main Site and one into the south of the Main Site. Each distribution overhead line has one pylon within the Main Site; the one crossing the Access to Main Site transfers to a buried cable that runs parallel to the south-west border within the Main Site, roughly parallel with the HV

overhead line; the one crossing into the south of the Main Site stays above ground, diverting south-east towards a pylon out of the Indicative Site Boundary. These distribution overhead lines are not shown on **Figure 3-3: Key Environmental Constraints (Centred on the Main Site)** due to inconsistency of available data and their proximity to the HV overhead line and its exclusions zones.

3.3.11 Kelsterton Brook is culverted beneath the Main Site and to the north-west of the cooling towers of the existing Connah's Quay Power Station (shown on **Plate 3-4**). The outfall of the watercourse is via an existing artificial outfall structure (hereafter referred to as the 'Existing Surface Water Outfall') within the Dee Estuary to the north of the Main Site. The outfall is shown on **Figure 3-2: Areas Described in the PEIR** in **PEIR Volume III**.

3.3.12 Hedge-lined agricultural fields, leased by the Applicant for grazing sheep, are located in the north-west of the Main Site. Elements of the Site including Access to Wildlife Hides and the Existing Surface Water Outfall, but excluding the Main Site, extend into the Dee Estuary.

3.3.13 According to the Environment Agency Digital Terrain Model (dated 2023), the Main Site is generally flat, with an average elevation of 7.3 m Above Ordnance Datum (AOD).

3.3.14 The Main Site is bordered to the north, north-east and north-west by the Dee Estuary, and to the east and south-east by the existing National Grid Electricity Transmission (NGET) 400 kV Substation, and to the south and south-west by the North Wales Main Line railway.

3.3.15 The Dee Estuary is designated as a Ramsar site, Special Area of Conservation (SAC) (River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC), Special Protection Area (SPA) (Dee Estuary / Aber Afon Dyfrdwy SPA) and Site of Special Scientific Interest (SSSI) (Afon Dyfrdwy (River Dee) SSSI) due to its size and topography, its assemblage of diverse marine, coastal, and intertidal habitats, and its importance for passage and wintering waterfowl and intertidal plant species. Further information is provided in Section 3.5 on these features.

3.3.16 The nearest residential receptors to the Main Site are located along Kelsterton Road, with the closest receptor being approximately 20 m from the Main Site. Residential receptors are described in Section 3.5. Land to the south and south-west is predominantly rural in nature, with interspersed residential properties and agricultural land.

3.3.17 The Main Site is accessed via Kelsterton Road from the A548 Chester Road leading to internal access roads around the Main Site. These internal access roads are located between the structures of the existing Connah's Quay Power Station, between the agricultural fields to the north-west within the Main Site, and along the north-east boundary of the Main Site to give access to the existing wildlife hides and are comprised of tarmac/asphalt.

Repurposed CO_2 Connection Corridor

3.3.18 The Repurposed CO_2 Connection Corridor is located between the south-west corner of the Main Site, adjacent to an existing commercial premises (Bryn Thomas Cranes (SJ265715)), and the north-east corner of the Proposed CO_2

Connection Corridor, south of Pentre Ffwrndan, east of Allt-Goch Lane (SJ253710). Between these locations the Repurposed CO_2 Connection Corridor is generally oriented east-west, with the route running adjacent to Chester Road and north of Oakenholt before running south between Oakenholt Paper Mill and Leadbrook Drive and then west, north of Leadbrook Farm.

3.3.19 The Repurposed CO_2 Connection Corridor follows the route of an existing underground gas pipeline and includes a buffer zone of up to 100 m width which avoids above-ground structures and curtilages across the majority of the route, where possible. The Repurposed CO_2 Connection pipeline forms approximately 3 km of an overall 27 km pipeline route between the existing Connah's Quay Power Station and Point of Ayr Gas Terminal, to the north-west.

3.3.20 As shown on **Figure 3-1: Indicative Site Boundary (Sheet 07 of 10) (PEIR Volume III)**, the Repurposed CO_2 Connection Corridor is largely comprised of agricultural fields (largely pastoral, with some arable in the western extents) lined by hedgerows. The Repurposed CO_2 Connection Corridor is crossed by the A548, Leadbrook Drive, a private access road in two locations, and the North Wales Main Line railway. The Repurposed CO_2 Connection Corridor is also crossed by Lead Brook and two unnamed watercourses as shown on **Plate 3-9**.

3.3.21 As shown on **Figure 3-3: Key Environmental Constraints (Centred on the Main Site) (PEIR Volume III)**, there are two existing electrical pylons within the Repurposed CO_2 Connection Corridor and the Corridor crosses beneath the associated 400kV OHL. There is one residential and one light-industrial property south of the North Wales Main Line railway within the Repurposed CO_2 Connection Corridor.

3.3.22 The Repurposed CO_2 Connection Corridor is approximately 15.1 ha and approximately 25.4 m AOD (average), ranging from approximately 4.7 m AOD adjacent to the Main Site to approximately 46.4 m AOD adjacent to the Proposed CO_2 Connection Corridor.

Proposed CO_2 Connection Corridor

3.3.23 The Proposed CO_2 Connection Corridor is located south-west of the Repurposed CO_2 Connection Corridor, east of Allt-Goch Lane and Llwyn Onn, and south of a private access road to a residential property.

3.3.24 As shown on **Figure 3-1: Indicative Site Boundary (Sheet 07 of 10) (PEIR Volume III)**, existing land-use within the Proposed CO_2 Connection Corridor comprises two agricultural (arable) fields separated by a hedgerow and a small section of the single-track Allt Goch Lane.

3.3.25 The Proposed CO_2 Connection Corridor reflects the area consented for the proposed Liverpool Bay CCS Ltd's Flint AGI and Newbuild CO_2 Pipeline works within the HyNet CO_2 Pipeline Project. The HyNet CO_2 Pipeline Project includes the Liverpool Bay CCS Ltd's Flint AGI which would cover an area (including earthworks beyond the fence line) of approximately 80 m × 80 m, with the AGI up to 5 m above-ground level to be located east of Llwyn Onn; and a 'Newbuild CO_2 Pipeline' – (approximately 400 m long, 610 mm diameter below ground pipeline) connecting the proposed Liverpool Bay CCS Ltd's Flint

AGI with an existing gas pipeline at approximate grid reference SJ253711 as shown on **Figure 3-2: Areas Described in the PEIR (PEIR Volume III)**.

3.3.26 Based on reported[1] timescales for the HyNet CO_2 Pipeline Project (Ref 3-1), this infrastructure is anticipated to have been constructed and become operational by the time the Proposed CO_2 Connection for the Proposed Development is installed. However, as a worst-case assumption, the construction of the HyNet CO_2 Pipeline Project and the Proposed Development will be considered cumulatively (refer to **Chapter 24: Cumulative and Combined Effects** for further information).

3.3.27 The Proposed CO_2 Connection Corridor is approximately 130 m wide, 6.3 ha in area and 50.1 m AOD (average).

Water Connection Corridor

3.3.28 The Water Connection Corridor is located north-east of the existing Connah's Quay Power Station, north of the existing NGET 400 kV Substation and extends approximately halfway into the low tide extent of the Dee Estuary; its north-east boundary runs between grid reference SJ282714 and SJ285711.

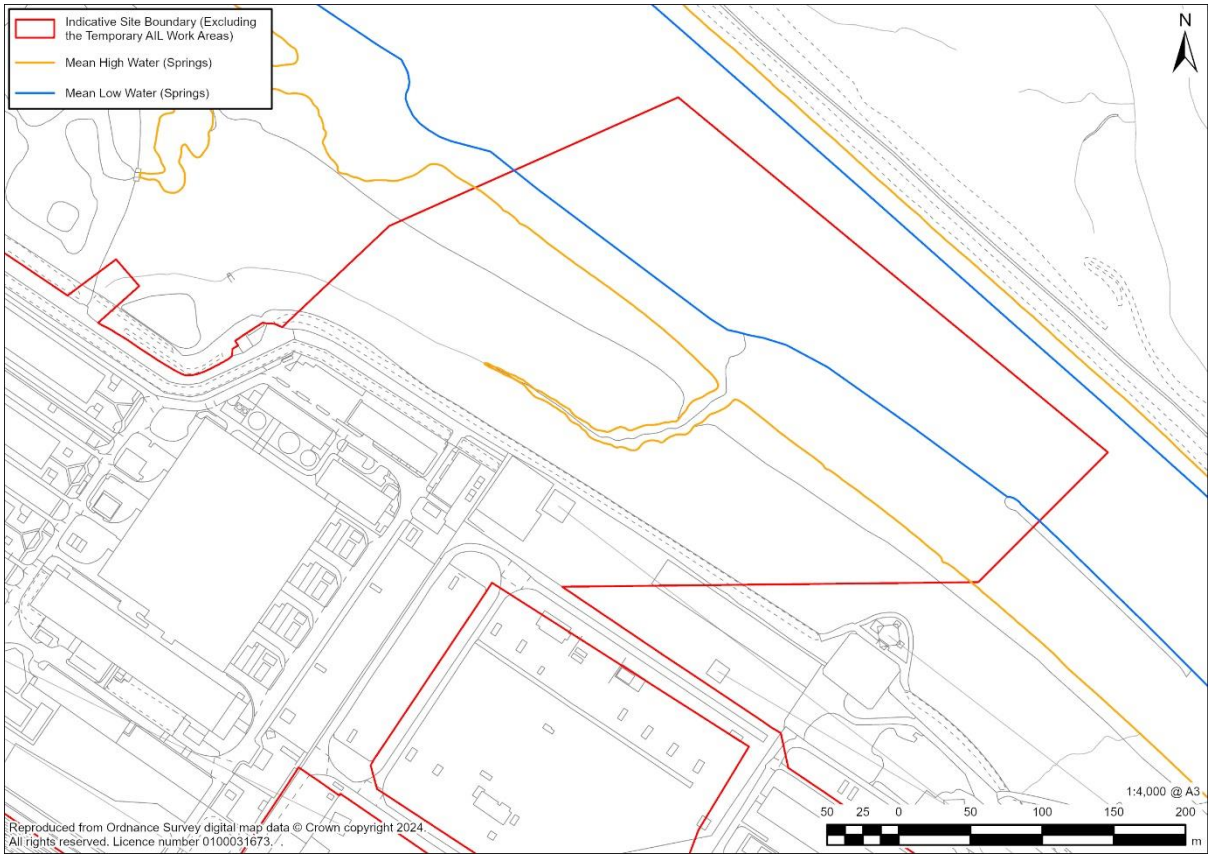
3.3.29 As shown on **Figure 3-1: Indicative Site Boundary (PEIR Volume III) (sheet 7 of 10)**, the majority of the Main Site, including the Main Site construction laydown areas, lie at a distance from the Dee Estuary, but the Water Connection Corridor lies adjacent to or involves temporary works within the River Dee Mean High-Tide Water Springs (MHWS) as shown on **Figure 3-6: Marine Area (Centred on Water Connection Corridor and Connah's Quay North)** reproduced in **Plate 3-5**.

3.3.30 Existing land-uses within the Water Connection Corridor comprise both intertidal habitats (mudflat and saltmarsh) of the Dee Estuary and the River Dee itself and is wholly within the associated River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC, and the Dee Estuary / Aber Afon Dyfrdwy SPA and Ramsar sites and Afon Dyfrdwy (River Dee) SSSI. The Water Connection Corridor contains the existing cooling water intake (including existing eel screens) and outfalls and associated below ground intake and outfall pipelines for the existing Connah's Quay Power Station, as well as a training wall within the River Dee channel that was constructed as a navigational aid and is known to guide currents in the channel.

3.3.31 The Water Connection Corridor is approximately 450 m wide, 320 m in length, 11.5 ha in area and 2.7 m AOD (average).

[1] Refer to Table 3.3 of the HyNet CO_2 Pipeline Project ES (Volume II) for information on the status of the HyNet CO_2 Pipeline Project.

Plate 3-5: Location of Parts of Water Connection Corridor in Marine Area (reproduced from Figure 3-6)



Electrical Connection Corridor

3.3.32 The Electrical Connection Corridor is located south-east of the existing Connah's Quay Power Station, south and west of the Dee Estuary and north of the A548.

3.3.33 The Electrical Connection Corridor contains the existing electrical export cables and the existing 400 kV NGET Substation. Outside of these assets, the corridor is comprised entirely of hardstanding within the wider NGET facility. This wider NGET facility also includes overhead lines as well as underground cables that serve the existing substations. A separate 132 kV substation is located approximately 500 m south-east of the existing Connah's Quay Power Station site, south of the A548 Chester Road and is owned and operated by Scottish Power Energy Networks (SPEN) a Distribution Network Operator (DNO).

3.3.34 The Electrical Connection Corridor is approximately 85 m wide, 420 m long, 3.4 ha in area and on average, 7.3 m AOD.

Construction and Indicative Enhancement Area

3.3.35 The C&IEA is located south of the A548 (Flintshire Bridge), west and south-west of the Dee Estuary, north-east of the North Wales Main Line railway, and south-east of the NGET 400 kV Substation.

3.3.36 Existing land-use within the western and northern extents of the C&IEA comprises derelict hardstanding with scrub / grass vegetation regrowth, while the southern and eastern extents comprise open grassland with scattered

shrubs and small trees. The divide between these two areas is partially indicated by a combination of a row of trees and one side of the footprint of the demolished Connah's Quay A Power Station, which is recessed relative to ground level and itself also lined by vegetation. Two existing electrical pylons and a building foundation are located near to the eastern boundary of the C&IEA and a further existing electrical pylon is located on the southern border.

3.3.37 The C&IEA is approximately 12.6 ha in area with an average elevation of approximately 6.9 m AOD.

3.3.38 The C&IEA will be accessed during construction via existing internal access roads labelled as 'Alternative Access to Main Site and Access to Construction and Indicative Enhancement Area' on **Figure 3-2: Areas Described in the PEIR (PEIR Volume III)** as described in **Chapter 5: Construction Management and Programme.**

3.3.39 This hardstanding access road runs from the B5129 Kelsterton Road (north of Deeside Stadium), north-west across the North Wales Main Line railway, before diverting south-east towards the C&IEA. This access road also provides access to and from the Main Site for cars and light goods vehicles (LGV).

Access to Main Site

3.3.40 During the construction phase, works at the existing access to the Main Site may be required south of the Main Site, located primarily south of the North Wales Main Line railway, west of the residential properties on Kelsterton Road, and immediately north and east of the A548. This access to the Main Site comprises the existing Kelsterton Road, including a bridge over the North Wales Main Line railway, and the location of a relic junction bell-mouth between the A548 and Kelsterton Road (previously used for abnormal indivisible load deliveries during construction of the existing Connah's Quay Power Station) shown on **Figure 3-1: Indicative Site Boundary (Sheet 8 of 10) (PEIR Volume III)**. It is comprised of hardstanding with small areas of roadside (within kerbs) trees and roadside grass and is approximately 0.2 ha.

Alternative Access to Main Site and Access to C&IEA

3.3.41 An alternative access to the Main Site during construction for cars and LGV is proposed. The route of this existing hardstanding road runs from the B5112 towards the Electrical Connection Corridor beneath the A548 Flintshire Bridge, before diverting west towards the Main Site north of the North Wales Main Line railway. This alternative access is shown on **Figure 3-2: Areas Described in the PEIR** (**PEIR Volume III**).

Existing Surface Water Outfall

3.3.42 This is the area including and surrounding the existing artificial outfall for surface water drainage from the existing Connah's Quay Power Station into the Dee Estuary. Surface water drainage from existing roads, hardstanding areas and building roof drainage is discharged via this outfall.

Access to Wildlife Hides

3.3.43 Areas for landscape and ecological mitigation were secured by a number of conditions within the existing Connah's Quay Power Station S36 consent.

These areas are covered by a Conservation Areas Management Plan published in 2015 (Ref 3-3) which are located within Uniper land ownership, and include five bird hides, one bird screen and facilities constructed for use by Deeside Naturalists' Society and other local stakeholders. Access to these existing wildlife hides and screen is shown on **Figure 3-2: Areas Described in the PEIR** in **PEIR Volume III** and is via an existing tarmac surfaced access road which runs to the north of the Main Site. A stone surfaced car park is located immediately adjacent to the westernmost two-storey bird hide and a grass footpath to one single-storey bird hide. To the east there are three single-storey bird hides and a bird screen that are also located along the access road.

Temporary AIL Work Areas

3.3.44 As described in **Chapter 5: Construction Programme and Management**, a number of ports and routes are under consideration to be used for the shipborne delivery of large plant and equipment during construction of the Proposed Development (as the Temporary AIL Work Areas). The Indicative Site Boundary therefore includes three options for delivery and transport of AIL during construction of the Proposed Development including:

- Port of Mostyn (PoM), located approximately 14.2 km north-west of the Main Site and parts of the route along the A548 from the PoM to Site where works may be required;
- route from Connah's Quay North (CQN) (Corus jetty), adjacent to the Tata Steel/ Shotton Mill site and Flintshire Bridge, located approximately 1.1 km to the east of the Main Site; and
- Ellesmere Port (EP) (Manchester Ship Canal) located approximately 13.7 km to the north-east of the Main Site.

Port of Mosytn

3.3.45 As shown on the aerial imagery presented in **Figure 3-1: Indicative Site Boundary (Sheet 2 of 10) (PEIR Volume III)** reproduced in **Plate 3-6** below, the PoM is an existing operational commercial deep-water port that lies adjacent to the existing Mostyn navigational channel with access to the Irish Sea. The PoM includes a riverside quay and roll on roll off (Ro-Ro) terminal as well as storage areas with direct access to the A548 Chester Road towards Site. The PoM is an existing support hub for the offshore wind sector and includes 'Mostyn Energy Park' with a long-standing history of handling AIL. Land used for onshore operation and maintenance (O&M) of the Gwynt-y-Mor, Rhyl Flats and North Hoyle Offshore Windfarms (RWE) is located outside of the Indicative Site Boundary within the PoM.

3.3.46 The PoM is currently seeking consent for an expansion of facilities, in order to continue to service the offshore wind sector ('the Mostyn Energy Park Extension Project'). If consented, it is anticipated that additional berthing and Ro-Ro facilities could be available for use during construction of the Proposed Development. The Indicative Site Boundary shown on **Figure 3-1: Indicative Site Boundary (PEIR Volume III)** for the Proposed Development therefore reflect the maximum extent of land, including any temporary laydown areas and means of access (including minor, temporary accommodation works to facilitate this access), which may be required.

Plate 3-6: Port of Mostyn offloading facility and AIL route options (reproduced from Figure 3-1)

A548 Accommodation Indicative Work Areas

3.3.47 The PoM has a direct access onto the A548. The route between the PoM and the Main Site comprises approximately 14 km of carriageway (adopted highway) bounded by agricultural fields interspersed with the settlements of Glan-y-Don, Greenfield, Walwen, Whelston, New Brighton, Bagillt, Flint, Oakenholtand Kelsterton. This AIL route from PoM is shown on **Figure 5-5: Abnormal Load Routing Options (PEIR Volume III)**.

3.3.48 The majority of the A548 route requires no accommodation works for the purposes of AIL transport by road vehicle for shipborne deliveries arriving at the PoM. However, 12 indicative work areas ('S01 – S12') have been identified along the A548 where temporary accommodation works may be required to facilitate transport of certain AIL during construction. These areas, which are subject to ongoing technical assessment, are included as indicative 'satellite' red line boundaries at this stage on **Figure 5-5: Abnormal Load Routing Options 5 (PEIR Volume III)** and described in **Table 5-6** of **Chapter 5: Construction Programme and Management**.

3.3.49 The route of the A548 is crossed by, or bounded by features including:

- a Grade II listed semicircular historical overbridge north-west of S06 at Bagillt Road[2], Flintshire conservation area and Pentre Bridge Roman Site (FL131) scheduled monument adjacent to S10;

[2] CADW (2024) Railway Bridge Spanning the main coast road on a skewed line, Grade II Listed, Ref (Cadw 500).

- trees, including a number of trees that are subject to Tree Protection Orders (TPO) according to FCC adjacent to S01, S05, S07 and S10;
- overhead power lines and overhead telecommunication lines; and
- central reservations, roundabouts and signal-controlled crossings.

3.3.50 Further information on features in the surrounding areas is set out in Section 3.5.

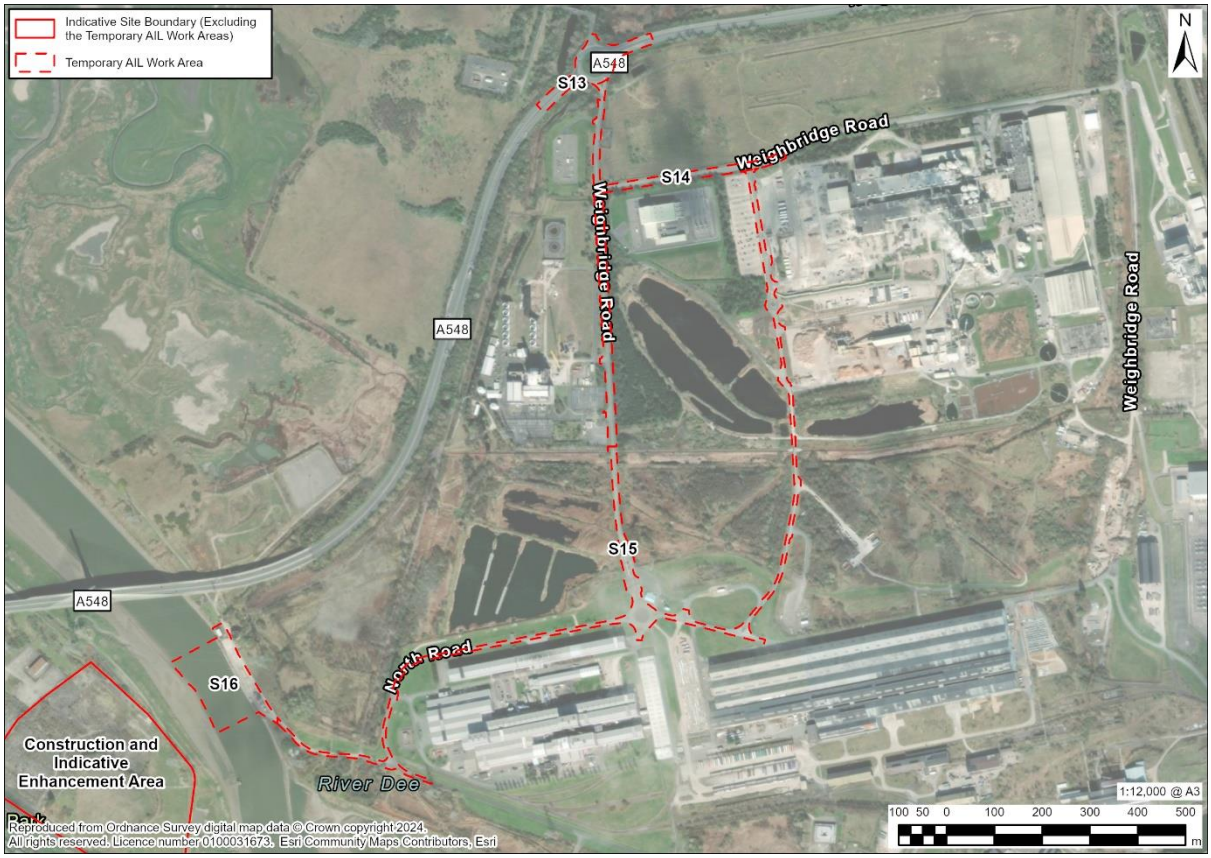
Connah's Quay North

3.3.51 As described in **Chapter 5: Construction Programme and Management**, certain AIL may arrive at the PoM and then be transferred from ship to barge for onward transport during an appropriate tidal cycle upstream via the Dee Estuary to CQN - the closest existing jetty to the Main Site. Therefore, the Indicative Site Boundary includes the existing CQN private jetty and landward offloading area as well as the road network that could be used for delivery and transport of AIL to Site shown on **Figure 3-1: Indicative Site Boundary (Sheet 09 of 10) (PEIR Volume III)** reproduced in **Plate** below. Precautionary inclusion of the reach of the Dee Estuary adjacent to CQN jetty is also included within the Indicative Site Boundary in which vessels may need to berth on the river bed during low tide, until tidal cycles allow onward vessel transport back to the PoM.

3.3.52 Existing land-use at CQN comprises an existing timber jetty and piled concrete retaining wall together with hardstanding areas that could be used for offloading and placement of mobile crane(s). 400 kV electricity transmission lines are located directly above CQN jetty. From CQN, the Indicative Site Boundary includes approximately 3.5 km of road network that may be used to convey AIL from CQN towards the Main Site, including two options under consideration within the Deeside Industrial Estate. The route also includes the A548 Chester Road (adopted highway) including Flintshire Bridge and would cross Kelsterton Road towards the Main Site.

3.3.53 The Dee Estuary and the River Dee are designated as a Ramsar site, SAC, SPA and SSSI. Within Deeside Industrial Estate, roads are largely used by existing industrial/ commercial traffic. Weighbridge Road is bisected (and partially crossed) by Shotton Lagoons and Reedbeds SSSI shown on **Figure 3-3: Key Environmental Constraints (Centered on the Main Site) (PEIR Volume III)**. Managed amenity grassland, trees and scrub bound the existing carriageways within the Industrial Estate. The A458 Chester Road passes the settlement of Kelsterton.

Plate 3-7: Connah's Quay North offloading facility and AIL route options (reproduced from Figure 3-1)



Ellsemere Port (Manchester Ship Canal)

3.3.54 As described in **Chapter 5: Construction Programme and Management** EP (Manchester Ship Canal) may also be used to bring AIL to the Main Site given its proximity to deep water ports such as Liverpool and connections to the strategic road network (SRN). The Indicative Site Boundary therefore includes the existing commercial offloading facility including reach of the Manchester Ship Canal where vessels may berth, and existing landward side hardstanding offloading and storage facilities. Use of EP and storage areas for AILs will be subject to further technical engagement during the DCO Application process. **Chapter 5: Construction Management and Programme** provides further information on the AIL route from EP.

3.4 Main Site History

Overview

3.4.1 The Main Site and C&IEA were formerly occupied by saltings; areas of coastal land that are regularly covered by the tide. The first land to be developed was the area referred to in this report as the proposed C&IEA (see **Figure 3-2** (**PEIR Volume III**)).

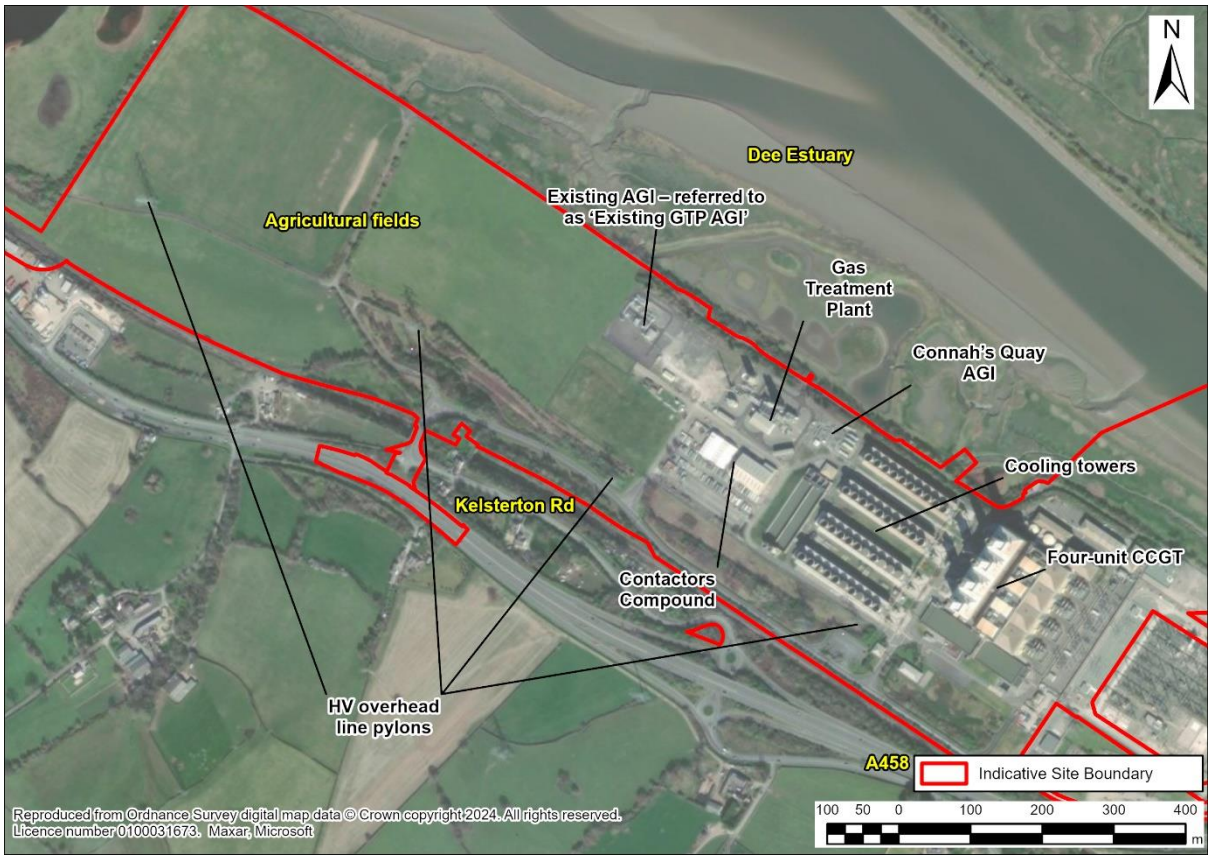
3.4.2 Reclamation commenced in 1950 and included the dredging and pumping of 800,000 tons of sand from the river to lift the ground level to around 2.5 m AOD, thereby creating the development platform for a coal-fired power station on the proposed C&IEA. It was constructed in three 60 MW phases over eight years, with completion in 1958.

3.4.3 Embankments were created on land currently occupied by the Main Site to provide settlement lagoons and storage for the slurried pulverised fuel ash (PFA) arising from the coal station. As well as three cooling towers, the original station was also served by a dedicated railhead, running from the North Wales coastline to the west of the C&IEA.

3.4.4 The original coal-fired station ceased operating in 1984. Demolition started in 1992 and the proposed C&IEA was cleared of all standing structures. Subsurface holes and pits were filled in and wastes were disposed of to landfill, with the exception of a sealed (piled boundary and concrete topper) asbestos landfill at the northern boundary of the C&IEA. Since demolition, the C&IEA has remained mainly undeveloped, although annual vegetation clearance does take place.

3.4.5 A separate electrical substation was constructed to the north of the proposed C&IEA in the 1970s. This land, (between the Main Site and the C&IEA), is occupied by the existing NGET 400 kV substation, connected to the Main Site, and existing SPEN 132 kV substation.

Plate 3-8: Aerial photograph of the Main Site and existing features



3.4.6 The existing Connah's Quay Power Station four-unit combined CCGT and associated infrastructure (including Gas Treatment Plant) was constructed between 1993 and 1996 in the south-east of the Main Site. The existing Connah's Quay Power Station was constructed on the former PFA settlement lagoons which raised the footprint of the existing Connah's Quay Power Station to its current ground level (approximately maximum 7 m AOD). The former coal-fired station site, within the C&IEA, formed part of the laydown area for the construction of the existing Connah's Quay Power Station. The station was initially owned by Powergen/ E.ON UK and transferred to Uniper

in 2015. The current layout of the existing Connah's Quay Power Station is shown in **Plate 3-8**.

3.4.7 **Appendix 14-A: Geo-Environmental Assessment (PEIR Volume IV)** provides further information on the historical land use at the Main Site.

3.5 The Surrounding Area

Overview

3.5.1 A number of environmental receptors have been identified within the vicinity of the Proposed Development for each environmental topic assessed, as shown on **Figure 3-3: Key Environmental Constraints (Centred on the Main Site); Figure 3-4: Key Environmental Constraints (Centred on Port of Mostyn); and Figure 3-5: Key Environmental Constraints (Centred on Ellesmere Port (Manchester Ship Canal) (PEIR Volume III**. Agreement on the scope of the Environmental Impact Assessment (EIA) and topics that will be reported in the ES has been sought from the Planning Inspectorate (PINS) via the Scoping Opinion (**Appendix 1-B** of **PEIR Volume IV**). Therefore, this PEIR reports on the preliminary assessment of likely significant effects on receptors for key topics from **Chapters 8 – 23** that have been scoped into the EIA. This section, which describes the wider setting for the Proposed Development, is not intended to be exhaustive.

3.5.2 For the purposes of this PEIR distances are reported (unless otherwise stated) as the shortest distance between the receptor and the closest relevant point of the Site (e.g. Main Site or Indicative Site Boundary[3] etc.). For the purposes of this section, the wider setting for the Proposed Development is described in relation to the Indicative Site Boundary (Excluding the Temporary AIL Work Areas), capturing the areas of permanent development and the majority of temporary development activities (see **Chapter 5: Construction Programme and Methodologies**), and the Temporary AIL Work Areas.

Surrounding Land-Use

3.5.3 The built-up area of Connah's Quay is located to the south-east of the existing Connah's Quay Power Station, immediately beyond the A548 and the North Wales Main Line railway. The area to the west and south-west of the Site is dominated by land used for agriculture (mostly pastoral with some arable).

Residential Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.4 Settlements in the vicinity of the Proposed Development are generally concentrated around the Dee Estuary south-east of the Indicative Site Boundary (excluding the Temporary AIL Work Areas) or form a chain of semi-continuous development along the A548 north-west of the Indicative Site Boundary (excluding the Temporary AIL Work Areas). Some lack an obvious centre or include isolated farm properties; others are heavily suburbanised or

[3] The Indicative Site Boundary includes approximately 80 ha of land currently under consideration for the Temporary AIL Work Areas. A study area of 50 m from each port or satellite red line boundary (included for accommodation works) has been used to identify potential receptors within this chapter.

lack a defined boundary between two named locations. Therefore, additional context will be given for the locations of the residential receptors.

3.5.5 The nearest main settlement is the town of Connah's Quay. Its approximate centre[4] is located approximately 620 m south of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) at its closest point and approximately 1.6 km south-east of the Main Site, though residential areas of the settlement reach to within approximately 25 m of the Indicative Site Boundary and within approximately 80 m of the Main Site.

3.5.6 Other nearby settlements to the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) include:

- the village of Oakenholt, the approximate centre of which is located approximately 270 m east of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas). The Repurposed CO_2 Connection Corridor passes within the village and there is a residential property approximately 110 m west of the Main Site;
- the village of Flint Mountain, the approximate centre of which is approximately 1.1 km south-west of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas);
- the town of Flint, the approximate centre of which is approximately 1.6 km north-west of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas), though residential areas of the settlement reach to within approximately 210 m of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas); and
- the village of Northop Hall, the approximate centre of which is approximately 2.9 km south-west of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas).

3.5.7 Additionally, several scattered residential areas and individual residential properties, including farmsteads, are located within the 1 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas).

3.5.8 The nearest residential receptors to the Main Site are located along Kelsterton Road, with the closest receptor being just over 20 m from the Indicative Site Boundary and additional residential receptors along Kelsterton Road beyond this distance.

Temporary AIL Work Areas

3.5.9 The nearest settlement to the PoM is the town of Mostyn, located approximately 60 m south-west at its closest point to the Indicative Site Boundary. The Indicative Site Boundary between PoM and the Main Site includes the A548 within the settlements of Llannerch-y-Môr, Greenfield, and Flint, while the route itself also passes through Bagillt.

3.5.10 The nearest settlement to CQN is the Golftyn area of Connah's Quay, located approximately 85 m south-west at its closest point to the Indicative Site Boundary.

[4] 'Approximate centre' of the settlements in this instance refers to their approximate geographical centre (i.e. the approximate centre of an imagined shape drawn around the outside of the settlement). It does not refer to the historical, cultural, commercial, or other perceptible definition of 'town centre' and is not intended to define this for the relevant settlements.

3.5.11 The nearest settlement to EP (Manchester Ship Canal) is the town of Ellesmere Port, located approximately 1.4 km south at its closest point to the Indicative Site Boundary.

3.5.12 Potential effects on residential receptors are considered in **Chapter 8: Air Quality**, **Chapter 9: Noise and Vibration**, **Chapter 10: Traffic and Transport**, **Chapter 15: Landscape and Visual Amenity**, **Chapter 19: Socio-Economics, Recreation and Tourism**, **Chapter 21: Human Health**, and **Chapter 22: Major Accidents and Disasters**.

Ecological Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.13 Statutory designated nature conservation sites within 15 km of the Main Site and Indicative Site Boundary (Excluding the Temporary AIL Work Areas) are presented in **Table 3-1**. **Figures 3-4, 3-5 and 3-6 (PEIR Volume III)** indicate the locations of these sites.

Table 3-1: Statutory Ecological Designations within 15 km of the Site (Excluding the Temporary AIL Work Areas)

Name	Type	Approximate distance from the Indicative Site Boundary (Excluding the Temporary AIL Work Areas)	Direction	Approximate distance from the Main Site	Direction
Dee Estuary	Ramsar	0 m	N/A	0 m	N/A
Dee Estuary	SPA	0 m	N/A	0 m	N/A
Dee Estuary / Aber Dyfrdwy (Wales)	SAC	0 m	N/A	0 m	N/A
River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid	SAC	75 m	NE	520 m	E
Deeside and Buckley Newt Sites	SAC	1.5 km	S	2.1 km	S
Halkyn Mountain / Mynydd Helygain	SAC	3.6 km	W	5.3 km	W
Alyn Valley Woods / Coedwigoedd Dyffryn Alun	SAC	6.8 km	SW	8.5 km	SW
Dee Estuary / Aber Afon Dyfrdwy	SSSI	0 m	N/A	0 m	N/A
Afon Dyfrdwy (River Dee)	SSSI	75 m	NE	520 m	E
Shotton Lagoons and Reedbeds	SSSI	485 m	NE	1.3 km	E
Mynydd Y Fflint / Flint Mountain	SSSI	500 m	NW	1.7 km	W

Name	Type	Approximate distance from the Indicative Site Boundary (Excluding the Temporary AIL Work Areas)	Direction	Approximate distance from the Main Site	Direction
Connah's Quay Ponds and Woodland	SSSI	1.5 km	S	2.1 km	S
Inner Marsh Farm	SSSI	2.8 km	NE	3.2 km	NE
Comin Helygain a Glaswelltiroedd Treffynnon / Halkyn Common and Holywell Grasslands	SSSI	3.6 km	W	5.3 km	W
Buckley Claypits and Commons	SSSI	4.0 km	S	4.4 km	S
Maes y Grug	SSSI	4.0 km	S	4.4 km	S
Herward Smithy	SSSI	6.3 km	NW	7.3 km	W
Parc Linden, Lixwm	SSSI	6.8 km	W	8.2 km	W
Tyddyn-y-barcut	SSSI	6.8 km	SW	8.5 km	SW
Alyn Valley Woods and Alyn Gorge Caves	SSSI	6.8 km	SW	8.5 km	SW
Parc Bodlondeb and Gwenallt-parc, Lixwm	SSSI	7.2 km	W	8.7 km	W
Pen-y-Cefn Pasture	SSSI	7.5 km	SW	9.2 km	SW
Cefn Meadow	SSSI	7.7 km	SW	9.4 km	SW
Chwarel Cambrian / Cambrian Quarry, Gwernymynydd	SSSI	9.1 km	SW	10.5 km	SW
River Dee (England)	SSSI	10.7 km	SE	11.9 km	SE
Ddol Uchaf	SSSI	10.7 km	W	12.3 km	W
Coed Trefraith	SSSI	11.6 km	W	13.0 km	W
Coed Talon Marsh	SSSI	11.6 km	S	12.2 km	S
Caerwys Tufa	SSSI	12.0 km	W	13.5 km	W
Bryn Alyn	SSSI	12.2 km	SW	13.5 km	SW
Glaswelltiroedd Eryrys (Eryrys Grasslands)	SSSI	13.3 km	SW	14.7 km	SW
Graig, Llanarmon-yn-Ial	SSSI	14.5 km	SW	>15 km	-
Chwarel Singret	SSSI	15.0 km	SE	>15 km	-

3.5.14 Non-statutory designated ecological sites located within 2 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) and Main Site are presented in **Table 3-2**: and illustrated in **Figure 3-4 (PEIR Volume III).**

Table 3-2: Non-Statutory Ecological Designations (Local Wildlife Sites (LWS) within 2 km of the Site (Excluding the Temporary AIL Work Areas)

Name	Approximate distance from the Indicative Site Boundary (Excluding the Temporary AIL Work Areas)	Direction	Approximate distance from the Main Site
Leadbrook Wood LWS	105 m	E	350 m
Top-y-fron Dingle and Kelsterton Brook LWS	350 m	SW	350 m
Llwyn-onn LWS	460 m	NW	1.9 km
Caeau Alt-vois LWS	770 m	W	>2 km
Cheshire Farm LWS	845 m	SW	845 m
The River Dee LWS	1.1 km	E	>2 km
Shotton Steelworks LWS	1.4 km	NE	>2 km
Coed Stanley LWS	1.55 km	W	>2 km
Coed Bryn-y-Garreg	1.5 km	W	>2 km
Wepre Wood LWS	1.9 km	SE	>2 km
Coed y Cra LWS	1.9 km	W	>2 km
Gathering Grounds Woods & Llwyni Pond LNR	1.5 km	S	>2 km
Brown Oak Wood Wild Ground Reserve	1.55 km	SE	>2 km
Llwyni Valley Wild Ground Reserve	1.55 km	SE	>2 km

Temporary AIL Work Areas

3.5.15 Each of the AIL offloading areas under consideration are located within, or in immediate proximity to statutory designated nature conservation sites as shown in **Table 3-3**.

Table 3-3: Statutory Ecological Designations within 50 m of the Indicative Site Boundary (AIL Offloading Areas)

AIL Offloading Area	Name	Type	Approximate distance from the Indicative Site Boundary	Direction
Port of Mostyn	The Dee Estuary (Wales)	Ramsar	0 m	N/A

AIL Offloading Area	Name	Type	Approximate distance from the Indicative Site Boundary	Direction
	The Dee Estuary (Wales)	SPA		
	Dee Estuary / Aber Dyfrdwy (Wales)	SAC		
	Dee Estuary / Aber Afon Dyfrdwy	SSSI		
Connah's Quay North	The Dee Estuary (Wales)	Ramsar	0 m	N/A
	The Dee Estuary (Wales)	SPA		
	River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)	SAC		
	Dee Estuary / Aber Dyfrdwy (Wales)	SAC		
	Afon Dyfrdwy (River Dee)	SSSI		
	Dee Estuary / Aber Afon Dyfrdwy	SSSI		
Ellesmere Port (Manchester Ship Canal	Mersey Estuary	Ramsar	0 m	N/A
	Mersey Estuary	SPA		
	Mersey Estuary	SAC		
	Mersey Estuary	SSSI		

3.5.16 **Figures 3-3, 3-4 and 3-5 (PEIR Volume III)** indicate the locations of these sites within the context of these statutory designations. The potential effects of the Proposed Development on statutory designated ecological sites and other ecological receptors are considered in **Chapter 8: Air Quality, Chapter 9: Noise and Vibration, Chapter 11: Terrestrial and Aquatic Ecology, Chapter 12: Marine Ecology,** and **Chapter 13: Water Environment and Flood Risk**.

Transport Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.17 Access to the existing Connah's Quay Power Station (and access to the Main Site) is provided via Kelsterton Road. Kelsterton Road comprises a single carriageway, which provides a link between two roundabout junctions, that serve the internal site access road network and also the A548 Chester Road with wider connections to the SRN.

3.5.18 The A548 is a dual carriageway located south of the Main Site. Beyond the locality of the Site, the A548 provides a strategic link along the alignment of the North Wales Main Line railway, extending as far west as Pensarn. The A548 bisects (via Flintshire Bridge crossing the Dee Estuary) the south-eastern part of the Site (across the Alternative Access to the Main Site and

Access to C&IEA). The A548 connects to the SRN including M56 and M53 to the north-east of the Site.

3.5.19 The B5129 connects to the A548 via a roundabout connection to the south of the Site and provides access to the nearby urban settlements of Connah's Quay and Shotton. The B5129 provides secondary access to the south-east of the Site (entering the Alternative Access to Main Site and Access to C&IEA), via a priority T-Junction with an unnamed access road, located north of Deeside Stadium.

3.5.20 Kelsterton Lane is a north-south route that lies between the B5129 and Mold Road. Kelsterton Lane has a 7.5-tonne weight restriction and is signed as being unsuitable for wide vehicles, due to its narrow single carriageway.

3.5.21 Allt-Goch Lane / Coed Onn Road is a single carriageway road that lies approximately 1.36 km to the south-west of the Main Site. The Proposed CO_2 Connection Corridor is situated on a parcel of land that lies directly to the east of Allt-Goch Lane, between Llwyn Onn and Coed Onn Road. Coed Onn Road comprises a continuation of Allt-Goch Lane (to the north), connecting to the A5119 in Flint. At its southern extent, Allt-Goch Lane connects to Starkey Lane, which in turn provides access to the A5119 to the south.

3.5.22 Golftyn Lane connects to the B5129 via a priority T-Junction, located opposite the entrance of the Alternative Access to the Main Site and Access to C&IEA. Golftyn Lane acts as a key distributor road for the residential areas located to the south-east of the Site in Connah's Quay. Mold Road performs a similar distributor function to Golftyn Lane and is accessed from the B5129, approximately 2.5 km south-east of the Site.

3.5.23 The A5119 is accessed in Flint, approximately 3.2 km to the north-west of the Site. The A5119 provides a strategic connection to the SRN at the A55 North Wales Expressway, which runs in a parallel alignment to the A548 and lies approximately 4 km to the south of Connah's Quay. The A55 North Wales Expressway serves as a key strategic route, both to areas located further west of the Indicative Site Boundary, as well as to the east and beyond into north-west England.

3.5.24 There are varying levels or provision for walking and cycling on Kelsterton Road between the A548 and the access to the Main Site. This includes a 3 m-wide shared cycleway connecting to the roundabout junction with the A548, as well as a segregated footway on the northern side of Kelsterton Road. To the east of the internal roundabout junction, a narrow footway is present on the south side of the carriageway, leading up to the site access junction. A more substantial walking and cycling provision is available on local roads surrounding the site, such as the B5129 through Connah's Quay.

3.5.25 Public Rights of Way (PRoW) in the vicinity of the Main Site and the Proposed CO_2 Connection Corridor include a designated footpath (FCC Footpath 28) that lies in close proximity (within 5 m) to the south-eastern extent of the C&IEA. The footpath continues in a south-east direction, adjoining FCC Footpath 42, before terminating at Quay Lane. There is also a designated footpath (FCC Footpath 27) which lies across the North Wales Main Line, approximately 20 m south of the Site, but does not connect to FCC Footpath 28. A designated footpath (FCC Footpath 66) also intersects the field parcel

containing the Proposed CO_2 Connection Corridor, forming a link between Allt-Goch Lane and the farm access road forming the northern boundary of the field parcel, and further extends into the Repurposed CO_2 Connection Corridor to the north-east, where it connects to an additional designated footpath (FCC Footpath 67) which partially crosses the Repurposed CO_2 Connection Corridor.

3.5.26 National Cycle Network (NCN) Route 5 is located in close proximity to the Main Site, routing along the A548 to the west of the Main Site, before connecting to Kelsterton Road and, subsequently, the B5129. NCN 5 is conveniently situated to accommodate cycle travel to / from the Main Site and connects to a wider network of routes to the north and north-east of the Site.

Temporary AIL Work Areas

3.5.27 The route from the PoM commences on A548 Dock Road and runs generally parallel to the North Wales Mainline railway which follows the coast towards the Main Site. Parts of the route are single carriageway and parts of dual carriageway. A number of A-roads intersect the A548 including the A5119 Northrop Road (primary) at Flint, A5026 Bagillt Road at Whelston and B5121 Greenfield Road at Greenfield and Isglan Road.

3.5.28 The route from CQN follows a network of unclassified roads through the Deeside Industrial Estate before joining the A548 towards Site. EP (Manchester Ship Canal) is accessed from an unclassified road, leading to A5032 Merseyton Road within the 50 m study area.

3.5.29 Potential effects on transport receptors are considered in **Chapter 10: Traffic and Transport** and on users of these routes in **Chapter 19: Socio-economics, recreation and Tourism**.

Air Quality Management Areas

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.30 There are no Air Quality Management Areas (AQMAs) designated within the administrative boundary of FCC, or in the neighbouring areas of Denbighshire, Wrexham and Wirral and therefore none within the Indicative Site Boundary. The nearest AQMAs are located within CWaC Council; one in Chester approximately 11.5 km east from the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) and two in Ellesmere Port, approximately 12.5 km north-east and 14.1 km east from the Indicative Site Boundary (Excluding the Temporary AIL Work Areas).

Temporary AIL Work Areas

3.5.31 There are no AQMAs covering the PoM or CQN. CWaC has designated Whitby Rd/Station Rd AQMA for nitrogen dioxide (NO_2) due to road traffic sources. This AQMA is located approximately 411 m south of EP (Manchester Ship Canal).

Geological, Hydrogeological and Hydrological Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.32 The geology within the study area and underlying the Site (Excluding the Temporary AIL Work Areas) is complex and heavily faulted. The Site (Excluding the Temporary AIL Work Areas) is underlain by superficial deposits mainly consisting of Tidal Flat Deposits (Clay, Silt and Sand) or Till (Diamicton). Beneath this is bedrock of mainly Pennine Lower Coal Measures Formation, with some Gwespyr Sandstone and Etruria Formation. Made ground has been recorded across the majority of the Main Site, including fly-ash, a by-product of coal-burning for power generation related to the former uses of the nearby C&IEA.

3.5.33 According to published sources and as described in **Chapter 13: Water Environment and Flood Risk**, the underlying superficial Tidal Flat Deposits are designated as a Secondary Undifferentiated Aquifer and the Glaciofluvial Deposits are classified as a Secondary A aquifer, with bedrock of the Pennine Lower Coal Measures Formation - mudstone, siltstone and sandstone designated as a Secondary A aquifer. The Site does not contain or lie within or in close proximity (<1km) to any groundwater Source Protection Zones (SPZ).

3.5.34 Further information on groundwater at the Site is provided in **Chapter 13: Water Environment and Flood Risk**. Potential effects on geological and hydrogeological receptors are considered in **Chapter 14: Geology and Ground Conditions.**

Temporary AIL Work Areas

3.5.35 As the ports of PoM, CQN and EP (Manchester Ship Canal) (and where relevant, intervening highway networks) are only included for the purposes of delivery of shipborne AIL to the Main Site and no works are proposed that could affect the underlying geological and hydrogeological receptors, these areas are not considered further in relation to this topic.

Hydrological Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

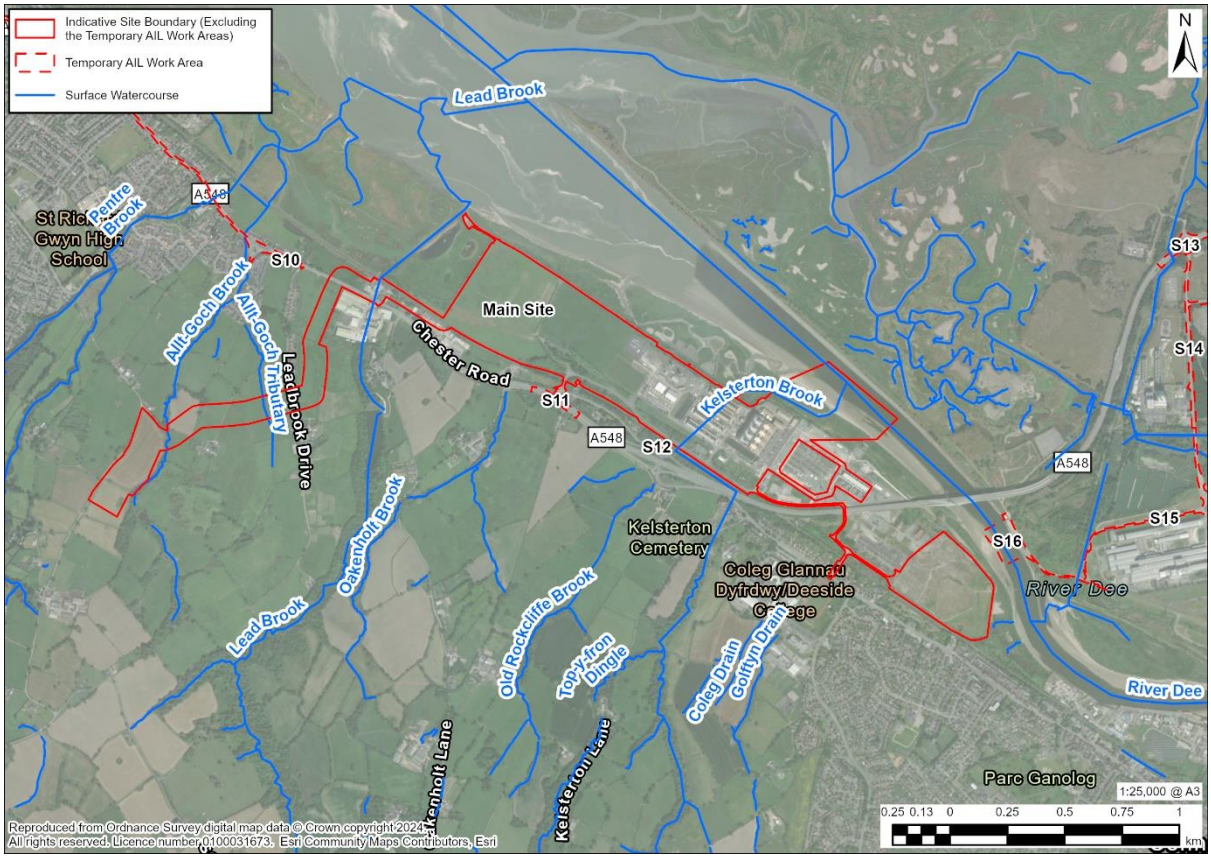
3.5.36 As described in **Chapter 13: Water Environment and Flood Risk,** the Site (Excluding the Temporary AIL Work Areas) and the study area is contained within the Dee Estuary Water Framework Directive (WFD) Operational Catchment, within the Dee Management Catchment. In total, the study area includes four WFD waterbodies, including two surface WFD waterbodies, one transitional WFD water body and one groundwater body.

3.5.37 The River Dee is a designated Main River and flows south-east to north-west within/ north of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas). The river is defined as part of the Dee Estuary at this location. Online OS mapping also indicates the following surface watercourses intersect with or are in proximity to the Indicative Site Boundary (Excluding the Temporary AIL Work Areas):

- Kelsterton Brook – an ordinary watercourse that rises south of the study area at Mole Road and flows in a northerly direction towards the Main Site. The brook is culverted immediately upstream of Kelsterton Lane, and the A548, prior to appearing to flow in an easterly direction to the south of the North Wales Main Line railway, and joining flows from a number of unnamed tributaries, prior to being culverted beneath the Main Site to the Dee Estuary.
- Old Rockliffe Brooke/ Drain – an ordinary watercourse that originates to the south of the Main Site and is culverted beneath Chester Road and the North Wales Main Line railway. It joins Kelsterton Brook immediately upstream of the existing Connah's Quay Power Station and is culverted to the north-west of the existing Connah's Quay Power Station (shown erroneously as under the cooling towers in **Plate 3-9**). Its lower reaches are culverted.
- Lead Brook / Northop Brook – The Lead Brook is an ordinary watercourse that flows south to north through the study area. The brook arises as Northop Brook to the south of Northop and flows in a northerly direction to become Lead Brook. The watercourse is culverted beneath Oakenholt Mills and the North Wales Main Line railway before discharging to a wide-open channel that extends along the full length of the western boundary of the Main Site, before eventually discharging to the River Dee through a tidal reach. The Repurposed CO_2 Connection Corridor intersects the Lead Brook in the culverted section as shown in **Plate 3-9**.

3.5.38 **Plate 3-9** illustrates the surface watercourses that intersect the Main Site and surrounding areas described above.

Plate 3-9: Local Surface Watercourses (Centred on the Main Site)



Temporary AIL Work Areas

3.5.39 As the ports of PoM, CQN and EP (Manchester Ship Canal) (and where relevant, intervening highway networks) are only included for the purposes of delivery of shipborne AIL to the Main Site and no works are proposed that could affect the underlying WFD waterbodies or surface watercourses, these areas are not considered further in relation to this topic.

3.5.40 Potential effects on hydrological receptors are considered in **Chapter 13: Water Environmental and Flood Risk**.

Terrestrial Heritage Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.41 **Figure 3-3 (PEIR Volume III)** illustrates that there are no World Heritage Sites, scheduled monuments, grade I or II* listed buildings, conservation areas, registered parks and gardens, registered battlefields or protected wreck sites within the Site (Excluding the Temporary AIL Work Areas).

3.5.42 There are ten scheduled monuments, 77 listed buildings, and four conservation areas located within 3 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas).

3.5.43 The ten scheduled monuments include:

- Croes Atti Roman Site (FL213) located approximately 130 m west of the Repurposed CO_2 Connection Corridor;
- Kelsterton Brewery (FL180) located approximately 260 m south-east of the Main Site;
- Pentre Bridge Roman Site (FL131) located approximately 645 m north-west of the Repurposed CO_2 Connection Corridor;
- Bryn y Cwm Mound & Bailey Castle (FL064), located approximately 1.35 km north-west of the Proposed CO_2 Connection Corridor;
- Llys Edwin Medieval Fortified House Site (FL023), located approximately 1.9 km south-west of the Proposed CO_2 Connection Corridor;
- Castell y Fflint (FL003), located approximately 2 km north-west of the Repurposed CO_2 Connection Corridor;
- Wat's Dyke: Section from Coed Llyd to Chester-Holywell Road (083), located approximately 2.1 km south-west of the Repurposed CO_2 Connection Corridor;
- Wat's Dyke: Section from Chester-Holywell Road to Soughton Farm (FL082), located approximately 2.6 km south-west of the Repurposed CO_2 Connection Corridor;
- Castell Ewloe (FL002), located approximately 2.6 km south of the C&IEA; and
- Promontory Fort on Burton Point 550 m south west of Burton Point Farm (NHLE 1013298), located approximately 2.95 km north-east of the Water Connection Corridor.

3.5.44 The 77 listed buildings within the 3 km study area include one Grade I and six Grade II* listed buildings:

- Church of St Eurgain and St Peter Cadw (Grade I; Cadw 321), located approximately 2.3 km south-west of the Proposed CO_2 Connection Corridor;
- Top y Fron Hall (Grade II*; Cadw 55), located approximately 1.1 km south-west of the Main Site;
- Northop Hall Farm (Llaneurgain) (Grade II*; Cadw 323), located approximately 2.7 km south of the Main Site;
- Coed-y-cra Uchaf (Grade II*; Cadw 326), located approximately 2.4 km south-west of the Proposed CO_2 Connection Corridor;
- Parkgate Farm Farmhouse and attached Shippon (Grade II*; Cadw 592), located approximately 2.5 km south-west of the Proposed CO_2 Connection Corridor;
- Plymouth House and adjoining Coach-house (Grade II*; Cadw 19185), located approximately 2.4 km south-west of the Proposed CO_2 Connection Corridor; and
- Grammar School, Northop (Grade II*; Cadw 24440), located approximately 2.2 km south-west of the Proposed CO_2 Connection Corridor.

3.5.45 In addition, the 70 Grade II listed buildings are dispersed across the study area and comprise farmsteads and associated farm buildings, war memorials, ancillary buildings, schools and churches dating to the post-medieval and modern periods. The closest Grade II listed buildings to the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) are:

- Kelsterton Hall (Cadw: 1), located approximately 130 m south-west of the Main Site;
- Leadbrook Hall (Cadw: 16409), located approximately 150 m south of the Repurposed CO_2 Connection Corridor; and
- Church of St Mark (Cadw: 85254), located approximately 325 m south-east of the C&IEA.

3.5.46 There are four conservation areas within 3 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas). There are:

- Oakenholt Hall conservation area located 315 m south-west of the Main Site;
- Plas Bellin Conservation Area located around the Grade II listed building, located approximately 1.6 km south-east of the Proposed CO2 Connection Corridor;
- Flint Conservation Area, located approximately 1.9 km north-west of the Repurposed CO_2 Connection Corridor; and
- Northop Conservation Area, located approximately 2.1 km south of the Proposed CO2 Connection Corridor.

3.5.47 There are also three registered historic parks and gardens within 3 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas). These are:

- Soughton Hall (PGW(C)25(FLT)), a Grade II* registered park and garden, located approximately 2.4 km south-west of the Proposed CO_2 Connection Corridor;
- Lower Soughton Hall (PGW(C)18(FLT)), a Grade II registered park and garden, located approximately 2.6 km south-west of the Proposed CO_2 Connection Corridor; and
- Shotton Steelworks Garden (PGW(C)77(FLT)), a Grade II registered park and garden, located approximately 2.2 km south-east of the C&IEA.

3.5.48 Desktop research has identified 454 of non-designated historic assets recorded by Clwyd-Powys Archaeological Trust (CPAT) Historic Environment Records (HER) within 1 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas). In addition, 12 non-designated historic assets have been identified within the Indicative Site Boundary (Excluding the Temporary AIL Work Areas):

- Kelsterton Embankment (HER34227), located in the Main Site;
- Settling Tank Connectors, Connah's Quay reservoir (HER 122661), located in the Main Site;
- Rockcliffe Hall (HER 89522), located in the Main Site;
- Possible Marl Pits (HER 85035 and HER 85036), located in the Proposed CO_2 Connection Corridor;
- Connah's Quay Rifle Range (HER 129660), located in the C&IEA;
- Turnpike Road (HER 140797), partially extends through the Access to Main Site;
- Roman Road (HER 46802), partially extends through the Access to Main Site and the Repurposed CO_2 Connection Corridor;
- The former coal-fired power station (NMR 96149), located within the C&IEA;
- The existing Connah's Quay Power Station (NMR 300210), located within the Main Site;
- Rockcliff Hall Railway Tunnel (NMR 870052), located within the Main Site; and
- Flint troughs, North Wales Coast Line Railway (NMR 422770), located within the Main Site.

3.5.49 The non-designated historic assets located within the 1 km study area from the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) comprise archaeological sites, findspots and non-designated buildings dating to the prehistoric, Roman, medieval, post-medieval and modern periods.

3.5.50 Historic boreholes have been undertaken within the Site (Excluding the Temporary AIL Work Areas) as recorded on the BGS online resource. The potential for palaeoenvironmental remains to be present is unknown although

it is possible peat deposits will be present within the terrestrial environment alongside the estuary.

3.5.51 There is potential for archaeological features above the MHWS, such as preserved wooden structures, to remain present along the waterfront.

Temporary AIL Work Areas

3.5.52 **Figure 3-3 (PEIR Volume III)** illustrates that there are no World Heritage Sites, scheduled monuments, grade I or II* listed buildings, registered parks and gardens, registered battlefields or protected wreck sites within the Indicative Site Boundary within the Temporary AIL Work Areas.

3.5.53 There are a number of Grade II listed buildings located within close proximity to the Temporary AIL Work Areas and part of the Temporary AIL Work Areas extends through the Flint Conservation Area.

3.5.54 Potential effects on heritage receptors are considered in **Chapter 17: Terrestrial Heritage** and **Chapter 18: Marine Heritage**.

Landscape and Visual Receptors

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.55 The Site (Excluding the Temporary AIL Work Areas) is located approximately 7.8 km north-east of the Clwydian Range and Dee Valley National Landscape and is located within National Landscape Character Area 13: Glannau Dyfrdwy a Wrecsam /Deeside and Wrexham (NLCA13), defined by NRW. 'Character areas' are defined by the relevant authority based on their distinct, recognisable character and natural boundaries. The lowland around the mouth of the River Dee was reclaimed from the sea in the 18th century and the area has since become heavily industrialised.

3.5.56 There are several PRoW within close proximity to the Indicative Site Boundary (Excluding the Temporary AIL Work Areas) identified in the Transport Receptors section above that are relevant in terms of visual amenity, including FCC Footpaths 27, 28, 66, and 67. In addition, from a visual amenity perspective, the following PRoW are also relevant:

- a cluster of PRoWs are located to the south of the Main Site, within 1 km of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas). These include FCC Footpaths 1, 2, 3, and 72; and
- in addition to FCC Footpaths 66 and 67, FCC Footpath 69 is located approximately 40 m south of the Repurposed CO2 Connection Corridor.

3.5.57 The Site (Excluding the Temporary AIL Work Areas) forms part of the Flintshire Local Development Plan 2015 – 2030 (LDP) and is situated along the southern shore of the Dee Estuary and is located within Marine Character Area 01: Dee Estuary (MCA01).

3.5.58 The open countryside to the north of the Main Site, which overlooks the Dee Estuary, has been designated as an Area of Special County Value by the CWaC, for its distinctiveness, landscape character, and scenic views over the estuary.

3.5.59 There are several internationally designated ecological sites within the vicinity of the Site (Excluding the Temporary AIL Work Areas), including the Dee Estuary which is designated as a Ramsar site, SAC, SPA, and SSSI.

3.5.60 There are no Landscape Character Designations covering the industrial complexes along the banks of the Dee Estuary, however, nationally important industries continue to dominate, including the existing Connah's Quay Power Station.

3.5.61 The Dee Estuary has been evaluated as high overall scenic quality, integrity, character, and rarity by the NRW LANDMAP landscape baseline. There is an expanse of the Dee Estuary to the east of the Main Site that has been designated as outstanding habitat and historic value, while the surrounding area and the Site have been designated as moderate to low.

3.5.62 The expansive intertidal sand, mudflats, and saltmarsh of the Dee Estuary to the north and north-west of the Site (Excluding the Temporary AIL Work Areas) contain inland views and urban/industrial influence, creating a contrasting maritime character with expansive views along the coast and out to the Irish Sea.

Temporary AIL Work Areas

3.5.63 As the ports of PoM, CQN and EP (Manchester Ship Canal) (and where relevant, intervening highway networks) are only included for the purposes of delivery of shipborne AIL to the Main Site and no works are proposed that could affect landscape and visual amenity, these areas are not considered further in relation to this topic.

3.5.64 Potential effects on landscape and visual amenity receptors are assessed in **Chapter 15: Landscape and Visual Amenity**.

Agricultural Land Classification

Indicative Site Boundary (Excluding the Temporary AIL Work Areas)

3.5.65 Predictive Agricultural Land Classification (ALC) is available via Data Map Wales and provides guidance on the ALC where agricultural land is to be developed. These plans indicate that urban land is the largest individual element of the Indicative Site Boundary (Excluding the Temporary AIL Work Areas), with Best and Most Versatile (BMV) Grade 2 (very good quality agricultural land) and Subgrade 3a (good quality agricultural land) also present. Small elements of non-BMV land Subgrade 3b (moderate quality agricultural land), Grade 5 (very poor quality agricultural land) and non-agricultural land (typically trees and hedgerows) make up the remaining area.

3.5.66 The Grade 2 land according to predictive ALC mapping is within the Main Site. The Subgrade 3a land dominates the Repurposed and Proposed CO_2 Connection Corridors. Further information can be found in **Appendix 14-D: ALC Report** in **PEIR Volume IV**.

Temporary AIL Work Areas

3.5.67 As the ports of PoM, CQN and EP (Manchester Ship Canal) (and where relevant, intervening highway networks) are only included for the purposes of delivery of shipborne AIL to Site and no works are proposed that could affect

agriculture or soils, these areas are not considered further in relation to this topic.

References

Ref 3-1 Electricity Act 1989 (c. 29). London: HMSO [online]. Available at: https://www.legislation.gov.uk/ukpga/1989/29 (Accessed 13/06/2024).

Ref 3-2 WSP, 2023; Environmental Statement – Volume II – Chapter 3: Description of the DCO Proposed Development, HyNet Carbon Dioxide Pipeline DCO [online]. Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070007/EN070007-002845-D.6.2.3%20Chapter%2003%20-%20Description%20of%20the%20DCO%20Proposed%20Development%20Rev%20C%20(Clean).pdf (Accessed 14/03/2024)

Ref 3-3 Bellinger Design (2015). Connah's Quay Power Station Conservation Area Management Plan, July 2015.