3 Onshore

3.1 Terrestrial Ecology and Onshore Ornithology

946. This section of the Scoping Report considers the scope of potential impacts of the construction, O&M, and decommissioning stages of the Development on Terrestrial Ecology and Onshore Ornithology.

947. This section provides an overview of the baseline environment and sets out the proposed methodology and approach to assessing effects on Terrestrial Ecology and Onshore Ornithology receptors in the Developments ES. Impacts to intertidal receptors would be assessed in the benthic and intertidal assessment (**Section 2.2 Benthic Habitat**).

948. The Terrestrial Ecology and Onshore Ornithology assessment is likely to have key inter-relationships with the following topics, which would be considered appropriately where relevant in the EIA:

- **Section 1.5 Project Description**;
- **Section 3.3 Flood Risk and Hydrology**;
- **Section 3.6 LVIA**;
- **Section 3.8 Noise and Vibration**; and
- **Section 3.9 Air Quality**.

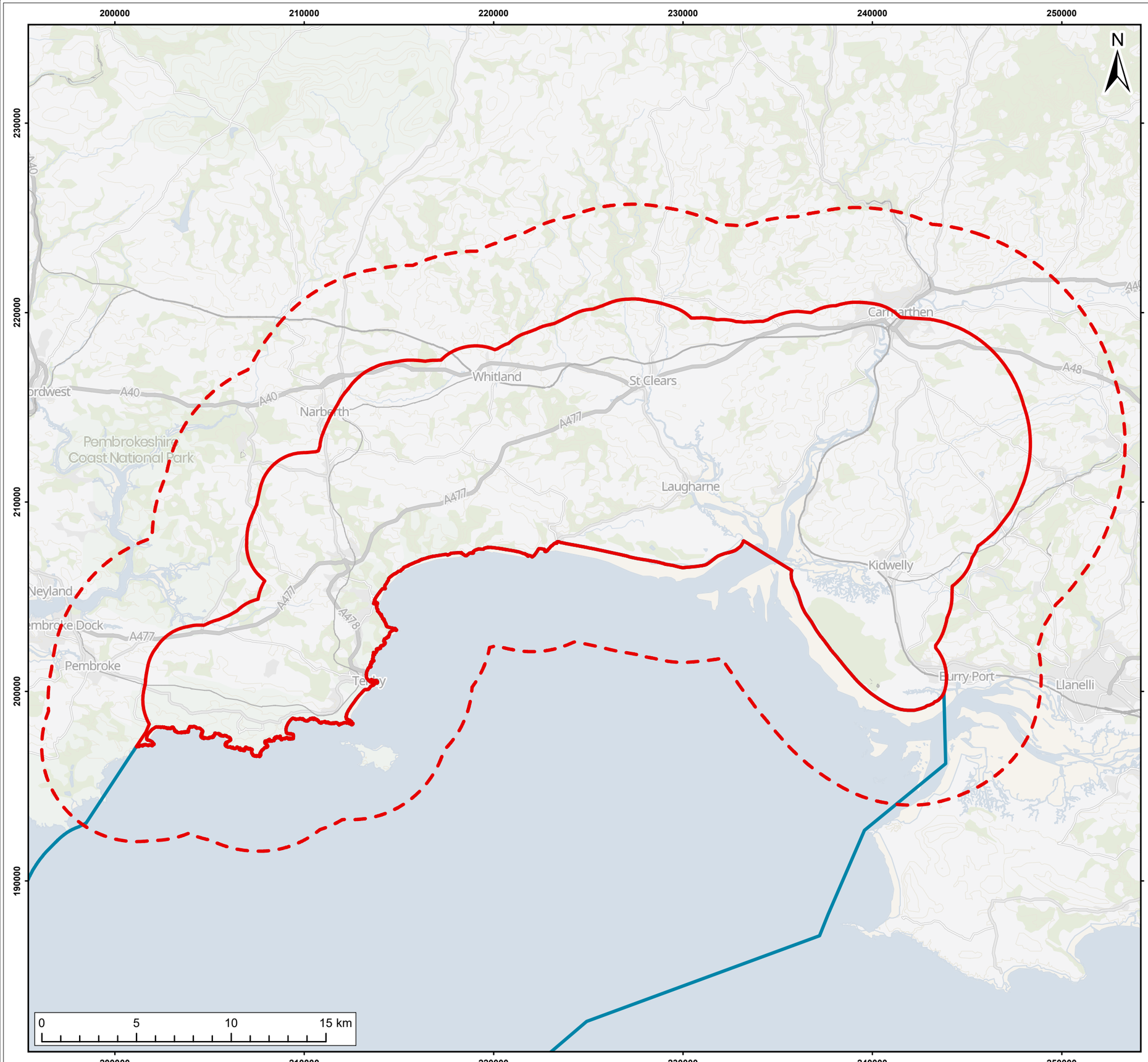
The following questions are posed to consultees to help them frame and focus their response to the Terrestrial Ecology and Onshore Ornithology scoping exercise which would in turn inform the Scoping Opinion:

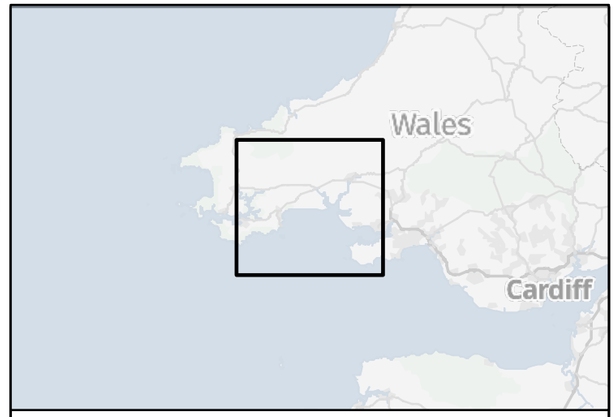
- Do you agree with the proposed Terrestrial Ecology and Onshore Ornithology Onshore Study Area and that it is sufficient to capture the relevant impacts?
- Do you agree with the characterisation of the baseline environment?
- Have all the relevant data sources been identified in the Scoping Report?
- Have all the potential impacts on the terrestrial ecology and ornithology resulting from the Development been identified in the Scoping Report?
- Do you agree with the impacts that have been scoped in (or scoped out) of further assessment?
- Do you agree with the proposed approach to assessment?

3.1.1 Onshore Study Area

949. For the purposes of scoping, the Terrestrial Ecology and Onshore Ornithology Study Area consists of the Onshore Scoping Boundary as shown on **Figure 1.1.1**. For statutory designated sites for nature conservation, the Terrestrial Ecology and Onshore Ornithology Study Area includes all land in the Onshore Scoping Boundary as shown on **Figure 1.1.1**, plus an additional 5km from the Onshore Scoping Boundary as shown on **Figure 3.1.1**.

950. The Terrestrial Ecology and Onshore Ornithology Study Area in the EIA would be refined to the Onshore Development Area once the locations of the Onshore Transmission Station(s), Onshore Export Cable Corridor and Landfall are selected.





Legend:

- Onshore Scoping Boundary
- Terrestrial Ecology and Onshore Ornithology Study Area (5km Buffer)
- Offshore Export Cable Scoping Boundary

Source: © Haskoning UK Ltd, 2026
Base map: Contains OS data © Crown Copyright and database right 2026. Contains data from OS Zoomstack

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Terrestrial Ecology and Onshore Ornithology Study Area

Figure:	3.1.1	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0099		
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	27/03/2026	MW	BM	A3	1:200,000

Co-ordinate system: British National Grid

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3.1.2 Baseline Environment

3.1.2.1 Designated Sites for Nature Conservation

951. A total of 79 statutory designated sites are located in the Terrestrial Ecology and Onshore Ornithology Study Area, as shown on **Figure 3.1.2** and summarised in **Table 3.1.1**.

952. Further details of such sites, including their qualifying feature(s), are provided in **Table A1, Appendix A**.

953. Information on non-statutory designated sites is held by the West Wales Biodiversity Information Centre (WWBIC). This data has not been purchased to date but would be obtained and reviewed during the assessment once the locations of the Onshore Transmission Station(s), Onshore Export Cable Corridor and Landfall are selected. For this scoping assessment, it has been assumed that non-statutory designated sites for nature conservation may be present in the Terrestrial Ecology and Onshore Ornithology Study Area.

Table 3.1.1 Summary of designated sites for nature conservation within the Terrestrial Ecology and Onshore Ornithology Study Area as shown on Figure 3.1.2.

SITE NAME	DESIGNATION	DISTANCE FROM THE ONSHORE SCOPING BOUNDARY
Bury Inlet	Ramsar	In the Onshore Scoping Boundary
Pembrokeshire Marine / Sir Benfro Forol	SAC	In the Onshore Scoping Boundary
Bristol Channel Approaches / Dynesfeydd Môr Hafren	SAC	In the Onshore Scoping Boundary
Limestone Coast of south West Wales / Arfordir Calchfaen De Orllewin Cymru	SAC	In the Onshore Scoping Boundary
Carmarthen Bay Dunes / Twyni Bae Caerfyrddin	SAC	In the Onshore Scoping Boundary
Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd	SAC	In the Onshore Scoping Boundary
Bae Caerfyrddin / Carmarthen Bay	SPA	In the Onshore Scoping Boundary
Afon Tywi / River Tywi	SAC	In the Onshore Scoping Boundary
Skomer, Skokholm and the Seas off Pembrokeshire	SPA	In the Onshore Scoping Boundary
Castlemartin Coast	SPA	In the Onshore Scoping Boundary
Bury Inlet	SPA	In the Onshore Scoping Boundary

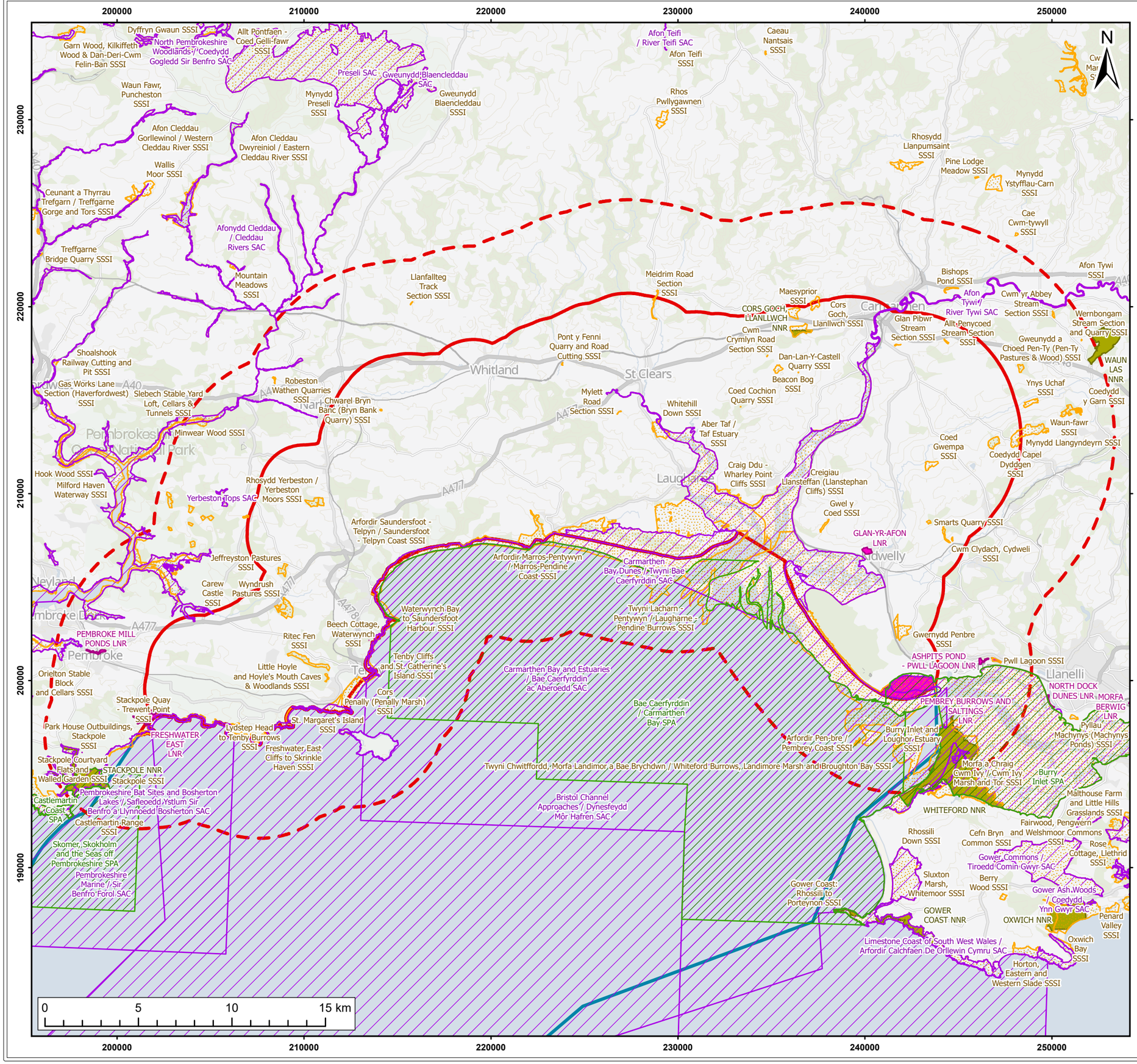
SITE NAME	DESIGNATION	DISTANCE FROM THE ONSHORE SCOPING BOUNDARY
Freshwater East Cliffs to Skrinkle Haven	Site of Special Scientific Interest (SSSI)	In the Onshore Scoping Boundary
	Local Nature Reserve (LNR)	
Stackpole Quay - Trewent Point	SSSI	In the Onshore Scoping Boundary
Lydstep Head to Tenby Burrows	SSSI	In the Onshore Scoping Boundary
Cors Penally (Penally Marsh)	SSSI	In the Onshore Scoping Boundary
Little Hoyle and Hoyle's Mouth Caves and Woodlands	SSSI	In the Onshore Scoping Boundary
Ritec Fen	SSSI	In the Onshore Scoping Boundary
Wyndrush Pastures	SSSI	In the Onshore Scoping Boundary
Jeffreyston Pastures	SSSI	In the Onshore Scoping Boundary
Milford Haven Waterway	SSSI	In the Onshore Scoping Boundary
Tenby Cliffs and St. Catherine's Island	SSSI	In the Onshore Scoping Boundary
Waterwynch Bay to Saundersfoot Harbour	SSSI	In the Onshore Scoping Boundary
Arfordir Saundersfoot - Telpyn / Saundersfoot - Telpyn Coast	SSSI	In the Onshore Scoping Boundary
Rhosydd Yerbeston / Yerbeston Moors	SSSI	In the Onshore Scoping Boundary
Arfordir Marros-Pentywyn / Marros-Pendine Coast	SSSI	In the Onshore Scoping Boundary
Pont y Fenni Quarry and Road Cutting	SSSI	In the Onshore Scoping Boundary
Mylett Road section	SSSI	In the Onshore Scoping Boundary
Twyni Lacharn - Pentywyn / Laugharne - Pendine Burrows	SSSI	In the Onshore Scoping Boundary
Aber Taf / Taf Estuary	SSSI	In the Onshore Scoping Boundary
Whitehill Down	SSSI	In the Onshore Scoping Boundary

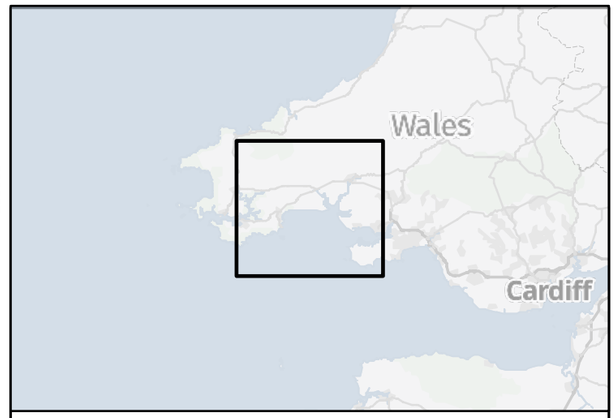
SITE NAME	DESIGNATION	DISTANCE FROM THE ONSHORE SCOPING BOUNDARY
Afon Tywi	SSSI	In the Onshore Scoping Boundary
Craig Ddu - Wharley Point Cliffs	SSSI	In the Onshore Scoping Boundary
Creigiau Llansteffan (Llanstephan Cliffs)	SSSI	In the Onshore Scoping Boundary
Arfordir Pen-bre / Pembrey Coast	SSSI	In the Onshore Scoping Boundary
Meidrim Road section	SSSI	In the Onshore Scoping Boundary
Cwm Crymlyn Road section	SSSI	In the Onshore Scoping Boundary
Beacon bog	SSSI	In the Onshore Scoping Boundary
Dan-Lan-Y-Castell Quarry	SSSI	In the Onshore Scoping Boundary
Cors Goch, Llanllwch	SSSI	In the Onshore Scoping Boundary
	National Nature Reserve (NNR)	
Maesyprior	SSSI	In the Onshore Scoping Boundary
Glan Pibwr Stream section	SSSI	In the Onshore Scoping Boundary
Allt Penycoed Stream section	SSSI	In the Onshore Scoping Boundary
Coed Gwempa	SSSI	In the Onshore Scoping Boundary
Coedydd Capel Dyddgen	SSSI	In the Onshore Scoping Boundary
Mynydd Llangyndeyrn	SSSI	In the Onshore Scoping Boundary
Smarts quarry	SSSI	In the Onshore Scoping Boundary
Cwm Clydach, Cydweli	SSSI	In the Onshore Scoping Boundary
Gwel y Coed	SSSI	In the Onshore Scoping Boundary
Gwernydd Penbre	SSSI	In the Onshore Scoping Boundary
Burry Inlet and Loughor Estuary	SSSI	In the Onshore Scoping Boundary
Pembrey Burrows and Saltings	LNR	In the Onshore Scoping Boundary

SITE NAME	DESIGNATION	DISTANCE FROM THE ONSHORE SCOPING BOUNDARY
Whiteford	NNR	0.14km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Afon Cleddau Dwyreiniol / Eastern Cleddau River	SSSI	0.15km west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Carew Castle	SSSI	0.16km north of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Ynys Uchaf	SSSI	0.36km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Afonydd Cleddau / Cleddau Rivers	SAC	0.49km west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Gweunydd a Choed Pen-Ty (Pen-Ty Pastures and Wood)	SSSI	0.82km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
St. Margaret's Island	SSSI	0.86km south of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Waun-fawr	SSSI	1.11km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Yeberston Tops	SAC	1.24km west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherton	SAC	1.31km north-west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Bishops Pond	SSSI	1.37km north of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area

SITE NAME	DESIGNATION	DISTANCE FROM THE ONSHORE SCOPING BOUNDARY
Twyni Chwitffordd, Morfa Landimor a Bae Brychdwn / Whiteford Burrows, Landimore Marsh and Broughton Bay	SSSI	1.41km south of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Ashpits Pond – Pwll	LNR	2.21km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Coedydd y Garn	SSSI	2.22km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Pembroke Mill Ponds	LNR	2.39km west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Llanfallteg Track Section	SSSI	2.64km north of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Gower Commons / Tiroedd Comin Gwyr	SAC	2.68km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Stackpole	NNR	2.81km south-west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Pwll lagoon	SSSI	2.93km east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Robeston Wathen Quarries	SSSI	3.29km north-west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Cwm yr Abbey Stream section	SSSI	3.82km north-east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Minwear Wood	SSSI	3.92km north-west of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area

SITE NAME	DESIGNATION	DISTANCE FROM THE ONSHORE SCOPING BOUNDARY
Wernbongam Stream Section and Quarry	SSSI	4.54km north-east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area
Waun Las	NNR	4.49km north-east of the Onshore Scoping Boundary within the Terrestrial Ecology and Onshore Ornithology Study Area





Legend:

- Onshore Scoping Boundary
- Terrestrial Ecology and Onshore Ornithology Study Area (5km Buffer)
- Offshore Export Cable Scoping Boundary
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Special Area of Conservation (SAC)

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Statutory Designated Sites for Nature Conservation within and up to 5km of the Onshore Scoping Boundary

Figure:	3.1.2	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0103		
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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3.1.2.2 Terrestrial Habitats

954. Habitats of principal importance, as defined in Section 7 of the Environment (Wales) Act 2016, in the Terrestrial Ecology and Onshore Ornithology Study Area include the following (**Figure 3.1.3**):

- Hedgerows;
- Lowland calcareous grassland;
- Lowland dry acid grassland;
- Lowland fens and reedbeds;
- Lowland heathland;
- Lowland meadows;
- Lowland mixed deciduous woodland;
- Maritime cliff and slopes;
- Open Mosaic Habitat on Previously Developed Land;
- Purple moor-grass and rush pasture;
- Raised bog;
- Saltmarsh;
- Sand dunes;
- Traditional orchards; and
- Wood pasture.

955. A total of 1,034 ancient woodland sites are also present in the Terrestrial Ecology and Onshore Ornithology Study Area, as shown on **Figure 3.1.3**.

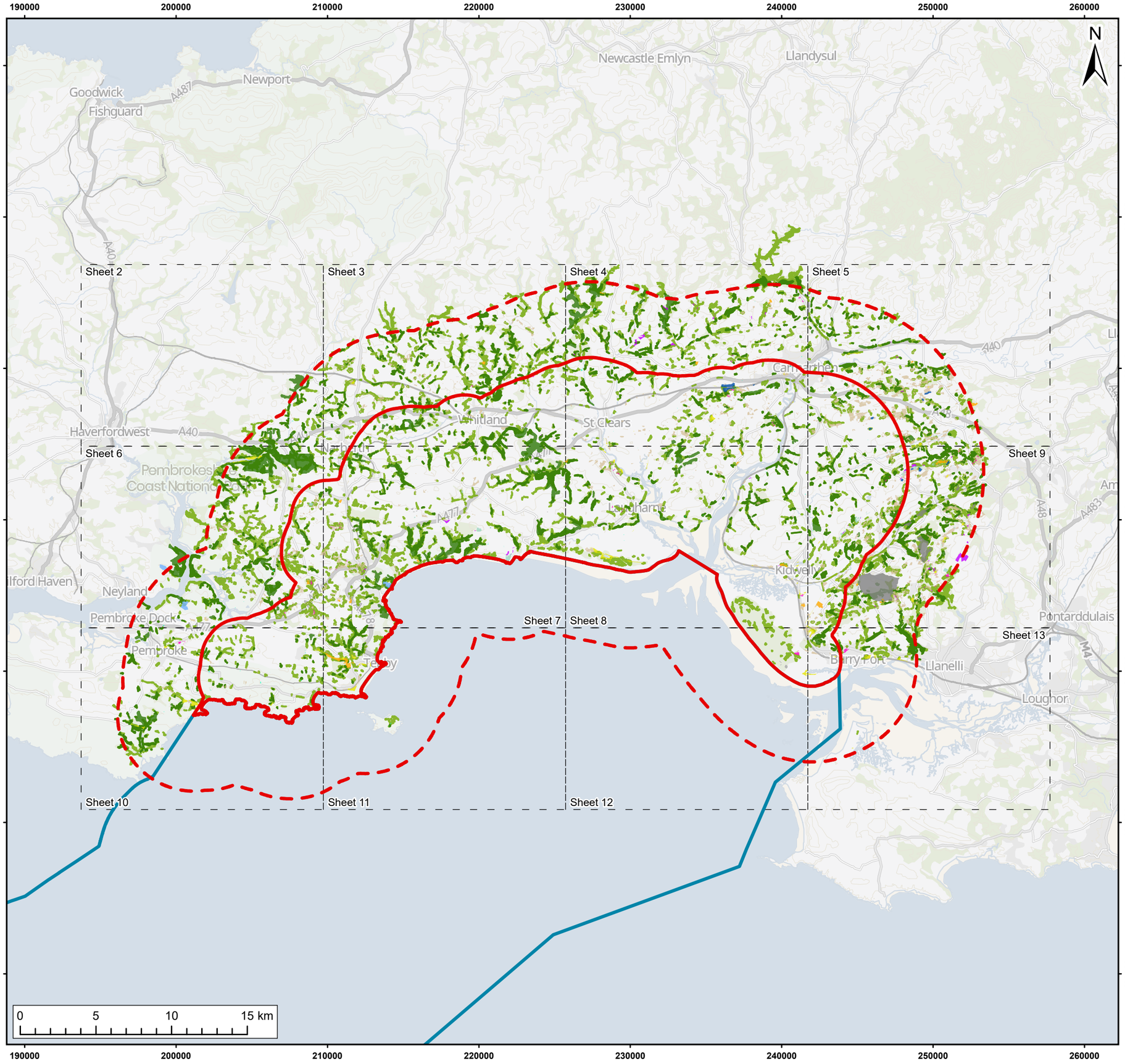
3.1.2.3 Protected, Notable and INNS

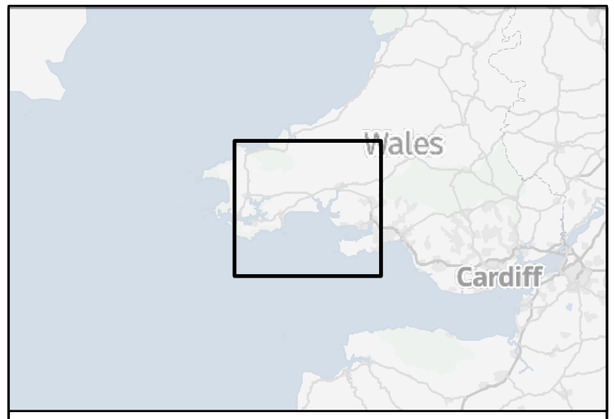
956. The desk-based review of NBN Atlas identified the following protected and notable species present in the Terrestrial Ecology and Onshore Ornithology Study Area:

- Badger *Meles meles*;
- Bats (roosting and commuting / foraging);
- Water vole *Arvicola amphibius*;
- Otter *Lutra lutra*;
- Hazel dormouse *Muscardinus avellanarius*;
- Birds (breeding and overwintering);
- Great crested newt *Triturus cristatus*;
- Reptiles;
- White-clawed crayfish *Austropotamobius pallipes*;
- Invertebrates (aquatic and terrestrial species);
- Fish (freshwater and migratory); and
- Plants (higher and lower plant species).

957. The desk-based review of NBN Atlas identified the following INNS, as defined by the *INNS Priority Species for Action in Wales* list (Wales INNS Group, 2019) present in the Terrestrial Ecology and Onshore Ornithology Study Area:

- Cherry laurel *Prunus laurocerasus*;
- Cotoneaster *Cotoneaster* spp.;
- Curly waterweed *Lagarosiphon major*;
- Giant hogweed Heracleum mantegazzianum;
- Grey squirrel *Sciurus carolinensis*;
- Himalayan balsam Impatiens glandulifera;
- Japanese rose *Rosa rugosa*;
- New Zealand Pigmyweed *Crassula helmsii*;
- Parrot's feather *Myriophyllum aquaticum*;
- Reeve's muntjac *Muntiacus reevesi*;
- Rhododendron *Rhododendron ponticum;*
- Ruddy duck Invasive *Oxyura jamaicensis*;
- Sea buckthorn *Hippophae rhamnoides*;
- Signal crayfish *Pacifastacus leniusculus*;
- Sika deer *Cervus nippon*;
- Skunk cabbage *Lystichiton americanus*;
- Topmouth gudgeon *Pseudorasbora parva*; and
- Water fern *Azolla filiculoides*.





Legend:

- Onshore Scoping Boundary
- Terrestrial Ecology and Onshore Ornithology Study Area (5km Buffer)
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box
- Ancient Woodland
- Broadleaved Woodland

Habitats of Principal Importance

- Blanket Bog
- Lowland Calcareous Grassland
- Lowland Dry Acid Grassland
- Lowland Fens and Reedbeds
- Lowland Heathland
- Lowland Meadows
- Open Mosaic Habitat on Previously Developed Land
- Parkland
- Purple Moor Grass and Rush Pastures
- Raised Bog
- Traditional Orchards
- Wood Pasture

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Habitats of Principal Importance and Ancient Woodland Sites within the Onshore Scoping Boundary

Figure: 3.1.3 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0104

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Co-ordinate system: British National Grid

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3.1.3 Data Sources

958. The Onshore Terrestrial Ecology and Ornithology assessment would be informed by a combination of desk-based data searches and field survey data collected through targeted surveys to be undertaken from 2026 to 2028.

959. **Table 3.1.2** summarises the existing primary data that has been used to inform this section and would also be used to inform the EIA. Any additional datasets would be identified through feedback from stakeholders during the EPP.

Table 3.1.2 Existing Data Sources to Inform the Terrestrial Ecology and Onshore Ornithology assessment.

DATASET	DATA CONTENTS
DataMapWales (Welsh Government, 2026)	Statutory designated sites, including: - International sites (Ramsar sites); - European sites SACs and SPAs; and - National sites SSSI, NNR and LNR.
Environment (Wales) Act Section 7 Terrestrial Habitats of Principal Importance (NRW, 2024)	Habitats of principal importance
National Forest Inventory Wales (Forestry Commission, 2022)	Woodland parcels
WOM21 Ancient Woodland Inventory (NRW, 2021a)	Ancient Woodland sites
NBN Atlas (NBN Atlas Partnership, no date)[13]	Records of protected, notable and INNS.
WWBIC (to be obtained via an ecological data search)	Records of protected, notable and INNS. Non-statutory designated sites, including: - Sites of Importance for Nature Conservation; - Local Wildlife Sites; and - County Wildlife Sites.
Wetland Bird Survey data (BTO, 2026)	Monthly Core Counts for target non-breeding wetland bird species.

960. **Table 3.1.3** describes the field surveys that would be undertaken to support the assessment. The Preliminary Ecological Appraisal (PEA) survey would precede and inform the species-specific surveys that will be undertaken in 2027/2028, subject to landowner access being granted.

[13] The NBN Atlas search was used for this scoping assessment as records have not yet been obtained from WWBIC. The NBN Atlas search excluded records held under a CC-BY-NC licence as these cannot be used for commercial purposes.

961. All proposed terrestrial ecology and ornithology surveys would be undertaken by suitably qualified ecologists, within their optimal surveying windows and in accordance with industry accepted survey guidance. Survey methodologies would be agreed in advance with relevant stakeholders where possible.

962. Species-specific surveys for badgers and INNS would be captured during the PEA and its desk study. As such, these are not separate surveys within **Table 3.1.3.**

963. The survey timings shown in **Table 3.1.3** are anticipated. These are subject to change, but this would not affect the survey scope.

Table 3.1.3 Site-specific Survey Data for Terrestrial Ecology and Onshore Ornithology.

SURVEY	ANTICIPATED SURVEY TIMINGS	SUMMARY OF PROPOSED SCOPE
PEA	Anytime of year (optimum April – September) 2026	Would include the locations of all onshore infrastructure (Onshore Export Cable Corridor, potential landfall locations and potential Onshore Transmission Station(s) location) plus a 50m buffer. The PEA would classify all broad habitat types and identify the suitability of all habitats for their ability to support legally protected and notable species. The PEA would be used to define the scope of all species-specific ecology surveys.
Overwintering bird surveys	October– March 2026 /27 and 2027/28	Would include all suitable habitats (including any functionally linked habitats) that may be impacted by the Development and / or afforded protection for overwintering birds. Two survey years are proposed however this may be refined to one year following the review of year one data and in consultation with key stakeholders.
Breeding bird surveys	March – July 2027 and 2028	Would include all suitable habitats (including any functionally linked habitats) that may be impacted by the Development and / or afforded protection for breeding birds.
Freshwater fish surveys	Anytime of year (optimum April – September) 2027	Would include all suitable aquatic habitats that may be impacted by the Development.
Great crested newt presence / absence surveys	15th April – 30th June 2027	Would include all ponds and standing waterbodies within and up to 250m of the Onshore Export Cable Corridor, Landfall location and Onshore Transmission Station(s). The suitability of all scoped-in ponds would be determined using the Habitat Suitability Index (HSI) (Oldham *et al.*, 2000). Ponds which are determined to be suitable for supporting great crested newts (i.e. with a HSI of 'poor' or higher) would then be subject to eDNA sampling to determine species presence / absence.

SURVEY	ANTICIPATED SURVEY TIMINGS	SUMMARY OF PROPOSED SCOPE
Reptile surveys	April, May and September 2027	Would include all suitable habitats that may support significant populations of reptiles that may be impacted by the Development.
Water vole and otter surveys	April – September 2027	Would include all suitable aquatic habitats that may be impacted by the Development.
Invertebrates (terrestrial and aquatic)	April – September 2027	Would include all terrestrial and aquatic habitats that may support rare or notable invertebrates and may be impacted by the Development.
Bat activity surveys	May – September 2027	Would include all suitable commuting / foraging habitats that may be affected by the Development.
Roosting bat surveys	May – September 2027	Would include all features (buildings, structures and trees) that may be affected by the Development.
National Vegetation Classification (NVC) surveys	April – August 2027	Would include habitats that may be affected by the Development, and which may contain rare or notable flora.
Hazel dormouse presence / absence surveys	April – November 2027	Would include all suitable woodland habitats that may be affected by the Development.
White clawed crayfish presence / absence surveys	July – October 2027	Would include all suitable aquatic habitats that may be affected by the Development.

3.1.4 Approach to Impact Assessment

964. The approach to impact assessment would be based on the CIE *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal Version 1.3* (CIEEM, 2024). In addition, the following guidelines would be adhered to during data collection and EIA:

- British Standard (BS) 42020:2013 – Biodiversity Code of Practice for planning and development;
- NRW guidance on Environmental Assessment (NRW, 2026b);
- CIEEM Guidelines for PEA (CIEEM, 2017);
- Mammal Society guidance on surveying badger (Harris *et al.*, 1989);
- INNS Priority Species for Action in Wales list (Wales INNS Group, 2019);
- Non-breeding and breeding bird survey methodologies (Bird Survey Guidelines, 2026a and 2026b);

- Fish survey, evaluation and monitoring guidance (Giles, Sands and Fasham, 2005);
- The Amphibian Habitat Management Handbook (Baker et al., 2011);
- The Reptile Habitat Management Handbook (Edgar, Foster and Baker, 2010);
- The Water Vole Mitigation Handbook (Dean et al., 2016);
- Guidance on the ecology of otters (Chanin, 2003);
- Common Standards Monitoring Guidance for Terrestrial and freshwater invertebrates (JNCC, 2008);
- The Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023);
- NVC User's Handbook and associated definitions of plant communities (Rodwell, 1991-2000 and Rodwell, 2006);
- The Hazel Dormouse Mitigation Handbook (Wells, Chanin and Gubert, 2025); and
- White-clawed crayfish monitoring guidance (Peay, 2003).

965. The approach to assessment and the scope of field surveys will be discussed and agreed with stakeholders prior to commencement. Consultation would be undertaken at key stages throughout the EIA process.

3.1.4.1 Receptors

966. The following terrestrial ecological and ornithological receptors have been identified relevant to this assessment, all of which are, or are anticipated to be, in the Terrestrial Ecology and Onshore Ornithology Study Area:

- Statutory designated sites for nature conservation
- Non-statutory designated sites for nature conservation
- Terrestrial habitats
- Protected and notable species
- INNS

3.1.5 Potential Impacts

3.1.5.1 Potential Impacts During the Construction Stage

3.1.5.1.1 Impacts to Statutory and Non-statutory Designated Sites

967. Statutory and non-statutory designated sites for nature conservation would, where possible, be avoided through the design and site selection of the Onshore Development Area. However, due to the presence of several designated sites likely to be present at the Landfall, direct impacts on statutory or non-statutory designated sites cannot be ruled out at this stage.

968. Potential temporary and indirect impacts (e.g. noise, dust, lighting and changes in water resources) arising from construction related activities may also occur. Impacts to statutory and non-statutory designated sites are therefore **scoped in** to the EIA.

3.1.5.1.2 Permanent and Temporary Loss of Terrestrial Habitats

969. Construction of the Onshore Transmission Station(s) is anticipated to result in the permanent loss of terrestrial habitat associated with its footprint.

970. Construction of the Onshore Export Cable Corridor would result in direct, but temporary, impacts on terrestrial habitats. Sensitive habitats (such as habitats of principal importance, woodlands and watercourses) would be avoided where possible through considerate onshore cable routeing during the site selection process; however, where this may not be possible habitats would be reinstated following installation of the Onshore Export Cable Corridor. Furthermore, the use of trenchless techniques (e.g. HDD), where feasible and possible to do so, would be adopted to avoid direct permanent and temporary impacts.

971. It is anticipated that there would be a temporary loss of sections of hedgerows along the Onshore Export Cable Corridor as a result of the construction activities associated with the Development. As part of embedded mitigation for the Development, hedgerow removal would be restricted to a minimum working width where possible, and hedgerows would be reinstated on completion of works.

972. These potential impacts from permanent and temporary loss of terrestrial habitats would be assessed as part of the EIA and are therefore **scoped in** to the EIA.

3.1.5.1.3 Habitat Fragmentation and Species Isolation

973. The linear nature of the Onshore Export Cable Corridor means that habitat fragmentation and species isolation could potentially occur during construction. Fragmentation and species isolation are particularly relevant for habitats such as hedgerows, and for the species that rely on hedgerows for commuting / dispersal (e.g. bats, hazel dormice and great crested newts). Where possible, 'important' hedgerows and those identified as key bat commuting and / or foraging routes, great crested newt dispersal routes or support hazel dormice would be avoided using trenchless techniques (e.g. HDD). As above, as part of embedded mitigation for the Development, habitat removal would be avoided or reduced to the minimum working width where possible, and all temporarily affected habitats would be reinstated following completion of works.

974. These potential impacts from fragmentation and species isolation would be assessed as part of the EIA and are therefore **scoped in** to the EIA.

3.1.5.1.4 Impacts on Protected Species and / or their Resting / Breeding Sites

975. There is potential for direct impacts on protected species through increased mortality as a result of construction activities (e.g. excavations and vegetation clearance during works).

976. Indirect impacts may also occur where the proximity of the works could result in disturbance and displacement of species arising from noise, dust, traffic, lighting, presence of workforce, etc.

977. The PEA and species-specific surveys have not yet been undertaken; therefore, at this stage, it has been assumed that protected and notable species may be present in the Terrestrial Ecology and Onshore Ornithology Study Area, including those identified in **Section 3.1.2.3**.

978. These potential impacts on protected species and their resting or breeding sites would be assessed as part of the EIA and are therefore **scoped in** to the EIA.

3.1.5.1.5 Spread of Invasive Non-Native Species

979. It is likely INNS are present in the Terrestrial Ecology and Onshore Ornithology Study Area. Therefore, there is potential for INNS to be encountered during construction, which could result in their further spread through construction related activities. The control and management of INNS, where required, would be included within the Development's Outline EMP as part of the proposed mitigation measures.

980. These potential impacts from the spread of INNS would be assessed as part of the EIA and are therefore **scoped in** to the EIA.

3.1.5.2 Potential Impacts During the Operation and Maintenance (O&M) Stage

981. Planned maintenance at the Onshore Transmission Station(s) and routine access to, and maintenance of, link boxes along the Onshore Export Cable Corridor following completion of the Development would be required. However, it is considered likely that where this is required, any works would be localised and temporary in nature. In the unlikely event that remedial works are required, these would also be localised and temporary. As such, it is anticipated that any impacts on terrestrial ecological and ornithological receptors would be limited to temporary, indirect disturbance of the adjacent habitats and species.

982. During the operation of the Onshore Transmission Station, there is a low risk that operational noise and lighting could result in disturbance and illumination of adjacent habitats and species. It is expected that both operational lighting and noise would be controlled, and lighting would be designed in a sensitive manner in line with relevant best practice guidance.

983. In the unlikely event of a cable failure, there may be a need to access the buried Onshore Export Cables to enable the replacement of a cable section. These reactive repairs are expected to have similar potential impacts to those of the construction works, however would be more localised, of smaller scale and temporary in nature.

984. Any potential biodiversity enhancements included as part of landscaping and screening proposals at the Onshore Transmission Station could result in a beneficial impact for local protected and notable species, as well as contribute towards achieving Net Benefit for Biodiversity (NBB) as obligated under Section 6 of the Environment (Wales) Act 2016. For example, such measures could provide additional habitat resources and enhance habitat connectivity in the wider landscape. NBB enhancement measures should be considered elsewhere in the Development, where required and feasible.

985. These potential impacts during the O&M stage would be assessed as part of the EIA and are therefore **scoped in** to the EIA.

3.1.5.3 Potential Impacts during the Decommissioning Stage

986. The detail and scope of the decommissioning works would be determined by the relevant legislation and guidance at the time of decommissioning and would be agreed with the regulator. A decommissioning plan would be prepared and submitted for approval.

987. It is anticipated that the decommissioning impacts would be similar in nature to those of construction but would be of a smaller magnitude. Decommissioning impacts are therefore **scoped in** to the EIA.

3.1.5.4 Potential Inter-relationship Impacts

988. The EIA would consider the inter-relationship of impacts on individual receptors in accordance with the methodology outlined in **Section 1.8 EIA Methodology**. The objective would be to identify where the accumulation of residual impacts on a single receptor and the relationship between those impacts, gives rise to a need for additional mitigation. It is therefore proposed that inter-relationship impacts on ecological receptors are **scoped in** to the EIA.

3.1.5.5 Potential Cumulative Impacts

989. Cumulative effects on onshore ecological and ornithological receptors would be assessed as part of the EIA process. Other projects that could give rise to cumulative impacts alongside the Development would be identified, and all relevant available information would be reviewed. These projects would then be incorporated into the CEA and considered within the assessment. It is therefore proposed that cumulative impacts on ecological receptors are **scoped in** to the EIA.

990. The CEA would examine the likelihood of significant cumulative effects occurring during the construction, operation, and decommissioning stages of the Development, in combination with other existing, consented, or proposed developments.

3.1.5.6 Summary of Potential Impacts

991. **Table 3.1.4** outlines the impacts which are proposed to be **scoped in** to and / or **out** of the EIA. This may be refined through the EPP as additional information and data become available.

Table 3.1.4 Summary of Impacts Proposed to be Scoped In (✓) and Out (x) of the Terrestrial Ecology and Onshore Ornithology Assessment

POTENTIAL IMPACT	CONSTRUCTION	O&M	DECOMMISSIONING
Impacts to statutory and non-statutory designated sites.	✓	✓	✓
Permanent and temporary loss of terrestrial habitats.	✓	✓	✓
Habitat fragmentation and species isolation.	✓	✓	✓
Impacts on protected species and / or their resting / breeding sites.	✓	✓	✓
Spread of INNS	✓	✓	✓
Inter-relationship Impacts	✓	✓	✓
Cumulative Impacts	✓	✓	✓

3.1.6 Potential Mitigation Measures

992. A number of embedded mitigation measures relevant to the Terrestrial Ecology and Onshore Ornithology assessment, which are proposed to be incorporated into the design of the

Development or constitutes standard mitigation measures for this topic, would follow the mitigation hierarchy outlined in **Section 1.8 EIA Methodology.**

993. These measures typically include those that have been identified as good or standard practice and include actions that should be undertaken to meet existing legislation requirements. Embedded mitigation measures relating to Terrestrial Ecology and Onshore Ornithology impacts are detailed in Table 1.8.2 (**Section 1.8 EIA Methodology**).

994. The selection of the final mitigation measures are reliant on the results of the survey suite set out in **Table 3.1.3.**

995. Requirements for any additional mitigation measures would be determined through the EIA as they would be reliant on the results of the surveys set out in **Table 3.1.3**, and would be developed following completion of the survey programme, where required.

996. Mitigation measures, if required, would also evolve as the EIA progresses and in response to consultation with the relevant stakeholders and would be fed iteratively into the design and assessment process. All of the proposed mitigation measures would comply with regulatory requirements and good practice.

3.2 Geology and Land Quality

997. This section of the Scoping Report considers the scope of potential impacts of the construction, O&M, and decommissioning stages of the Development on Geology and Land Quality.

998. This section provides an overview of the baseline environment and sets out the proposed methodology and approach to assessing effects on Geology and Land Quality receptors in the Development's ES.

999. The Geology and Land Quality assessment is likely to have key inter-relationships with the following topics, which would be considered appropriately where relevant in the EIA:

- **Section 1.5 Project Description**;
- **Section 3.1 Terrestrial Ecology and Onshore Ornithology**;
- **Section 3.3 Flood Risk and Hydrology**;
- **Section 3.4 Land Use**; and
- **Section 3.9 Air Quality**.

The following questions are posed to consultees to help them frame and focus their response to the Geology and Land Quality scoping exercise which would in turn inform the Scoping Opinion:

- Do you agree with the proposed Geology and Land Quality Study Area and that it is sufficient to capture the relevant impacts?
- Do you agree with the characterisation of the baseline environment?
- Have all the relevant data sources been identified in the Scoping Report?
- Have all the potential impacts on the Geology and Land Quality resulting from the Development been identified in the Scoping Report?
- Do you agree with the impacts that have been scoped in (or scoped out) of further assessment?
- Do you agree with the proposed approach to assessment?

3.2.1 Study Area

1000. For the purpose of scoping, the Onshore Study Area for land use consists of the area in the Onshore Scoping Boundary as shown on **Figure 1.1.1**. It is assumed that impacts to Geology and Land Quality would occur wholly within the Onshore Scoping Boundary.

1001. The Geology and Land Quality Study Area for in the EIA would be refined based on the Onshore Development Area once the locations of the Onshore Transmission Station(s), Onshore Export

Cable Corridor and Landfall are selected, based on the distance over which impacts may occur and by the location of potential receptors that may be affected by those potential impacts.

1002. The Geology and Land Quality Study Area for in the EIA would include:

- The Onshore Development Area plus a 250m buffer. Industrial installations or activities beyond 250m of the Onshore Development Area are unlikely to have an impact on the Geology and Land Quality receptors.
- The Onshore Development Area plus a 50m buffer in relation to Coal and Mineral mining. This is to account for the potential deviation on the location of mine entries and to account for the potential collapse radius of these features.
- The Onshore Development Area plus a 1km buffer for assessing the presence of public potable groundwater abstraction wells. This is due to the higher sensitivity of public potable groundwater abstraction wells.

3.2.2 Baseline Environment

3.2.2.1 Geology

1003. A review of the published geological mapping available on the British Geological Society (BGS) Geoindex data map viewer (BGS 2020) and the BGS maps portal indicates that the Onshore Study Area is underlain by a number of different superficial and bedrock deposits as summarised in **Table 3.2.1** and shown on **Figure 3.2.1** and **Figure 3.2.2**. They also show large portions of the Geology and Land Quality Study Area, particularly in the western half, where superficial deposits are not recorded. It is possible that localised areas of Made Ground associated with, for example, previously developed or infilled land, may underlie parts of the Geology and Land Quality Study Area.

1004. A review of the mineral resource plans for the Geology and Land Quality Study Area, contained in the PCC, PCNP Authority and CCC Local Development Plans, has been undertaken. The review identified multiple areas designated as Mineral Safeguarding Areas that are protective of extractable resources in the Geology and Land Quality Study Area.

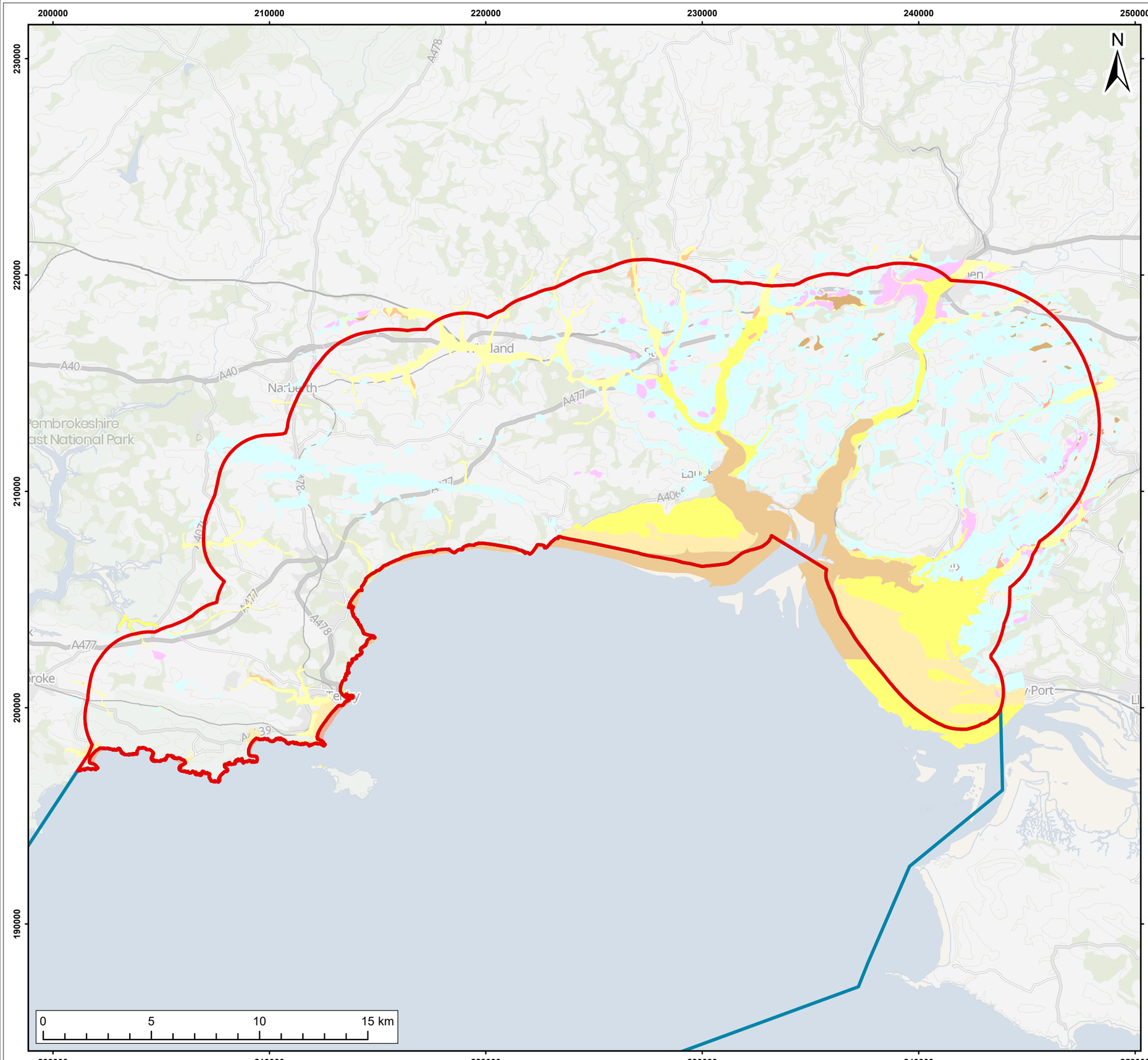
1005. The geology underlying the Geology and Land Quality Study Area is designated to reflect the importance of the aquifers present and the groundwater resource they provide. The aquifer designations are summarised in **Table 3.2.1**.

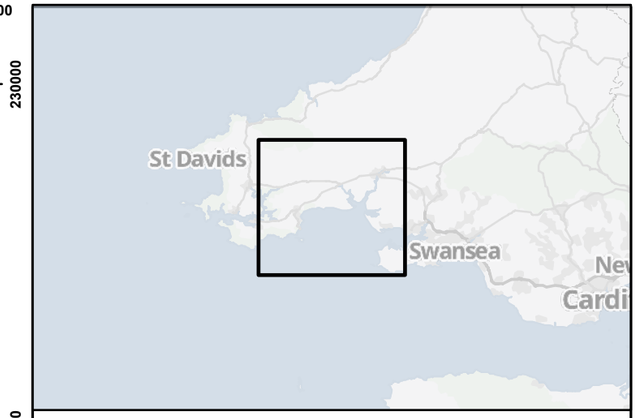
Table 3.2.1 Summary of Geology and Aquifer Designations

STRATUM	UNIT	AQUIFER DESIGNATION
Superficial Deposits	Blown sand: sand	Secondary A Aquifer
	Peat	Unproductive strata
	Alluvium: clay, silt, sand and gravel	Secondary A Aquifer
	River Terrace Deposits (Undifferentiated): sand and gravel	Secondary A Aquifer

STRATUM	UNIT	AQUIFER DESIGNATION
	Tidal Flat Deposits: sand, silt and clay	Secondary (Undifferentiated) Aquifer
	Beach and Tidal Flat Deposits (Undifferentiated): sand, silt and clay	Secondary (Undifferentiated) Aquifer
	Glaciofluvial Deposits: sand and gravel	Secondary A Aquifer
	Glacial Till: Diamicton	Secondary (Undifferentiated) Aquifer
Bedrock	Gash-Breccia containing Triassic sediments	Unproductive strata
	Pennant Sandstone Formation: mudstone, siltstone and sandstone	Secondary B Aquifer
	Rhondda Member: sandstone	Secondary A Aquifer
	Llynfi Member: mudstone, siltstone and sandstone	Secondary A Aquifer
	South Wales Middle Coal Measures Formation: mudstone, siltstone and sandstone	Secondary B Aquifer
	South Wales Lower Coal Measures Formation: mudstone, siltstone and sandstone	Secondary B Aquifer
	Pembroke Limestone Group: limestone	Principal Aquifer
	Black Rock Subgroup and Gully Oolite Formation: limestone	Principal Aquifer
	Avon Group: interbedded limestone and mudstone	Secondary A Aquifer
	Bishopston Mudstone Formation: mudstone, siltstone and sandstone	Secondary B Aquifer
	Telpyn Point Sandstone Formation: mudstone, siltstone and sandstone	Secondary A Aquifer
	Skrinkle Sandstones Subgroup: sandstone	Secondary A Aquifer
	Devonian and Carboniferous Rocks (Undifferentiated): interbedded limestone, argillaceous rocks and subordinate sandstone	Principal Aquifer

STRATUM	UNIT	AQUIFER DESIGNATION
	Devonian and Carboniferous Rocks (Undifferentiated): interbedded mudstone and sandstone	Secondary B Aquifer
	Brownstones Formation: sandstone	Secondary A Aquifer
	Senni Formation: sandstone	Secondary A Aquifer
	Daugleddau Group: interbedded sandstone and conglomerate	Secondary A Aquifer
	Cethings Sandstone Member: sandstone	Secondary A Aquifer
	Ludlow Rocks: sandstone	Secondary B Aquifer
	Aber Mawr Shale Formation: mudstone	Secondary B Aquifer
	Ridgeway Conglomerate Formation: conglomerate	Secondary A Aquifer
	Milford Haven Subgroup: interbedded argillaceous rocks and sandstone	Secondary A Aquifer
	Millin Mudstone Formation: mudstone	Secondary B Aquifer
	Portfield Formation and Haverford Mudstone Formation: mudstone and conglomerate	Secondary B Aquifer
	Portfield Formation: mudstone	Secondary B Aquifer
	Slade And Redhill Formation: mudstone	Secondary B Aquifer
	Mydrim Shales Formation: mudstone	Secondary B Aquifer
	Abergwilli Formation: mudstone	Secondary B Aquifer
	Llandeilo Flags Formation: interbedded limestone and argillaceous rocks	Secondary A Aquifer
	Robeston Wathen Limestone and Sholeshook Limestone: interbedded limestone and argillaceous rocks	Secondary A Aquifer
	Tetragraptus Beds: mudstone and sandstone	Secondary B Aquifer
	Peltura Punctata Beds: mudstone and sandstone	Secondary B Aquifer





Legend:

- Onshore Scoping Boundary
- Offshore Export Cable Corridor Scoping Boundary

Superficial Geology

- Blown Sand - sand
- Peat
- Alluvium - clay, silt, sand and gravel
- Alluvial Fan Deposits - sand and gravel
- Till - diamicton
- Head - Diamicton
- Marine Beach Deposits - sand
- Tidal Flat Deposits - sand, silt and clay
- Beach and Tidal Flat Deposits (undifferentiated) - clay, silt and sand
- Raised Beach Deposits - sand and gravel
- River Terrace Deposits (undifferentiated) - sand and gravel
- Storm Beach Deposits - gravel
- Glaciofluvial Deposits - sand and gravel

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Superficial Geology

Figure: 3.2.1 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0063

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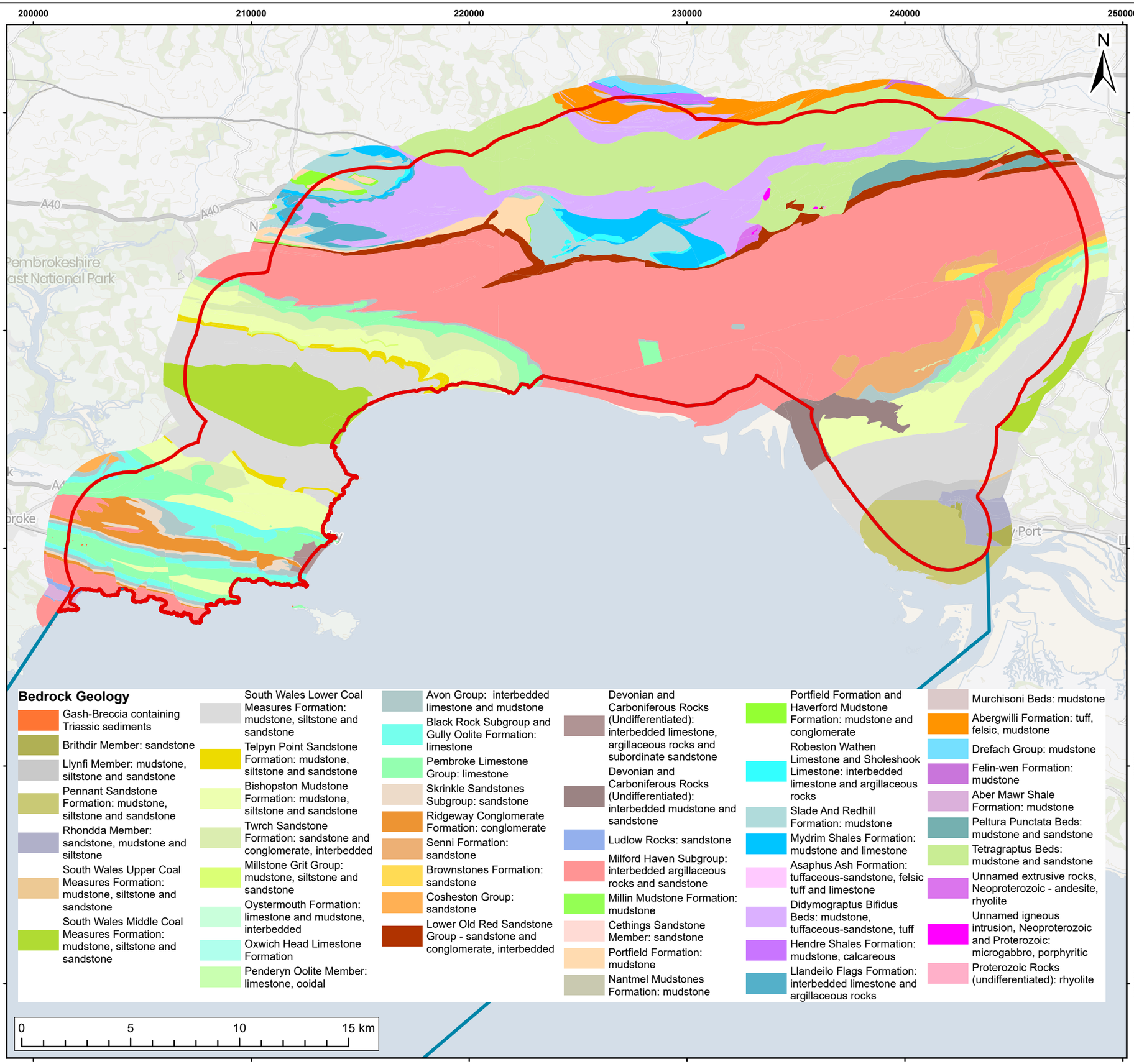

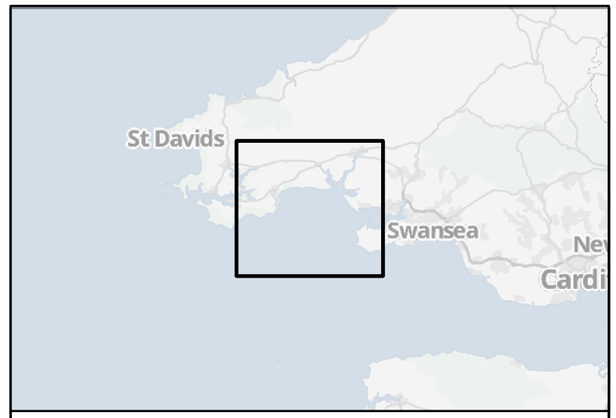

Legend:

- Onshore Scoping Boundary
- Offshore Export Cable Corridor Scoping Boundary

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Bedrock Geology

Figure: 3.2.2 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0064

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3.2.2.2 Hydrogeology

1006. In the Geology and Land Quality Study Area, Zone 1, 2 and 3 SPZs are present which are associated with large and public potable groundwater abstraction sites, shown on **Figure 3.2.3**.

1007. The protected areas are largely concentrated in the western half of the Geology and Land Quality Study Area. Other potential abstraction types and sources of information would be obtained and reviewed as part of the EIA process are identified in **Table 3.2.2**.

Table 3.2.2 Summary of Groundwater Abstraction Types and Proposed Sources of Information

ABSTRACTION TYPE	INFORMATION SOURCE TO BE CONTACTED	NOTES
Licensed non potable abstractions (>20m^3 per day)	NRW	Likely to be within Envirocheck Report.
Licensed potable private abstractions	Local Authority	A minimum 50m SPZ1 would be put around each of these types of abstractions
Unlicensed potable private abstractions	Liaison with Landowners and Land Agents	A minimum 50m SPZ1 would be put around each of these type of abstractions
Unlicensed non potable private abstractions (<20m^3 per day)	Liaison with Landowners and Land Agents	-

1008. Groundwater Vulnerability mapping provided by the BGS (BGS, no date) as shown on the BGS Geoindex map viewer, indicates that the bedrock geology underlying the Onshore Study Area ranges from 'low' to 'high' vulnerability. The map also shows the superficial deposits underlying the Onshore Study Area ranges from 'high' to 'low' vulnerability. A low groundwater vulnerability classification indicates that these areas provide the greatest protection to groundwater from pollution, whereas a high groundwater vulnerability indicates that the area can easily transmit pollution to groundwater.

3.2.2.3 Hydrology

1009. Surface water bodies are located either wholly or partially within the Geology and Land Quality Study Area, these include but are not limited to the following (as shown on **Figure 3.3.1** of **Section 3.3 Flood Risk and Hydrology**):

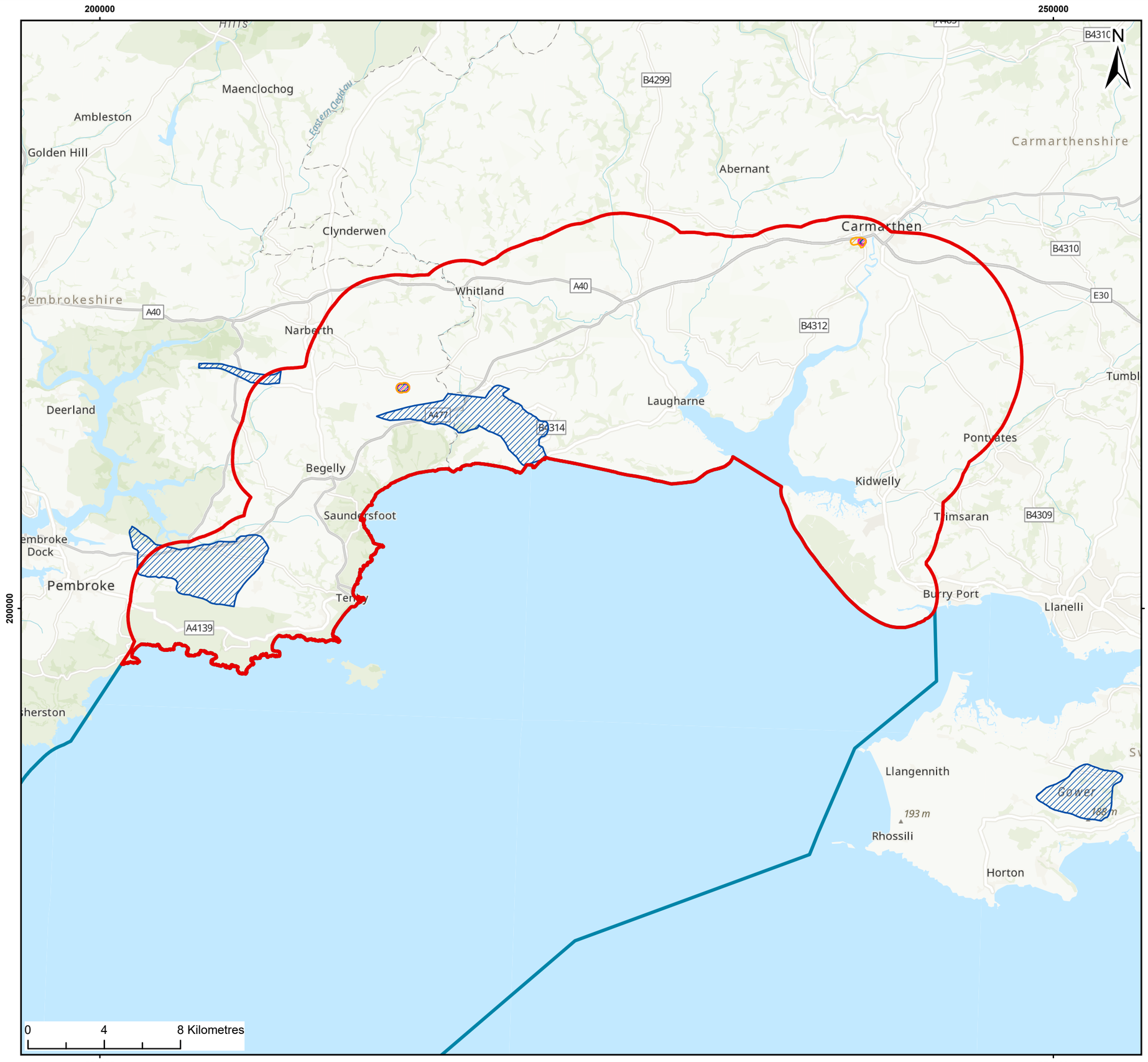
- Gwendraeth Fawr;
- Nant Pibwr;
- Tywi;
- Fernhill Brook;
- Tawelon;
- Mwche Stream;
- Nant Coedcae;
- Cywyn;
- Dewi Fawr;
- Cynin;
- Fenni;
- Taf;

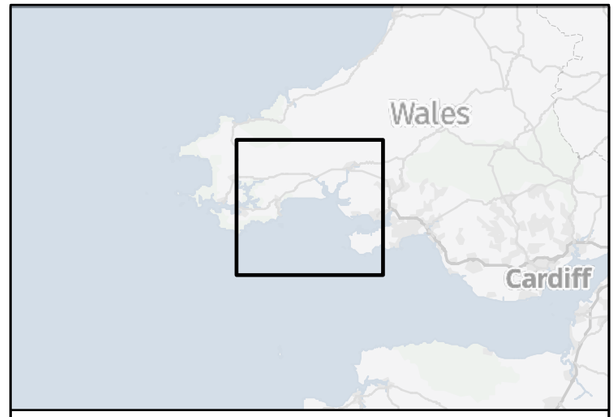
- Llanddowror Brook;
- New Inn Stream;
- Gronw;
- Marlais;
- Longford Brook;
- Narbeth Brook;
- Ford's Lake;
- Cresswell River;
- Carew;
- Ritec; and
- Pembroke.

1010. Numerous smaller streams, ponds and lakes are in the Geology and Land Quality Study Area. Some of the smaller streams may form tributaries or distributaries of the larger named watercourses listed above. There is also the potential for other surface water features, such as springs, to be present in the Geology and Land Quality Study Area.

1011. Similar to groundwater abstractions, there are likely to be both licensed and unlicensed surface water abstraction points present in the Geology and Land Quality Study Area.

1012. Flood risk and hydrology is considered in further detail in **Section 3.3 Flood Risk and Hydrology.**





Legend:

- Onshore Scoping Boundary
- Offshore Export Cable Corridor Scoping Boundary

Source Protection Zones

- 1
- 2
- 3

The Source Protection Zones surrounding the large public abstractions have been merged. These have been created as public facing outlines where common boundaries and overlaps (based on zone number) have been removed. SPZs are defined around large and public potable groundwater abstraction sites.

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Source Protection Zones

Figure:	3.2.3	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0067		
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3.2.2.4 Coal Mining

1013. The Mining Remediation Authority (MRA) (2026) map viewer indicates several coal mining features are present in the Geology and Land Quality Study Area. Parts of the Geology and Land Quality Study Area are included in high-risk development areas. The features, include but are not limited to, the following:

- Mine entries;
- Past shallow coal workings;
- Probable shallow coal mine workings;
- Coal outcrops; and
- Coal mining reporting areas.

1014. The above features associated with coal mining are mostly located in the east and west of the Geology and Land Use Study Area and are contained within the high-risk development areas as shown on **Figure 3.2.4**.

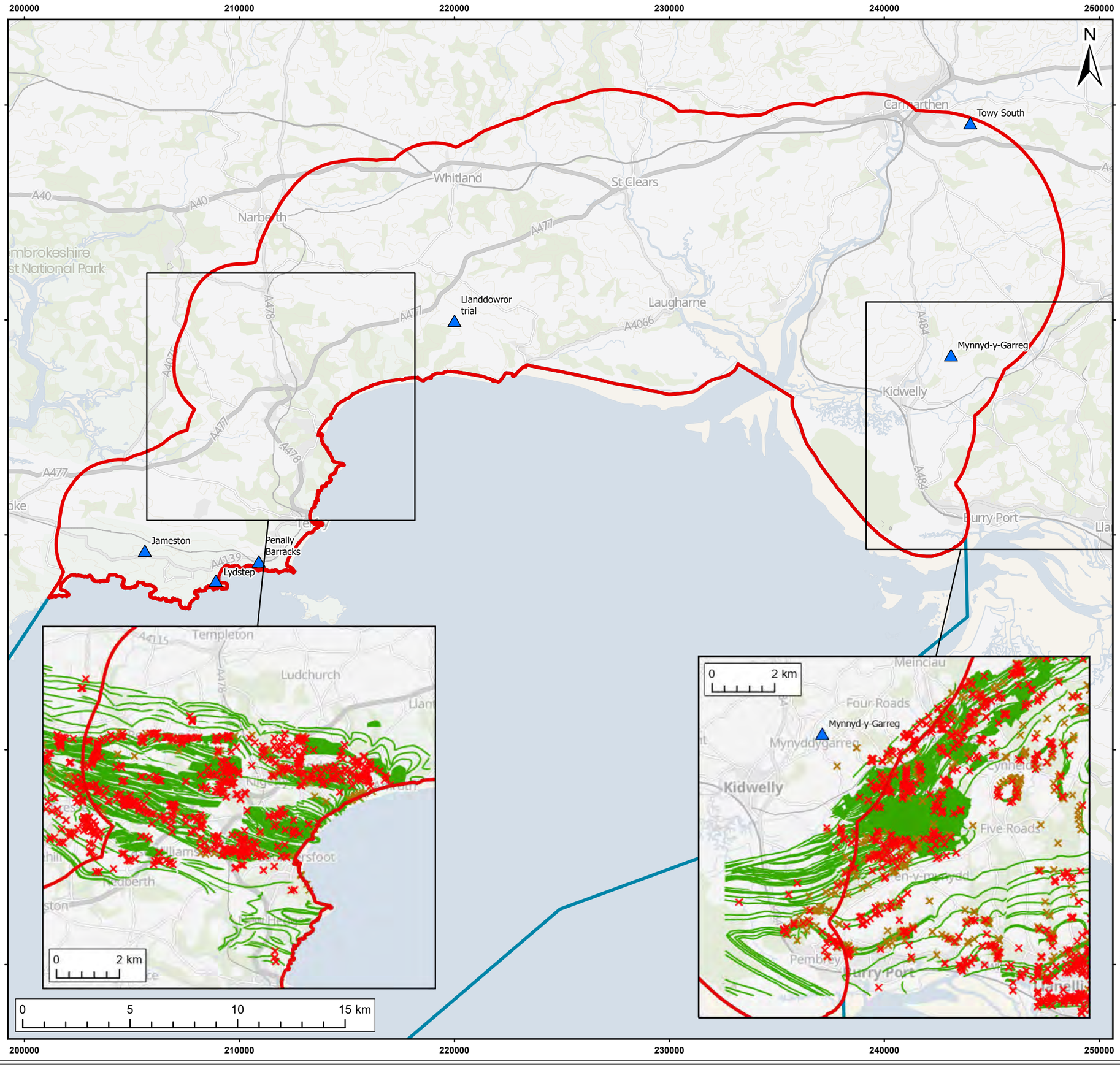
1015. It should be noted that there is the potential for features, such as mine entries and adits, mine entries at ground level straight into the location to be mined, to be present within the Onshore Study Area that aren't recorded. Additional data sources would be reviewed (e.g. historical mapping, mining abandonment plans and local historical sources) as part of the EIA process.

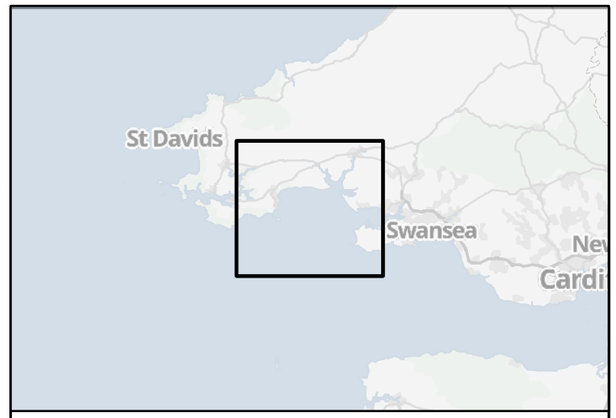
3.2.2.5 Mineral Mining

1016. In addition to coal mining, data from NRW (2025) indicates that there are several historical non-coal mining locations across the Onshore Study Area. The mines are recorded to have extracted copper, lead, silver, iron and barytes. In some instances, the type of mineral extracted is unknown. The locations of these mines are shown on **Figure 3.2.4**.

1017. Frequent shallow mines or quarries are also recorded across the majority of the Geology and Land Quality Study Area (BGS, 2020), the majority of which are recorded as ceased. There are three active quarries relating to the extraction of aggregates recorded in the Geology and Land Quality Study Area (Blaencilgoed Quarry, Carew Quarry and Coygen Quarry).

1018. Similar to coal mining, there is the potential for unrecorded non-coal mines, adits and quarries to be present within the Geology and Land Quality Study Area. Additional data sources would be reviewed (e.g. historical mapping and local historical sources) as part of the EIA process.





Legend:

- Onshore Scoping Boundary
- Offshore Export Cable Corridor Scoping Boundary
- High Risk Coal Mining Development Area
- Mine Locations (non coal)

Coal Mine Entries*

- Adit
- Shaft

*All coal mining adits and shafts are considered to also be in a High Risk Coal Mining Development Area - not presently clear from the key due to the scale.

Project: Gwynt Glas Offshore Wind Farm Scoping Report

Title: Mining

Figure: 3.2.4 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0068

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3.2.2.6 Designated Sites

1019. Ecologically designated sites located either wholly or partially within the Geology and Land Quality Study Area are outlined in **Section 3.1 Terrestrial Ecology and Onshore Ornithology.** In relation to geologically designated sites, SSSI, Regionally Important Geodiversity Sites (RIGS) and Geological Conservation Review Sites (GCR) present in the Onshore Study Area are outlined in **Table 3.2.3** and shown on **Figure 3.2.5**.

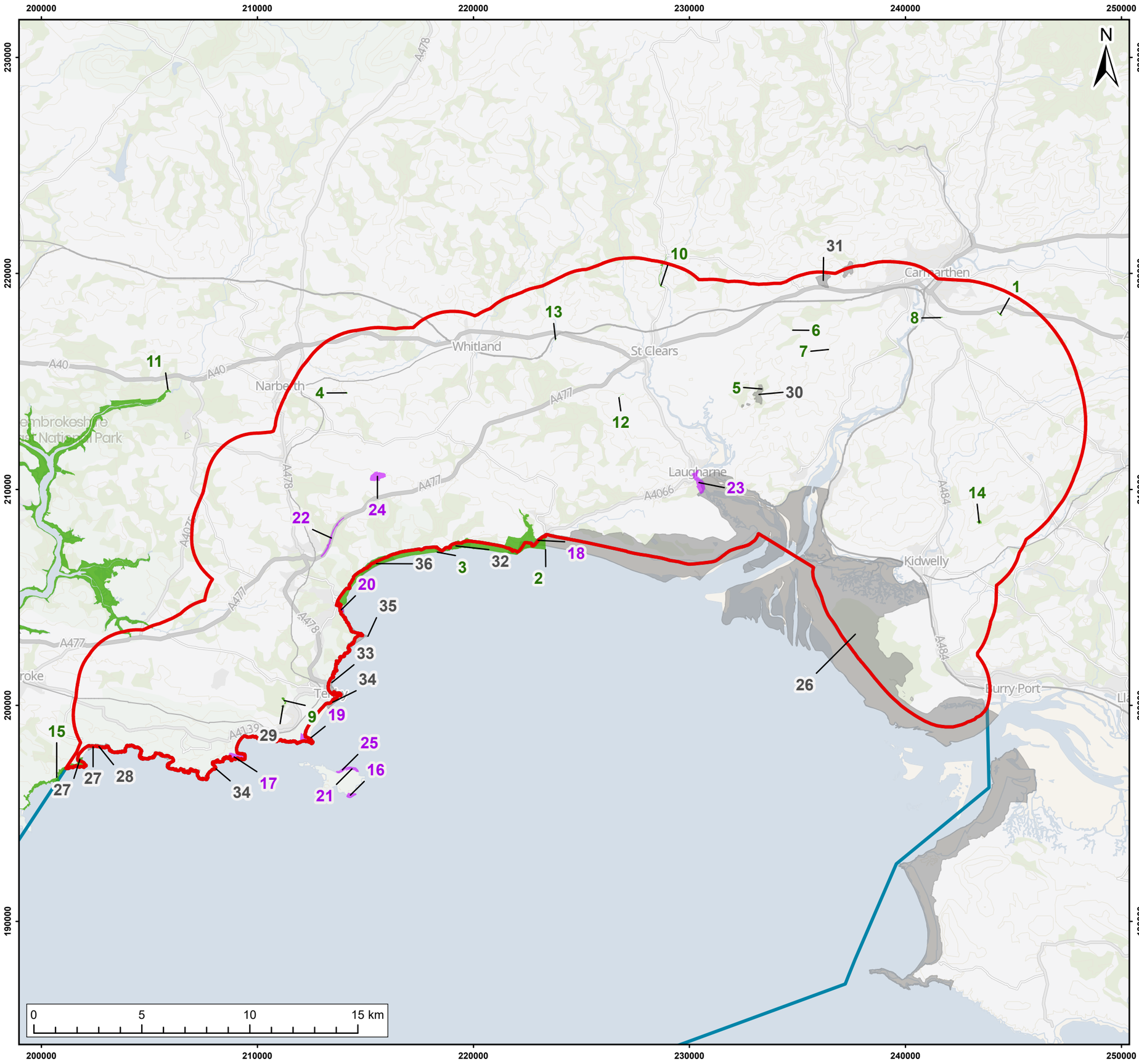
1020. According to NRW data, the Geology and Land Quality Study Area is not located within a Nitrate Vulnerable Zone.

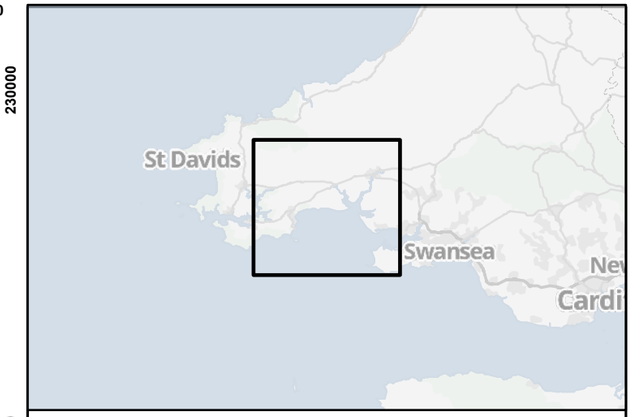
Table 3.2.3 Geologically Designated Sites

DESIGNATION TYPE	NAME	REASON FOR GEOLOGICAL DESIGNATION	NUMBER REFERENCE (SEE FIGURE 3.2.5)
SSSI (geologically designated)	Allt Penycoed Stream section	Important exposure of a sequence of fossil-bearing sandstones and mudstones.	1
	Arfordir Marros-Pentywyn / Marros-Pendine Coast	Namurian sequence from Ragwen to Telpyn, plus karstic features in Carboniferous Limestone.	2
	Arfordir Saundersfoot - Telpyn / Saundersfoot - Telpyn Coast	Most complete section of middle Westphalian A to middle Westphalian B (Carboniferous) strata in the western part of the south Wales Coalfield.	3
	Chwarel Bryn Banc (Bryn Bank Quarry)	Faunas critical for correlating the Aurelucian successions in south Wales.	4
	Coed Cochion Quarry	Late Precambrian medusoid soft-bodied fossils.	5
	Cwm Crymlyn Road section	Only permanent Tremadoc exposure in south Wales.	6
	Dan-Lan-Y-Castell Quarry	Arenig shelly faunas, Lower Ordovician biostratigraphy.	7
	Glan Pibwr Stream section	Type locality for the Pibwr Member. Lower Ordovician mudstones with a key faunal and stratigraphic section.	8

DESIGNATION TYPE	NAME	REASON FOR GEOLOGICAL DESIGNATION	NUMBER REFERENCE (SEE FIGURE 3.2.5)
	Little Hoyle and Hoyle's Mouth Caves and Woodlands	Late Devensian geology.	9
	Meidrim Road section	Type localities of the Mydrim Limestone and Hendre Shales.	10
	Milford Haven Waterway	Exposures of two air-fall tuff horizons within the Sandy Haven Formation of the Lower Old Red Sandstone, Milford Haven Group.	11
	Mylett Road section	Tectonically undisturbed section through the Mydrim Shales in their entire area of outcrop.	12
	Pont y Fenni Quarry and Road Cutting	A key faunal locality for the Arenig Series.	13
	Smarts Quarry	Section in Namurian quartzite with unique fossils in the Basal Grits of south Wales.	14
	Stackpole Quay - Trewent Point	Carboniferous Limestone Cliffs including Stackpole Fault.	15
RIGS	Chapel Point, Caldey	Type section for the Chapel Point Calcretes.	16
	Church Doors - Lydstep Headland	Lower Carboniferous (Dinantian) succession with the Lower Limestone Shales at the base of the sequence continuing through the Main Limestone to the base of the Millstone Grit (Namurian).	17
	Gilman Point	Coastal geomorphology.	18
	Giltar Point	Section through the Lower Carboniferous strata from Arundian to Asbian age.	19
	Glen Beach	Late Carboniferous Westphalian geology.	20
	High Cliff, Caldey	Representative section through Lower Carboniferous strata of Asbian age.	21
	Kilgetty Cuttings	Westphalian stratigraphy.	22

DESIGNATION TYPE	NAME	REASON FOR GEOLOGICAL DESIGNATION	NUMBER REFERENCE (SEE FIGURE 3.2.5)
	Laugharne	Devonian stratigraphy.	23
	Ludchurch Quarries	Carboniferous stratigraphy and Variscan structures.	24
	Priory Bay Sands	Examples of contemporary sedimentary features forming.	25
Geological Conservation Reviewing	Freshwater East	Wenlock geology.	26
	Carmarthen Bay	Coastal geomorphology of Wales.	27
	Freshwater East (North)	Variscan structures of south Wales and the Mendips.	28
	Little Hoyle and Hoyle's Mouth Caves	Quaternary of Wales.	29
	Llangynog Inlier	Precambrian of England and Wales.	30
	Maesyprior	Quaternary of Wales.	31
	Marros	Namurian of England and Wales.	32
	Tenby Beach	Namurian of England and Wales.	33
	Tenby Cliffs	Dinantian of southern England and south Wales. Non-marine Devonian geology.	34
	Tenby to Saundersfoot Coast	Westphalian geology.	35
	Wiseman's Bridge - Amroth Coast	Westphalian geology.	36





Legend:

- Onshore Scoping Boundary
- Offshore Export Cable Corridor Scoping Boundary
- Site of Special Scientific Interest (SSSI)*
- Geological Conservation Review (GCR) Site*
- Regionally Important Geodiversity Sites (RIGS)*

*ID numbers refer to Table 3.2.3 in the Scoping Report for further detail

Project: Gwynt Glas Offshore Wind Farm Scoping Report

Title: Designated Sites (Geology)

Figure: 3.2.5 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0069

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	23/03/2026	MW	RJ	A3	1:175,000

Co-ordinate system: British National Grid

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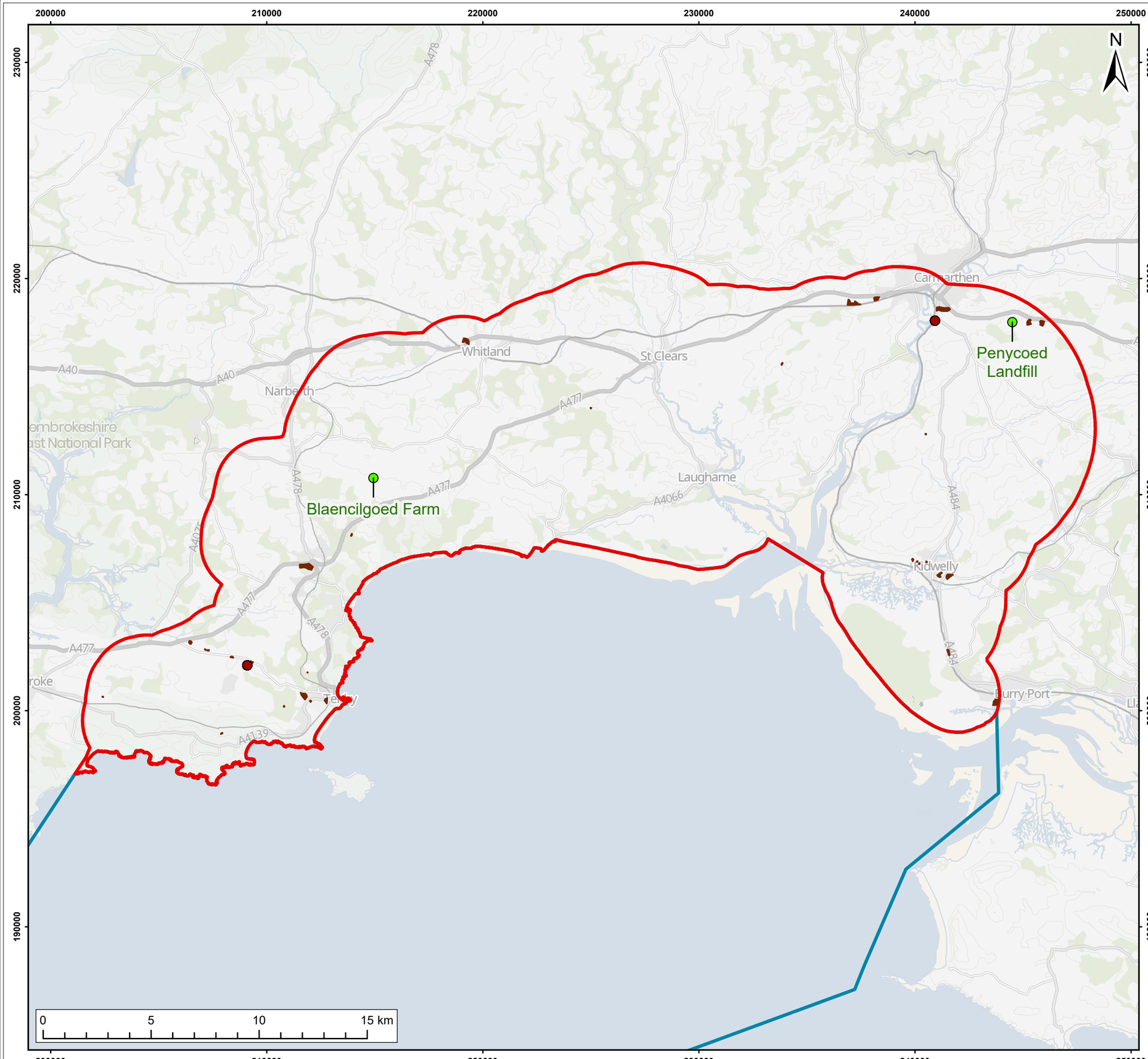
3.2.2.7 Land Quality

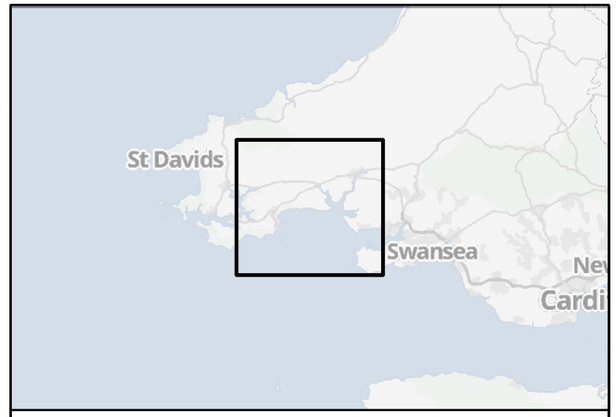
1021. The Geology and Land Quality Study Area is largely agricultural in nature, which represents the potential for both diffuse and point sources of ground contamination to be present in relation to historical and current agricultural activities. Settlements in the Geology and Land Quality Study Area also have the potential to contain historical sources of ground contamination due to past industrial use.

1022. There are 33 records of historical landfill sites in the Geology and Land Quality Study Area (**Figure 3.2.6**). The materials accepted at these sites are not recorded for all locations, however, where they are recorded, inert, industrial, commercial, special and household wastes were accepted. It should be noted that, where accepted waste types are recorded, not each historical landfill site accepted all types of waste as listed below:

- Household waste only – one record;
- Industrial, household, liquid sludge waste only - one record;
- Industrial and household waste only – two records;
- Inert, industrial, household waste only – nine records; and
- Inert, industrial, commercial, household, special waste only – Fifteen records.

1023. There are two recorded authorised inert landfill sites in the Geology and Land Quality Study Area (Blaencilgoed Farm and Penycoed Landfill), which are both permitted to accept non-biodegradable wastes.





Legend:

- Onshore Scoping Boundary
- Offshore Export Cable Corridor Scoping Boundary
- Authorised Landfill Site
- Historical Landfill Site
- Historical Landfill Site Polygons

Project: Gwynt Glas Offshore Wind Farm Scoping Report

Title: Historical and Authorised Landfill Sites

Figure:	Drawing No:				
3.2.6	PC6850-HAS-ZZ-ON-DR-GS-0070				
Revision:	**Date:**	**Drawn:**	**Checked:**	**Size:**	**Scale:**
01	23/03/2026	MW	RJ	A3	1:175,000

Co-ordinate system: British National Grid

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3.2.3 Data Sources

1024. **Table 3.2.4** outlines existing primary data that have been used to inform this section and would also be used to inform the EIA.

Table 3.2.4 Existing Data Sources to Inform the Geology and Land Quality Assessment

DATASET (SOURCE)	SPATIAL COVERAGE	DATA CONTENTS	DATE OF PUBLICATION
NRW	Whole Geology and Land Quality Study Area	Surface water bodies, groundwater vulnerability, SPZ(s), mineral extraction sites, designated sites, historical and authorised landfill sites.	2026
MRA	Whole Geology and Land Quality Study Area	Coal mining	2026
British Geological Society	Whole Geology and Land Quality Study Area	Bedrock and superficial geological maps, aquifer designations, groundwater vulnerability, mine / quarry sites.	Various
CCC Local Development Plan (2020)	Geology and Land Quality Study Area within Carmarthenshire County	Mineral Safeguarding Areas	2014
PCC Local Development Plan	Geology and Land Quality Study Area within Pembrokeshire County (excluding PCNP)	Mineral Safeguarding Areas	2013
PCNP Authority Local Development Plan	Geology and Land Quality Study Area within PCNP	Mineral Safeguarding Areas	2020

1025. In addition to the data in **Table 3.2.4, Table 3.2.5** outlines the additional data that would be obtained and reviewed to support the assessment on a site-specific basis. Any additional datasets would be identified through ongoing consultation with stakeholders.

Table 3.2.5 Site-specific Additional Data

DATASET	DATA CONTENTS
BGS	Borehole records
Envirocheck Report	Historical maps, site sensitivity data, groundwater and surface water abstraction data, trade directory and regulatory information.

DATASET	DATA CONTENTS
Local Authority	Private potable abstractions, contaminated land entries, brownfield register and mineral resource plans.
MoD	Freedom of information request for any MoD land (if required).
MRA	Consultants Coal Mining Report and Mine Abandonment Plans.
UK Health Security Agency Radon Interactive Viewer	Radon gas risk.
Zetica	UXO pre-desk study assessment and unexploded bomb risk maps.

1026. **Table 3.2.6** describes the surveys that will be undertaken to support the assessment. Survey methodologies will be agreed in advance with stakeholders where possible.

Table 3.2.6 Site-specific Survey Data

DATASET	SPATIAL COVERAGE	SURVEY TIMINGS
Walkover Survey(s)	Refined Onshore Development Areas. Targeted areas will be visited to identify current land use and any potential indications of contaminated land.	Prior to DCO submission
Land Agent Visits	Refined Onshore Development Area. Visits to landowners to obtain information regarding private potable abstractions and private abstractions.	Prior to DCO submission
Coal mining risk assessment (CMRA)	A site walkover to identify the potential locations of mine shafts and adits.	Prior to DCO submission

3.2.4 Approach to Impact Assessment

1027. The existing environment with respect to Geology and Land Quality would be described, including, but not limited to, the following:

- Hydrology;
- Geology and mineral resources;
- Mining;
- Hydrogeology, aquifer designations and groundwater resources;
- Historical land use and potential contamination sources; and
- Sensitive land uses (including designated sites).

1028. The baseline for Geology and Land Quality would be established following current guidance which advocates a phased risk-based approach. A Land Quality Desk Study and Preliminary Risk

Assessment (PRA) would be undertaken to develop a Preliminary Conceptual Site Model (PCSM). The PCSM would help identify potential sources of contamination, as well as the risk posed to sensitive receptors. Sensitive receptors include both those that currently exist or could be introduced by the Development, e.g. construction workers.

1029. The PRA would include the Landfall, Onshore Export Cable Corridor and Onshore Transmission Station(s), which collectively would refer to the Onshore Development Area in the EIA. A 250m buffer zone would also be included to assess potential sources of contamination, discharge consents, pollution incidents, landfills, historical maps and contemporary trade entries. In addition to the 250m buffer zone, a 1km buffer zone would also be included within the PRA within which public potable groundwater abstraction points would be assessed.

1030. The desk-based PRA forms the initial step in the assessment of ground conditions. The PRA would provide valuable information for the design of intrusive investigation works that may be required in the event of potentially unacceptable risks associated with the ground conditions being identified. The PRA would be progressed based on data obtained from the data sources listed in **Table 3.2.4**, **Table 3.2.5** and **Table 3.2.6**.

1031. In tandem with the production of the desk-based PRA, a Preliminary CMRA would be completed to identify the coal mining features present and the risks that they pose to the Geology and Land Quality Study Area. The Preliminary CMRA would set out what intrusive works would be required to refine the risk. Further stages of the CMRA would be undertaken as the cable route develops.

1032. It is also expected that a separate Mining Report would also be completed, in relation to mineral mining which has been identified in the Geology and Land Quality Study Area, following a similar process to that of the Preliminary CMRA. The Assessments would form an appendix to the Geology and Land Quality EIA section.

1033. Following refinements of the Geology and Land Quality Study Area, further liaison with relevant stakeholders would be undertaken to agree the approach and methodology to data collection for EIA purposes and the specific assessment methodology. A detailed method statement would be developed and agreed with stakeholders through the EPP process (see **Section 1.7 Consultation**).

1034. The methodology for the assessment of the effects on Geology and Land Quality would be informed by the following current guidance:

- BS ‘Code of Practice for Ground Investigations’, BS 5930:2020 (British Standards Institute (BSI), 2020;
- BS ‘Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings’ BS8485:2015 +A1:2019 (BSI, 2019);
- BS ‘Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds’, BS 8576:2013 (BSI, 2013);
- BS ‘Investigation of Potentially Contaminated Sites – Code of Practice’, BS EN 10175:2026 (BSI, 2026);
- CCC ‘Contaminated Land Inspection Strategy’ (2025b);
- CIRIA ‘Assessing Risks Posed by Hazardous Ground Gases to Buildings’, C665 (2007);
- CIRIA ‘Abandoned Mine Workings Manual’, C758D (2019);
- CIRIA ‘Contaminated Land Risk Assessment – A Guide to Good Practice’, C552 (2001).

- CIRIA 'UXO Risk Management Guide for Land-based Projects', C785 (2019).
- Contaminated Land: Applications in Real Environments 'Good Practice for Risk Assessment for Coal Mine Gas Emissions';
- Department of the Environment 'Industry Profiles for previously developed land' (1995);
- Environment Agency 'Approach to Groundwater Protection Position Statements' (Excluding Position Statement J9) (2023);
- Environment Agency 'Land Contamination: Risk Management Framework' (2025);
- National Assembly for Wales 'Part 2A Statutory Guidance on Contaminated Land' (2007);
- NRW 'Development of Land Affected by Contamination: A Guide for Developers' (2023);
- PCC 'Contaminated Land Inspection Strategy' (2016); and
- Welsh Government PPW, Edition 12 (2024).

3.2.5 Receptors

1035. The following receptors may be sensitive to changes in ground conditions and land quality:

- Human health;
- Controlled waters (Groundwater and Surface Waters);
- Ecological habitats;
- Mineral resources;
- Geologically Designated Sites;
- Underground geology (legacy mining issues);
- Built environment; and
- Agricultural land.

3.2.6 Potential Impacts

3.2.6.1 Potential Impacts During the Construction Stage

3.2.6.1.1 Impacts to Human Health

1036. Excavation activities, including trenchless techniques, surface excavation and earthworks during cable laying and site preparation for the onshore substation as well as other onshore infrastructure has the potential to mobilise existing sources of ground contamination. This could result in effects on human and ecological receptors through the generation of potentially contaminated dusts, vapours or ground gas.

1037. Human health receptors may also be directly exposed to contaminants associated with historical mining (for example waste products from industrial processes or infilling of mines and adits with waste), and risk caused through ground collapse, during construction works.

1038. These potential impacts are therefore **scoped in** to the EIA**.**

3.2.6.1.2 Impacts to Groundwater

1039. Direct impacts to the Secondary A, Secondary Undifferentiated and Secondary B Aquifers associated with superficial deposits, SPZs and associated groundwater abstractions (both licensed and private unlicensed) may occur due to the intrusive nature of earthworks, trenching and piling (if required). The significance of the disturbance would be dependent on the depth of the aquifer units in relation to the proposed depth of the intrusive works.

1040. In addition, surface layers would be excavated during construction allowing for increased infiltration of rainwater and surface run-off to the sub-surface. This could potentially mobilise pre-existing sources of contamination and create new pathways to the superficial aquifers. This could indirectly lead to a deterioration in groundwater quality.

1041. Direct impacts to the Principal Aquifers, Secondary A, Secondary B and Secondary Undifferentiated Aquifers of the bedrock geology, SPZs, and associated groundwater abstractions (both licensed and private unlicensed), may occur from deep ground workings associated with trenchless crossings. There is the potential for drilling mud to leak along the drill path, or from the immediate area, which could cause contamination of groundwater and a deterioration in groundwater quality. Trenchless techniques also have the potential to create new preferential pathways allowing existing sources of contamination to migrate into the groundwater aquifers.

1042. Direct impacts to the Principal Aquifers, SPZs and groundwater abstractions (both licensed and private unlicensed) may occur as a result of piling methodology. Piling may be required to provide foundations for the onshore substation. Piling has the potential to create new preferential pathways allowing existing sources of contamination to migrate into the underlying superficial and bedrock aquifers leading to a deterioration in groundwater quality.

1043. Indirect impacts to groundwater quality may result from the accidental release of lubricants, fuels and oils via spillages, leakage or storage. These can enter the ground and subsequently into groundwater impacting the quality of the resource and associated abstractions (if present).

1044. Due to the potential impacts to groundwater outlined above, both direct and indirect impacts are **scoped in** to the EIA**.**

3.2.6.1.3 Impacts to Surface Waters and Ecological Habitats

1045. The Development would require substantial earthworks, as well as the potential for piling for the foundations of the onshore substation. These activities have the potential to disturb pre-existing contamination or introduce new sources of contamination as a result of, for example, spillages or leaks of fuels and chemicals.

1046. Direct and indirect impacts to surface water receptors and associated ecological habitats from pre-existing or new sources of contamination may occur as the result of the creation of new or modification of existing pathways to surface water receptors via groundwater, installation of temporary drainage or surface water run off during construction. This may also result in a reduction in WFD status. These potential effects are therefore **scoped in** to the EIA**.**

3.2.6.1.4 Impacts on Geologically Designated Sites

1047. Direct impacts to geologically designated sites (SSSI, GCR and RIGS) could occur through construction activities such as excavation works during cable laying and site preparation. These

would be avoided where possible through considerate onshore cable routeing during the site selection process. These potential effects are therefore **scoped in** to the EIA**.**

3.2.6.1.5 Impacts to Mineral Resources

1048. Construction activities could result in direct impacts to Mineral Safeguarding Areas in the Onshore Study Area through the prevention of future extraction of identified resources. These potential effects are therefore **scoped in** to the EIA**.**

3.2.6.1.6 Impacts due to Historical Mining

1049. The intrusive nature of earthworks, trenching and piling (if required) associated with construction works could interact with areas of historical mining (coal and non-coal). This could create stability issues at and below the surface, which may impact on existing land, buildings and infrastructure. In addition, there is the potential for the creation and modification of preferential pathways which could result in indirect impacts to groundwater and surface water receptors. These impacts are considered in **Section 3.3 Flood Risk and Hydrology**. These potential effects are therefore **scoped in** to the EIA**.**

1050. The construction works could create or modify existing preferential pathways allowing mine gas to migrate to the surface and accumulate in confined spaces. This could result in impacts to human health through inhalation of gases / asphyxiation / explosion as covered in **Section 4.1 Population and Human Health**. These potential effects would be assessed as part of the EIA and are therefore **scoped in** to the EIA**.**

3.2.6.1.7 Impacts to the Built Environment

1051. Activities undertaken during the construction stage of the Development have the potential to impact on the existing built environment. The modification, or creation of new preferential pathways has the potential to allow contamination from ground gases or vapours to migrate and degrade utilities and concrete. Mining gas migration also has the potential to damage existing infrastructure and buildings through explosion. These potential effects would be assessed as part of the EIA and are therefore **scoped in** to the EIA**.**

3.2.6.1.8 Impacts to Agricultural Land

1052. Construction activities have the potential to both mobilise pre-existing sources and introduce new sources of contamination. Construction activities also have the potential to modify or create new preferential pathways which may result in the contamination of agricultural land and therefore have an adverse impact on current Agricultural Land Classification (ALC) grades. Impacts to agricultural land are therefore **scoped in** to the EIA**.**

3.2.6.2 Potential Impacts During the O&M Stage

3.2.6.2.1 Impacts to Human Health

1053. Additional significant impacts during the operation of the Development are considered unlikely. Workers conducting routine O&M activities would be provided with information regarding ground conditions so that site and task-specific risk assessments and method statements can be developed and residual risks mitigated against, therefore minimising any potential impacts.

However, at this stage, these potential effects would be assessed as part of the EIA and are therefore **scoped in** to the EIA**.**

3.2.6.2.2 Impacts to Groundwater, Surface Waters and Ecological Habitats

1054. Indirect impacts to groundwater, surface waters and ecological receptors at the Onshore Transmission Station(s) may occur due to leakages from stored materials or spillages of materials during the operational stage. These potential effects are therefore **scoped in** for the Onshore Transmission Station(s).

1055. Potential effects along the Onshore Export Cable Corridor and at the Landfall have been **scoped out,** as they do not involve the storage of materials or use of materials that could cause spillages during the operational phase.

3.2.6.2.3 Impacts on Geologically Designated Sites

1056. Direct impacts to geologically designated sites (SSSI, GCR and RIGS) through maintenance activities could occur, such as excavations that may be required to access the Onshore Export Cable route. They are unlikely to occur related to operational activities, such as inspections of above ground infrastructure. Potential effects during maintenance are therefore **scoped in** to the EIA.

3.2.6.2.4 Impacts to Mineral Resources

1057. Installed buried cables, the permanent footprint of the landfall, due to the TJB, and the presence of the Onshore Transmission Station(s)) would prevent future extraction of mineral resources in these areas during their lifetime. These potential effects are therefore **scoped in** to the EIA**.**

3.2.6.2.5 Impacts due to Historical Mining

1058. Impacts during the operational stage are considered unlikely because any required remedial measures would have been carried out during the construction stage. These potential effects have therefore been **scoped out** of the EIA**.**

3.2.6.2.6 Impacts to the Built Environment

1059. Impacts during the O&M stage are considered unlikely to cause an impact on the surrounding built environment because required remedial works would have been carried out during the construction stage. These potential effects have therefore been **scoped out** of the EIA.

3.2.6.2.7 Impacts to Agricultural Land

1060. Maintenance activities during the operational stage of the Development have the potential to introduce new sources of contamination through leakage or spills of fuels, oils or other chemicals. Should unscheduled excavation works be required, there is also the potential to mobilise pre-existing sources of contamination which could have an adverse effect on agricultural land. Impacts to agricultural land because of contamination are therefore **scoped in** to the EIA**.**

3.2.6.3 Potential Impacts During the Decommissioning Stage

1061. Impacts during decommissioning are expected to be similar in nature to those anticipated during construction, but of a smaller magnitude.

1062. The same potential impacts noted for construction are therefore expected to be **scoped in** (and **out**) for decommissioning. With the exception of impacts from historic mining, as any required remedial measures would have been carried out during the construction stage.

3.2.6.4 Potential Inter-relationship Impacts

1063. The EIA would consider the inter-relationship of impacts on individual receptors in accordance with the methodology outlined in **Section 1.8 EIA Methodology**. The objective would be to identify where the accumulation of residual impacts on a single receptor and the relationship between those impacts, gives rise to a need for additional mitigation. Inter-relationship impacts on Geology and Land Quality assets are **scoped in** to the EIA.

3.2.6.5 Potential Cumulative Impacts

1064. Cumulative impacts on Geology and Land Quality resulting from the effects of the Development and other developments would be assessed in accordance with the guidance and methodologies set out in **Section 1.8 EIA Methodology**. The assessment would be dependent on the availability and accessibility of information for other developments. It is therefore proposed that cumulative impacts are **scoped in** to the EIA

3.2.6.6 Summary of Potential Impacts

1065. **Table 3.2.7** outlines the impacts which are proposed to be **scoped in** to and / or **out** of the EIA. This may be refined as additional information and data become available.

Table 3.2.7 Summary of Impacts Proposed to be Scoped In (✓) and Out (x) of the Geology and Land Quality Assessment

POTENTIAL IMPACT	CONSTRUCTION	O&M	DECOMMISSIONING
Impacts to human health both on and off site from contamination sources	✓	✓	✓
Direct impacts on groundwater quality and groundwater resources from contamination sources and construction methods	✓	✓ (Onshore Transmission Station(s))	✓
Impacts on surface water quality and the ecological habitats they support, from contamination	✓	✓ (Onshore Transmission Station(s))	✓

POTENTIAL IMPACT	CONSTRUCTION	O&M	DECOMMISSIONING
Physical impacts on geologically designated sites	✓	× For operation and ✓ for maintenance	✓
Loss, damage or sterilisation of mineral resources	✓	✓	✓
Impacts to human health, controlled waters, land stability, buildings and infrastructure from historical mining	✓	×	✓
Impacts to the built environment	✓	×	✓
Impacts to agricultural land	✓	✓	✓
Inter-relationship Impacts	✓	✓	✓
Cumulative Impacts	✓	✓	✓

3.2.7 Potential Mitigation Measures

1066. Mitigation measures, if required, would evolve as the EIA progresses and in response to consultation with the relevant stakeholders and would be fed iteratively into the design and assessment process. All of the proposed mitigation measures would comply with regulatory requirements and good practice.

1067. A number of embedded mitigation measures relevant to the Geology and Land Quality assessment, which are proposed to be incorporated into the design of the Development or constitutes standard mitigation measures for this topic, would follow the mitigation hierarchy outlined in **Section 1.8 EIA Methodology.**

1068. These measures typically include those that have been identified as good or standard practice and include actions that should be undertaken to meet existing legislation requirements. Embedded mitigation measures relating to Geology and Land Quality impacts are detailed in **Table 1.8.2** (**Section 1.8 EIA Methodology**).

1069. Requirements for any additional mitigation measures would be determined through the EIA.

3.3 Flood Risk and Hydrology

1070. This section of the Scoping Report considers the scope of potential impacts of the construction, O&M, and decommissioning stages of the Development on flood risk and hydrology.

1071. This section provides an overview of the baseline environment and sets out the proposed methodology and approach to assessing effects on flood risk and hydrology receptors in the Development's ES.

1072. The Flood Risk and Hydrology assessment is likely to have key inter-relationships with the following topics, which would be considered appropriately where relevant in the EIA:

- **Section 1.5 Project Description**;
- **Section 3.1 Terrestrial Ecology and Onshore Ornithology**;
- **Section 3.2 Geology and Land Quality**; and
- **Section 4.4 CCR**.

The following questions are posed to consultees to help them frame and focus their response to the Flood Risk and Hydrology scoping exercise which would in turn inform the Scoping Opinion:

- Do you agree with the proposed Flood Risk and Hydrology Study Area and that it is sufficient to capture the relevant impacts?
- Do you agree with the characterisation of the baseline environment?
- Have all the relevant data sources been identified in the Scoping Report?
- Have all the potential impacts on the Flood Risk and Hydrology resulting from the Development been identified in the Scoping Report?
- Do you agree with the impacts that have been scoped in (or scoped out) of further assessment?
- Do you agree with the proposed approach to assessment?

3.3.1 Study Area

1073. For the purposes of scoping, the Flood Risk and Hydrology Study Area consists of the Onshore Scoping Boundary as shown on **Figure 1.1.1**. It is assumed that impacts to flood and hydrology would occur wholly within the Onshore Scoping Boundary, which extends landward of MHWS.

1074. This includes all surface hydrological catchments (as defined in the Western Wales River Basin Management Plan (RBMP)) (NRW, 2022) that may contain components of the Development or are hydrologically connected to these catchments (i.e. directly downstream), and includes all large-scale hydrogeological units (as defined in the Western Wales RBMP) (NRW, 2022) that underlie the Development or are hydrologically connected to the Development.

1075. The Flood Risk and Hydrology Study Area within the EIA would be refined to the Onshore Development Area once the locations of the Onshore Transmission Station(s), Onshore Export Cable Corridor and Landfall are selected. The study area for Flood Risk and Hydrology is hereafter referred to as the Flood Risk and Hydrology Study Area.

3.3.2 Baseline Environment

3.3.2.1 Surface Water

1076. The majority of the Flood Risk and Hydrology Study Area is located within the catchment of three rivers; Tywi, Taf and Gwendraeth. These rivers meet and discharge into Carmarthen Bay forming the Taf, Tywi and Gwendraeth Estuaries. The Tywi flows generally in a south-westerly direction towards Carmarthen where it flows south into the Bay. The Taf generally flows in a southern direction towards Llanfallteg after which it turns southeast towards Carmarthen Bay. The Gwendraeth has two branches both of which generally flow in a south-westerly direction towards their confluence at the Carmarthen Bay. At Carmarthen Bay coast, some watercourses drain directly into the sea.

1077. The Flood Risk and Hydrology Study Area comprises a number of surface water catchments, which are analogous to the river water body catchments identified by NRW (NRW, 2022) (**Table 3.3.1**). These surface water catchments are listed in **Table 3.3.1**. Further details relating to water quality of these water bodies are provided in **Table 3.3.3.**

Table 3.3.1 Waterbody Catchments within the Flood Risk and Hydrology Study Area as shown on Figure 3.3.1

WATERBODY NAME	REACH	WATERBODY ID
Gwendraeth Fawr	Afan Goch to tidal limit	GB110060029062
Gwendraeth Fawr	Headwaters to Afan Goch	GB110060029061
Gwendraeth Fach	Headwaters to tidal limit	GB110060029400
Nant Pibwr	Headwaters to tidal limit	GB110060029260
Tywi	Confluence with Cothi to spring tidal limit	GB110060029290
Fernhill Brook	Headwaters to tidal limit	GB110060029250
Tawelon	Headwaters to tidal limit	GB110060029320
Mwche Stream	Headwaters to tidal limit	GB110060029230
Nant Coedcae	Headwaters to confluence with Cywyn	GB110060029120
Cywyn	Confluence with Nant Coedcae to tidal limit	GB110060029410
Cywyn	Confluence with Cynnen to confluence with Nant Coedcae	GB110060029110

WATERBODY NAME	REACH	WATERBODY ID
Dewi Fawr	Headwaters to confluence with Cynin	GB110060036150
Cynin	Headwaters to tidal limit	GB110060036170
Fenni	Headwaters to confluence with Taf	GB110060029330
Taf	Gronw to estuary	GB110060036284
Llanddowror Brook	Headwaters to confluence with Taf	GB110060029200
New Inn Stream	Headwaters to tidal limit	GB110061030780
Taf	Felin Cwrt to Gronw	GB110060036283
Gronw	Headwaters to confluence with Taf	GB110060029360
Marlais	Headwaters to confluence with Taf	GB110060029240
Longford Brook	High water to confluence with Eastern Cleddau	GB110061030680
Narbeth Brook	Headwaters to confluence with Eastern Cleddau	GB110061030660
Ford's Lake	High water to tidal limit, Wiseman's Bridge	GB110061030770
Cresswell River	Headwaters to tidal limit	GB110061030981
Carew	High water to confluence with Carew Tidal Mill Pond	GB110061031210
Ritec	Headwaters to tidal limit	GB110061025150
Pembroke	Headwaters to tidal limit	GB110061025050

1078. Adjacent to Carmarthen Bay coast, there is an area of onshore coastal catchment drained by rivers. Onshore coastal catchments are areas which drain directly to coastal or estuarine waters, rather than through a defined river water body catchment.

1079. The Flood Risk and Hydrology Study Area overlaps several designated sites which are likely to have varying degrees of surface and / or groundwater connectivity. These are shown in **Table 3.3.2**.

Table 3.3.2 Designated Sites within the Flood Risk and Hydrology Study Area with Surface and / or Groundwater Connectivity

SITE NAME	DESIGNATION	REASON FOR DESIGNATION RELEVANT TO HYDROLOGY
Stackpole Quay - Trewent Point	SSSI	Important bird area
Freshwater East Cliffs to Skrinkle Haven	SSSI	Important for specialised intertidal rock communities, large concentration of breeding seabirds, maritime cliff communities and rare plants
Lydstep Head to Tenby Burrows	SSSI	Caves and overhangs, assemblage of nationally scarce vascular plants, maritime cliff and associated ledges and crevices
Tenby Cliffs and St. Catherine's Island includes Tenby Cliffs GCR Site	SSSI	Nationally important for geology
Waterwynch Bay to Saundersfoot Harbour	SSSI	Important for its geological significance
Arfordir Saundersfoot - Telpyn / Saundersfoot - Telpyn Coast	SSSI	Important for its intertidal communities and geological exposures
Twyni Lacharn - Pentywyn / Laugharne - Pendine Burrows	SSSI	Distinct for its sand dune ecology and European golden plover
Aber Taf / Taf Estuary	SSSI	Important for its saltmarsh vegetation, which is associated with extensive areas of intertidal mud, sand and the river channel. The site is also of special interest for various species of fish, including allis shad (*Alosa alosa)* and twaite shad (*A. fallax*)
Craig Ddu - Wharley Point Cliffs	SSSI	Designated for its botanical and ornithological features
Whitehill Down	SSSI	Important for its ancient meadowland and marshy grassland with high floral density that supports a richness of invertebrates, amphibians, mammals and birds
Afon Tywi	SSSI	River Tywi is an actively eroding river meandering across a wide floodplain which is composed of alluvium, glacial sands and gravels. This has resulted in extensive shingle banks being formed; these are important for birds and invertebrates. The river is also of special interest for its fish species, otters and saltmarsh vegetation
Arfordir Pen-bre / Pembrey Coast	SSSI	Important for its intertidal, saltmarsh and sand dune habitats including vegetational transitions, wet woodland and neutral grassland

SITE NAME	DESIGNATION	REASON FOR DESIGNATION RELEVANT TO HYDROLOGY
Gwernydd Penbre	SSSI	Known for its reedbeds, marshy grassland, willow carr, Cetti's warbler and invertebrate community
Coedydd Capel Dyddgen	SSSI	Important for bats
Mynydd Llangyndeyrn	SSSI	Important for marshy grassland, wet and dry heath, as well as other habitats including acid grassland, semi-natural broadleaved woodland, bracken and scrub
Cwm Clydach, Cydweli	SSSI	Significant for its stands of broadleaved woodland dominated by beech, intergrading with more open habitats, which together support a number of rare and scarce vascular plants including whitebeams Sorbus spp. and soft-leaved sedge *Carex montana*. The site also includes two localities of national geological importance
Smarts Quarry	SSSI	An important geological site noted for a sequence of quartz-rich sandstones (quartzites) that are of Namurian (Upper Carboniferous) age and were deposited approximately 320 million years ago
Beacon Bog	SSSI	Wet bog with active growth of bog mosses *Sphagnum spp*
Cors Goch, Llanllwch	SSSI	Part of a lowland raised mire and one of the last six large, raised bogs in Wales
Maesyprior	SSSI	Significant for geological purposes. The site provides a system of well-developed glacial meltwater channels and important evidence concerning the nature of late Pleistocene geomorphological processes in central south Wales
Meidrim Road section	SSSI	Noted for geological purposes. The site shows stratigraphically important sections through rocks of graptolitic facies of Llanvirn-Caradoc age

1080. Further information regarding each of these designated sites is provided in **Section 3.1 Terrestrial Ecology and Onshore Ornithology**.

3.3.2.1.1 Surface Water Quality

1081. A summary of the WFD water quality data for river waterbodies within the Flood Risk and Hydrology Study Area is shown in **Table 3.3.3.** Of the 27 river waterbodies crossed by the Flood Risk and Hydrology Study Area, 11 have 'Good' Overall and Ecological classifications, 14 have 'Moderate' Overall and Ecological classifications while two are classed as 'Poor' for Overall and Ecological classifications, respectively. All waterbodies have 'High' Chemical status classification.

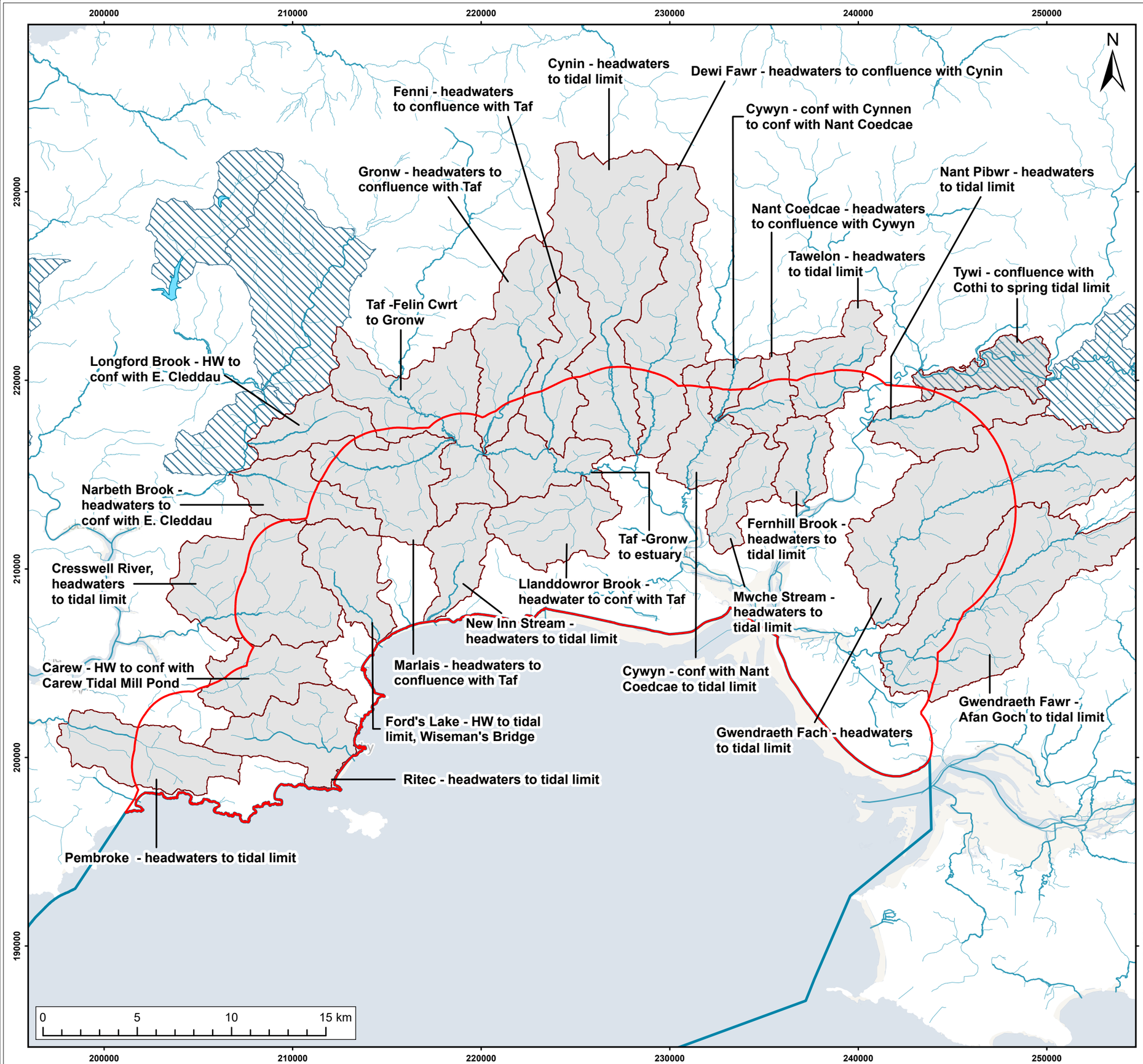
1082. The driving elements responsible for these classifications include Hydrological Regime, Morphology, Fish, Phosphate, Invertebrates, Dissolved Oxygen and Ammonia (NH_3).

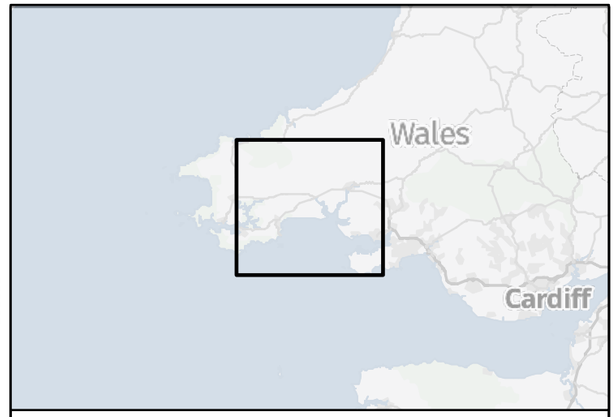
Table 3.3.3 Water Quality Summary Data for River waterbodies in the Flood Risk and Hydrology Study Area

WFD WATER BODY	OVERALL	ECOLOGICAL	CHEMICAL	DRIVING ELEMENT
Gwendraeth Fawr - Afan Goch to tidal limit (GB110060029062)	Good	Good	High	Hydrological Regime; Morphology; Phosphate
Gwendraeth Fawr - headwaters Afan Goch (GB110060029061)	Good	Good	High	Morphology
Gwendraeth Fach - headwaters to tidal limit (GB110060029400)	Good	Good	High	Fish; Phosphate
Nant Pibwr - headwaters to tidal limit (GB110060029260)	Poor	Poor	High	Fish
Tywi - confluence with Cothi to spring tidal limit (GB110060029290)	Good	Good	High	Hydrological Regime; Temperature
Fernhill Brook - headwaters to tidal limit (GB110060029250)	Poor	Poor	High	Fish
Tawelon - headwaters to tidal limit (GB110060029320)	Moderate	Moderate	High	Invertebrates
Mwche Stream - headwaters to tidal limit (GB110060029230)	Moderate	Moderate	High	Phosphate
Nant Coedcae - headwaters to confluence with Cywyn (GB110060029120)	Moderate	Moderate	High	NH_3
Cywyn - conf with Nant Coedcae to tidal limit (GB110060029410)	Good	Good	High	Invertebrates; NH_3; Phosphate
Cywyn - conf with Cynnen to conf with Nant Coedcae (GB110060029110)	Moderate	Moderate	High	Fish

WFD WATER BODY	OVERALL	ECOLOGICAL	CHEMICAL	DRIVING ELEMENT
Dewi Fawr - headwaters to confluence with Cynin (GB110060036150)	Good	Good	High	Invertebrates; Phosphate
Cynin - headwaters to tidal limit (GB110060036170)	Moderate	Moderate	High	Macrophytes and Phytobenthos
Fenni - headwaters to confluence with Taf (GB110060029330)	Moderate	Moderate	High	NH_3; Dissolved Oxygen
Taf -Gronw to estuary (GB110060036284)	Good	Good	High	Fish; Macrophytes and Phytobenthos; Phosphate
Llanddowror Brook - headwater to conf with Taf (GB110060029200)	Good	Good	High	Morphology; Phosphate
New Inn Stream - headwaters to tidal limit (GB110061030780)	Moderate	Moderate	High	Macrophytes and Phytobenthos; Phosphate
Taf -Felin Cwrt to Gronw (GB110060036283)	Good	Good	High	Phosphate
Gronw - headwaters to confluence with Taf (GB110060029360)	Good	Good	High	Fish; Macrophytes and Phytobenthos; Morphology; Phosphate
Marlais - headwaters to confluence with Taf (GB110060029240)	Moderate	Moderate	High	NH_3
Longford Brook - HW to conf with E. Cleddau (GB110061030680)	Moderate	Moderate	High	Macrophytes and Phytobenthos
Narbeth Brook - headwaters to conf with E. Cleddau (GB110061030660)	Moderate	Moderate	High	Fish

WFD WATER BODY	OVERALL	ECOLOGICAL	CHEMICAL	DRIVING ELEMENT
Ford's Lake - HW to tidal limit, Wiseman's Bridge (GB110061030770)	Moderate	Moderate	High	Phosphate
Cresswell River, headwaters to tidal limit (GB110061030981)	Moderate	Moderate	High	Phosphate
Carew - HW to conf with Carew Tidal Mill Pond (GB110061031210)	Good	Good	High	Macrophytes and Phytobenthos; Morphology
Ritec - headwaters to tidal limit (GB110061025150)	Moderate	Moderate	High	Invertebrates; Macrophytes and Phytobenthos; Dissolved Oxygen
Pembroke - headwaters to tidal limit (GB110061025050)	Moderate	Moderate	High	Mitigation Measures Assessment





Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- WFD River Catchment
- Main River
- Watercourse

Surface Drinking Water Protected Areas

- Lakes
- River Catchments

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Surface Water Features

Figure:	3.3.1	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0034		
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	06/03/2026	MW	IO	A3	1:200,000

Co-ordinate system: British National Grid

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3.3.2.2 Groundwater Features

1083. The Flood Risk and Hydrology Study Area crosses the following bedrock formations:

- Bishopston Mudstone Formation - Mudstone, siltstone and sandstone;
- Milford Haven Group - Argillaceous rocks and sandstone, interbedded;
- Black Rock Subgroup and Gully Oolite Formation – Limestone;
- Twrch Sandstone Formation - Sandstone and conglomerate, interbedded;
- South Wales Lower Coal Measures Formation - Mudstone, siltstone and sandstone;
- South Wales Middle Coal Measures Formation - Mudstone, siltstone and sandstone;
- Didymograptus Bifidus Beds – Mudstone;
- Peltura Punctata Beds - Mudstone and sandstone; and
- Rhondda Member - Sandstone.

1084. Typology of bedrock aquifer units crossed by the Flood Risk and Hydrology Study Area range from principal to secondary (A and B). Principal aquifers provide significant quantities of drinking water, and water for business needs. Secondary 'A' aquifers comprise permeable layers that can support local water supplies and may form an important source of baseflow to rivers. Secondary 'B' aquifers are lower permeability layers which may yield limited amounts of groundwater due to localised features such as fissures, permeable horizons and weathering.

1085. Surface geology of the Flood Risk and Hydrology Study Area consists of Brown Sand, Beach and Tidal Flat Deposits, Alluvium, Till and Glaciofluvial Deposits. Typology of surface geology aquifer units crossed by the Flood Risk and Hydrology Study Area range from unproductive to secondary (A and B).

1086. All groundwater bodies crossed by the Flood Risk and Hydrology Study Area are drinking water protected areas (DrWPA). There are groundwater SPZs within the Flood Risk and Hydrology Study Area as shown on **Figure 3.3.2**. SPZs are defined around large and public potable groundwater abstraction sites. The purpose of SPZs is to provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction (NRW, 2026c).

1087. There are three classes of SPZs. SPZ 1 has a 50-day travel time of pollutant to the abstraction source with a 50m default minimum radius. SPZ 2 is defined as having a 400-day travel time of pollutant to source of abstraction. This has a 250m or 500m minimum radius around the source depending on the amount of water taken. SPZ 3 (Total catchment) is defined as the total area needed to support the abstraction or discharge from the protected groundwater source.

1088. Some areas of the Flood Risk and Hydrology Study Area are located within SPZ 1. SPZ1 is the most sensitive zone to pollutants.

3.3.2.2.1 Groundwater Quality

1089. The Flood Risk and Hydrology Study Area crosses five groundwater bodies listed below and shown on **Figure 3.3.2**. Further details relating to water quality of these groundwater bodies are provided in **Table 3.3.4.**

1090. Pembrokeshire Carboniferous Limestone (GB41002G206000;

- Cleddau and Pembrokeshire (GB41002G200400);
- Tywi, Taf and Gwendraeths (GB41002G200500);
- Carmarthen Northern Carboniferous Limestone (GB41001G200700); and
- Carmarthen Carboniferous Coal Measures (GB41002G200600).

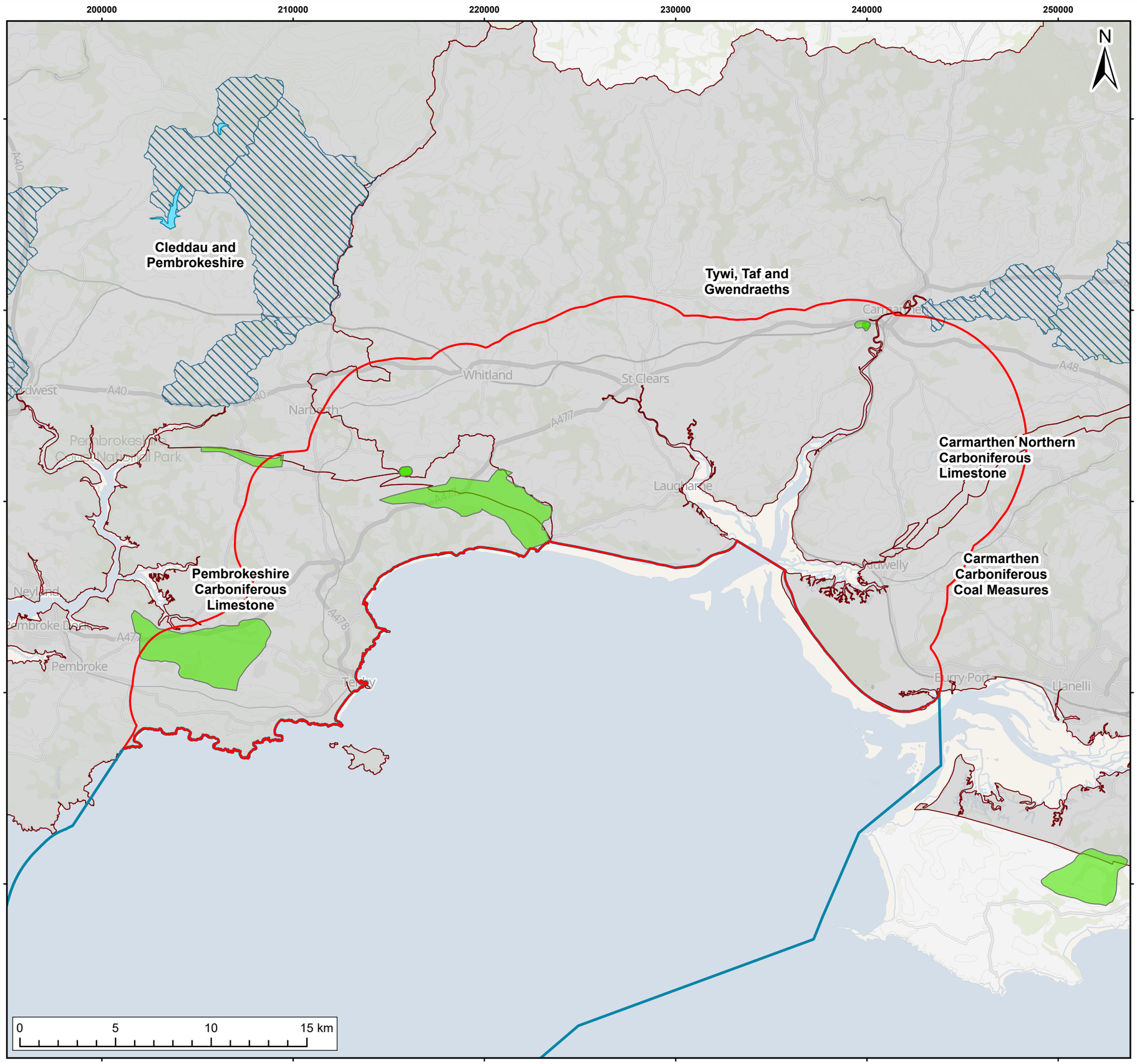
1091. Of the five WFD groundwater bodies crossed by the Flood Risk and Hydrology Study Area, three have 'Poor' Overall classification. The driving elements for failing 'Good' status for these waterbodies are Chemical sub-elements including Groundwater Dependent Terrestrial Ecosystems test (GWDTE_chem); Chemical DrWPA and Chemical Dependent Surface Water Body Status (GWSW_chem).

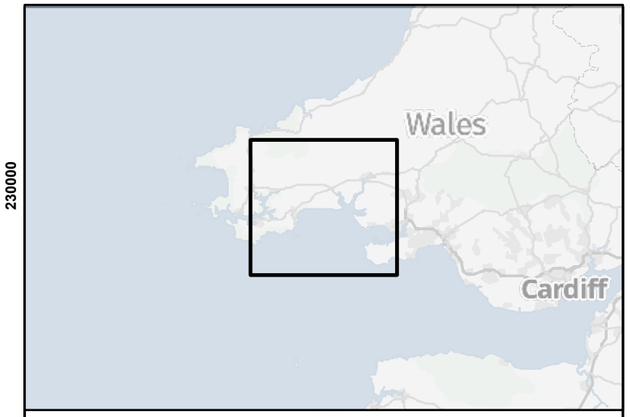
1092. All groundwater bodies have 'Good' quantitative status classification while three have 'Poor' chemical status classification.

Table 3.3.4 Water Quality Summary Data for Groundwater Bodies in the Flood Risk and Hydrology Study Area as shown on Figure 3.3.2

WFD GROUNDWATER BODY	OVERALL	GROUNDWATER QUANTITATIVE	GROUNDWATER CHEMICAL	DRIVING ELEMENT
Pembrokeshire Carboniferous Limestone (GB41002G206000)	Good	Good	Good	• DrWPA; General Chemical Test (GCT); • GWDTE_chem; • GWSW_chem; • Chemical Saline Intrusion (SI_chem); • Quantitative Groundwater Dependent Terrestrial Ecosystems test (GWDTE_abs); • Quantitative Dependent Surface Water Body Status (GWSW_abs); • Quantitative Saline Intrusion (SI_abs); • Quantitative Water Balance (WB_abs)
Cleddau and Pembrokeshire (GB41002G200400)	Poor	Good	Poor	GWDTE_chem

WFD GROUNDWATER BODY	OVERALL	GROUNDWATER QUANTITATIVE	GROUNDWATER CHEMICAL	DRIVING ELEMENT
Tywi, Taf and Gwendraeths (GB41002G200500)	Poor	Good	Poor	GWDTE_chem
Carmarthen Northern Carboniferous Limestone (GB41001G200700)	Good	Good	Good	DrWPA; GCT; GWDTE_chem; GWSW_chem; SI_chem; GWDTE_abs; GWSW_abs; SI_abs; WB_abs
Carmarthen Carboniferous Coal Measures (GB41002G200600)	Poor	Good	Poor	DrWPA; GWSW_chem





Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Groundwater Source Protection Zone
- Groundwater Body

Surface Drinking Water Protected Areas

- Lakes
- River Catchments

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Groundwater Features

Figure:	Drawing No:				
3.3.2	PC6850-HAS-ZZ-ON-DR-GS-0053				
Revision:	**Date:**	**Drawn:**	**Checked:**	**Size:**	**Scale:**
01	17/03/2026	MW	IO	A3	1:200,000

Co-ordinate system: British National Grid

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3.3.2.3 Flood Risk

1093. The Flood Risk and Hydrology Study Area is located adjacent to Carmarthen Bay and includes the River Taf and the River Towy. Defences are present across sections of the bay area, in the form of dunes and cliffs. Located within the estuary and the River Towy are further areas of defences in the form of cliffs and beaches as well as privately maintained defence walls. This frontage and the defences are part of the Shoreline Management Plan 20 which covers an area from Lavernock Point to St Ann's Head. The defences and Shoreline Management Plan combine the natural evolution of estuaries whilst managing coastal erosion and flooding to residential areas.

1094. The NRW Flood Map for Planning (NRW, 2020) for rivers, indicates that large extents of the Flood Risk and Hydrology Study Area are located within Flood Zone 2 (i.e. between 1% and 0.1% Annual Exceedance Probability (AEP)) and Flood Zone 3 (3.3% AEP) (**Figure 3.3.3**).

1095. These areas of flood risk are primarily associated with areas surrounding main rivers and ordinary watercourses, with these hydrological features either discharging to the River Taf, River Towy or straight into Carmarthen Bay. Johnstown, located to the west of the River Towy, and an area to the south of Kidwelly are large areas that are significantly impacted by Flood Zone 2 and Flood Zone 3.

1096. The NRW Flood Map for Planning (NRW, 2020) for the sea, shows that large extents of the Flood Risk and Hydrology Study Area are located within **).** Flood Zone 2 (i.e. between 1% and 0.1% AEP) and Flood Zone 3 (3.3% AEP) (**Figure 3.3.4**.

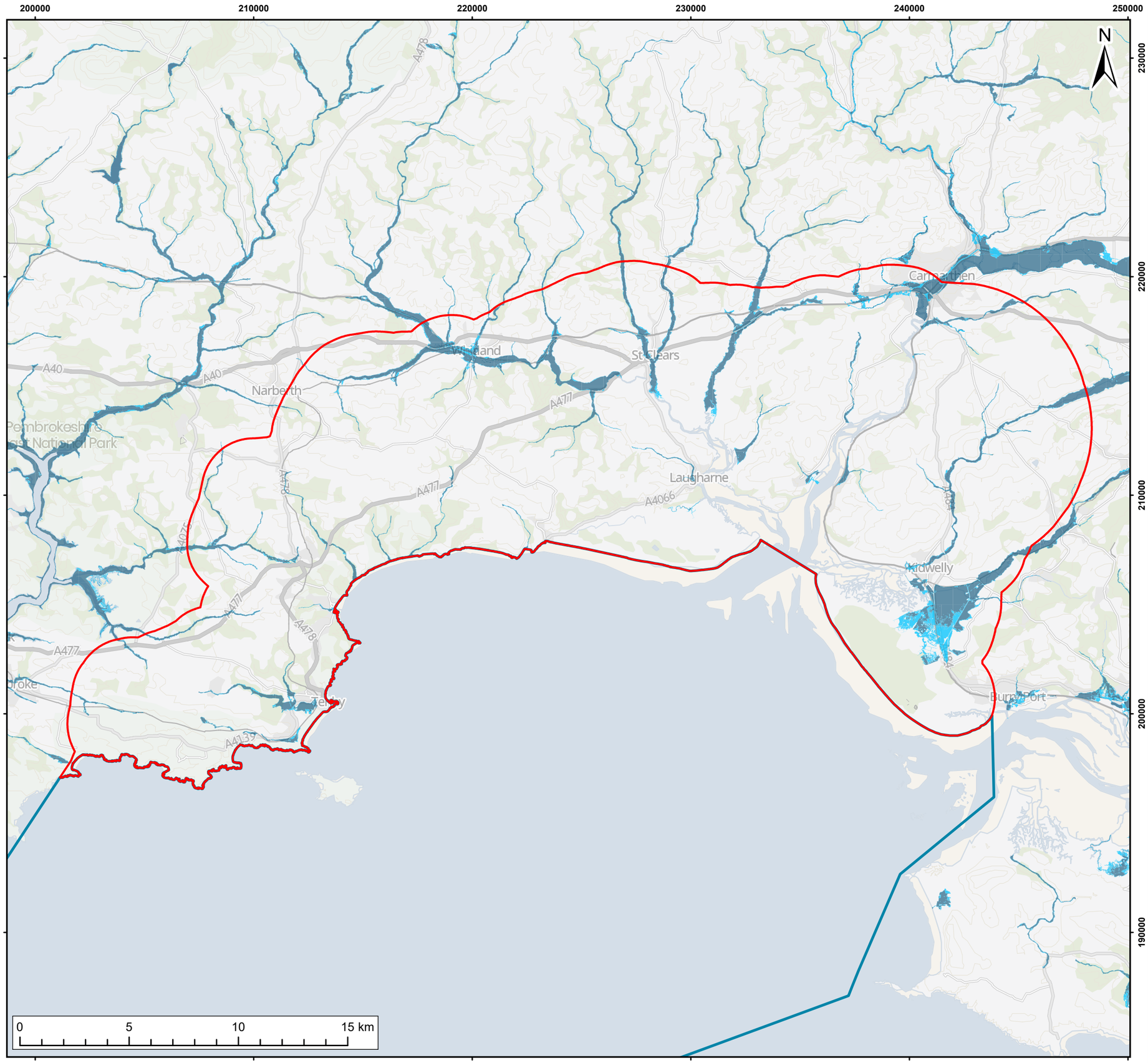
1097. These flood extents are primarily located around the shoreline of Carmarthen Bay, with specific areas such as the estuary of the River Taf and the River Towy significantly affected. The estuaries have a lower elevation, which results in large coverage of Flood Zone 2 and 3, as they are more susceptible to inundation from tidal events. Other areas, including the Pembrey Peninsula is significantly covered by Flood Zone 2 and 3, this is likely due to the combination of low-lying land, estuarine environment and tidal inundation.

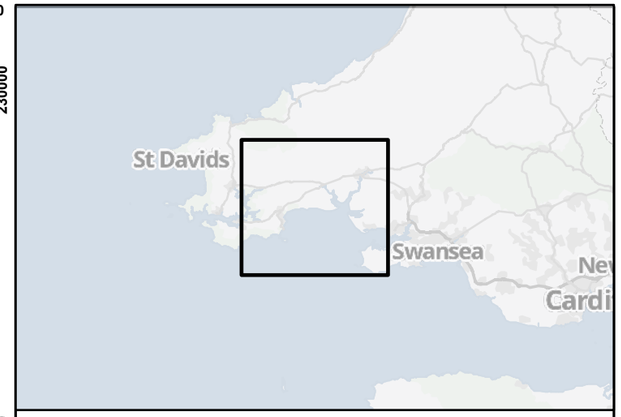
1098. The NRW Flood Map for Planning for surface water and small watercourses, indicates that there are multiple areas of Flood Zone 2 (i.e. between 1% and 0.1% AEP) and Flood Zone 3 (3.3% AEP) related to surface water and small watercourses (**Figure 3.3.5**).

1099. This flood risk present across the Flood Risk and Hydrology Study Area is primarily retained within watercourses and drainage ditches. However, there is localised pooling across the Flood Risk and Hydrology Study Area associated with topographical low points and multiple overland flow routes which discharge towards Carmarthen Bay.

1100. Groundwater Vulnerability mapping provided by the BGS (BGS, 2026) indicates that the Flood Risk and Hydrology Study Area is primarily situated on superficial and bedrock deposits which have a high groundwater vulnerability (Secondary Aquifer). However, there are areas of low to high vulnerability (Principal and Secondary Aquifers) present across the Flood Risk and Hydrology Study Area, as discussed in **Section 3.3.3.**

1101. The majority of the Flood Risk and Hydrology Study Area is not at risk of flooding from reservoirs. The risk of flooding from reservoirs is based on the consequence of reservoir failure and the potential flooding that could occur if a large, raised reservoir were to fail. Located in an area from north-east of Llansteffan to Carmarthen, there is a reservoir flood risk present along the River Taf and the area surrounding the river channel.





Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary

Flood Risk

- Flood Zone 2
- Flood Zone 3

Project: Gwynt Glas Offshore Wind Farm Scoping Report

Title: NRW Flood Map for Planning – Rivers

Figure:	3.3.3	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0094		
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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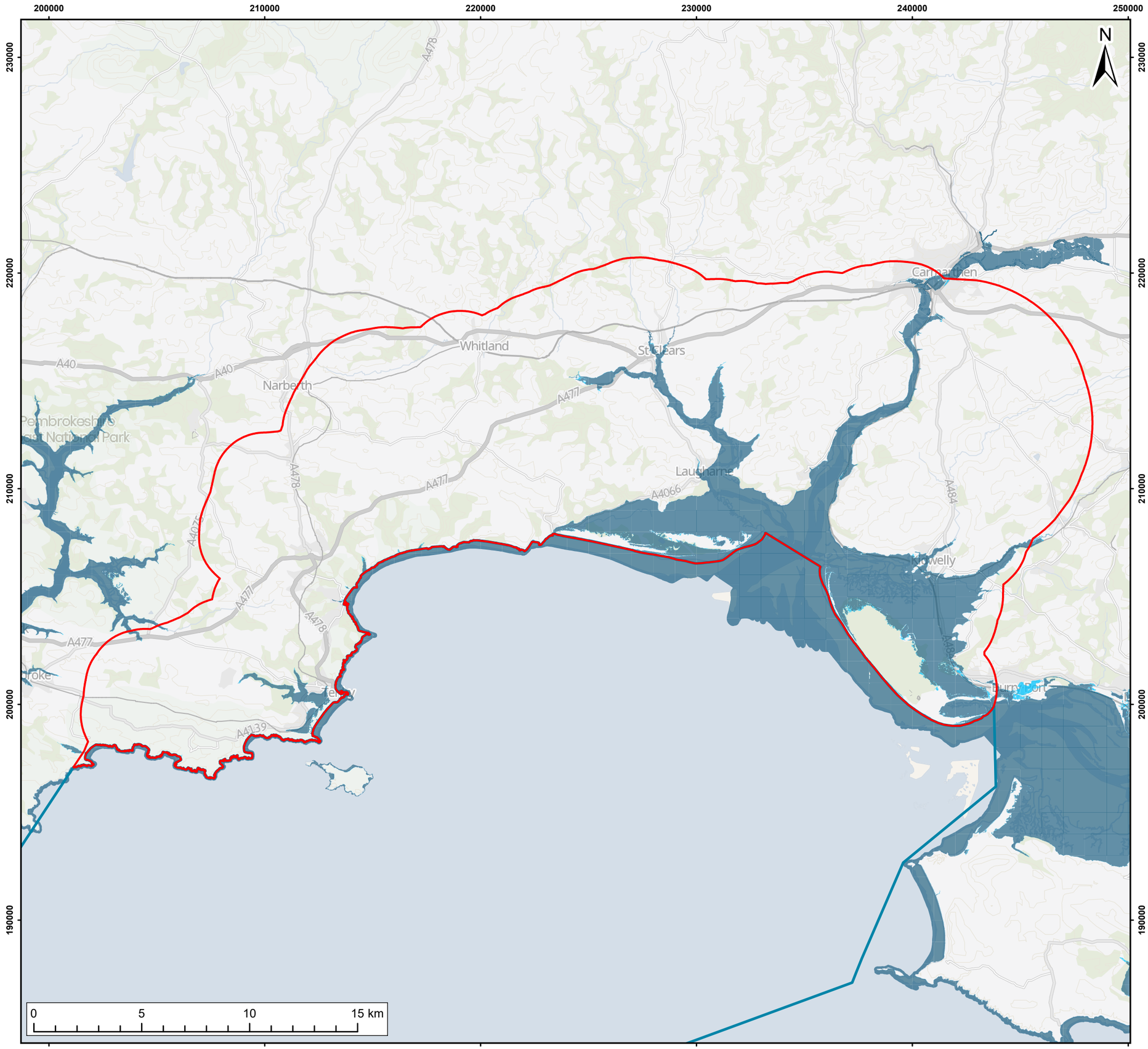

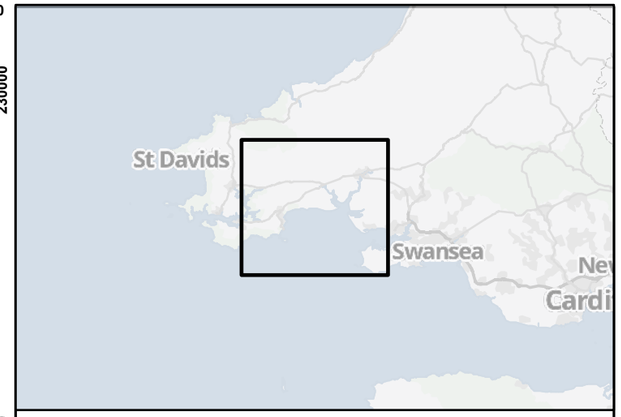

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Corridor Scoping Boundary

Flood Risk

- Flood Zone 2
- Flood Zone 3

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
NRW Flood Map for Planning – Sea

Figure:	Drawing No:				
3.3.4	PC6850-HAS-ZZ-ON-DR-GS-0095				
Revision:	**Date:**	**Drawn:**	**Checked:**	**Size:**	**Scale:**
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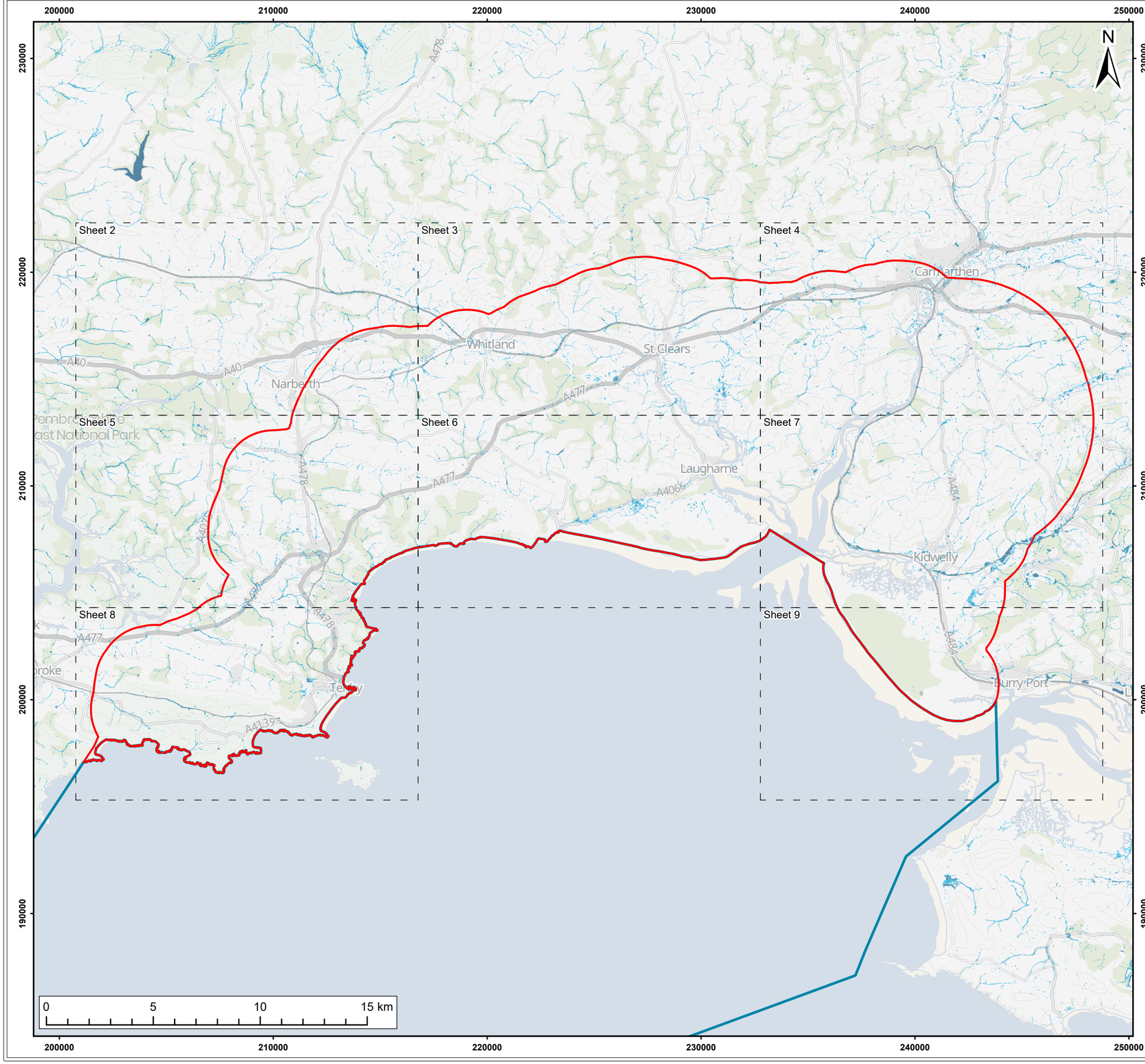

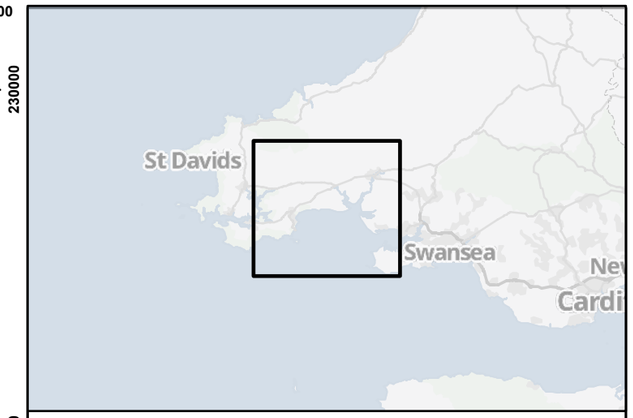

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 1 of 9)

Figure: 3.3.5 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0096

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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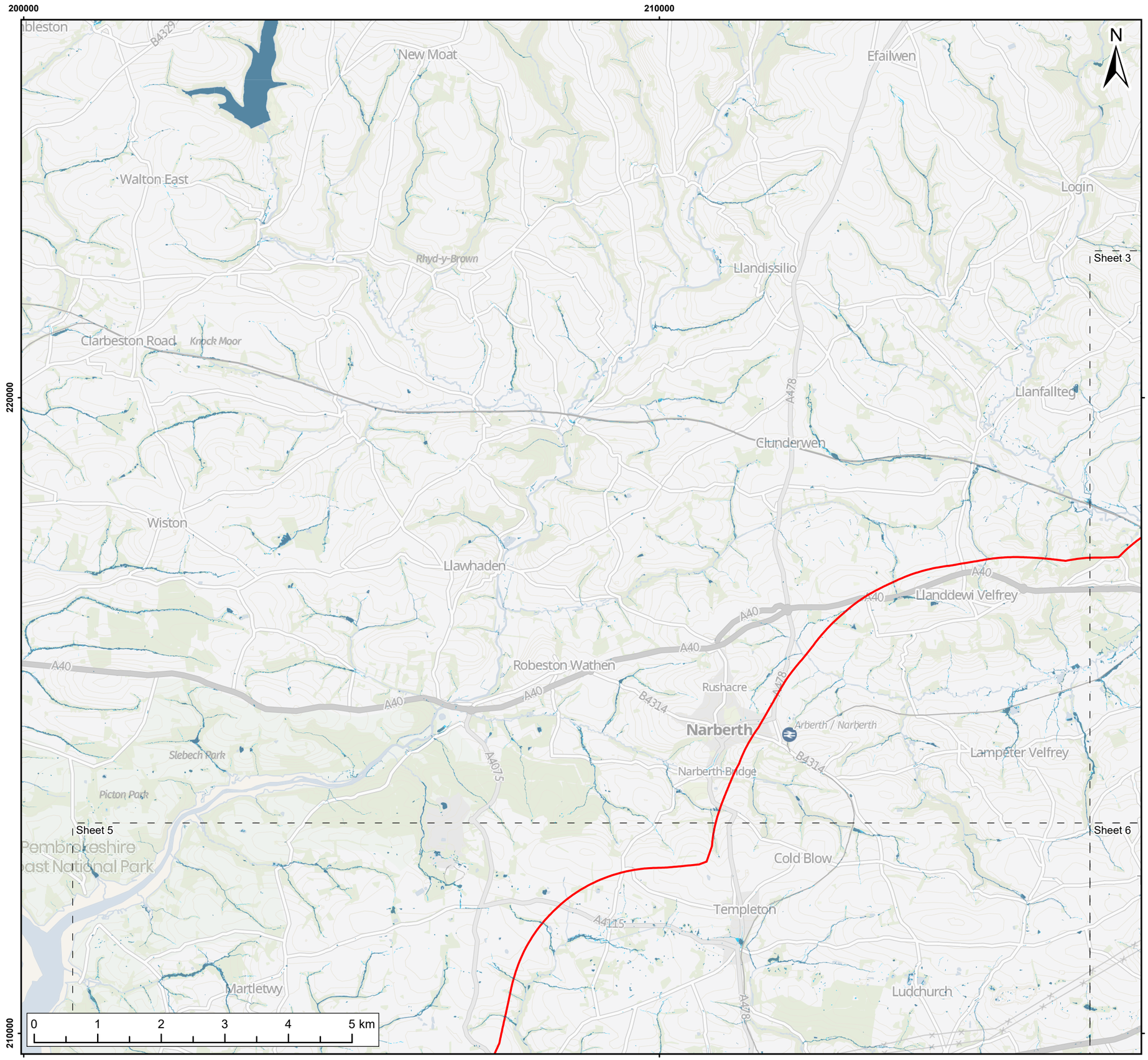

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

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Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 2 of 9)

Figure:	3.3.5	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0096		
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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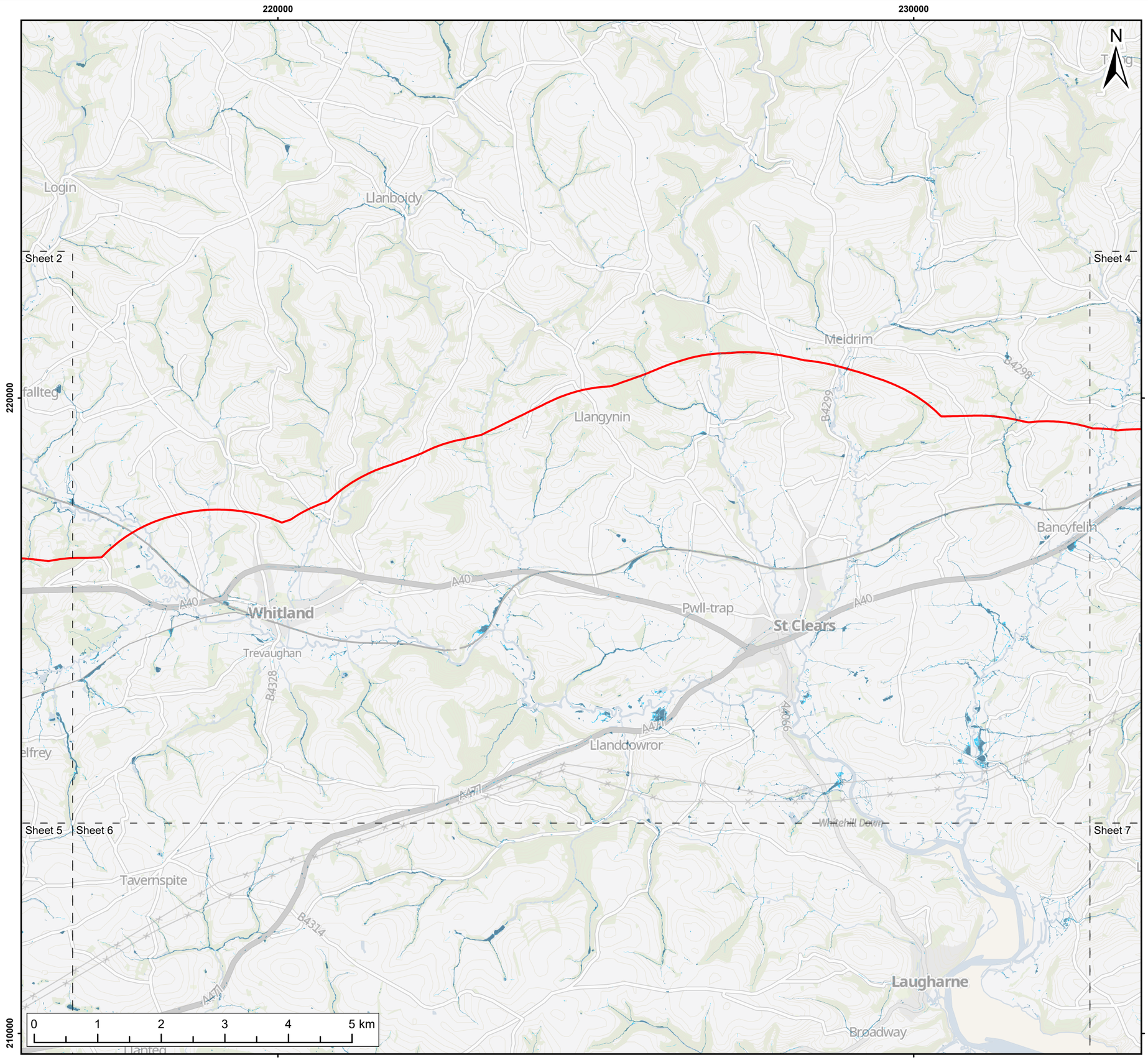

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

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Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 3 of 9)

Figure: 3.3.5 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0096

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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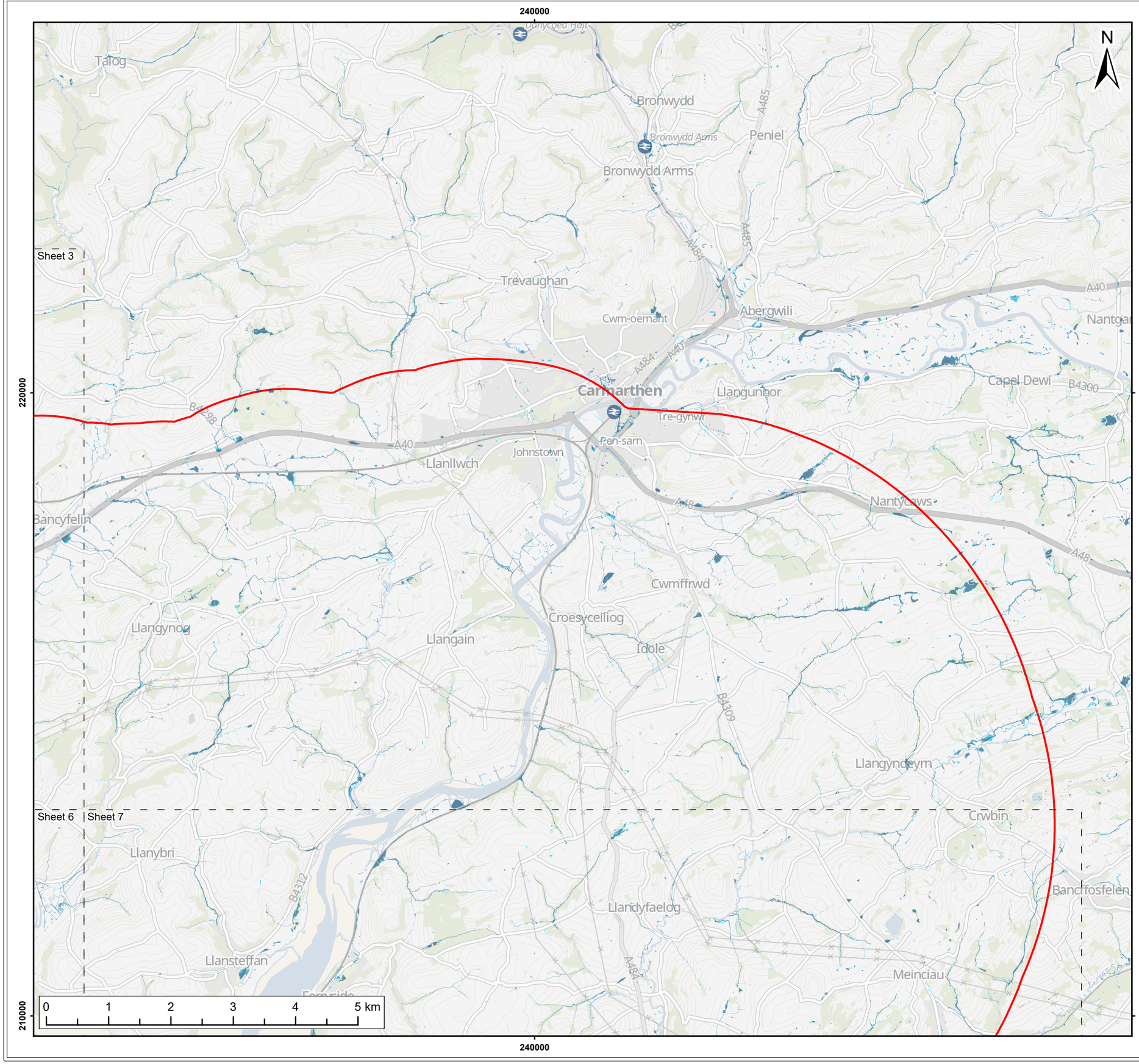

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

Project: Gwynt Glas Offshore Wind Farm Scoping Report

Title: NRW Flood Map for Planning – Surface Water and Small Watercourses (Sheet 4 of 9)

Figure: 3.3.5 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0096

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid

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Robeston Wathen
Rushacre
Narberth
Arberth / Narberth
Narberth Bridge
Lampeter Velfrey
Llanddewi Velfrey
Slebech Park
Picton Park
Pembrokeshire Coast National Park
Cold Blow
Templeton
Martletwy
Ludchurch
Reynalton
Stepaside
Kilgetty
Summerhill
Pleasant Valley
Amroth
Amroth Beach
Lawrenny
Cresselly
Jeffreyston
Broadmoor
Pentlepoir
Hill
Saundersfoot
Wooden
Copperhall Beach
East Williamston
Whitehill
Rushevlake
Redberth
Broadfield
Cosheston
Carew
Sageston
Milton
Monkstone Beach
New Hedges
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Davids
Pembrokeshire Coast National Park

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 5 of 9)

Figure: 3.3.5
Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0096

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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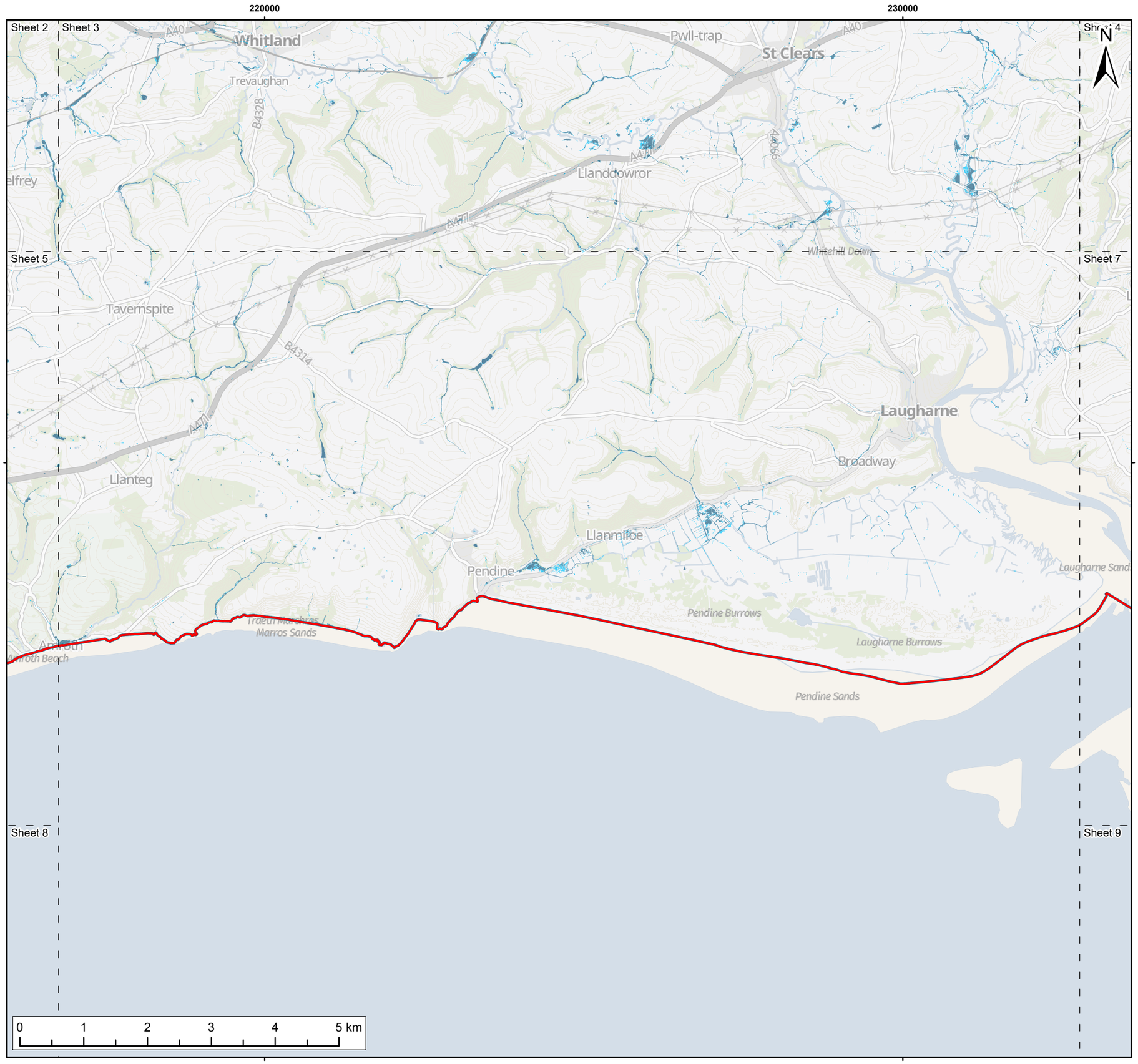

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

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Project:
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Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 6 of 9)

Figure: 3.3.5 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0096

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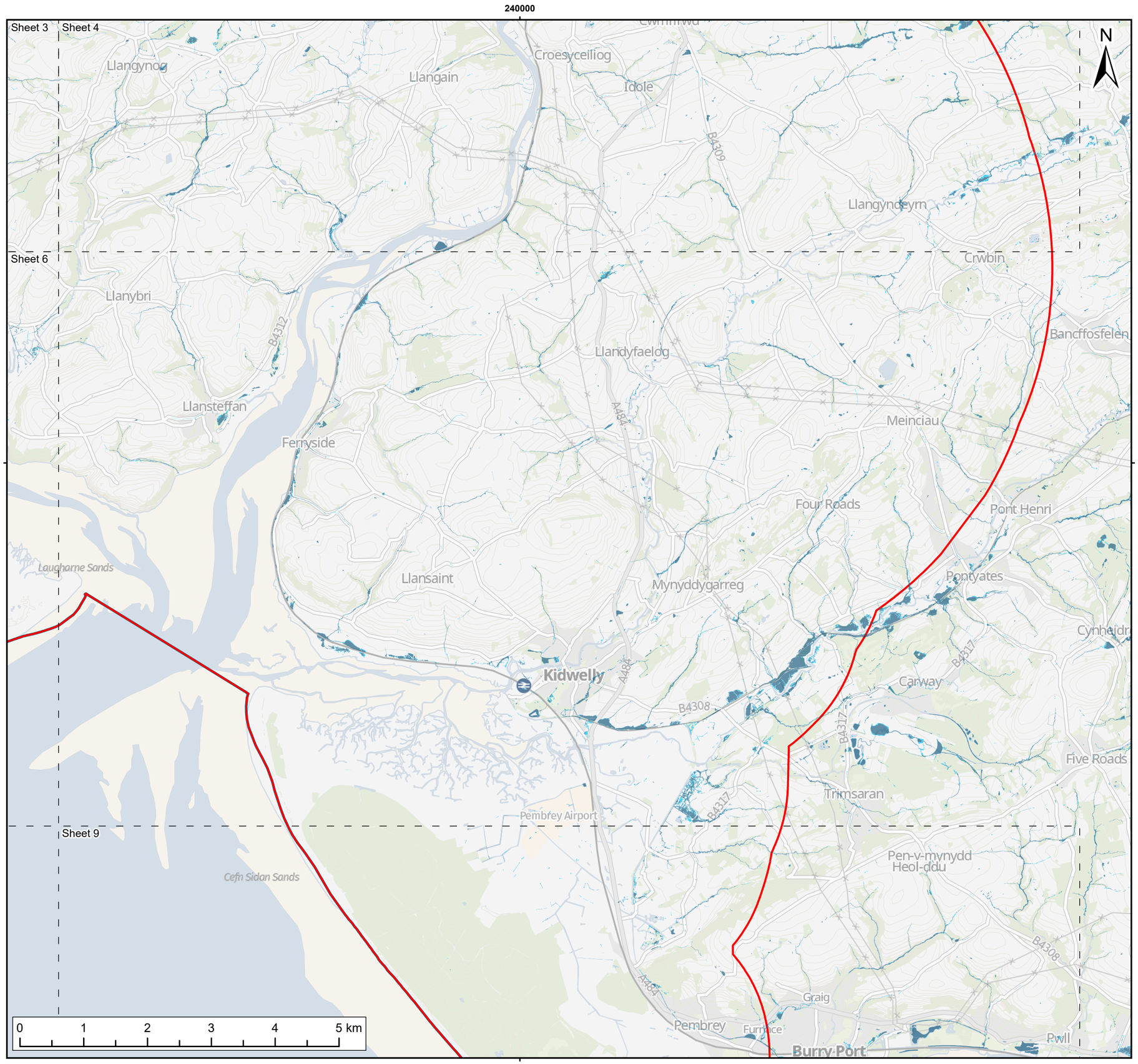

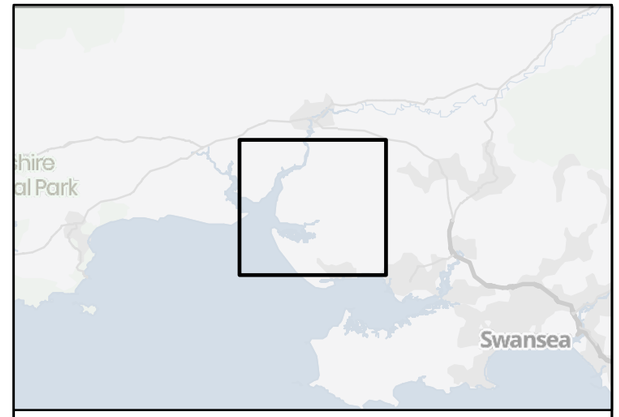

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

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Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 7 of 9)

Figure:	3.3.5	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0096		
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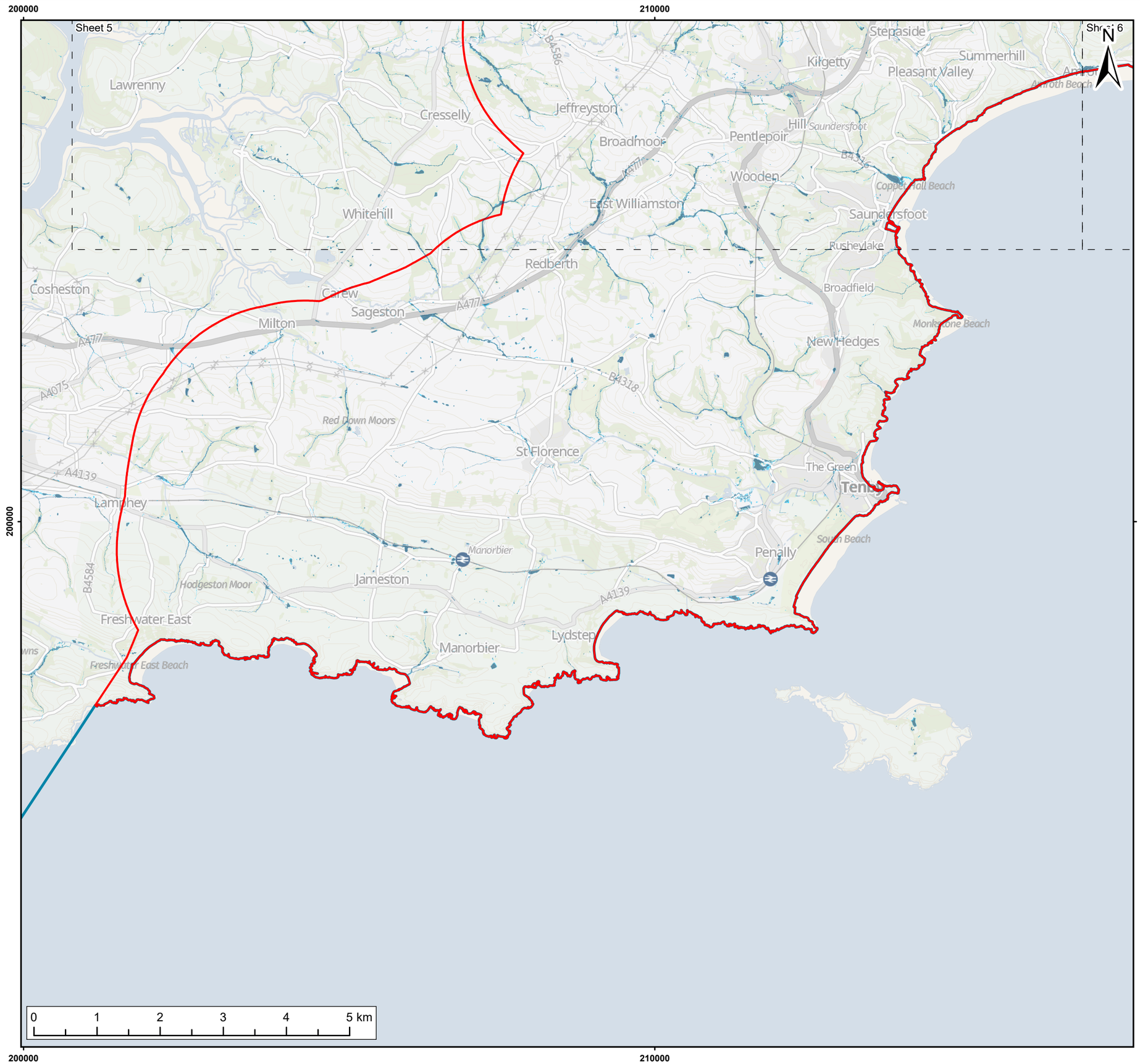

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

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Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 8 of 9)

Figure:	Drawing No:
3.3.5	PC6850-HAS-ZZ-ON-DR-GS-0096

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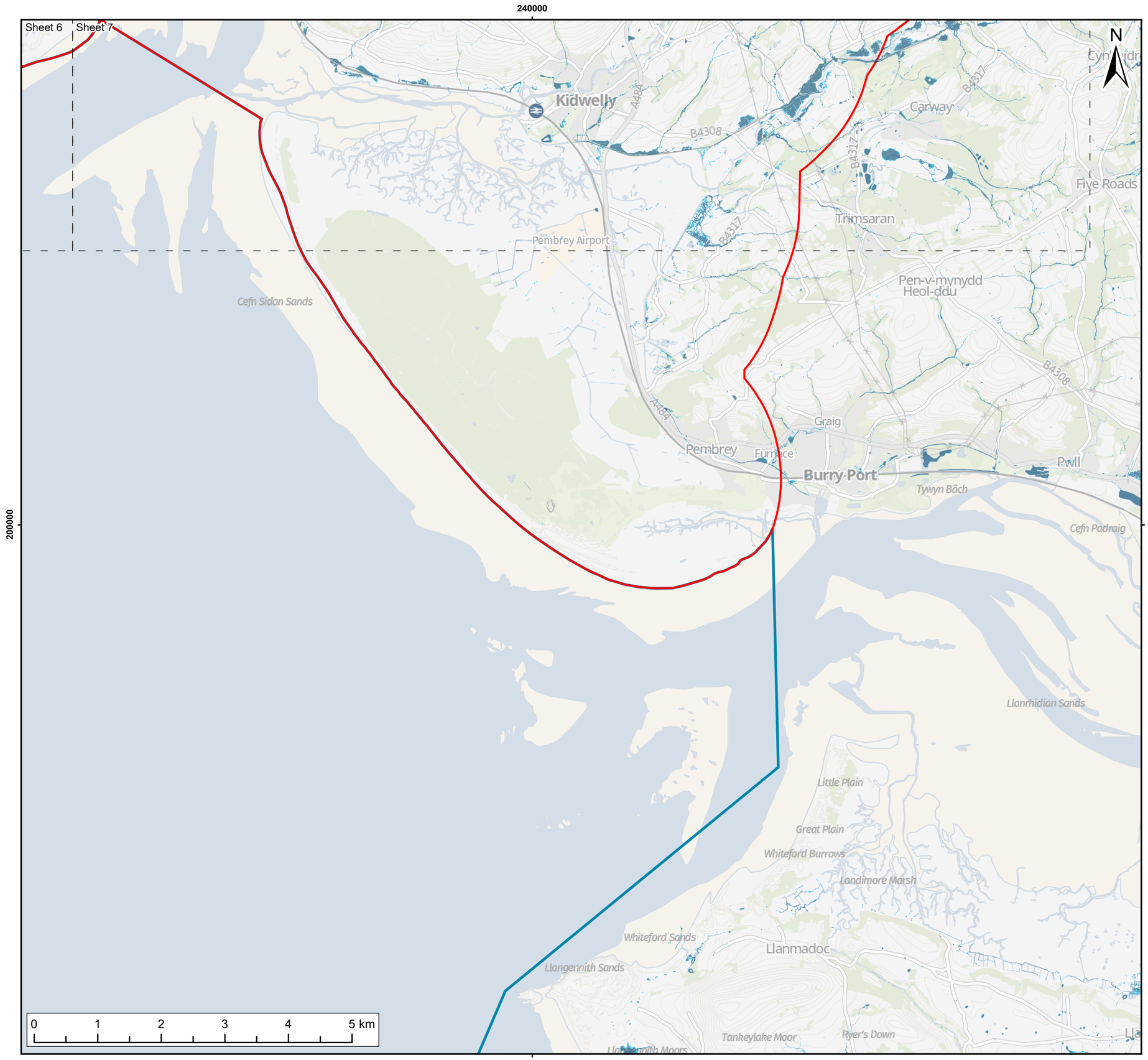

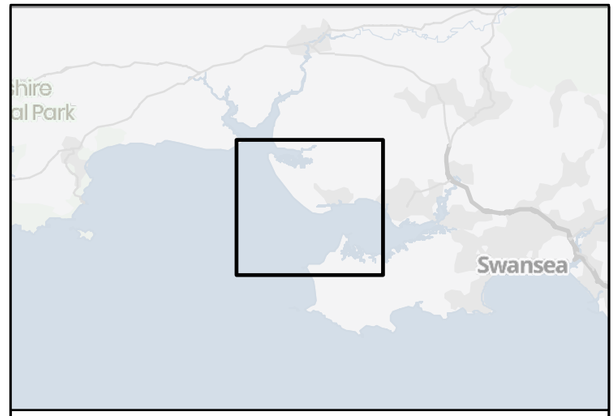

Legend:

- Onshore Scoping Boundary / Flood Risk and Hydrology Study Area
- Offshore Export Cable Scoping Boundary
- Sheet Extent Box

Flood Risk

- Flood Zone 3
- Flood Zone 2

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
NRW Flood Map for Planning –
Surface Water and Small Watercourses
(Sheet 9 of 9)

Figure: 3.3.5
Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0096

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3.3.3 Data Sources

1102. **Table 3.3.5** outlines existing primary data that has been used to inform this section and would also be used to inform the EIA.

Table 3.3.5 Existing Data Sources to Inform the Flood Risk and Hydrology Assessment

DATASET (SOURCE)	DATA CONTENTS
Geological mapping (BGS)	Bedrock and surface geology maps
WFD water body status objectives and classification data (NRW)	Waterbody classification for surface and groundwater bodies
Water Quality Archive (NRW)	Water quality derived from monitoring sites
Water abstraction (NRW)	Water abstraction for different uses
Discharges to water and groundwater (NRW)	Discharge locations
Protected area designations (Multi-Agency Geographic Information for the Countryside (MAGIC), 2026)	Country-wide designated areas
SPZs (NRW)	Groundwater SPZs
DrWPA (NRW)	DrWPA
Aquifer designation (bedrock and superficial) mapping (MAGIC, 2026))	Country-wide designated areas
Aquifer typology (BGS)	Aquifer typology – principal, secondary (A and B), secondary (undifferentiated), unproductive
Main rivers (NRW)	Welsh main rivers
Flood Map for Planning (NRW)	Flood map for planning in Wales
Flood and Coastal Erosion Risk Map (NRW)	Erosion risk map

1103. In addition to the data in **Table 3.3.5, Table 3.3.6** describes the geomorphology baseline survey that will be undertaken to inform the EIA.

1104. A Crossing Schedule would be produced, and this would be used to identify watercourse crossings that would be surveyed. The survey will provide additional data on the watercourses which are scoped in to the next stage of the EIA. This will be undertaken in accordance with best practice geomorphological walkover methodologies. Agreement on the method and scope of the survey will be obtained from the stakeholders prior to undertaking the survey.

Table 3.3.6 Site-specific Survey Data

DATASET	DESCRIPTION	SPATIAL COVERAGE	ANTICIPATED SURVEY TIMINGS
Geomorphology baseline	The geomorphology baseline survey will collect information about the existing condition of the major watercourses within the Onshore Development Area. It would specifically focus on reaches where crossings of main rivers or other sensitive watercourses are proposed.	Watercourse crossings from Landfall to the Onshore Transmission Station(s) Zone, including along the Onshore Export Cable Corridor.	2027

3.3.4 Approach to Impact Assessment

3.3.4.1 Receptors

1105. The EIA would focus on potential impacts on two groups of receptors:

- Water resources, including:
  - The hydrology, geomorphology and water quality of surface waters (e.g. rivers);
  - The quantity and quality of groundwater; abstractions from surface and groundwaters (e.g. Principal, Secondary A and Secondary Undifferentiated aquifers) and associated designated sites (e.g. SPZs, DrWPA);
  - Water-dependent habitats and GWDTEs, including designated sites (e.g. SAC, SPA, SSSI); and
  - Water supply infrastructure (including treatment plants, pumping stations and distribution networks) and surface and foul drainage infrastructure.
- Flood risk to the Development from all sources, including:
  - Fluvial, coastal, surface water, groundwater, sewer and reservoir flooding; and
  - The residual risk associated with flood risk management infrastructure.
- It would also consider changes in flood risk from all of the above sources resulting from the Development.

1106. The assessment would be informed by DBA and review of available data from NRW, as the overarching body, and the relevant LLFA using the data sources identified in **Section 3.3.3**.

1107. The survey listed in **Table 3.3.6** will be undertaken during 2027 to inform the assessment. Surveys will be undertaken in accordance with established best practice methodologies and agreed in advance with stakeholders including NRW and the LLFA where required.

1108. Whilst there are clear links between the two groups of receptors, the assessment of receptor sensitivity and the magnitude of effect may differ. Definitions of receptor sensitivity and value and impact magnitude and significance would be developed with reference to the WNMP (2019).

1109. The approach to assessment and data gathering would be discussed and agreed through production of a method statement and discussion with stakeholders. Consultation would be

undertaken at key stages throughout the EIA process. Following the refinement of the Flood Risk and Hydrology Study Area, further liaison with the stakeholders including NRW, would be undertaken to agree the approach and methodology for data collection for EIA purposes and specific supporting assessments.

3.3.4.2 Supporting Assessments

1110. The EIA would be supported by two additional assessments:

- A Flood Consequences Assessment (FCA) would need to be undertaken in accordance with Technical Advice Note (TAN) 15 (updated March 2025) and the overarching national policy set out in Welsh Government PPW (2024) together with the NPS to assess the flood risk both to the Development and from the Development to the surrounding areas. The FCA would consider each element of the Development individually, both during construction and once operational. This would inform the identification of any required mitigation measures.
- A WER Compliance Assessment, often referred to as WFD Assessment, (which includes risks to ecological status) to assess compliance with the requirements of the Water Environment (WFD) (England and Wales) Regulations 2017. Initially, this would consist of three stages (screening, scoping and impact assessment), in accordance with the Planning Inspectorate's guidance (Planning Inspectorate, 2017d).

3.3.5 Potential Impacts

3.3.5.1 Potential Impacts During the Construction Stage

3.3.5.1.1 Direct Disturbance on Surface Water Bodies

1111. Construction activities within the Flood Risk and Hydrology Study Area, could directly impact upon the geomorphology, hydrology, water quality and physical habitats of the identified surface water bodies. Disturbance could occur from the installation of new structures and buildings along with buried electrical cables (e.g. watercourse crossings) and associated infrastructure (e.g. temporary (haul road) access crossings over surface watercourses).

1112. Disturbance could also occur in the event of an accidental release of drilling fluid from trenchless drilling techniques (e.g. HDD) used to install cables below sensitive watercourses. In addition, installation of buried infrastructure beneath watercourses and associated flood defences could potentially constrain any future upgrades to these defences. Therefore, direct disturbance of surface water bodies during construction is **scoped in** to the EIA.

3.3.5.1.2 Increased Sediment Supply

1113. Construction activities could increase soil erosion and the supply of fine sediment (e.g. clays, silts and fine sands) to surface watercourses. This could arise from earthworks and vegetation removal to construct temporary or permanent infrastructure. Increased sediment supply would increase turbidity levels within the water column, resulting in greater fine sediment deposition on the channel bed. In turn this could alter local geomorphological adjustment rates and impact upon in-channel morphological features.

1114. Higher sediment loads could also smother bed habitats, reduce light penetration, and decrease temperature and dissolved oxygen levels. These impacts could adversely affect stream biota, such

as fish, macroinvertebrates and macrophytes. Therefore, increased sediment supply during construction is **scoped in** to the EIA.

3.3.5.1.3 Supply of Contaminants to Surface and Groundwater

1115. The operation of construction machinery working in or adjacent to surface watercourses has the potential to accidentally release lubricants, fuels and oils into surface water bodies. Trenchless techniques could also introduce contaminants to the underlying groundwaters and aquifers.

1116. Contamination could also be caused by spillages, leakage and in-wash from vehicle storage areas following rainfall, and the accidental release of construction materials, such as cement and inert drilling fluids (bentonite) at trenchless crossings. Such contaminants could enter the aquatic system and adversely affect its surface water physico-chemistry. This could have associated impacts upon stream biota. Temporary discharges during the construction stage, including treated effluent from welfare facilities could also impact upon surface and groundwater quality.

1117. Any activities that disturb the ground, such as excavation, trenchless crossings or piling, could discharge contaminants below ground and potentially adversely affect groundwater quality and quantity elements. Groundwater quality and quantity could also be affected by saline ingress in relation to sub-surface activities (e.g. trenchless crossings). Therefore, the supply of contaminants to surface and groundwater is **scoped in** to the EIA.

3.3.5.1.4 Changes to Surface and Groundwater Flows and Flood Risk

1118. Site preparation and construction activities within the Flood Risk and Hydrology Study Area could lead to an increase in surface water runoff due to alterations in surface drainage patterns and surface flows. Infiltration rates could be reduced because of soil compaction by construction vehicles and surface infrastructure. Increased surface runoff could have an adverse impact on the geomorphology of surface watercourses (e.g. through associated bed and bank scour and increase in fine sediment input). Sub-surface excavations and associated dewatering of groundwater could also result in changes to sub-surface flow patterns and an increase in surface flows.

1119. Flood risk could be altered and increased, particularly in areas designated as Flood Zone 2 or 3. Sub-surface flow patterns could also be altered due to potential changes in infiltration rates and surface flow patterns (e.g. associated with trenchless crossings). Increased surface runoff could affect watercourses that rely on assisted pumping. Therefore, changes to surface and groundwater flows and flood risk during construction are **scoped in** to the EIA.

3.3.5.2 Potential Impacts During the O&M Stage

3.3.5.2.1 Supply of Contaminants to Surface and Groundwater

1120. There is the potential for accidental release of contaminants to surface and groundwater during planned and unplanned operational maintenance. Activities could lead to accidental release of fine sediment, oils, fuels and lubricants to surface water bodies. This could adversely affect the geomorphology and water quality of the surface water drainage network. Accidental spillage or leakage of fuel oils or lubricants could also impact upon the surface water quality and connected groundwater quality. This in turn could impact aquatic ecology and the use of water resources (SPZs, Principal and Secondary aquifers, and any associated licensed or unlicensed abstractions). Therefore, the supply of fine sediments and contaminants to surface and groundwater during operation is **scoped in** to the EIA.

3.3.5.2.2 Changes to Surface and Groundwater Flows and Flood Risk

1121. Permanent onshore infrastructure (i.e. Onshore Transmission Station(s)) is likely to increase the impermeable area across the surface water catchments. This could decrease infiltration rates and permanently change surface runoff pathways which may increase and alter flood risk. The greatest flood risk impact from these changes is likely to be in parts of the Flood Risk and Hydrology Study Area designated as Flood Zone 2 or 3. Therefore, changes to surface and groundwater flows and flood risk during operation are **scoped in** to the EIA.

3.3.5.2.3 Direct Disturbance of Surface Waterbodies

1122. Direct disturbance of surface water bodies during operation has been **scoped out** of the EIA, as post-construction there would be no mechanisms through which elements of the Development could directly disturb water bodies.

3.3.5.2.4 Increased Sediment Supply

1123. Increased sediment supply has been **scoped out** of the EIA, for O&M as there would be no mechanisms through which elements of the Development could increase sediment supply to water bodies.

3.3.5.3 Potential Impacts During the Decommissioning Stage

1124. It is anticipated that decommissioning impacts on Flood Risk and Hydrology receptors would be similar in nature to those of construction, although the magnitude of impact is likely to be lower.

1125. The same potential impacts identified for construction are therefore expected to be **scoped in** for decommissioning.

3.3.5.4 Potential Inter-relationship Impacts

1126. The impact assessment would consider the inter-relationship of impacts on individual receptors in accordance with the methodology outlined in **Section 1.8 EIA Methodology**. The objective would be to identify where the accumulation of residual impacts on a single receptor and the relationship between those impacts, gives rise to a need for additional mitigation. It is therefore proposed that inter-relationship impacts on Flood Risk and Hydrology assets are **scoped in** to the EIA.

3.3.5.5 Potential Cumulative Impacts

1127. Potential cumulative impacts related to Flood Risk and Hydrology are likely to include increased sediment supply if other projects are being constructed within 1km of the Onshore Development Area. It is therefore proposed that cumulative impacts are **scoped in** to the EIA.

3.3.5.6 Summary of Impacts

1128. **Table 3.3.7** outlines the impacts which are proposed to be **scoped in** to **and / or out** of the EIA. This may be refined as additional information and data become available.

Table 3.3.7 Summary of Impacts Proposed to be Scoped In (✓) and Out (x) of the Flood Risk and Hydrology Assessment

POTENTIAL IMPACT	CONSTRUCTION	O&M	DECOMMISSIONING
Direct disturbance of surface water bodies	✓	×	✓
Increased sediment supply	✓	×	✓
Supply of contaminants to surface and groundwater	✓	✓	✓
Changes to surface and groundwater flows and flood risk	✓	✓	✓
Inter-relationship Impacts	✓	✓	✓
Cumulative impacts	✓	✓	✓

3.3.6 Potential Mitigation Measures

1129. Mitigation measures, if required, would evolve as the EIA progresses and in response to consultation with the relevant stakeholders and would be fed iteratively into the design and assessment process. All of the proposed mitigation measures would comply with regulatory requirements and good practice.

1130. A number of embedded mitigation measures relevant to the Flood Risk assessment, which are proposed to be incorporated into the design of the Development or constitutes standard mitigation measures for this topic, would follow the mitigation hierarchy outlined in **Section 1.8 EIA Methodology.**

1131. These measures typically include those that have been identified as good or standard practice and include actions that should be undertaken to meet existing legislation requirements. Embedded mitigation measures relating to flood risk and hydrology impacts are detailed in **Table 1.8.2** (**Section 1.8 EIA Methodology**).

1132. Requirements for any additional mitigation measures would be determined through the EIA.

1133. Mitigation measures, if required, would evolve as the EIA progresses and in response to consultation with the relevant stakeholders and would be fed iteratively into the design and assessment process. All of the proposed mitigation measures would comply with regulatory requirements and good practice.

3.4 Land Use

1134. This section of the Scoping Report considers the scope of potential impacts of the construction, O&M, and decommissioning stages of the Development on land use.

1135. This section provides an overview of the baseline environment and sets out the proposed methodology and approach to assessing effects on Land Use receptors in the EIA.

1136. The Land Use assessment is likely to have key inter-relationships with the following topics, which would be considered appropriately where relevant in the EIA:

- **Section 1.5 Project Description**;
- **Section 3.1 Terrestrial Ecology and Onshore Ornithology**;
- **Section 3.2 Geology and Land Quality**;
- **Section 3.3 Flood Risk and Hydrology**;
- **Section 3.6 LVIA**;
- **Section 3.7 Traffic and Transport**;
- **Section 4.1 Population and Human Health**; and
- **Section 4.3 Tourism and Recreation**.

The following questions are posed to consultees to help them frame and focus their response to the Land Use scoping exercise which would in turn inform the Scoping Opinion:

- Do you agree with the proposed Land Use Study Area and that it is sufficient to capture the relevant impacts?
- Do you agree with the characterisation of the baseline environment?
- Have all the relevant data sources been identified in the Scoping Report?
- Have all the potential impacts on Land Use resulting from the Development been identified in the Scoping Report?
- Do you agree with the impacts that have been scoped in (or scoped out) of further assessment?
- Do you agree with the proposed approach to assessment?

3.4.1 Onshore Study Area

1137. For the purpose of scoping, the Land Use Study Area consists of the Onshore Scoping Boundary as shown on **Figure 1.1.1.** It is assumed that impacts to land use would occur wholly within the Onshore Scoping Boundary. The Land Use Study Area within the EIA would be refined to the Onshore Development Area once the locations of the Onshore Transmission Station(s), Onshore

Export Cable Corridor and Landfall are selected. The study area for land use is hereafter referred to as the Land Use Study Area.

3.4.2 Baseline Environment

3.4.2.1 Existing Land Uses

1138. The existing Land Use within the Land Use Study Area is predominantly agricultural in nature. A range of other land cover types are present including, but not limited to, built-up areas, recreational areas, quarries, solar farms, airfields, sewage works, areas of light industry, parcels of woodland, watercourses and lakes.

1139. Amenity landscapes of recognised landscape, scenic and recreational value also form an important component of land use within the Study Area. These include areas designated for their landscape quality and experiential value, such as SLAs Heritage Coast and Historic Parks and Gardens (HPG). These landscapes are identified and described within **Section 3.6.2.7** and their value and sensitivity are considered in detail within **Section 3.6 LVIA**.

1140. National Cycle Route (NCR) 4, the Wales Coast Path and multiple other PRoW are present throughout the Land Use Study Area as shown on **Figure 3.4.1.**

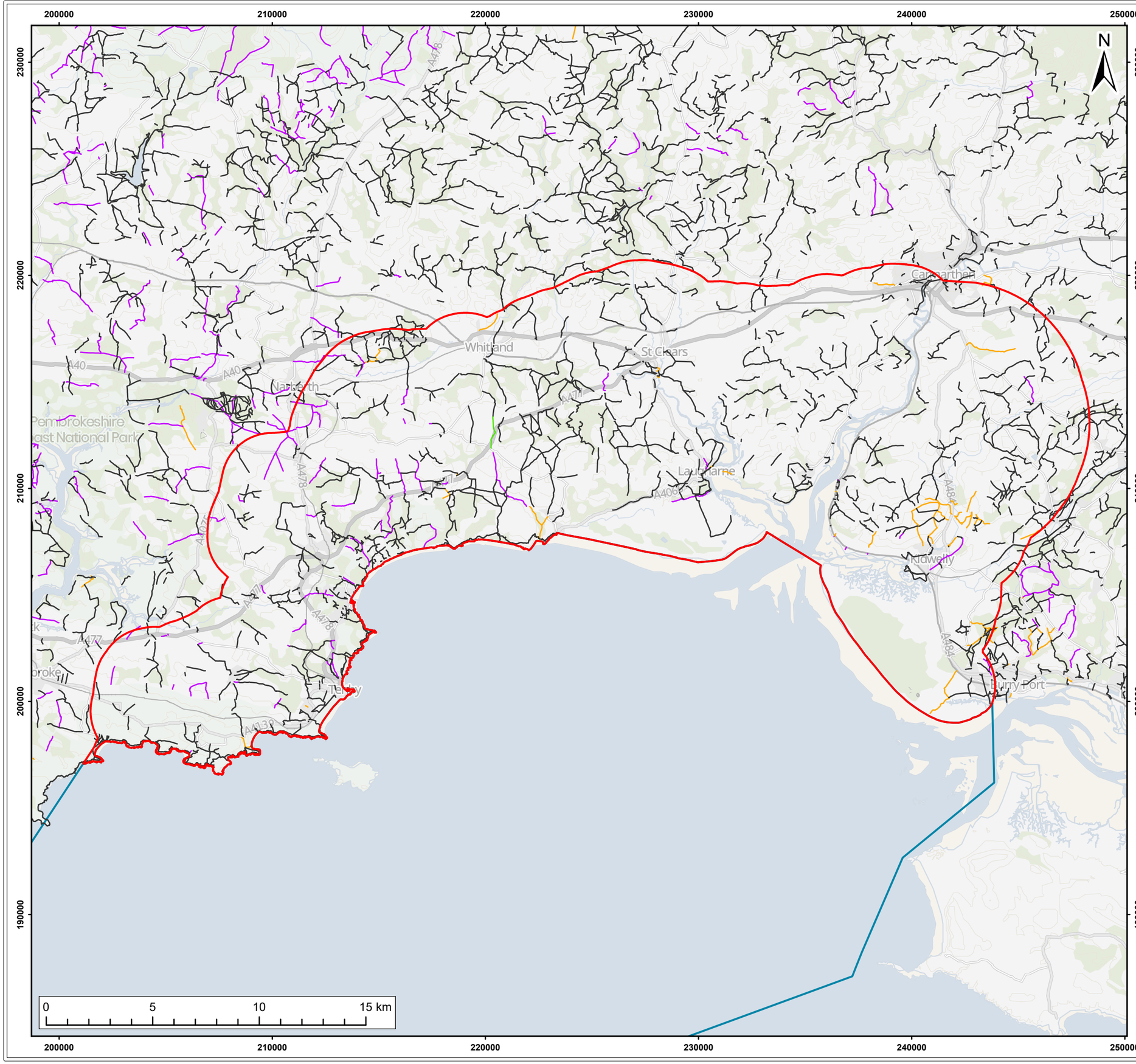
1141. Land identified within the PCC and CCC Local Development Plans (2013 and 2014 respectively) are present within the Land Use Study Area. Local Development Plan policy applicable to land within the Land Use Study Area makes provision for Protection and Enhancement of Biodiversity, Mineral Safeguarding Areas, SLAs and Housing Allocation areas.

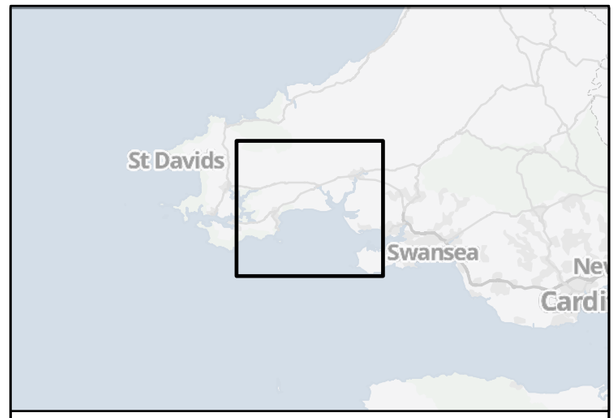
1142. Pembrey Forest and Pen-y-Bedd Wood, which are areas of open access land, are located within the south-eastern reaches of the Land Use Study Area.

3.4.2.2 Agricultural Land and Soil Quality

1143. Agricultural land, which comprises the majority of the Land Use within the Land Use Study Area, is considered in terms of its agricultural value using the Welsh Government's Predictive ALC dataset. ALC grades agricultural land from Grade 1 (best quality) through to Grade 5 (poorest quality) and is based on factors including climate, nature of the soil and site-based factors. 'Best and Most Versatile' (BMV) agricultural land is defined as ALC Grades 1, 2 and 3a (Grade 3 is split into 3a and 3b, with Grade 3b considered non-BMV land).

1144. The Land Use Study Area contains agricultural land of Grades 2 to 5, with the majority of the land classified as Grades 3a and 3b as shown on **Figure 3.4.2**.





Legend:

- Onshore Scoping Boundary / Land Use Study Area
- Offshore Export Cable Scoping Boundary

Public Rights of Way

- Bridleway
- Byway Open to All Traffic
- Footpath
- Restricted Byway

Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Public Rights of Way and Cycle Routes

Figure: 3.4.1 | Drawing No: PC6850-HAS-ZZ-ON-DR-GS-0097

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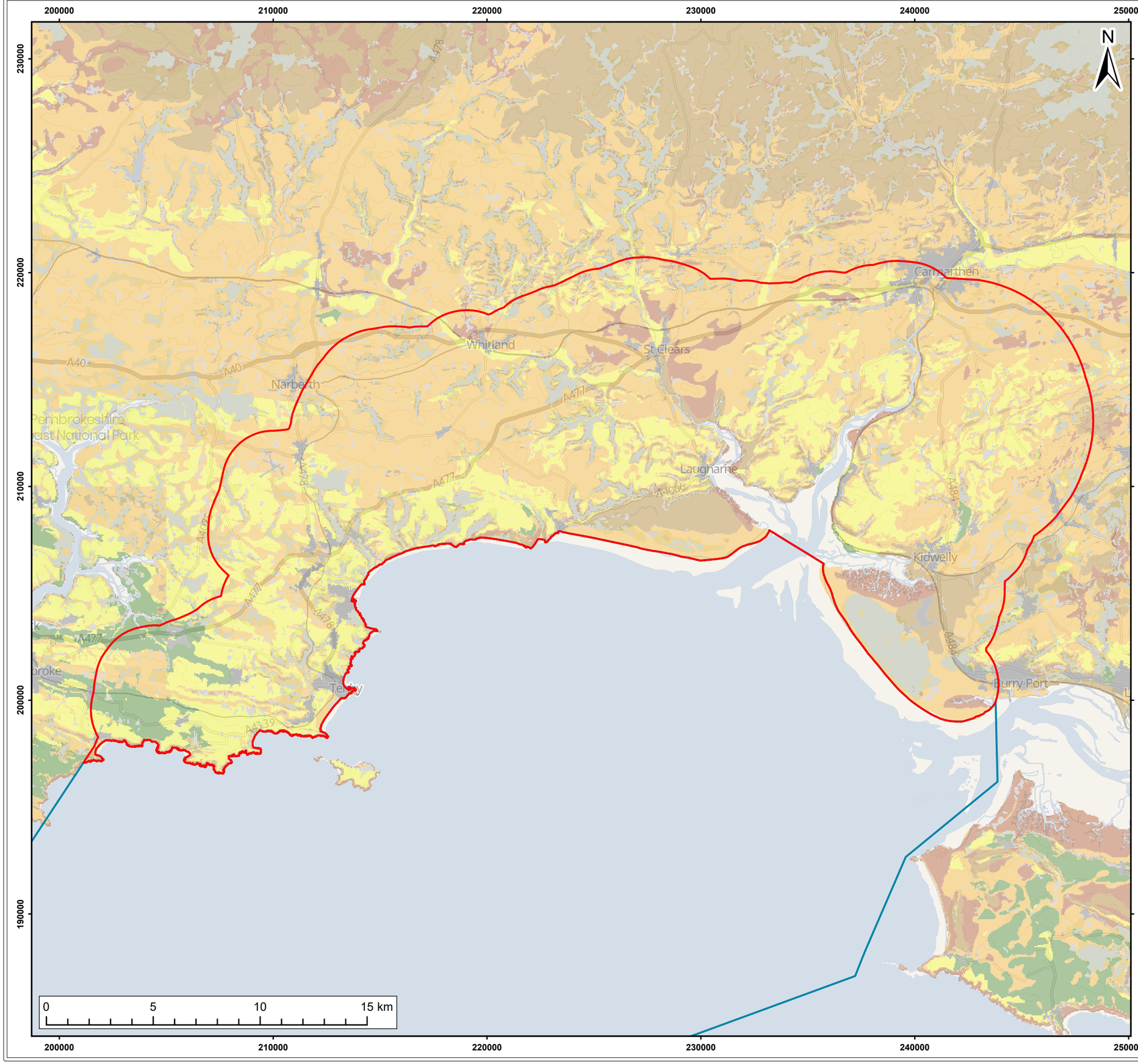

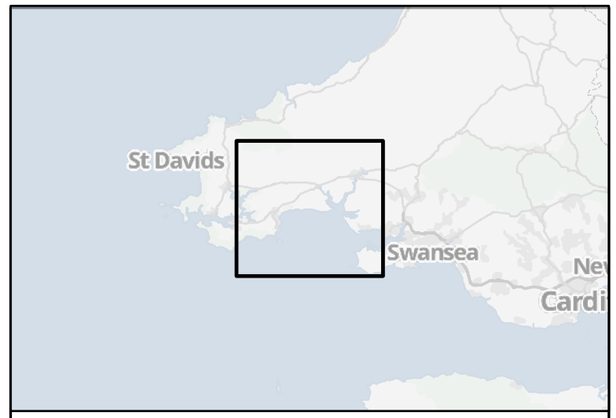

Legend:

- Onshore Scoping Boundary / Land Use Study Area
- Offshore Export Cable Scoping Boundary

Agricultural Land Classification

- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Non Agricultural
- Urban

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Project:
Gwynt Glas Offshore Wind Farm Scoping Report

Title:
Agricultural Land Classification

Figure:	3.4.2	Drawing No:	PC6850-HAS-ZZ-ON-DR-GS-0098		
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01	27/03/2026	MW	KD	A3	1:175,000

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3.4.2.3 Utilities

1145. Utilities are anticipated to be present within the Land Use Study Area. These are likely to include telecommunications, buried and above ground electricity cables, gas, sewers and public water mains. Detailed utilities data would be sought once the Onshore Development Area has been refined during the EIA process and presented in the ES.

3.4.2.4 Receptors

1146. The following receptors may be sensitive to change within the Land Use Study Area.

- Agriculture: including agricultural land cover, agricultural drainage and soil types;
- Land use: sustainable farming schemes, designated areas, site allocations, PRoW, NCRs and Wales Coast Path; and
- Utilities.

3.4.3 Data Sources

1147. **Table 3.4.1** outlines existing primary data that has been used to inform this section and would also be used to inform the EIA.

Table 3.4.1 Data Sources to Inform the Land Use Assessment

DATASET	SPATIAL COVERAGE	SURVEY YEAR / TIMINGS
Predictive ALC (Data Map Wales)	Land Use Study Area	2019
Sustainable Farming Scheme (Welsh Government)	Land Use Study Area	2026
PRoW, NCRs and Wales Coast Path (CC, PCC, Sustrans)	Land Use Study Area	2026
Residential properties and community assets (OS)	Land Use Study Area	Various
Soil types (National Soil Resources Institute, Cranfield University)	Land Use Study Area	2026
Local Development Plan areas (CCC, PCC, PCNP Authority)	Land Use Study Area	Various
Utilities (OS Map Open-Source Data)	Land Use Study Area	2026

1148. Any additional datasets would be identified through ongoing consultation with stakeholders including the need for any ALC surveys.

3.4.4 Approach to Impact Assessment

1149. The EIA for Land Use would identify the likely impacts of the Development, assess the impacts and identify appropriate mitigation measures if required. The assessment would consider both

direct, indirect and cumulative impacts in line with the methodology presented in **Section 1.8 EIA Methodology**.

1150. The methodology for the assessment of the effects on Land Use would be informed by the following current guidance:

- ALC of England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land (Revised Guidelines, Ministry of Agriculture, Fisheries and Food (MAFF) 1988);
- Good Practice Guide for Handling Soils (MAFF, 2000);
- Defra and NRW guidance including the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2018);
- Design Manual for Roads and Bridges (DMRB) LA 112 Population and Human Health Section 3 (Land Use and Accessibility) (Highways Agency, 2020);
- Sustainable, Healthy and Resilient: Practice-Based Approaches to Land and Soil Management (Lewis, 2021);
- Guidance Document 3 Working with Soil Guidance Note: Benefitting from Soil Management in Development and Construction (British Society of Soil Science, 2021);
- A New Perspective on Land and Soil in EIA (IEMA (now ISEP, 2022a); and
- Soil Health and Environmental Assessment (ISEP, 2025).

3.4.5 Potential Impacts

3.4.5.1 Potential Impacts During the Construction Stage

3.4.5.1.1 Agricultural Drainage

1151. There is the potential for the groundworks associated with the Onshore Export Cable installation and Onshore Transmission Station(s) construction to impact the natural and artificial field drainage systems within the Land Use Study Area. Existing field drains are expected to be made of ceramic or plaster and are typically found at a depth of between 0.5 – 1.5m. As such, it is likely that the drains would be impacted by any excavation works through agricultural fields. The potential impacts on agricultural drainage have therefore been **scoped in** to the EIA.

3.4.5.1.2 Agricultural Productivity

1152. The majority of the Land Use Study Area is located within areas associated with agricultural production. Construction activities within these areas would contribute to the temporary loss of agricultural land. Construction activities also have the potential to isolate land outside of the Land Use Study Area which could effectively take it out of agricultural use. This would result in the loss of growing seasons in the affected areas. The potential impacts on farming practices have therefore been **scoped in** to the EIA.

3.4.5.1.3 Soil Degradation and Erosion

1153. There is the potential for soils to become compacted and for soil structure to deteriorate during construction works. Degradation is most likely to occur at temporary construction compound locations and along access routes where heavy materials and equipment are stored. Deterioration

of the soil structure can lead to reduced biological activity, water infiltration, soil porosity and permeability. These impacts could lead to reduced soil fertility and crop yields. The potential impacts on agricultural productivity have therefore been **scoped in** to the EIA.

1154. There is the potential for soil erosion to occur as a result of excavation, storage and reinstatement processes that are likely to occur during construction. Therefore, potential impacts associated with soil erosion have been **scoped in** to the EIA.

3.4.5.1.4 Soil Characteristics and Productivity

1155. Buried cable systems have the potential to emit heat, therefore potentially causing impacts to soil characteristics and productivity. The proposed electrical system for the Development would be designed to minimise heat loss to a level which is unlikely to affect crop growth. Operational cable heat emission effects are therefore **scoped out** of the EIA.

3.4.5.1.5 Sustainable Farming Scheme Areas

1156. There is the potential for both ecological and financial implications to occur as a result of construction within areas located within Sustainable Farming Scheme areas. The effects on landowners / occupiers would depend on the extent and duration of construction works within land parcel managed, and the terms and conditions attached to the agreements in place. Therefore, potential impacts to Sustainable Farming Scheme areas have been **scoped in** to the EIA.

3.4.5.1.6 Existing Utilities

1157. During the construction stage, cable installation activities have the potential to impact on water, power, gas and communication infrastructure through intrusive excavation works or associated disruption. Therefore, potential impacts on such services have been **scoped in** to the EIA.

3.4.5.1.7 Public Rights of Way and Cycle Routes

1158. There is the potential for temporary impacts on public access to PRoW, including footpaths and bridleways as well as cycle routes as a result of construction activities, notably where construction works directly overlap such routes. There is also the potential for these temporary impacts to effect public health and safety during construction works. The potential impacts on PRoW and cycle routes have therefore been **scoped in** to the EIA.

3.4.5.2 Potential Impacts During the O&M Stage

3.4.5.2.1 Agricultural Drainage

1159. Potential infrastructure and hardstanding at the Onshore Transmission Station(s), plus the presence of buried cables and TJBs has the potential to permanently impact upon agricultural drainage. The potential impacts on agricultural drainage during the operational stage have therefore been **scoped in** to the EIA.

3.4.5.2.2 Agricultural Productivity

1160. The presence of long term above ground infrastructure at the Onshore Transmission Station(s) and TJBs (plus permanent easements) would result in the permanent loss of land, including agricultural land, and therefore also a loss in productivity of these areas. Given the extent of BMV

agricultural land within the Land Use Study Area, there is the potential for BMV agricultural land to be lost during the lifetime of the Development within the area associated with the Onshore Transmission Station(s). With regards to buried infrastructure, land would be reinstated, as such, there would be no permanent loss of BMV agricultural land where buried infrastructure is present. There is, however, the potential for buried infrastructure to restrict farming practices during the operation stage of the Development. Therefore, potential impacts associated with the permanent loss of agricultural land during operation have been **scoped in** to the EIA.

3.4.5.2.3 Soil Degradation and Erosion

1161. Impacts associated with soil degradation and erosion are not anticipated to occur during the operational stage of the Development, given the careful reinstatement that would take place following completion of construction activities. Operational impacts to soil degradation and erosion are therefore **scoped out of** the EIA.

3.4.5.2.4 Soil Characteristics and Productivity

1162. Buried electrical cable systems have the potential to emit heat, therefore potentially causing impacts to soil characteristics and productivity. The proposed electrical system for the Development would be designed to minimise heat loss to a level which is unlikely to affect crop growth. Operational cable heat emission effects are therefore **scoped out** of the EIA.

3.4.5.2.5 Sustainable Farming Scheme Areas

1163. There is the potential for land associated with existing / future Sustainable Farming Schemes within the footprint of the Onshore Transmission Station(s) to be permanently taken out of use during the operation stage of the Development. Schemes located at the landfall and within the Onshore Export Cable Corridor would be reinstated following completion of construction works. Therefore, potential impacts associated with the Onshore Transmission Station(s) has been **scoped in** to the EIA. Impacts associated with landfall and the Onshore Export Cable Corridor are not anticipated and so it is proposed to **scope this out** of the EIA.

3.4.5.2.6 Existing Utilities

1164. It is not anticipated that existing utilities would be impacted during the operational stage of the Development. Therefore, it is proposed that impacts on utilities are **scoped out** of the EIA.

3.4.5.2.7 PRoW and Cycle Routes

1165. There is the potential for permanent diversions to PRoW, including footpaths and bridleways as well as cycle routes in areas associated with the Onshore Transmission Station(s) during the lifetime of the Development. Therefore, potential impacts in the area surrounding the Onshore Transmission Station(s) are **scoped in** to the EIA. For buried infrastructure, permanent diversions of PRoW and cycle routes are not anticipated and are therefore **scoped out** of the EIA.

3.4.5.3 Potential Impacts During the Decommissioning Stage

1166. Impacts during the decommissioning stage are expected to be similar in nature to those anticipated during construction, albeit of a smaller magnitude.

1167. The same potential impacts noted for construction are therefore **scoped in** for decommissioning.

3.4.5.4 Potential Inter-relationship Impacts

1168. The EIA would consider the inter-relationship of impacts on individual receptors in accordance with the methodology outlined in **Section 1.8 EIA Methodology**. The objective would be to identify where the accumulation of residual impacts on a single receptor and the relationship between those impacts, gives rise to a need for additional mitigation. It is therefore proposed that inter-relationship impacts are **scoped in** to the EIA.

3.4.5.5 Potential Cumulative Impacts

1169. Onshore cumulative impacts would be considered as set out in **Section 1.8.1** Potential cumulative impacts include other nearby development projects with temporal or spatial overlaps with the Development which may impact upon the same Land Use receptors. It is therefore proposed that cumulative impacts are **scoped in** to the EIA.

3.4.5.6 Summary of Potential Impacts

1170. **Table 3.4.2** outlines the impacts which are proposed to be **scoped in** to and / or **out** of the EIA. This may be refined as additional information and data become available.

Table 3.4.2 Summary of Impacts Proposed to be Scoped In (✓) and Out (x) of the Land Use Assessment

POTENTIAL IMPACT	CONSTRUCTION	O&M	DECOMMISSIONING
Agricultural drainage	✓	✓	✓
Agricultural productivity (overground infrastructure) - (temporary and permanent loss of agricultural land)	✓ (Temporary)	✓ (Permanent)	✓ (Temporary)
Agricultural productivity (buried infrastructure) - (temporary and permanent loss of agricultural land)	✓ (Temporary)	✓	✓ (Temporary)
Soil degradation and erosion	✓	x	✓
Impacts to soil characteristics and productivity as a result of cable heat emission	x	x	x
Sustainable Farming Scheme areas	✓	✓ (Onshore Transmission Station(s))	✓
Disruption to existing utilities	✓	x	✓
Disruption to PRoW and cycle routes	✓	✓ (Onshore Transmission Station(s))	✓

POTENTIAL IMPACT	CONSTRUCTION	O&M	DECOMMISSIONING
Inter-relationship Impacts	✓	✓	✓
Cumulative Impacts	✓	✓	✓

3.4.6 Potential Mitigation Measures

1171. A number of embedded mitigation measures relevant to the Land Use assessment, which are proposed to be incorporated into the design of the Development or constitutes standard mitigation measures for this topic would follow the mitigation hierarchy outlined in **Section 1.8 EIA Methodology.**

1172. These measures typically include those that have been identified as good or standard practice and include actions that should be undertaken to meet existing legislation requirements. Embedded mitigation measures relating to CCR impacts are detailed in **Table 1.8.2** (**Section 1.8 EIA Methodology**).

1173. Requirements for any additional mitigation measures would be determined through the EIA.

1174. Mitigation measures, if required, would evolve as the EIA progresses and in response to consultation with the relevant stakeholders and would be fed iteratively into the design and assessment process. All of the proposed mitigation measures would comply with regulatory requirements and good practice.