



Wylfa Newydd Project

8.12 A5025 Off-line Highway Improvements sub-CoCP

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Executive Summary

This document forms the A5025 Off-line Highway Improvements sub-CoCP within the Wylfa Newydd DCO Project. It sets out the site-specific controls to mitigate the effects of the construction works associated with the construction of the off-line highway improvements.

1 Introduction

1.1 General

- 1.1.1 As the Wylfa Newydd DCO Project covers a number of discrete locations, the overarching Wylfa Newydd Code of Construction Practice (Wylfa Newydd CoCP) (Application Reference Number: 8.6) covers project-wide aspects of the Wylfa Newydd Project regardless of site/location. Sub-CoCPs are provided for each location and underpin the Wylfa Newydd CoCP (Application Reference Number: 8.6). Sub-CoCPs provide only the standards and controls relevant to that location.
- 1.1.2 This document forms the A5025 Off-line Highway Improvements sub-CoCP within the Wylfa Newydd DCO Project. It sets out the site-specific controls including working hours and additional mitigation identified in the Environmental Statement and other DCO application documents.
- 1.1.3 Figures 1-1 to 1-6 show the areas where works are covered by this sub-CoCP. An overview of the location of the four sections and the Power Station Access Road Junction and the Order Limits is shown in figure 1-1. Individual sections are shown on figure 1-2 to figure 1-6. The Power Station Access Road Junction has been included within this CoCP due to the nature of these works.
- 1.1.4 The A5025 between Valley and the Power Station Site is approximately 16.5km in length and can be broadly described geographically in eight sections. Sections 2, 4, 6 and 8 relate to the A5025 On-line Highway Improvements, which are subject of a separate planning application made to the Isle of Anglesey County Council (IACC) in November 2017.
- 1.1.5 Sections 1, 3, 5 and 7 and the Power Station Access Road Junction relate to the Off-line Highway Improvements and can be described as follows:
- Section 1 (Valley) (work package 8) – A5 east of Valley Junction to north of Valley Junction – proposed four arm roundabout and bypass connecting the A5 with the A5025 to the east of the existing A5/A5025 signalised junction – a length of approximately 0.8km;
 - Section 3 (Llanfachraeth) (work package 9) – north of Llanynghenedl to north of Llanfachraeth – proposed 2km highway to provide a bypass to the east of Llanfachraeth village;
 - Section 5 (Llanfaethlu) (work package 10) – south of Llanfaethlu to north of Llanfaethlu – proposed 1.3km bypass to provide a straighter section of road, where there are two existing substandard bends near the Black Lion public house and through Llanfaethlu;
 - Section 7 (Cefn Coch) (work package 11) – north of Llanrhyddlad to north of Cefn Coch – proposed 1.3km bypass to provide a straighter section of road, where there are two existing substandard bends in Llanrhyddlad; and
 - Power Station Access Road Junction (work package 1J) – North of Cefn Coch – proposed roundabout junction linking the proposed Power Station

access road to the existing A5025 public highway – a length of approximately 0.3km.

- 1.1.6 The full construction programme for the A5025 Off-line Highway Improvements would be approximately 18 months. Sections 1, 3, 5 and 7 and the Power Station Access Road Junction would be constructed in parallel. The works for sections 1 and the Power Station Access Road Junction are assumed to be approximately 12 months, whereas for sections 3, 5 and 7 the works would continue for the full 18 months.
- 1.1.7 The principal works associated with this sub-CoCP for all four sections of the A5025 Off-line Highway Improvements and the Power Station Access Road Junction are as follows:
- site mobilisation and formation of temporary construction compounds at sections 1, 3, 5 and 7;
 - setting out of the rolling traffic management for the sections where the A5025 Off-line Highway Improvements tie into the existing A5025;
 - temporary diversion or closure of existing Public Rights of Way (PRoWs);
 - site clearance of vegetation, topsoil and field boundaries;
 - demolition and removal of stone walls;
 - reinstatement and/or replacement of boundary features;
 - installation of highway drainage infrastructure, formation of swales and surface water management control works;
 - works to create or improve kerbs, footways/cycleways, parking arrangements and private means of access;
 - earthworks;
 - bridge, culvert and underpass construction works;
 - carriageway construction;
 - landscaping and seeding;
 - installation of signage and road markings; and
 - the break-up of redundant sections of existing carriageway at sections 1, 3, 5, 7 and the Power Station Access Road Junction which will be covered with topsoil and grass seeded.
- 1.1.8 In addition to the works listed above, the following works will also be required in section 3 of the highways works:
- excavation of foundations;
 - installation of bored piles; and
 - construction of a viaduct across two watercourses (Afon Alaw and Afon Llywenan).
- 1.1.9 Site-specific measures to mitigate the effects of the construction works are detailed within this sub-CoCP. Where the requirements of construction practice are covered adequately by the Wylfa Newydd CoCP (Application Reference Number: 8.6), those requirements are not repeated in this sub-

CoCP. Therefore, where no site-specific requirements are specified here, reference is made to the Wylfa Newydd CoCP (Application Reference Number: 8.6). In the event of a conflict between the Wylfa Newydd CoCP (Application Reference Number: 8.6) and this sub-CoCP, the commitments in this sub-CoCP prevail.

- 1.1.10 Through the assessment processes, mitigation that was identified with respect to construction-related environmental effects has been integral to developing this sub-CoCP.
- 1.1.11 This sub-CoCP sets out the site-specific controls to be complied with, covering the following aspects of the Wylfa Newydd DCO Project construction:
- communications and community and stakeholder liaison;
 - general site management;
 - traffic and transport;
 - public access management;
 - air quality;
 - noise and vibration;
 - waste and materials management (including soils and land contamination);
 - water management;
 - ecology and landscape management; and
 - cultural heritage.

Figure 1-1 A5025 Off-line Highway Improvements Overview

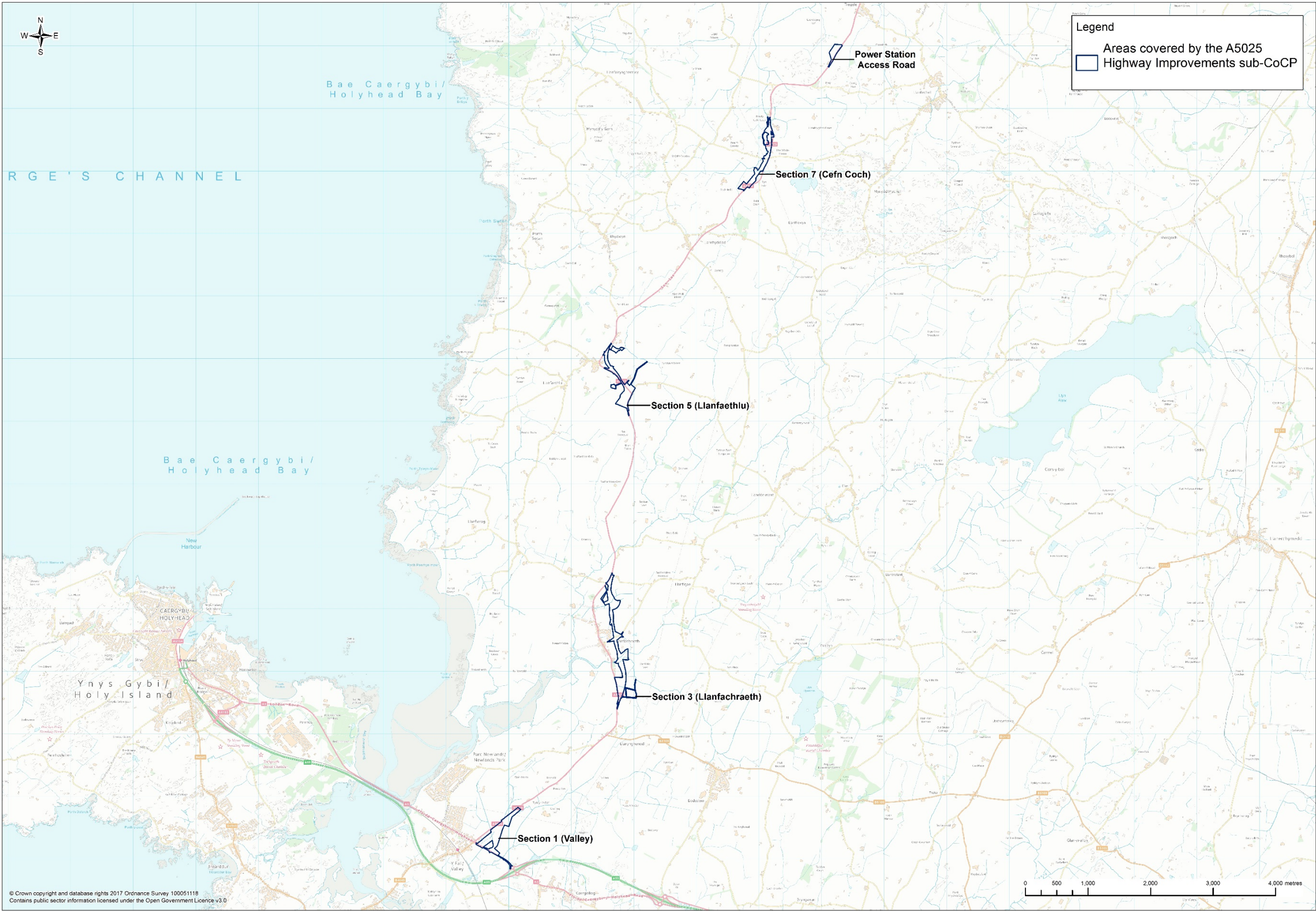


Figure 1-2 A5025 Off-line Highway Improvements Section 1

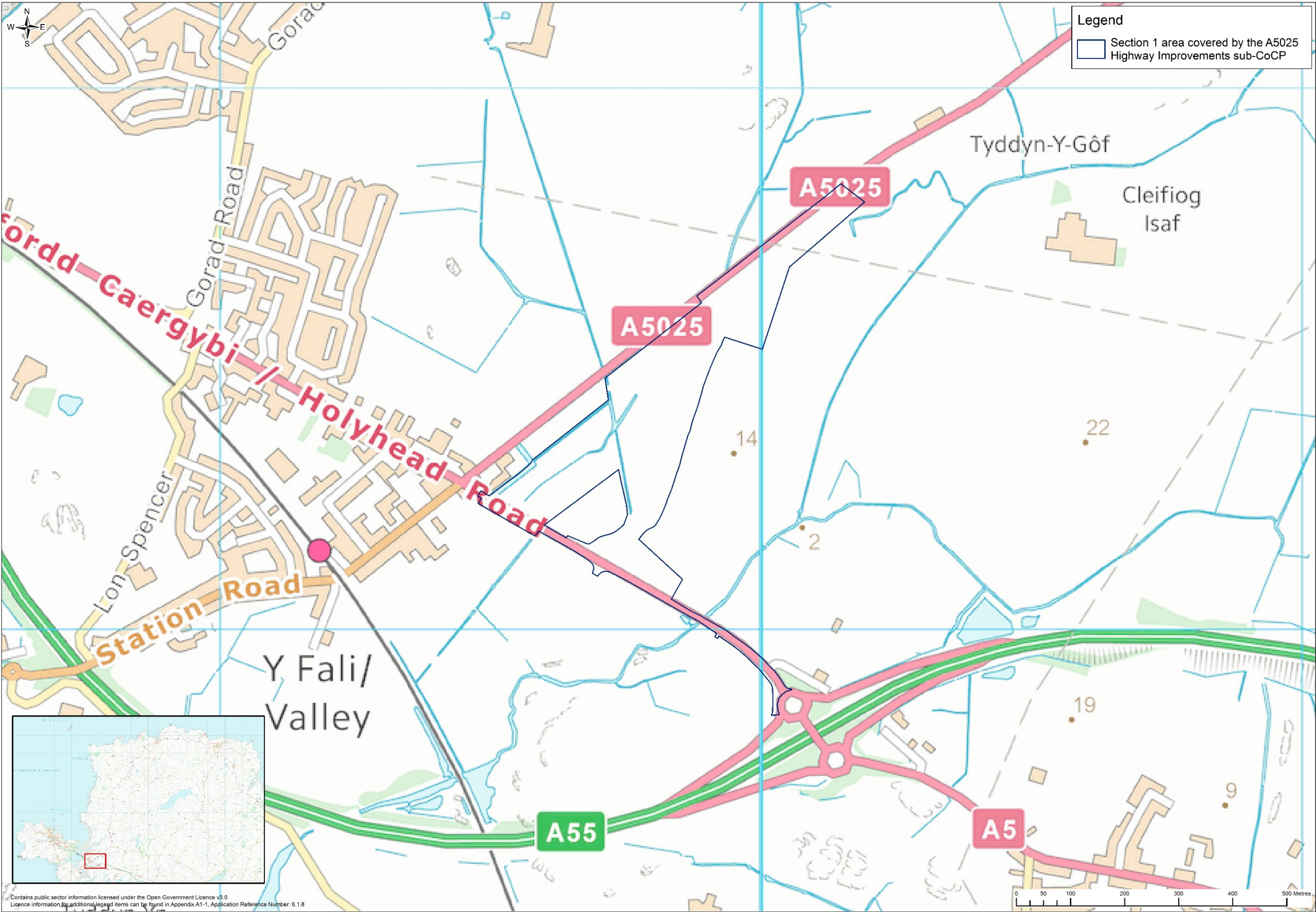


Figure 1-3 A5025 Off-line Highway Improvements Section 3

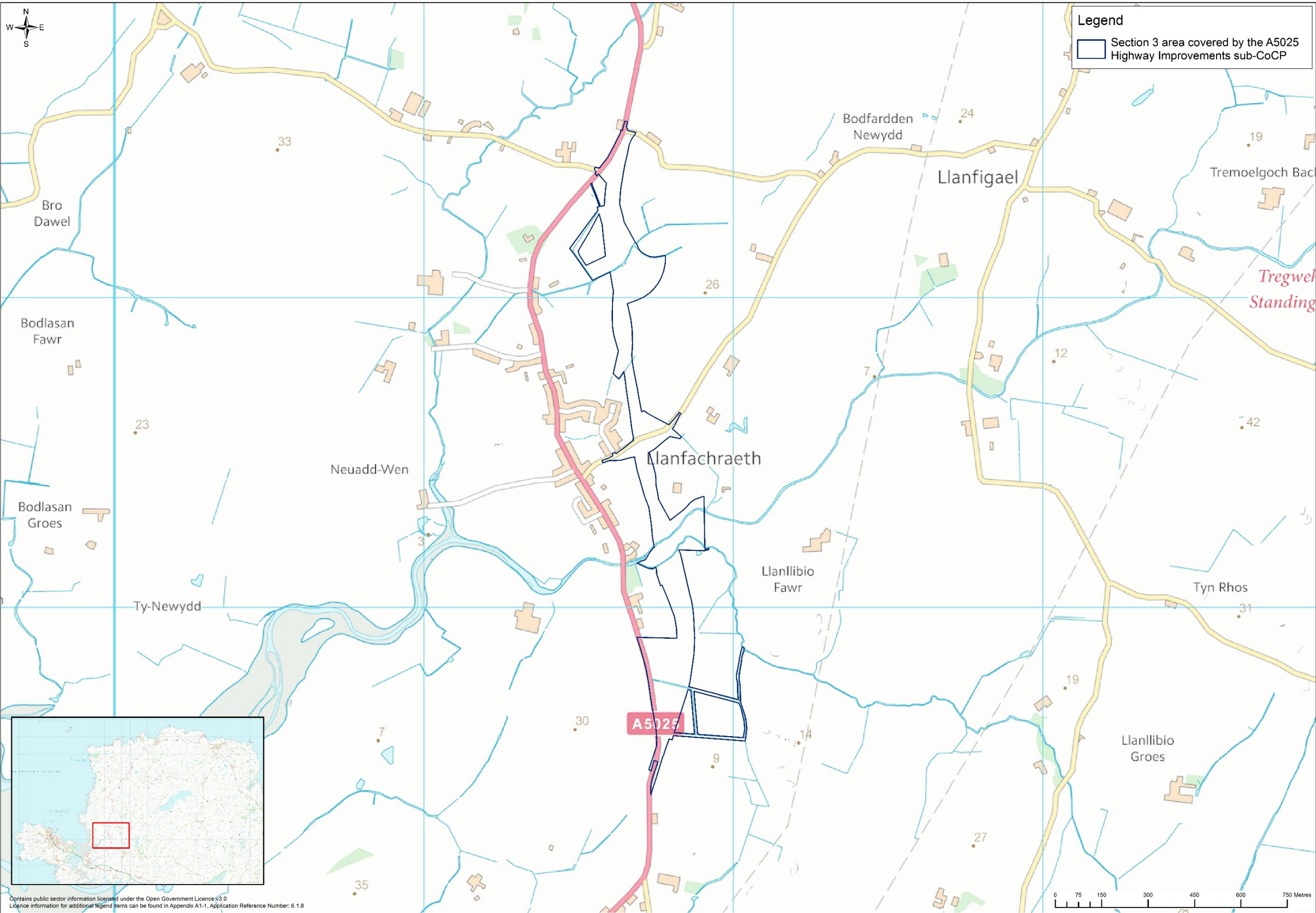


Figure 1-4 A5025 Off-line Highway Improvements Section 5

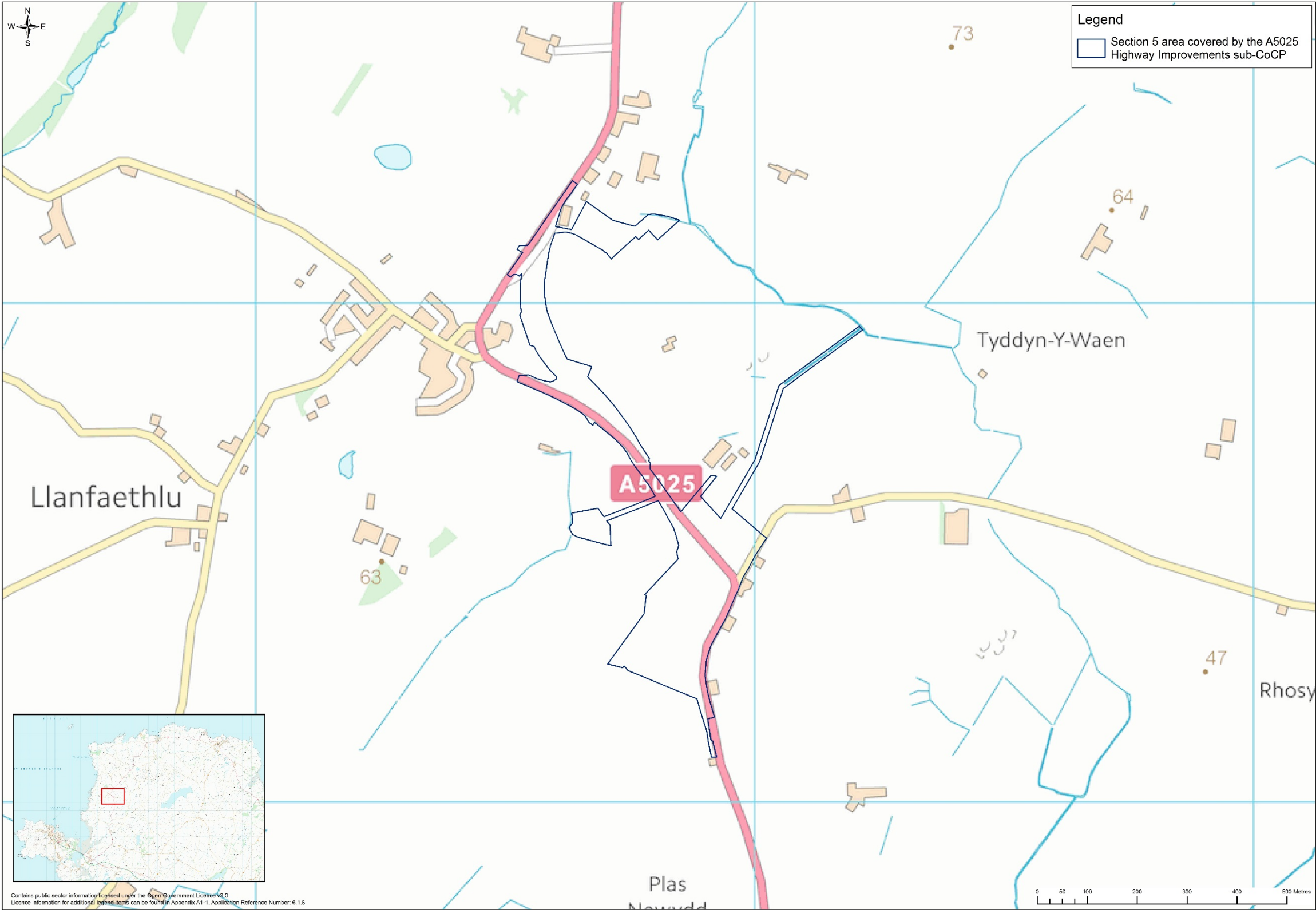


Figure 1-5 A5025 Off-line Highway Improvements Section 7

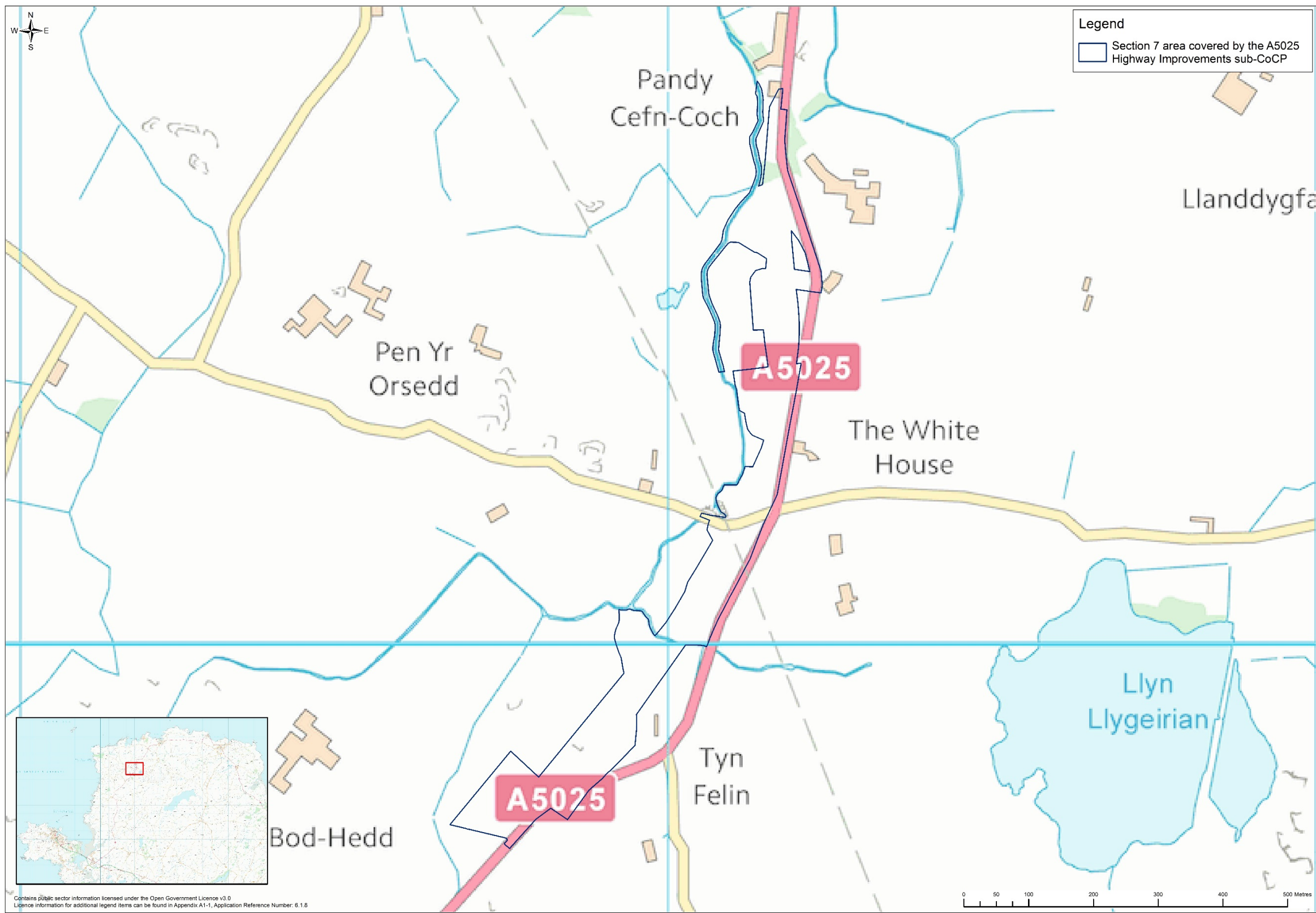
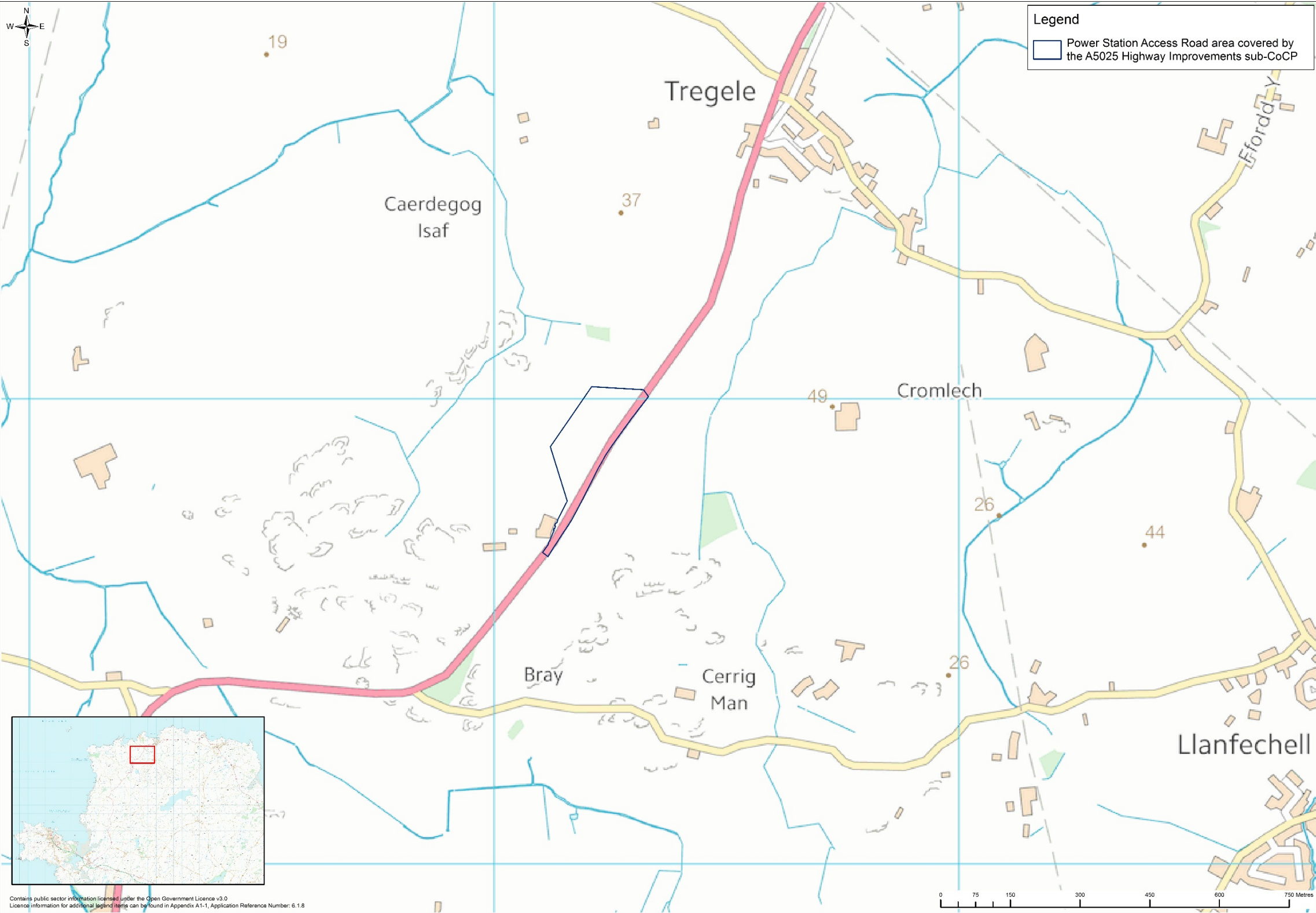


Figure 1-6 A5025 Off-line Highway Improvements Power Station Access Road Junction



2 Approach to environmental management

- 2.1.1 This section is included to maintain the structure of this sub-CoCP in accordance with the Wylfa Newydd CoCP (Application Reference Number: 8.6), in order to enable easier cross-referencing between the two documents and other sub-CoCPs. Refer to section 2 of the Wylfa Newydd CoCP (Application Reference Number: 8.6) for full information on Horizon's approach to environmental management which is consistent across the Wylfa Newydd Project.

3 Communications and community/stakeholder liaison management strategy

3.1 Community and stakeholder liaison

- 3.1.1 Horizon's communications and community/stakeholder liaison management is based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 3.1.2 The general mitigation controls to be implemented for communications and community/stakeholder liaison are described in section 3 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 3.1.3 In addition, the below outlines specific measures to be implemented during the A5025 Off-line Highway Improvements.

3.2 Site specific requirements

- 3.2.1 Horizon will notify occupiers of properties within 100m of the works and owners and occupiers of agricultural land three months in advance of works taking place. Horizon's Community Involvement Officer will develop a stakeholder communications engagement strategy which will ensure these receptors are notified of any activities that would cause impacts and disturbance, such as piling and major earthworks at least one week before the start of the activity. Receptors within 100m of the A5025 Off-line Highway Improvements for each section are listed below.
- 3.2.2 Receptors near to section 1 (Valley) are:
 - one residential property located 30m from the section boundary;
 - five agricultural land interests; and
 - Valley Cemetery.
- 3.2.3 Receptors near to section 3 (Llanfachraeth) are:
 - four residential properties located within 20m of the section boundary, including one property within 5m of the site; and
 - seven agricultural land interests.
- 3.2.4 Receptors near to section 5 (Llanfaethlu) are:
 - seven residential properties located within 20m of the section boundary;
 - the Black Lion Inn public house; and
 - the grounds of the new primary school in Llanfaethlu, which is located approximately 25m from the boundary of section 5; and
 - eight agricultural land interests.
- 3.2.5 Receptors near to section 7 (Cefn Coch) are:
 - one residential property within 20m of the section boundary; and
 - six agricultural land interests.

3.2.6 Receptors near to the Power Station Access Road Junction are:

- one residential property located approximately 70m south of the Power Station Access Road Junction boundary; and
- one agricultural land interest.

3.2.7 In addition to the fencing identified in the Wylfa Newydd CoCP (Application Reference Number: 8.6), where construction will take place adjacent to land containing livestock, fencing of working areas will be to a standard adequate for excluding any livestock kept on adjoining land and will be subject to agreement with the land owner.

4 General site management strategy

4.1 General

- 4.1.1 Horizon's site management is based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 4.1.2 The general mitigation controls to be implemented for site management are described in section 4 of the Wylfa Newydd CoCP (Application Reference Number: 8)
- 4.1.3 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

4.2 Working hours

- 4.2.1 As stated in the Wylfa Newydd CoCP (Application Reference Number: 8.6), the working hours and shift patterns for the various parts of the Wylfa Newydd Project are contained in sub-CoCPs.
- 4.2.2 Normal working hours for the construction works at the A5025 Off-line Highway Improvements construction sites between:
 - Monday to Friday: 07:00 – 18:00; and
 - Saturday: 07:00 to 13:00.
- 4.2.3 No works are proposed during the sensitive evening and/or night time periods, Saturday afternoons, Sundays or Bank Holidays.
- 4.2.4 If construction work is required at these sites outside these hours, this will be identified by Horizon and justified in the Section 61 (S61) Control of Pollution Act 1974 (CoPA) application which will be made to the Isle of Anglesey County Council (IACC) in advance of the works.

4.3 Site layout

- 4.3.1 Horizon will select a construction compound fence (such as the use of hoarding) to ensure the appearance of fences and temporary structures will seek to mitigate the visual impact of those structures on the surrounding areas through the selection of visually recessive colours and types, whilst still maintaining a safe and secure barrier.
- 4.3.2 The height of temporary topsoil storage mounds will be restricted to 2m to reduce the potential visual effect and reduce the potential adverse effect on topsoil quality and the suitability for re-use and managed in accordance with the Wylfa Newydd CoCP (Application Reference Number: 8.6).

4.4 Site lighting

- 4.4.1 The four construction compounds will be fitted with temporary lighting. Lighting columns will be fitted around the perimeter of each compound and to the site offices, and will be of a height no greater than 5m to reduce light spill.

- 4.4.2 Light spill during temporary construction activities will be limited, due to the need to maintain safe working conditions. Horizon will use measures such as restricting heights of lighting columns and using directional or down lighting where practicable.
- 4.4.3 Ad hoc directional lighting will be used for construction activities where late working is occasionally unavoidable, for example during late pavement construction activities.

4.5 Site reinstatement

- 4.5.1 On completion of works, any land required temporarily for construction works will be returned to its original condition.
- 4.5.2 Where stone walls require removal as part of construction, their loss will be mitigation by re-building them using the stone from the dismantled stone walls, where practicable.

5 Traffic and transport management strategy

5.1 General

- 5.1.1 Horizon's traffic and transport management is based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 5.1.2 Details regarding construction workforce travel arrangements, large vehicle controls, abnormal indivisible loads, works within the highway, road cleanliness and monitoring are outlined in section 5 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 5.1.3 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

5.2 Condition surveys

- 5.2.1 Horizon and IACC Highways have agreed to carry out condition surveys of the A5025 between the proposed Power Station Access Road Junction and the existing Magnox junction through Tregele, together with Junction 3 of the A55, HGV routes from Parc Cybi and the bus route from Dalar Hir on the local network (i.e. when not on the A55 and slip roads).
- 5.2.2 Following the surveys, Horizon will prepare a schedule of monitoring and agree with IACC Highways, the extent of works to upgrade the road surfacing where required. Horizon will financially support the initial resurfacing and carry out periodic joint inspections throughout the lifecycle of the construction works. This would then inform Horizon of the requirement for ongoing repair works. The assumption is that the works would be undertaken by IACC Highways maintenance teams, financed by Horizon.

6 Public access management strategy

6.1 General

- 6.1.1 Horizon's public access management is based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 6.1.2 The general mitigation controls to be implemented for public access are described in section 6 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 6.1.3 Management strategies to reduce the effects of dust and noise on the general amenity of PRoWs which will stay open during the construction of the A5025 Off-line Highway Improvements, are detailed in the noise and air quality sections of the Wylfa Newydd CoCP (Application Reference Number: 8.6) and this sub-CoCP where relevant.
- 6.1.4 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

6.2 Tour de Môn cycle race

- 6.2.1 Horizon will work with the race organisers to ensure that the construction of the off-line highway improvements will be managed at Llanfachrech and Valley to enable the Tour de Môn cycle race including provision of necessary access, along the A5025 and the relevant minor roads.

6.3 Works on a Public Right of Way

- 6.3.1 Horizon will provide bilingual signage, prior to the closure and diversion of PRoWs, outlining any new or diverted route to be followed, as outlined in the Wylfa Newydd CoCP (Application Reference Number: 8.6). All permanent footpath diversions will be clearly delineated.
- 6.3.2 Horizon will provide notification in advance of (and during) the construction works to indicate expected delay locations and durations to traffic. Notification will be in Welsh and English, for example, notification measures may include:
 - roadside signs on the approaches to the affected areas of the A5025;
 - a regularly updated Project website detailing how the A5025 Off-line Highway Improvements are progressing together with the potential disruption along the route; and
 - leaflets sent to specifically affected local communities or distributed as part of community liaison meetings.
- 6.3.3 Access to the PRoW at Llanfaethlu should be maintained during construction, with any required closures/diversions for construction purposes kept to a minimum.
- 6.3.4 Access across the minor roads which bisect section 7 of the A5025 Off-line Highway Improvements in the centre of section 7 will be provided. This access will be suitable for walkers and cyclists.

- 6.3.5 At appropriate connecting locations the Off-line Highway Improvements will ensure connectivity for existing pedestrian footway and cycle routes.
- 6.3.6 During construction of the A5025 Off-line Highway Improvements and the Power Station Access Road, a safe route for pedestrians will be maintained or provided. Traffic management on A5025 is suitable to enable pedestrians, cyclists and equestrians to continue to use the road as a linear route.
- 6.3.7 Due to the closure of the side road at Cefn Coch an appropriate crossing point will be located at the closed side road in order to maintain this link.

7 Air quality management strategy

7.1 General

- 7.1.1 Horizon's air quality management strategy will be based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 7.1.2 The general mitigation controls to be implemented for air quality are described in section 7 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 7.1.3 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

7.2 Dust emissions

- 7.2.1 Horizon will adhere to the general dust and air quality monitoring requirements detailed in the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 7.2.2 In addition to the measure set out in section 7 of the Wylfa Newydd CoCP (Application Reference Number: 8.6), the following measures are also required for the A5025 Offline Highway Improvement works:
 - earthworks and exposed areas/soil stockpiles will be revegetated to stabilise surfaces as soon as practicable, where appropriate;
 - where it is not possible to revegetate or cover with topsoil, as soon as practicable, alternative methods of dust suppression will be used;
 - where practicable, soil cover will only be removed in small areas during work and not all at once;
 - on-site haul routes will be inspected for integrity and any necessary repairs will be instigated to the surface as soon as reasonably practicable;
 - hard-surfaced haul routes will be installed, where practicable and will be damped down with fixed or mobile sprinkler systems, or mobile water bowsers, and regularly cleaned;
 - an adequate area of hard-surfaced road between the wheel-wash facility and the site exit will be provided, wherever site size and layout permits; and
 - Horizon will avoid explosive blasting, using appropriate manual or mechanical alternatives.
- 7.2.3 Horizon will undertake dust deposition monitoring using passive dust deposition Frisbee gauges. Two dust deposition gauges will be located at the boundaries of each of the sections of the A5025 Off-line Highway Improvements close to the nearest sensitive human receptors, apart from the Power Station Access Road Junction, where only one gauge will be required. The dust monitoring will be installed prior to any construction works and continue until all the construction works are complete. Baseline monitoring will be undertaken at least three months before work commences on site.

7.3 Emissions from plant and machinery

- 7.3.1 Horizon will undertake continuous monitoring of particulates (total particulates, PM10 and PM2.5) using an Osiris optical particulate analyser in the vicinity of section 5. The location of this monitoring will be at the boundary of the construction site closest to sensitive human receptors, or at a suitable off-site location e.g. likely to be either the nearby residential properties or at Llanfaethlu Primary School. Horizon will determine the exact location of the monitoring in agreement with the IACC.
- 7.3.2 The particulate monitoring will commence prior to any construction works at section 5 and continue until all the construction works are complete. Baseline monitoring will be undertaken at least three months before work commences on site.
- 7.3.3 Amber and red trigger levels will be set for the PM10 concentrations based on preventing exceedances of the 24-hour mean air quality objective to control long term increases in particulate concentrations as far as reasonably practicable. The thresholds will be agreed with the IACC.
- 7.3.4 Should an amber or red trigger level be exceeded the following actions would be implemented:
- inform the relevant site team;
 - review the meteorological conditions for the preceding hours (e.g. wind speed and direction); and
 - compare the concentrations to the other monitoring data, including those recorded at the control location.
- 7.3.5 Based on the above reviews, if site activities are identified as the cause of the exceedance of the trigger levels, the following actions will be taken (response will be proportionate to whether the exceedance is due to an amber or red trigger level):
- review wind direction to identify to identify on-site sources;
 - carry out a visual inspection to identify or confirm potential sources;
 - if site activities are determined to be contributing to the exceedance of the trigger level, the specific site works and current mitigation measures shall be reviewed;
 - implement other feasible and reasonable measures (which may include additional dust suppression, altering working methods, temporary suspension of the specific activity); and
 - continue to review the monitoring data to check the effectiveness of actions.
- 7.3.6 All exceedances of triggers levels and outcomes and responses will be recorded. The amber and red trigger levels may be adjusted during the construction works in agreement with the IACC and/or Natural Resources Wales (NRW) following review of the effectiveness of the thresholds to indicate the potential for adverse effects at off-site locations. Regular reports will be made available to the IACC and NRW and an on-line web access system to the monitoring system and monitoring data set up.

8 Noise and vibration management strategy

8.1 General

- 8.1.1 Horizon's noise and vibration management strategy will be based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 8.1.2 The general mitigation controls to be implemented for noise and vibration are described in section 8 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 8.1.3 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

8.2 Noise and vibration control measures

- 8.2.1 The general mitigation requirements to be implemented for noise and vibration control measures are described in section 7 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 8.2.2 Horizon will undertake a vibration risk assessment as part of the s61 application for any construction activity involving vibratory or impact equipment (such as vibratory rollers) to be used at the A5025 Offline works and Main Site. This assessment will establish safe working distances for receptors in relation to construction vibration. This will ensure that any equipment that is identified as having potentially adverse vibration effects can be located sufficiently away from any sensitive receptors, so that any effects on such receptors can be reduced to negligible. Where works are required within the safe working distances, alternative equipment or working methods will be investigated and vibration levels will be reduced to the greatest extent practicable. The S61 applications will also describe appropriate vibration monitoring will be carried out at the closest receptors to determine the success of these requirements. Where adopted alternative equipment and working methods still result in significant effects on sensitive receptors, respite periods will be considered.
- 8.2.3 The use of a hydraulic breaker will be required for the construction of the A5025 Off-line Highway Improvements. Horizon will implement mitigation requirements to ensure that quiet plant and techniques are used in order reduce noise emissions. Mitigation measures will be implemented to ensure that noise emissions experienced at the nearest existing noise sensitive receptor, from the use of the hydraulic breaker, are reduced by 10dB(A) from those assumed in the initial noise modelling (as detailed in Appendix G6-01, Application Reference Number: 6.7.18). This could be achieved by use of a temporary mobile barrier, selection of quieter plant or alteration of working methods. The application for prior consent under s61 of the COPA, to be submitted to the IACC will include a noise assessment, and demonstrate that Best Practical Means have been employed.
- 8.2.4 Breakup of road surfacing, and the surfacing of the road will not occur concurrently on the same stretch of road.

8.3 Noise and vibration monitoring

- 8.3.1 Construction noise and vibration monitoring requirements for the A5025 Off-line Highway Improvements, including the locations and proposed programme for monitoring will be set out in the Section 61 application under Section 61 of the Control of Pollution Act 1974, which will be submitted to the IACC for approval prior to commencing construction. Spot checks and BPM audits will be undertaken during construction to ensure noise levels remain within the permitted levels under the s61 approval.

8.4 Section 61 applications

- 8.4.1 The general requirements for submitting Section 61 applications are described in section 8 of the Wylfa Newydd CoCP (Application Reference Number: 8.6). There are no further site-specific controls in relation to submitting Section 61 applications for this sub-CoCP.

9 Waste and materials management strategy, including soils and land contamination

9.1 General

- 9.1.1 Horizon's waste and materials management (including soils and land contamination) will be based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 9.1.2 The general mitigation controls to be implemented for waste and materials are described in section 9 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 9.1.3 There are no further site-specific controls in relation to waste and materials management for this sub-CoCP.

10 Water management strategy

10.1 General

- 10.1.1 Horizon's water management will be based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 10.1.2 The general mitigation controls to be implemented for water management are described in section 10 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 10.1.3 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

10.2 Protection of watercourses

- 10.2.1 Water supplies for livestock situated within agricultural land adjacent to the A5025 Off-line Highway Improvements will be identified by Horizon prior to the commencement of construction. Where supplies are lost or access is compromised by any construction works, temporary and/or permanent alternative supplies will be provided by Horizon as agreed with the landowner/occupier.
- 10.2.2 A natural bedrock cascade is present immediately downstream of the road crossing to Pen-yr-orsedd on the Afan Cafnan. There is a risk that construction of a culvert within the riverbed, which would require removal of a section of this cascade, could result in further damage to the in-river cascade features that do not require removal. Horizon will follow the protective measures outlined in the Wylfa Newydd CoCP (Application Reference Number: 8.6) to reduce the extent of the area that is likely to be damaged, including an appropriate working corridor to reduce the extent of area likely to be damaged.

10.3 Site drainage

- 10.3.1 Horizon will undertake pre-construction drainage surveys to identify the existing field drainage and therefore identify any potential for the construction work to impact upon that drainage. In doing so, Horizon will identify possible mitigation measures that could be put in place if required, to reduce the risk of damage or disturbance to these drainage systems.
- 10.3.2 Repairing and reinstatement of drains affected by construction will be agreed with the landowner/occupier to ensure that drainage capability is maintained and any risk of flooding is not exacerbated.

10.4 Control of pollution

Surface water

- 10.4.2 During construction, Horizon will maintain, as far as practicable 15m vegetated buffer strips either side of main rivers and ordinary watercourse, apart from

Afon Alaw which will have an 8m buffer as agreed with Natural Resources Wales. Buffer strips will not be practicable where structures are required, such as culverts, outfalls and the viaduct over the Afon Alaw and Afon Llywenan in section 3. The vegetated buffers will reduce the potential for fine sediment and pollutants to enter the watercourses and mitigate effects on water quality and fluvial geomorphology on-site and downstream.

Groundwater

- 10.4.3 Horizon will undertake a pre-construction monitoring survey at the private water supply at Erw Goch and continue to monitor on a monthly basis throughout the duration of construction at section 3. If a change in the availability or quality of the water supply is identified, Horizon will put in place measures to reinstate the private water supply to the quality and availability of pre-construction levels.

10.5 Flooding

- 10.5.1 Floodplain compensatory storage has been incorporated into the design at section 1 (Valley). This compensatory storage will not impact on the highway drainage scheme. Appropriate design of compensation flood storage area will be undertaken and agreements with key stakeholders and landowners will be implemented.

11 Ecology and landscape management strategy

11.1 General

- 11.1.1 Horizon's ecology and landscape management will be based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 11.1.2 The general mitigation controls to be implemented for ecology and landscape management are described in section 11 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 11.1.3 In addition, the measures below outline specific measures to be implemented during the A5025 Off-line Highway Improvements.

11.2 Procedures

- 11.2.1 Appendix G9-10, Protected and Legally Controlled Species Report (Application Reference Number: 6.7.31) sets out the practices and procedures required to avoid committing an offence under UK legislation.

11.3 Badger

- 11.3.1 Pre-construction surveys will be undertaken within 50m any boundary features that need to be removed prior to the start of site clearance in order to identify if any badger setts are present. The survey timing will be such that, if a badger sett is recorded, sufficient time will be available to allow for a development licence application and sett closure to be completed before site clearance is scheduled to commence.
- 11.3.2 If an active badger sett is discovered in close proximity to an area that is required for construction during the construction period, work would cease in that area until:
 - a licence to close the sett is obtained from Natural Resources Wales; or
 - depending on the nature of the works, its proximity to a sett and the type of sett, Horizon is able to identify alternative methods i.e. the establishment of working buffer zones which mitigate any disturbance to badgers or avoid damage to a sett, therefore avoiding the requirement to obtain a development licence. These works will be supervised by an Ecological Clerk of Works.

11.4 Reptiles and amphibians

- 11.4.1 Pre-commencement great crested newt surveys will be undertaken in order to identify the great crested newt population size for the application of a European Protected Species Licence.

11.5 Bats

- 11.5.1 An inspection of all trees requiring felling would be carried out by Horizon to determine whether or not they were being used, or were likely to have been used, by bats for roosting. These surveys would be carried out 8 - 10 weeks prior to the site clearance activities to allow sufficient time for an EPS licence to be sought, if required. If any roosts are found during the surveys, bats would be captured and excluded from roosts under licence.
- 11.5.2 A number of potential tree roosts will require felling as part of the site clearance activities for section 7. Tree felling would be timed to avoid sensitive lifecycle periods for bats (hibernation and maternity periods), if roosts were found to be present in the trees to be removed. Prior to felling these trees, Horizon will install bat boxes on the retained trees within the Order Limits of this section to mitigate for the loss of potential roost features. A minimum of three bat boxes will be provided for every 'high' or 'moderate' category tree to be lost. Boxes will cover a range of designs including maternity boxes, hibernation boxes and boxes designed for crevice-dwelling species.

11.6 Otters

- 11.6.1 No otter holts or resting places were recorded within the extent of the A5025 Off-line Highway Improvements construction working area. There is a slight risk that otters could create a holt during the intervening period before construction commences, therefore pre-commencement otter surveys will be undertaken by Horizon in advance of any site clearance works in order to identify the presence of otter. If any lying up or holt sites are identified within the construction working area, a European Protected Species Licence will be required.
- 11.6.2 As advised in paragraph 10.4.2, Horizon will maintain an 8m buffer zone for Afon Alaw, and 15m buffer zone for all other watercourses, where the banks would be kept free of construction equipment to allow passage of otter.

11.7 Water vole

- 11.7.1 Pre-commencement water vole surveys will be undertaken on all watercourses and any other suitable habitat crossed by the A5025 Off-line Highway Improvements in order to identify the presence of water vole.
- 11.7.2 In the event that water vole burrows are identified in areas that are planned to be directly affected, Natural Resources Wales (NRW) will need to be consulted with regards to the need to obtain a Conservation Licence to allow works to continue.

11.8 Landscape planting

- 11.8.1 A landscape management strategy will be implemented for a period of 3 years, following the completion of the works, to ensure successful establishment of proposed landscaping and long-term viability of planting. In the event that these inspections identify that planting has not established, replacement planting on a like for like basis will be undertaken at the first available planting season.

- 11.8.2 Planting to be established as close to the completion of highway works as possible, in the next available planting/seeding season to reduce the amount of time bare earth is visible and enable establishment of vegetation.

11.9 Landscape reinstatement

- 11.9.1 On completion of works, any land required temporarily for construction works will be returned to its original condition.
- 11.9.2 Where boundary features (e.g. fences, walls and hedges) require temporary or permanent alteration to allow construction, these will be reinstated following construction with appropriate materials to provide a secure boundary in agreement with the land owner.

12 Cultural heritage management strategy

12.1 General

- 12.1.1 Horizon's cultural heritage management will be based on the requirements set out in the Wylfa Newydd CoCP (Application Reference Number: 8.6) and any further controls set out in this sub-CoCP.
- 12.1.2 The general mitigation controls to be implemented for cultural heritage are described in section 12 of the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 12.1.3 The specific measures to be implemented during construction works in the Main Power Station Site are outlined below in table 12-1.
- 12.1.4 There is the potential that any unknown archaeological remains that may be present within previously undisturbed areas of the A5025 Off-line Highway Improvements will be impacted by construction. Effects on any such archaeological remains that may be present will be mitigated through pre-construction archaeological surveys, as outlined in the Wylfa Newydd CoCP (Application Reference Number: 8.6).

Table 12-1 Asset mitigation

Asset	Mitigation
A5 Historic Route, Valley (Asset 5)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Two Buildings (Site of), west of Cleifiog-Isaf (Asset 6)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling
Route of Post Road/18th Century Turnpike Road (Asset 322)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
Removal of North-east / south-west Former Field Boundary, Valley (Asset 361)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
North-west / south-east Former Field Boundary, Valley (Asset 362)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.

Asset	Mitigation
Gully (Site of), north-west of Pen-caledog (Asset 427)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Field Clearance or Possible Demolished Building, north of Ty'n-ffynnon (Asset 42)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
Building (Site of), south of Erw-goch (Asset 43)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Building, south-east of Pandy Erw-goch (Asset 53)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Possible Mill Feature, Melin Bodronyn (Asset 357)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Field System, Erw-goch (Asset 358)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Former Field System, Fron-deg (Asset 359)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Ditched boundary and Furrow (Site of), east of St Machraeth's Church (Asset 414)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Fire Pit, Former Hedgerows and Posthole, south of Erw-goch (Asset 421)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Pit and Curvilinear Feature, south of Erw-Goch (Asset 425)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.

Asset	Mitigation
Parallel Linear Features, north of Llanfachraeth (Asset 435)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Former Field Boundary, south of Erw-goch (Asset 437)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Possible Archaeological Anomaly, Llanfachraeth (Asset 438)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Water Management Feature (Asset 443)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
House (Site of), south of Fadog Frech (Asset 156)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
Milk Churn Stand, south-west of Fadog Frech (Asset 151)	Photographic Survey. Photographic survey would be undertaken in accordance with relevant guidance [RD2], GAPS, 2015, Historic England, 2016) and a WSI which would be agreed with GAPS.
Possible Gully, Llanfaethlu (Asset 371)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Undated Parallel Features (Asset 408)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Undated Linear Feature (Asset 441)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Undated Parallel Linear Features (Asset 442)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.

Asset	Mitigation
Undated Linear Feature (Asset 444)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Mill Pond and Head Race (Site of), Pandy Cefn Coch (Asset 262) a	Photographic Survey. Photographic survey would be undertaken in accordance with relevant guidance [RD2], GAPS, 2015, Historic England, 2016) and a WSI which would be agreed with GAPS.
East-west Former Field Boundary, Tyddyn-Waen (Asset 366)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
East-west Former Field Boundary, Ty-croes (Asset 368)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS
Former Road (Asset 356)	Targeted Watching Brief. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Geophysical Anomaly, Bedo (Asset 350)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
Forking Trackway (Site of), Capel Soar (Asset 152)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
Linear Bank South-west of Rhos-ty-mawr (Asset 162)	Strip, map and sample and targeted watching brief. Strip map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS. The targeted watching brief would be would be undertaken in accordance with ClfA's standard [RD2] and a WSI agreed with GAPS
Possible Field System (Asset 354)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and

Asset	Mitigation
	guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Possible Pit Cluster, Llanfaethlu (Asset 360)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Undated Post Holes (Asset 409)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Fadog Frech Possible Stock Management/Settlement Features (Asset 410)	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders, to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
North-east/south-west Former Field Boundaries, Llanfaethlu (Asset 428)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
East-west Ditch, south-west of Capel Soar Standing Stone (Asset 431)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Possible Undated Pit (Asset 433)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Llanfaethlu Multiperiod Activity (Asset 440)	Strip, map and sample. Strip, map and sample would be undertaken in accordance with the standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and WSI and agreed with GAPS.
Two Burnt Mounds, Llanfachraeth (Asset 351)	Archaeological Excavation and Targeted Watching Brief. Archaeological excavation would be undertaken in accordance with the Standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and a WSI and agreed with

Asset	Mitigation
	GAPS. The targeted watching brief would be undertaken in accordance with the ClfA's standard and guidance for an archaeological watching brief [RD2] and a WSI agreed with GAPS.
Ditches and Hedgerow Features, west of Llanfachraeth (Asset 417)	Archaeological excavation. Archaeological excavation would be undertaken in accordance with the Standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and a WSI and agreed with GAPS.
Possible Standing Stone Socket, north of Bedo (Asset 418)	Archaeological excavation. Archaeological excavation would be undertaken in accordance with the Standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and a WSI and agreed with GAPS.
Hedgerow (Site of), south of Bedo (Asset 419)	Archaeological excavation. Archaeological excavation would be undertaken in accordance with the Standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and a WSI and agreed with GAPS.
Llanfachraeth Burnt Mound 2 (Asset 432)	Archaeological excavation. Archaeological excavation would be undertaken in accordance with the Standard and guidance for archaeological excavation from the Chartered Institute for Archaeologists [RD1] and a WSI and agreed with GAPS.
Mill Pond and Head Race (Site of), Pandy Cefn Coch (Asset 262) b	Horizon will produce an Archaeological Mitigation Strategy in consultation with relevant stakeholders to undertake a series of mitigation works which could potentially include targeted archaeological watching brief, targeted excavation and targeted strip map and sampling.
Historic Buildings, lime kiln to the NW of the Black Lion Pub (Asset 153)	Photographic Survey will be undertaken to record the setting of the lime kiln to the NW of the Black Lion Pub (asset 153), as the asset itself is to be retained (as part of the embedded mitigation) and a WSI which would be agreed with GAPS.

12.2 Site-specific mitigation

Disused lime kiln (Asset 153)

- 12.2.2 In addition to the above requirements, the disused lime kiln located to the west of the existing A5025 (Asset 153) in section 5 of the works will be protected from accidental damage by the installation of suitable exclusion fencing before construction commences in that area. The exclusion fencing will remain in

place for the duration of all construction activities immediately adjacent to this asset.

Historic buildings

- 12.2.3 Historic building recording within the Order Limits will be determined on a case by case basis by Horizon to provide a permanent documentary (written, drawn and photographic) record of historic buildings in their current form as described in the Wylfa Newydd CoCP (Application Reference Number: 8.6).

Historic Landscape Types

- 12.2.4 Historic landscape recording and historic landscape surveys of field boundaries, within the Order Limits will be undertaken as described in the Wylfa Newydd CoCP (Application Reference Number: 8.6).
- 12.2.5 Once construction of a section is complete, Horizon will replace any stone walls and cloddiau that had been removed during construction, using original materials where practicable, maintaining the historic field pattern.

Table 12-2 Historic landscape type mitigation

Asset	Mitigation
Fieldscape, Central Eastern Mon (HLT 1)	Level 2 Historic Landscape survey and photographic survey. This would be undertaken in accordance with relevant guidance (GAPS, 2015, Historic England, 2017) and a WSI and agreed with GAPS.
Cemlyn Coastal Strip (HLT 2)	Level 2 Historic Landscape survey and photographic survey. This would be undertaken in accordance with relevant guidance (GAPS, 2015, Historic England, 2017) and a WSI and agreed with GAPS.
Fieldscape, North-west Mon (HLT 3)	Level 2 Historic Landscape survey and photographic survey. This would be undertaken in accordance with relevant guidance (GAPS, 2015, Historic England, 2017) and a WSI and agreed with GAPS.
Llanfachraeth (HLT 4)	Level 2 Historic Landscape survey and photographic survey. This would be undertaken in accordance with relevant guidance (GAPS, 2015, Historic England, 2017) and a WSI and agreed with GAPS.

13 References

Table 13-1 Schedule of references

ID	Reference
RD1	Chartered Institute for Archaeologists. 2014. <i>Standard and guidance for archaeological excavation</i> . [Online]. [Accessed: January 2018]. Available from: http://www.archaeologists.net/sites/default/files/ClfAS&GExcavation_1.pdf
RD2	Chartered Institute for Archaeologists. 2014. <i>Standard and guidance for an archaeological watching brief</i> . [Online]. [Accessed: January 2018]. Available from: https://www.archaeologists.net/sites/default/files/ClfAS&GWatchingbrief_2.pdf