Appendix 3.1

Outline Construction Environmental Management Plan

Outline Construction Environment Management Plan

Abergelli Power Station
Abergelli Power Limited

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CONTENTS

Abbreviations

APL	Abergelli Power Limited, the Applicant
BPM	Best Practicable Means
CCS	City and County of Swansea Council
CEMP	Construction Environment Management Plan
DCO	Development Consent Order
ECoW	Ecological Clerk of Works
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EMS	Environmental Management System
HGV	Heavy Goods Vehicles
HMP	Habitat Management Plan
M	Metre
MW	Megawatt
NETS	National Grid Electricity Transmission System
NRW	Natural Resource Wales
OCGT	Open Cycle Gas Turbine
The Project	Abergelli Power Project
PEIR	Preliminary Environmental Information Report
PPE	Personal Protection Equipment
PROW	Public Right of Way
RAMS	Risk Assessment / Method Statement
SINC	Site of Importance for Nature Conservation
SUDs	Sustainable Urban Drainage
SWTRA	South Wales Trunk Road Agency

1. Introduction

1.1 Overview

1.1.1 This Outline Construction Environment Management Plan (CEMP) has been prepared as part of the PEIR for the Project'. This Outline CEMP has been prepared by AECOM on behalf of the applicant, Abergelli Power Limited (APL).

1.1.2 The Project comprises of an Open Gas Cycle Turbine (OGCT) peaking power generating station and associated infrastructure. The Project is described in detail in Chapter 3: Project and Site Description and its location provided in Figure 1.1 and Figure 1.2 of the PEIR.

1.2 Purpose of this Document

1.2.1 The aim of this Outline CEMP is to provide a framework from which a final CEMP will be produced at DCO submission for the Project. The CEMP will provide assurance to the decision maker and stakeholders that appropriate measures for preventing and reducing environmental effects will be adopted during the construction of the Project and secured via this document. This purpose of a CEMP is to set out the approach towards, and framework for, environmental management during the construction phase (including site preparation) and to provide mitigation against potentially adverse construction impacts on environmental resources, local residents and businesses. Both standard environmental good practice and project specific mitigation, as committed to within the PEIR are included within this Outline CEMP.

1.2.2 This Outline CEMP covers all elements of the Project as described in **Chapter 3: Project and Site Description** of the PEIR, although some measures will only be relevant to particular project elements or specific works, and this will be made clear in the text of the document. The principles of this Outline CEMP outline the standards, environmental management and good practice which will also be consistently applied to the construction of the Gas and Electrical Connections.

1.2.3 This Outline CEMP will be developed following consultation to produce the CEMP which will be submitted with the DCO Application for the Project. Post-consent, the CEMP will require updating in accordance with a DCO Requirement and will be approved by CCS prior to any construction commencing onsite. The CEMP submitted to City and will be substantially in accordance with this outline CEMP. Any details as may be required by DCO Requirements will be included during detailed design. The approved CEMP will be used as an environmental management and monitoring tool for the duration of the construction phase. The CEMP will be kept onsite as a live document, being updated as and when required (for example to recognise changes in regulations, good practice guidance, actions from onsite audits or a change in situation onsite).

1.2.4 The approved CEMP will fall within the scope of the main contractor's externally certified environmental management systems, and as such will be subject to independent audits by the relevant certification bodies.

1.2.5 Measures set out in this document and the approved CEMP will have regard to the Welsh Government document '*Construction and Demolition Sector Plan*' (Ref 1.1) which seeks to move towards zero waste by detailing outcomes, policies and delivery actions for organisations, companies and individuals involved with the construction and demolition sector in Wales.

1.3 Content and Structure

1.3.1 This Outline CEMP includes the following topics:

- Community liaison;
- Nuisance management including measures to avoid or minimise the impacts of construction activities (covering dust, noise, vibration and lighting);
- Site waste and materials management measures;
- Surface and ground water protection measures;
- Pollution control measures;
- Peat management measures as required;
- Landscape and visual impact mitigation (such as retention of existing trees and minimising visual intrusion of construction activities);
- Security measures;
- A protocol in the event that unexpected contaminated land is identified during ground investigation or construction;
- A protocol for the restoration of land which is temporarily used for construction following the date of final commissioning;
- Environmental training requirements; and
- Ecological mitigation measures including avoidance of sensitive features.

1.3.2 In considering these environmental matters, information is provided on:

- A register of environmental aspects (Section 2.1);
- Roles and responsibilities (Section 2.1);
- Communication and co-ordination (Section 2.2);
- Training and awareness (Section 2.2);
- Checking, monitoring, auditing and corrective action (Sections 2.5 and 3); and
- Good practice environmental control measures; and
- Where embedded mitigation and additional mitigation has been incorporated and secured; (Section 3).

1.4 Construction Phase

1.4.1 The construction phase of the Project is anticipated to take approximately 22 months with an anticipated starting date in 2020. A detailed description of the site

preparation and construction phase is available in **Chapter 3: Project and Site Description** of the PEIR.

1.4.2 Site preparation will entail:

- Creating temporary bridges over the Water Main and National Transmission Oil pipeline for the access road;
- Diverting watercourses and ditches around the Generating Equipment Site:
- Creating attenuation ponds;
- Creation of the new access road including excavation of material;
- Site clearance including vegetation clearance and topsoil stripping/ excavations;
- Establishing Laydown Area, site compounds and installing welfare facilities;
- Ecological mitigation works which may be required pre-construction; and
- Conducting geotechnical investigations and any other pre-construction surveys.

1.4.3 The main activities associated with the construction phase will be:

- Excavation and site levelling for new foundations and piling if required. The need for piling will be determined through pre-construction ground investigations;
- Access Road excavation and paving;
- Heavy Goods Vehicles (HGVs) Deliveries of materials and equipment;
- Erection and fitting out of buildings;
- Installation of the generating plant on completed foundations including auxiliary equipment such as electrical switchgear and fuel handling equipment;
- Excavation and laying of the Electrical Connection, which will include crossing the National Transmission System Oil Pipeline and reinstating the excavated material once the Electrical Connection has been laid; and
- Excavation and laying of the Gas Connection;
- The construction of cable ducts alongside the Access Road.

1.5 References

Ref 1.1 Welsh Government. (2012). Construction and Demolition Sector Plan. Towards Zero Waste One Wales: One Planet. [Online].
Available: http://gov.wales/docs/desh/publications/130301construction-demolition-waste-plan-en.pdf
[Accessed: 25/10/17].

2. Environmental Management Framework

2.1 Roles and Responsibilities

2.1.1 The following sections outline the responsibilities for those parties involved in the construction phase of the Project. These roles and responsibilities are indicative and may interchange between APL and the main contractor, and are not exhaustive.

a) APL

2.1.2 In terms of environmental management, APL is responsible for the overall delivery of the Project in compliance with relevant environmental legislation, the mitigation set out in this Outline CEMP and any Requirements to be implemented as part of the DCO.

2.1.3 APL will ensure that there is a dedicated Environmental Manager who will either be employed by APL or a nominated member of the main contractor's staff. The proposed role and responsibilities of the Environmental Manager are described below, starting in paragraph 2.1.8.

2.1.4 APL's role will include (but is not limited to):

- Ensuring the CEMP is finalised, implemented and monitored by the main contractor;
- Ensuring all the following factors are considered and appropriately actioned;
  - The most appropriate order and method of working;
  - Allocation of responsibilities between personnel, and other organisations on the Project Site; and
  - The approved CEMP is prepared and issued in a controlled way.
- Communications and Training (Section 2.2):
  - Ensuring that environmental meetings are held regularly and that environmental issues are covered as appropriate;
  - Regular liaison between all parties on the Project Site to ensure adequate precautions are taken to minimise the impact on the environment;
- Monitoring and Auditing (Section 2.5):
  - Ensuring that the main contractor complies with the good practice, mitigation measures, set out in the CEMP and DCO Requirements through review of an Audit Close-Out Schedule;
  - Ensuring that all environmental incidents are reported and investigated where appropriate; and
  - Ensuring environmental inspections of the Project Site are performed and all issues raised are addressed promptly.

b) Main Contractor

2.1.5 The main contractor will be appointed by APL to undertake the construction of the Project. The main contractor is required to comply with the mitigation and provisions within the Outline CEMP along with any Requirements imposed in the

DCO and/or licences and secondary consents associated with the Project. This also applies to any sub-contractors engaged on the Project.

2.1.6 If not already implemented by APL, the main contractor will have a nominated environmental contact to perform the role of Environmental Manager, a description and list of responsibilities for the role are set out in the section below starting in paragraph 2.1.8.

2.1.7 The responsibilities of the main contractor will also include (but are not limited to):

- Ensuring employees and sub-contractors implement the controls outlined in the finalised and approved CEMP;
- Communications and Training (Section 2.2):
  - Liaising with statutory authorities and APL as required and ensuring records of communication (including verbal communication) are kept;
  - Ensuring employees and sub-contractors receive Site Inductions (that include environmental issues) and toolbox talks, as appropriate;
  - Ensuring environmental management and emergency response training is provided and recorded.
- Monitoring and Auditing (Section 2.5):
  - Ensuring personnel needed for audits are available when required;
  - Verifying actions resulting from Corrective Action Requests, Non-Conformance notices and Observations raised during audits are completed by the deadlines;
  - Verifying actions resulting from Corrective Action Requests, Non-Conformance notices and Observations raised during audits are completed by the deadlines and recorded appropriately.

c) Environmental Manager

2.1.8 APL or the main contractor will appoint an Environmental Manager for the duration of the construction of the Project and during any restoration works. The purpose of this appointment is to ensure that the environmental interests of the Project Site are safeguarded. The Environmental Manager will have the authority to review method statements, oversee works and recommend action as appropriate. This includes having the authority to temporarily stop works if required, for example, where poor practices are being applied or mitigation is not being appropriately implemented or adhered to.

2.1.9 The Environmental Manager will work with the main contractor to ensure the implementation of, and compliance with, the provisions of the approved CEMP and licences, consents or other conditions imposed on the Project.

2.1.10 A detailed description of the Environmental Manager's responsibilities will be included in the finalised version of the CEMP however, in summary the Environmental Manager will be responsible for:

- Ensuring any pre-construction environmental surveys are scheduled into the construction programme and conducted prior to works commencing;

- Inspections of works to ensure that environmental mitigation measures and other commitments have been and/or are being implemented;
- Implementation of additional mitigation other than those committed to where unforeseen circumstances arise that could result in a breach of environmental legislation;
- Monitoring and Auditing (Section 2.5):
  - Conducting weekly site inspections and record keeping of environmental sensitivities and requirements;
  - Conducting or coordinating monthly routine audits of the main contractor's compliance with the approved CEMP including construction activities and record keeping;
  - Coordinating and organising any regular monitoring requirement or commitment;
  - Regular reporting to CCS summarising the works undertaken on the Project; and
  - Monitoring or inspection of onsite activities in response to incidents, breaches of the approved CEMP or complaints received from a third party.

d) ECoW

2.1.11 The Environmental Manager may be assisted by an Environmental Clerk of Works (ECoW). The ECoW would perform specific specialist tasks that require expert knowledge, such as observations and watching briefs. The ECoW role may be performed by a suitably qualified individual or a team of individuals with differing expertise.

2.1.12 The responsibilities of the ECoW will be finalised in the approved CEMP, but may include:

- Any pre-construction surveys requiring specialised skills;
- Watching briefs or observations of specific construction activities i.e. vegetation clearance;
- Any auditing or monitoring requiring specialised skills; and
- Input into topic specific toolbox talks and training.

e) All Site Personnel

2.1.13 All site personnel have a responsibility to the environment, which includes, but is not limited to:

- In the case of an incident, stopping work, implementing control procedures and reporting it to the appropriate personnel as identified by the main contractor in the finalised CEMP;
- Reporting when waste needs collecting;

- Passing any queries or correspondence on environmental issues to the appropriate personnel as identified by the main contractor in the finalised CEMP; and
- Working in accordance with the finalised and approved CEMP and associated management plans. Protocol to support adherence is set out in the Communication and Training section (starting paragraph 2.2.3) of this Outline CEMP.

2.2 Communications and Training

a) Community Liaison

2.2.2 The following steps will be taken by APL/the main contactor to make the public aware of the activities onsite and the available lines of communication with the Project:

- Neighbouring residents and occupiers will be notified of the start of construction activities and the likely duration of the construction phase;
- A telephone number for environmental complaints will be published local to the Project Site. There will be a dedicated person responsible for dealing with any complaints, which could be the Environmental Manager. This person will have the appropriate authority to resolve complaints. An 'out of hours' telephone number will be made available if required. A Welsh speaker can be available at request;
- Liaison will be maintained with CCS's Environmental Health Officer (EHO) for the duration of the construction phase;
- Should any complaints regarding dust or noise be received the details will be passed to the EHO for verification purposes; and
- Should any unforeseen event occur on the Project Site that has the potential to cause pollution then the relevant regulatory bodies will be notified immediately. As far as possible, notice will be issued to the EHO for dealing with an unforeseen activity that may give rise to a particular nuisance problem.

b) Environmental Site Meetings

2.2.3 To ensure dissemination of environmental information, environmental meetings will be held throughout the duration of the Project construction. The frequency of meetings will be determined by the main contractor, but will not be less than once per month. These meetings will be held for all site personnel and will be attended by the ECoW or similar environmental expert (if required).

2.2.4 Any environmental issues or lessons learnt will be reported at these meetings along with any updates or changes to environmental management plans. A "Look Ahead" at relevant environmental management or special requirements linked to specific upcoming tasks or seasonality will also be provided.

c) Site Signage and Notice Boards

2.2.5 Working areas will be clearly marked with appropriate signage and warnings to ensure that they are avoided by members of the public.

2.2.6 Site notice boards for disseminating information to Site personnel will be positioned either within individual work stations or in a centralised location. Site notice boards will display method statements, emergency contacts, and relevant statutory and non-statutory advice and guidance.

d) Site Inductions

2.2.7 The main contractor will ensure all employees, sub-contractors, suppliers, and other visitors to the Project Site receive induction training. The Site Induction will include a summary of environmental risks associated with the Project and the onsite environmental methods and standards. Any environmental methods and standards specifically relevant to the inductee's role or task will be highlighted.

2.2.8 Topics that will be covered in the Site Induction include, but are not limited to;

- Pertinent areas of environmental sensitivity, such as ecological, archaeological, hydrological or geological sensitive areas;
- Pollution prevention and protection of the water environment (including concrete washout);
- Waste management; and
- Environmental incident and near miss reporting.

e) Training in Environmental Requirements

2.2.9 The main contractor will ensure all personnel are suitably trained in general site good practice and environmental emergency response procedures, including the use of spill kits, silt mitigation and concrete washing out. Good practice and emergency response training will be provided by a suitably qualified person on a regular basis. The main contractor will keep a record of this training.

2.2.10 Toolbox talks will be provided as part of briefings on specific tasks, based on method statements and environmental standards. The will provide on-going reinforcement and awareness of environmental sensitivities and issues on the Project Site. Toolbox talks will be task specific and will identify the sensitive receptors and provide advice on any specific procedures that need to be followed and the mitigation measures that should be implemented. For specialist topics, toolbox talks may be presented by an ECoW (or equivalent suitably trained specialist).

2.2.11 A programme of relevant toolbox talks will be drawn up by the Environmental Manager or main contractor based on upcoming construction activities. Additional toolbox talks may be required outside of this based on circumstances such as unforeseen risks, repeated observation of bad practices, perceived lack of

awareness, or a pollution event. A record of all toolbox talks reporting highlights of the meeting and attendees will be maintained.

2.3 Register of Mitigation

2.3.1 A register of embedded and additional mitigation measures committed to within the PEIR has been attached in Appendix A: Mitigation Register to this Outline CEMP. The Register will need to be updated for the DCO Application in response to any consultee comments and updated EIA technical assessments. The finalised Register will be used to inform the onsite environmental management and provide a tool for aiding the preparation of method statements or environmental standards. The register covers several environmental topic areas and will be regularly updated to reflect any additional risks resulting from the main contractor/s selected methods of working, changing site conditions etc. Mitigation measures have been identified under the following general headings:

- Air Quality;
- Noise and Vibration;
- Ecology;
- Water Quality and Resources;
- Geology, Ground Conditions and Hydrogeology;
- Landscape and Visual;
- Traffic, Transport and Access;
- Historic Environment; and
- Socio-economics.

2.4 Method Statements and Site Environmental Standards

2.4.1 The main contractor will prepare Method Statements for specific construction activities and Site Environmental Standards for day-to-day Project Site operations such as housekeeping, material storage and waste management. These will be based on standard good practice measures (as set out within relevant management plans in Section 3 of this Outline CEMP), statutory requirements, environmental sensitivities and any Requirements of the DCO.

2.4.2 Site Environmental Standards will be printed on A3 posters, placed on site notice boards and used as a briefing tool onsite. They will also form the basis of toolbox talks on the relevant Project Site operations.

2.4.3 The method statement will be communicated to all or task specific personnel ahead of the commencement of the relevant activities using an agreed instruction format (e.g. toolbox talks).

2.5 Monitoring and Auditing

a) Inspections

2.5.2 The Project Site will be inspected at regular intervals to ensure implementation of good practice and compliance with measures set out within the approved CEMP. The inspection and auditing schedule for the Project will be agreed by the main contractor in consultation with the Environmental Manager and ECoW if required prior to commencement of construction. It is anticipated that there will be a programme of:

- Daily inspections;
- Weekly inspections;
- Monthly Audits;
- Monthly Complaint Reporting; and
- Ongoing Environmental Monitoring.

2.5.3 Particular notice will be taken during and following extreme weather events (high rainfall, high winds snowfall etc.), when working in areas of known contamination, and when particularly hazardous activities are being carried out. Additional Method Statements or Site Environmental Standards will be produced where significant risk to the environment is identified.

2.5.4 An Audit Close-out Schedule will be maintained by the main contractor. Any observations, corrective action requests or non-compliance notices identified through inspections will be logged in an Audit Close-out Schedule. Progress against corrective and preventative actions logged in the Schedule will be reported to APL on a regular basis.

i. Daily Inspections

2.5.5 The nominated site personnel or the Environmental Manager will conduct daily checks against environmental requirements. This could be done against a pro forma or similar, based on the measures outlined within method statements and Environmental Standards relevant to activities being conducted on that day.

2.5.6 Daily inspections will include visual inspections of dust emissions as described in Section 4.3.

i. Weekly Inspections

2.5.7 Weekly Project Site inspections will be carried out by the Environmental Manager, which will assess the effectiveness of the implemented mitigation on the Project Site.

i. Monthly Audits

2.5.8 Compliance with the approved CEMP, environmental legislation and good practice will be audited on a monthly basis by the Environmental Manager or ECoW. The

audit will include details on who is responsible for implementing any action required and the associated timescales.

i. Monthly Complaints Reporting

2.5.9 The main contractor will report to APL regarding any nuisance complaints from the general public and actions on how these have been addressed. The process for receiving and actioning complaints is set out in the Community Liaison (starting paragraph 2.2.2).

i. Environmental Monitoring

2.5.10 Any requirements for specific monitoring programmes as determined through the DCO or pre-construction surveys (i.e. ground investigations) will be conducted at appropriate intervals by a suitably qualified individual.

b) Incidents and Near Misses

2.5.11 An indicative environmental Emergency Response Plan is detailed in Section 4.6 of this CEMP. This will be finalised by the main contractor. The plan in the approved CEMP will follow the stop – contain – notify protocol and will detail responsible personnel and contacts for reporting. All personnel will be briefed on the notification protocol for alerting the main contractor and Environmental Manager of an environmental emergency as part of their Site Induction. Environmental emergency response training and toolbox talks will also be conducted at regular intervals by a suitably qualified person.

2.5.12 The main contractor will maintain a register of all environmental incidents, dangerous occurrences and/or near misses, each supported by an Environmental Incident Report Form. This will document the nature, date and time of the incident, corrective action(s) taken, and details of any contact with regulatory agencies. All incidents will be reported to the appropriate regulatory body and APL on the day that they occur or within 24 hours.

2.5.13 All environmental incidents, dangerous occurrences and near misses will be reviewed by the Environmental Manager and where necessary changes to working practices/procedures will be implemented. Lessons learnt, along with any updates to method statements, sections of the approved CEMP and toolbox talk will be communicated to all personnel at Environmental Site Meetings.

3. General Environmental Management Measures During Construction Phase

3.1 Safety

3.1.1 The main contractor will have the day to day responsibility for maintaining Health and Safety throughout the construction phase. A risk assessment and method statement (RAMS) will be produced and detail how risk will be minimised through an approved procedure, which will:

- Identify the significant Health and Safety impacts that can be anticipated;
- Assess the risks from these impacts;
- Identify the control measures to be taken and re-calculate the risk; and
- Report where an inappropriate level of residual risk is identified so that action can be taken.

3.1.2 There will be no access to construction areas by the general public. The Project Site will be secured to avoid unauthorised access including where permissive routes cross the construction areas.

3.1.3 Traffic safety should be promoted by all project personnel to prevention and control traffic related injuries. Speed restrictions will be imposed onsite. This will also minimise disturbance of bare surfaces.

3.1.4 The following good practice measures will be implemented by the main contractor to ensure the safety of site personnel:

- The provision of appropriate Personal Protective Equipment (PPE), including footwear, masks, protective clothing and goggles where required;
- Eating, drinking and smoking will be limited to a designated ‘clean’ area of the Project Site;
- Welfare facilities will be made available;
- All site workers will be required to wash their hands and remove overalls/boots when moving from ‘dirty’ to ‘clean’ areas of the Project Site;
- Any soils excavated that are considered by the main contractor to be potentially contaminated will be reported, left in situ and fenced off until their appropriate treatment (in line with Section 4.6: Emergency Response Plan); and
- Water inflows to excavated areas will be minimised by the use of lining materials, good housekeeping techniques and by the control of drainage and construction materials in order to prevent the contamination of ground water.

3.1.5 The main contractor will ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations will be easily accessible throughout the Project Site.

3.2 Construction Site Housekeeping

3.2.1 Good construction site housekeeping practice will be applied at all times. As far as reasonably practicable the construction working areas for the Project Site will be designed using the following principles:

- All work areas will be secured;
- Any fuels or liquid materials will be stored and bunded in compliance with the relevant regulation;
- Signage and boundary fences will be regularly inspected, repaired and replaced as necessary;
- All working areas will be kept in a clean and tidy condition;
- Wheel washing and dust suppression facilities will be provided when and where required;
- Waste will be removed at frequent intervals; and
- Construction waste susceptible to spreading by wind or liable to cause litter will be stored in secure containers.

3.3 Storage of Fuels and Chemicals

3.3.1 The main contractor will ensure that fuels and chemicals are stored appropriately and the measures are in place to prevent pollution of ground and water. Fuel will be stored:

- In areas where potential for contamination of water bodies is low i.e. outside 50 m of a spring, well or borehole and 10 m of an open watercourse;
- In areas that are low risk of flooding;
- In tanks that meet the manufacturing standards appropriate for the type of oil stored and comply with BS EN ISO 9001;
- With contents clearly marked on the storage containers;
- With secure and appropriately sized bunds being suitable to contain 110% of the contents (single tank). If there is more than one storage container, the bund will be capable of containing 110% of the largest tank, or 25% of the total aggregate capacity, whichever is the greatest;
- Tanks/ storage containers will be protected against vehicle collision; and
- All deliveries will be overseen by site personnel with emergency response training.

3.3.2 A Control of Substances Hazardous to Health (COSHH) store will be set up in the site compound. COSHH assessments and Material Safety Data Sheets will be held with the COSHH materials. A COSHH register will be created and maintained onsite.

3.3.3 All site personnel and sub-contractors will be made aware of the COSHH requirements through site inductions and specific toolbox talks. Daily site inspections will be used to review and monitor the storage and issue of COSHH materials.

3.4 Welfare Facilities

3.4.1 Welfare cabins, toilets and drying facilities, in line with The Construction (Design and Management) Regulations 2015 (Ref 3.1) will be provided within the Project Site for the use of site personnel. Grey and foul water from welfare facilities will not be discharged directly into ditches or watercourse, but will be collected through a foul water drainage system that will either drain to a septic tank or a package

treatment plant within the Project Site. It is likely that the latter would be the preferred option for ease of maintenance and environmental criteria. The processed water would then discharge onsite or to a nearby watercourse.

3.4.2 Where portable generators are used, industry good practice will be followed to minimise noise and pollution from such generators.

3.4.3 The risk of infestation by pests or vermin will be minimised by the appropriate collection, storage and regular collection of waste, the prompt treatment of any pest infestation and effective preventative pest control measures.

3.5 Public Right of Ways

3.5.1 There are three Public Right of Ways (PRoW) that cross the Project Site. Specific mitigation measures for the management of these PRoWs is contained within the Construction Traffic Management Plan, which will be finalised post-consent, in consultation with the PROW officer at CCS.

3.5.2 It is not proposed to permanently divert any PRoWs although measures will be implemented during the construction phase to maintain safety to users from construction traffic and also from any excavations which may be present. Any temporary closures, required for public safety, will be advertised in advance and diversions or directions to alternate routes will be provided where practicable.

3.5.3 Appropriate signage will be placed prior to the construction area to ensure users are aware of the works prior to arriving. Should works be undertaken in the immediate location of the crossing, banksman will be employed to avoid any potential adverse effects from construction traffic. In addition, suitable fencing will be implemented to ensure users of the permissive routes are segregated from construction traffic appropriately and safely if required.

3.6 Timing of Works

3.6.1 Construction will be programmed in such a way as to ensure that construction activities are undertaken in a timely manner while minimising environmental risk as far as possible, e.g. seasonal sensitivities or inclement weather will be considered. Construction activities may be undertaken simultaneously at more than one area of the Project Site. The work programme will be agreed with CCS prior to construction commencing onsite. In the event that the programme changes significantly, the changes will be communicated to CCS.

3.6.2 Construction activities will be scheduled so that works that have the potential to impact upon ecological receptors are conducted outside key periods of seasonal activity, for instance, vegetation clearance would be conducted outside of the breeding bird season.

3.6.3 Construction activities will also be scheduled, where possible to reduce the risk of pollution. Measures include:

- Minimising the periods for which soils are exposed and stockpiled thereby reducing the risk of generating silt laden runoff;

- Avoiding, where possible, undertaking specific activities such as earthworks during prolonged and heavy rainfall thereby reducing the risk of sediment or pollutants becoming entrained in excess runoff; and
- Avoiding, where possible, undertaking activities in closer proximity to watercourses when water levels are higher and adjacent land is at risk of flooding.

3.7 Working Hours

3.7.1 Construction activities will not take place outside the hours of 08:00- 18:00 Monday to Friday and 08.00-13.00 on Saturday and public holidays, unless otherwise agreed with CCS. These limits will not apply during commissioning and testing of the Project.

3.8 Lighting

3.8.1 The Project Site will require artificial lighting during construction to provide a safe working environment during hours of darkness. Artificial lighting can be a nuisance to any nearby residence and can disrupt nocturnal species.

3.8.2 An outline lighting strategy will be prepared for the DCO application with the specific details of the proposed lighting selection and configuration for the Project Site.

3.8.3 All artificial lighting used at the Project Site will be in accordance with the Institute of Lighting Professionals (ILP) Guidelines (Ref 3.2) and the Bat Conservation Trust's (BCT) interim guidance on artificial lighting and wildlife (Ref 3.3).

3.8.4 In order to minimise light disturbance to ecological receptors:

- There will be no light intrusion beyond the boundary of the proposed Project Site, particularly within the Lletty Morfil SINC to the north and east of the Generating Equipment Site, which is a habitat that supports bats; and
- There will be no night-time working within the Lletty Morfil SINC for the construction of the Electrical Connection and Access Road.

3.8.5 The general design objectives that will be used to ensure that adverse effects of lighting (through adding light to a darker rural landscape) associated with construction of the Project are minimised are listed below:

- Luminaires will be appropriately designed for the required task;
- Louvres and shields will be used to prevent undesirable light break-out;
- Construction lighting will be directed away from all sensitive receptors;
- For the illumination of large areas, in order to limit light trespass, glare and sky glow from the plant, preference will be given to several, lower lighting units rather than tall, wide beam lighting units;
- Vehicle lights will be properly directed (conforming to MOT requirements) and lenses will be intact to prevent un-necessary glare and light intrusion;
- Lighting will be reduced or switched off when not required for safety purposes;

- Security lighting will be kept at the minimum level needed for visual and security protection;
- Dark corridors will be maintained along hedgerows and watercourses and any other linear features by avoiding light encroaching on these areas. This will avoid the fragmentation of habitat used by species such as bats and also otters that use these features to move at night-time; and
- If appropriate, the use of infra-red floodlighting and CCTV systems will be considered for security to reduce the need for visible lighting outside working hours.

3.9 References

Ref 3.1 The Construction (Design and Management) Regulations 2015. S.I. 2015/51.

Ref 3.2 ILP. (2011). Guidance Notes for the Reduction of Obtrusive Light. [Online]. Available: https://www.theilp.org.uk/resources/free-resources/ilp-guidance-notes/ [Accessed: 30/11/17]

Ref 3.3 BCT. (2014). Artificial Lighting and Wildlife. Interim Guidance: Recommendations to Help Minimise the Impact Artificial Lighting. [Online]. Available: http://www.bats.org.uk/pages/bats_and_lighting.html [Accessed 07/12/17].

4. Environmental Management Plans

4.1.1 The following sections outline the likely contents of the topic specific Management Plans which will be developed either for the DCO Application in outline form or to be submitted to discharge a DCO Requirement post-consent. The contents are not exhaustive and will be finalised for the DCO Application.

4.2 Noise and Vibration Management Plan

4.2.1 This section considers nuisance noise including vibration from construction activities and good practice measures to comply with any maximum boundary noise limits imposed on the Project and to minimise potential effects on any nearby sensitive noise receptors.

4.2.2 All construction activities will be undertaken in accordance with the recommendations of BS 5228 '*Code of Practice for Noise and Vibration Control on Construction and Open Sites*' (Ref 4.1). This code details the legislative background to noise control, along with the recommended procedures for effective liaison between developers, site operators and local authorities. Methods of how to minimise the impact of site noise on site workers and local residents are also provided.

4.2.3 Other relevant legislation and guidance:

- Environmental Protection Act 1990 (as it applies to Wales) (Ref 4.2);
- BS 7385:1993 '*Evaluation and Measurement for Vibration in Buildings*' (Ref 4.3).

a) Contents of Plan

4.2.4 A detailed noise assessment will be carried out once the main contractor is appointed in order to identify specific mitigation measures for the Project. Noise levels will not exceed any boundary noise limits set out in the DCO Application.

4.2.5 To minimise the risk of noise complaints, the main contractor will advise potentially affected residents and occupiers of any construction activities to be undertaken outside of working hours. Those potentially affected will also be provided with the environmental complaints telephone number and the point of contact for any queries. Further details of how complaints will be dealt with are set out in the section on Community Liaison (Section 2.2).

4.2.6 The main contractor and all sub-contractors working on site have a general duty to take all reasonably practicable measures to minimise nuisance from noise and vibration that has the potential to impact on the local community or environment.

4.2.7 To achieve this and avoid the potential for construction activities to give rise to consequences that would otherwise be statutory nuisances (but for the provision of the DCO), Best Practicable Means (BPM) as defined in Section 79(9)(a) of the Environmental Protection Act 1990 (Ref 4.2) must be employed and the following requirements will be complied with:

- Careful consideration will be given to the appropriate selection of plant, construction methods and programming;
  - Inherently quiet plant items will be selected wherever practicable;
  - Equipment that breaks concrete by munching or similar, rather than by percussion, will be used as far as is practicable;
  - Where possible, lower noise piling (such as rotary bored or hydraulic jacking) will be used rather the driven piling techniques (if required);
  - Where practicable, rotary drills actuated by hydraulic or electrical power will be used for excavating hard materials;
  - Off-site pre-fabrication will be utilised where practicable; and
  - Noisy construction activities will be programmed to be conducted at less disruptive times.
- Noise emission standards will be complied with;
  - Modern plant that complies with the latest European Commission (EC) and UK noise emission requirements will be used onsite;
- Equipment and plant will be fitted with sound reducing measures where possible;
  - All major compressors will be 'sound-reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use; and
  - All ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Construction plant will be operated and maintained appropriately to minimise noise;
  - The manufacturer's written recommendations will be regarded or other appropriate operation and maintenance programmes which reduce noise and vibration emissions will be used;
  - Machines in intermittent use will be shut down during periods of inactivity or throttled down to a minimum;
  - Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the Project Site, will be conducted in such a manner as to minimise noise generation; and
  - Construction traffic will be appropriately routed on public roads and along access tracks to minimise noise disturbance;
- Noise and vibration emission will be considered when designing Project Site layout:
  - The Project Site will be arranged so that construction activities and vehicle routes minimise the need for reversing movements;
  - All ancillary plant such as generators, compressors and pumps will be positioned so as to cause minimum noise disturbance (e.g. as far away as practicable from residential receptors);
  - If necessary, temporary acoustic barriers or enclosures will be provided;
- All site personnel will be made familiar with current legislation and the Guidance within BS 5228 (Ref 4.1); and
- No employees, sub-contractors and persons employed on the Project Site are to cause unnecessary noise from their activities (e.g., excessive 'revving' of vehicle engines, music from radios, shouting and general anti-social behaviour).

4.3 Air Quality Monitoring and Management Plan

4.3.1 This plan contains a proposed air quality monitoring plan and standard good practice measures for reducing dust and emissions from vehicles.

4.3.2 Guidance relevant to the implementation of air quality measures include;

- BS 6031: 2009: Code of Practice for Earth Works (Ref 4.7);
- HSE Vehicle at Work Guidance (Ref 4.9); and
- Institute of Air Quality Management (IAQM) Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites (Ref 4.4).

a) Contents of Plan

4.3.3 In line with IAQM guidance (Ref 4.4) on monitoring air quality at construction sites; daily visual inspections of dust emissions will be made in conjunction with dust emissions monitoring at locations to be agreed with NRW. This data will be used to ensure that mitigation measures are appropriate and being applied rigorously and to provide early warning of increased dust emissions to inform the cessation or modification of activities prior to impacts occurring.

4.3.4 Monitoring will be undertaken in the vicinity of the Lletty Morfil SINC. Since the risk for ecosystems relates to dust deposition, a real time monitor for total suspended particulate matter will be installed. Trigger levels for the instrument, which would suggest increasing risk/emissions, will be agreed with NRW prior to the commencement of construction. The monitoring stations will be mobile and will be moved around the Project Site as the principal activities move.

4.3.5 The following are general good practice measures that will be implemented onsite to control dust and vehicle emissions. If inspections and monitoring find that plumes of dust are visible, behind moving vehicles for example, or dust was visibly deposited on roads outside of the Project Site, more vigorous control measures may be required.

i. Site Management

- All personnel will be made aware of nuisance dust and will be trained in dust management; and
- Project Site plant will be maintained so as to reduce emissions.

ii. Earthworks

- Disturbance of the ground will be kept to a minimum wherever possible;
- Necessary vegetation/ topsoil removal will be carried out in discrete sections with progressive restoration of exposed areas to minimise wind erosion;
- Earthworks and excavation areas will be kept damp, and will be avoided during periods of exceptionally dry weather; and
- Earthworks will be undertaken following BS 6031:2009 (Ref 4.7).

iii. Material Handling

- The number of handling operations will be kept to a minimum to ensure that dusty material isn't moved or handled unnecessarily;
- Soil handling will be restricted during adverse weather conditions such as high winds or exceptionally dry spells;
- Drop heights will be kept to a minimum and will be enclosed where possible;
- Transportation of aggregates and fine materials will be conducted in enclosed or sheeted vehicles;
- Dampening methods will be used where necessary; and
- Methods and equipment will be in place for immediate clean-up of spillages of dusty or potentially dusty materials.

iv. Stockpiles

- Stockpiles will be located away from sensitive receptors where dust nuisance is likely to result;
- During exceptionally dry and windy periods stockpiles will be kept damp;
- Soils will, where appropriate be landscaped into suitable shapes for secondary functions e.g. visual screening; and
- Appropriate shrouding/ wind shielding measures dependent on particulate size will be put in place to prevent dust generation from stockpiled materials. Long-term stockpiles may be capped or grassed over.

v. Traffic Measures

- Unsurfaced roads will be graded regularly to remove loose gravel and kept in a clean and compacted condition;
- A mechanical road sweeper will be made available if required for the cleaning of public roads (in agreement with CCS and South Wales Trunk Road Agent (SWTRA));
- Wheel/ vehicle wash facilities will be provided at Project Site entrance/exit; and
- Any vehicles carrying loose materials will be enclosed or appropriately sheeted.

vi. Emissions Management

- Plant and equipment will be operated as far as possible away from residential areas or sensitive receptors near to the Project Site;
- An onsite speed limit will be implemented by the main contractor that will be appropriate to the types of construction plant utilised and the Project Site hazards in line with Vehicles at Work guidance from the Health and Safety Executive (HSE) (Ref 4.9);
- Onsite vehicle movement will be kept to a minimum and restricted to adequately compacted internal roads;
- All plant utilised on Project Site should be regularly inspected. Monitoring of plant will include:
  - Ensuring no black smoke is emitted other than during ignition;
  - Ensuring exhaust emissions are maintained to comply with the appropriate limits;
- Vehicle exhausts will be directed away from the ground and other surfaces and preferably upwards to avoid road dust being re-suspended to the air; and

- Exhausts will be positioned at a sufficient height to ensure adequate dispersal of emissions.

4.4 Water Management Plan

4.4.1 This Water Management Plan sets out good practice for safeguarding water resources and quality on the Project Site.

4.4.2 Guidance relevant to this plan includes:

- The BS 'Code of Practice for Earthworks' BS 6031:2009 (Ref 4.7) and
- The BS 'Code of Practice for Foundations' BS 8004:2015 (Ref 4.8)
- National Grid (NG) Technical Specification (TS) 2.20 '*Oil Containment at Electricity Substations and Other Operational Sites'* (Ref 4.5)
- C753: The SUDS [Sustainable Urban Drainage] Manual (Ref 4.6);
- SP156: *Control of Water Pollution from Construction Sites – Guide to Good Practice* (CIRIA, 2002); and
- C532: *Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors* (CIRIA, 2001).

a) Contents of the Plan

4.4.3 Details on the design of the proposed drainage system for the Project Site during the construction phase are available in **Chapter 3: Project and Site Description** of the PEIR and the Flood Consequence Assessment in Appendix 9.1 of the PEIR. Surface water, foul water and water potentially contaminated with oil (oily water) will have separated drainage systems on the Project Site. Foul water and oily water will not be directly discharged into drains or watercourse, but collected and treated.

4.4.4 The general measures below will be considered in the implementation of the Project Site drainage system.

i. Drainage Management

4.4.5 The following measures will be implemented to safeguard water quality from pollutant sources not related to silt or sediment:

- All Project Site drainage measures will be developed in consultation with NRW prior to the commencement of construction;
- Sequencing of work will be such that proposed drainage measures, including flow controls and attenuation storage will be in place prior to erection of buildings and hardstanding;
- The construction oily water drainage will be designed in accordance with NGTS 2.20 '*Oil Containment at Electricity Substations and Other Operational Sites'* or similar approved guidelines;
- The construction surface water drainage system will adopt the principles of the SuDs Manual (Ref 4.6) to adequately drain the site and prevent ponding; and
- Any artificial drainage additional to the proposed swales and ponds will only be installed where necessary. The individual lengths, depths and gradients of these drains will be minimised to avoid intercepting large volumes of diffuse overland flow and generating high velocity flows during storm events.

4.4.6 A Construction Environmental Management Plan (CEMP) will incorporate measures to prevent an increase in flooding during construction works. It is expected that the CEMP will include provisions such as:

- New temporary and/or permanent drainage ditches to prevent uncontrolled surface runoff of contaminated water;
- Silt traps within drainage ditches to reduce the flow of suspended solids from the Project Site;
- Settlement lagoons and/or proprietary settlement tanks as required to reduce the flow of suspended solids from site ;
- Suitable layout of the construction site and application of suitable management techniques to prevent runoff from stockpiles directly ion to the watercourse; and
- Monitoring of overland flow routes along the eastern extent of the Generating Equipment Site to ensure minimal impedance of flow routes.

ii. Proximity to Water

4.4.7 The following good practice measures will be implemented to minimise the potential of direct pollution to water:

- A 10 m buffer will be applied to all Project Site watercourses. Where possible, this buffer will not be entered by plant and machinery;
- Stockpiles of excavated soils/peat will be located away from surface watercourses and away from known surface drainage pathways as much as possible;
- Laydown areas and plant and machinery will be stored at least 10 m from watercourses and where possible, in low flood risk areas; and
- Oil storage will comply with the measures set out in the Pollution Prevention Plan (Section 4.5**Error! Reference source not found.**) including, where possible being located at least 50 m from an open watercourse.

iii. Silt and Sediment

4.4.8 The following measures will be implemented in order to reduce the potential generation of silt laden runoff:

- The Project Site will be laid out to prevent runoff from stockpiles entering watercourses;
- Bare ground exposure will be minimised by only removing vegetation from areas that require to be exposed in the near future and completing reinstatement as soon as practicably possible;
- Pumped water from excavations and de-watering activities will be drained to a suitably sized settlement pond to remove silt before discharge;
- Project Site roads will be regularly maintained and kept free from sediment deposits in order to reduce the volume of silt becoming entrained in surface runoff and entering any watercourse or drain;

- Mitigation will be implemented as required (silt fencing, placement of straw bales into ditches, sediment traps) to intercept and collect silt, reduce runoff velocity and encourage deposition of suspended sediment; and
- Care will be taken during felling operations to reduce the risk of sedimentation and erosion into the watercourses.

4.5 Pollution Prevention Management Plan

4.5.1 This plan covers measures to minimise the risk of pollution to ground and water from the storage and use of potentially polluting materials onsite. The sections below detail the storage of fuels and oil, management of non-oil chemicals, potential pollution from construction vehicles, plant and machinery and the use of cement and concrete.

4.5.2 An Emergency Spill Response Plan is set out within Section 4.6.

4.5.3 All fuel storage will comply with the Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016 (Ref 4.10).

a) Contents of Plan

i. Movement, Parking and Re-fuelling of Vehicles and Plant

4.5.4 Vehicles and plant will comply with the following:

- In order to prevent compaction and erosion of undeveloped ground, movement of construction plant and vehicles will be limited to clearly defined access tracks and construction areas only.
- All construction plant and vehicles will be parked/stored at least 50 m away from surface waterbodies and springs.
- All construction plant and vehicles will be checked daily for oil and fuel leaks and record of such checks kept by the Environmental Manager (or ECoW).
- Mobile plant will be in good working order, kept clean and fitted with drip trays where appropriate.
- Refuelling of construction plant and vehicles will be undertaken on an impermeable surface at a temporary construction compound only.
- All refuelling activities will be supervised by site personnel with emergency response training.

ii. Cement and Concrete

4.5.5 Concrete and cement are alkaline and corrosive, and can have a highly polluting impact in water and on land and are harmful to human flesh.

4.5.6 Due to the size of the Project Site it is likely that concrete batching will occur on site. The equipment used for concrete batching should be operated in accordance with Process Guidance Note 3/01(12) (Ref 4.11).

4.5.7 Mixing and washing of concrete will not take place within 10 m of any watercourse or swale and waste waters will not be discharged into the water environment. All

site personnel will receive training on concrete washout as part of their Site Induction.

4.6 Emergency Response Plan

4.6.1 This plan provides response measures for potential environmental emergencies that could arise during the construction of the Project. These include; discovery of unknown contaminated 'hotspots'; spills of contaminants such as chemicals, fuels or waste materials; and entry of contaminants into watercourses during flood events.

4.6.2 This Emergency Response Plan will be reviewed by the main contractor and finalised in the approved CEMP. The main contractor will also supply emergency contact details for nominated site personnel, relevant regulatory bodies and emergency services. These details will be available on site notice boards (paragraph 2.2.6) and will be displayed along with a plan of the Project Site that displays safe storage areas and the location of response equipment, such as spill kits.

4.6.3 The emergency plan and contact details will be shown to all site personnel as part of the Site Induction. Nominated site personnel will be provided with emergency response training. There will be regular toolbox talks on emergency response procedures and all site personnel will be informed of the notification procedure in the event of discovering contamination or a spill as part of the Site Induction.

4.6.4 All incidents where the Emergency Response Plan is implemented will be reported inline with the Incident Response Procedure detailed in **Section 2.5: Monitoring and Auditing** (starting paragraph 2.5.11).

a) Contaminated Hotspots Plan

4.6.5 Ground investigations will be conducted to identify any potentially existing contaminated land within the Project Site. In the case where a contaminant is identified, a contaminant specific management plan will be produced.

4.6.6 As such, the procedure below is proposed to be followed in the eventuality that an unidentified contaminant "hotspot" showing visual or olfactory evidence of contamination is discovered during construction:

- Relevant construction activities will be stopped immediately;
- The discovery will be reported to the Environmental Manager or appropriate personnel as identified by the main contractor;
- The area will be sealed off in order to contain the spread of contaminants;
- The area will be cleared to ensure there is nothing that could cause fire or explosion;
- The relevant regulator and/or CCS will be contacted once it is confirmed that contamination has been found;
- Testing will be arranged; and
- Details of the incident will be recorded, including photos and relevant information on the Environmental Incident Report Form.

b) Emergency Spill Response Plan

4.6.7 Appropriate spill response materials for the chemicals, fuels and oils stored onsite will be provided throughout the Project Site. Spill kits will be made available at fuel storage and refuelling locations and in individual plant and vehicles. Use of plant and hazardous materials will be done in the presence of at least one operative trained in emergency response.

4.6.8 The main contractor will produce an emergency response plan that will follow the STOP – CONTAIN – NOTIFY – CLEAN UP – REPORT procedure. An indicative procedure is set out below:

- STOP
  - Construction activities will be stopped immediately;
  - Spilt substance will be identified and any information available (i.e. COSHH material sheet) obtained along with the correct PPE;
  - If safe to do so, the spill will be stopped to prevent more material spilling, e.g. oil drums will be righted or valves closed; and
  - Sources of ignition will be switched off.
- CONTAIN
  - The spillage will be immediately contained using bunds of earth or sand, drip trays, boom and or spill materials;
  - Drains and watercourses will be checked to see if the spill has reached them. Where possible, spills will be diverted and drains will be bunded to stop the spill entering the drainage network;
  - Spillage and runoff will not be washed into the drainage system.
- NOTIFY
  - The Environmental Manager will be notified;
  - The Environmental manger will then notify the relevant regulator, CCS and APL.
- CLEAN UP
  - The spill will be cleaned up using appropriate spill materials OR by an expert/ specialist clean-up contractor;
  - Contaminated soil, ground and water will be disposed of as hazardous waste (section 4.7.10).
- REPORT
  - An Environmental Incident Report will be completed in line with the Incident Response Procedure (Section 2.5.11).

c) Flood Risk Management Plan

4.6.9 The following provides an outline of the measures to be implemented to minimise flood risk:

- The main contractor will sign up to receive NRW flood warnings or flood alerts for the Afon Llan and Afon Lliw;
- The main contractor will sign up to receive high rainfall alerts provided by the MET office as flood warming for the Project Site;
- Weather forecasts will be checked regularly;

- Plant, machinery and stockpiles will be stored away from watercourses, ditches and low lying areas that could flood;
- If flooding of the Project Site is expected, vehicles and plant machinery that pose a hazard will be moved to higher ground or off-site if appropriate;
- If flooding of the Project Site occurs, plant machinery and vehicles will be checked to ensure they are safe before use; and
- Where possible, temporary works (including stockpiles and drains) will be set to direct overland flows away from the main Project Site and access routes.

4.7 Waste and Material Management Plan

4.7.1 To ensure efficiency of resource use, prevention of litter nuisance and compliance with waste legislation, this sections sets out good practice waste and material management measures.

4.7.2 Construction activities associated with materials and/or waste generation include:

- Site clearance will remove vegetation and undergrowth in work areas generating organic materials and waste;
- Excavation; it is estimated that the overall quantity of excavated material (solid) from the construction is to be approximately 19,000m^3. This figure is a measure of excavated material in the ground and bulk material. The worst case scenario assessed in **Chapter 12: Traffic, Transport and Access** of the PEIR assumes that none of this excavated material can be reused within the Project Site. However the worst case is not anticipated; and
- General day-to-day construction operations such as use of welfare facilities and deliveries generating packaging, domestic waste and sewage.

4.7.3 The EU Waste Framework Directive (WFD) (Ref 4.13) provides the overarching legislative framework for the collection, transport, recovery and disposal of waste, and includes a common definition of waste. The Project will operate in accordance with the WFD, together with the Environmental Permitting (England and Wales) Regulations 2016 (Ref 4.15) and the Hazardous Waste (England and Wales) Regulations 2005 (as amended by the Hazardous Waste (England and Wales) Amendment Regulations 2009 and 2016) (Ref 4.14).

4.7.4 Other guidance referred to within the CEMP includes:

- The Waste Classification Technical Guidance WM3 (Ref 4.16), which sets out a standardised classification of waste based on material properties;
- Welsh Government Guidance on Applying the Waste Hierarchy (Ref 4.17); and
- The Department for Environment, Food and Rural Affair's (DEFRA) Waste Duty of Care Code of Practice (Ref 4.18).

a) Contents of Plan

i. Waste Hierarchy

4.7.5 Onsite waste management will align with the Waste Hierarchy, which promotes efficient resource use and minimisation of waste through the priority ordering of the following measures:

- Prevention;
- Preparing for re-use;
- Recycle;
- Other recovery; and
- Dispose (Ref 4.14).

4.7.6 The priority order may be deviated from if a better overall environmental outcome is recognised for a particular resource or waste.

ii. Waste Prevention

4.7.7 The following preventative measures will be adopted:

- Building materials ordered will be the correct size so as not to be wasted due to being obsolete;
- The appropriate volume of material will be ordered to avoid excess;
- Ordering of new materials will be avoided if there are existing materials available or able to be adapted to the task within the Project Site;
- Deliveries will be timely and directly placed in secure storage areas, double handling will be kept to a minimum;
- Re-usable materials will be identified onsite and removed for storage and re-sale;
- Excess materials will be returned to the supplier if possible; and
- General information on site waste management will be provided in Site Inductions and toolbox talks with feedback welcomed.

iii. Classification of Waste

4.7.8 APL and/ or the main contractor will identify and classify all Project Site waste streams in line with the categories and methods set out in the Waste Classification Technical Guidance WM3 (Ref 4.16).

iv. Storing Waste

4.7.9 Where resources are earmarked for recycling, recovery or disposal the following method of storage will be implemented to minimise the risk of waste escaping, litter and/ or pollution:

- All waste will be stored at the location in which it is generated, or within a designated central waste storage area;
- These designated waste storage areas will be isolated from surface water drains and areas that discharge directly to the water environment;
- Waste will be stored in suitable containers of sufficient capacity to avoid loss, overflow or spillage;
- Storage of liquid wastes will be on impermeable bunds that hold the capacity of the container;
- Waste will be segregated by waste stream and storage containers will be clearly signed with the waste that they will hold e.g. wood, metal, plastics or other appropriate waste stream;
- Storage containers will be secure, covered or enclosed;
- There will be separate containers for hazardous waste (see Paragraph 4.7.10);

- Skips will be monitored and action taken if waste levels are too high; and
- Burning of waste is prohibited.

v. Hazardous Waste

4.7.10 "Hazardous waste" is any waste which contains properties that might make it harmful to human health or the environment (Ref 4.19).

4.7.11 Hazardous waste could arise during construction from the following sources:

- Maintenance of plant and machinery;
- Oily water waste;
- Oily rags;
- Oil absorbent pads etc.; and
- Environmental Spill recovery (small amounts only; larger volumes taken away directly for disposal).

4.7.12 All Hazardous waste will be segregated by type and from other waste streams. All waste oil will be stored in a bunded facility until such times that it is collected. Used filters, rags and absorbents will be stowed in the hazardous waste container in drums or waste oil bags.

vi. Transporting Waste

- Waste contractors will be checked periodically (bi-annually) to ensure they have valid licences; and
- All waste leaving the Project Site will be accompanied by a Waste Transfer Note (WTN) for non-hazardous waste or a Special Waste Consignment Note (SWCN) for hazardous waste. A copy of which will be retained for 2 (WTN) or 3 years (SWCN).

4.8 Habitat Management Plan

4.8.1 Construction activities will be carried out in such a way as to ensure that disturbance to any nearby ecologically sensitive areas is minimised and that appropriate measures are adopted to avoid impacts on protected species in accordance with relevant good practice and statutory requirements.

4.8.2 Measures provided within this Outline CEMP are based on the requirements within the following legislation:

- Conservation of Habitats and Species Regulations 2017)(Ref 4.20);
- Protection of Badgers Act 1992;
- The Hedgerows Regulations 1997 (Ref 4.21);
- Wildlife and the Countryside Act 1981 (as amended); and
- Town and Country Planning (Trees) Regulations 1999 (Ref 4.22).

a) Contents of Plan

4.8.3 Appropriate regard for the protection of local habitats and protected species during the construction of the Project includes the following measures:

- Fencing will be erected around the Project Site to prevent spill over to areas outside of the Project footprint, particularly in areas adjacent to features of interest/value;
- Information and procedures regarding the biodiversity associated with the Project Site will be disseminated to Project Personnel through training, toolbox talks and summarised on site notice boards (detailed in Section 2.2.5);
- All reasonably practicable measures will be employed to minimise harm to, and disturbance of, wildlife caused by noise and vibration, dust, surface water runoff, waste and pollution. This may include avoidance of certain activities during sensitive times of the year such as breeding and nesting bird season;
- Avoidance through micro-siting will be undertaken wherever possible, in consultation with the ECoW, as necessary;
- Trenches and holes should be covered when not being worked on to prevent entry by mammals and where this is not possible exist and escape routes such as ramps or mammal ladders will be provided;
- Open entrances to pipes and pipelines should be covered when not being worked on to prevent access by mammals; and
- Regular environmental inspections, incorporating biodiversity, will be undertaken to check that detrimental impacts on ecological features are being minimised (see Section 2.5).

4.8.4 An Ecological Mitigation Area will be implemented for the protection of reptiles and amphibians. The proposed location will be confirmed for the DCO Application within the Outline Landscaping Plan. Details on trapping and translocating reptiles will be provided in the Outline Habitat Management Plan as part of the DCO application. Information on proposed techniques is currently available in **Chapter 8: Ecology** of the PEIR.

4.8.5 Vegetation clearance of areas with good reptile habitat will be supervised by the ECoW. The main contractor will ensure the integrity of the ecological mitigation area through restricted access and regular maintenance of fencing. Awareness of the area and measures to protect reptile and amphibian habitat will be raised through the Site Induction and toolbox talks prior to site clearance and any other relevant construction activities as identified by the ECoW or Environmental Manager.

4.9 Invasive Species Management Plan

4.9.1 Construction activities will be carried out in such a way so as to, as far as practicably possible, control the spread of invasive species from the Project Site.

4.9.2 Measures set out in this Outline CEMP are in line with the responsibilities detailed in the Wildlife and the Countryside Act 1981 (as amended).

a) Contents of the Plan

4.9.3 The results of the invasive species survey will be updated before construction commences. Specific measures for invasive species will be set out in the ecological management plan, an outline of which will be submitted with the DCO. The

Ecological Management Plan will consider measures for the control and eradication of invasive species, such as;

- The implementation of buffer areas around identified or suspected plants;
- The management of vehicle movements to reduce dispersal of seeds within and outside of the Project Site;
- The implementation of vehicle inspections and wash stations for controlling the spread of invasive species, if required;
- Details on monitoring and reporting of invasive species;
- Species specific treatments (e.g. pulling and/ or herbicides) the timing of treatment and any additional consents or requirements (i.e. consent to use herbicide close to a watercourse); and
- How waste containing invasive species will be classified and managed.

4.9.4 Awareness of the legal requirements relating to invasive species and the potential health risks that certain species can pose, will be included within toolbox talks and posters on identification of relevant species will be made available on site notice boards.

4.9.5 Should an invasive species be found, works will be stopped and appropriate measures implemented by the ECoW or other suitably qualified individual.

4.10 Landscape Management Plan

4.10.1 This Landscape Management Plan outlines good practice measures for the retention and protection of trees and for reducing visual intrusion during construction. Reinstatement is considered in the Land Reinstatement and Restoration Plan (Section 4.11) and planting is considered in **Chapter 11: Landscape and Visual Impact Assessment** of the PEIR.

4.10.2 Works with trees will be compliant with BS 5837: 2012 (Ref 4.23) and BS 3998: 2010 (Ref 4.24)

a) Contents of Plan

4.10.3 Construction activities will be carried out in such a way to ensure that, as far as reasonably practicable, disturbance to visual receptors is minimised.

4.10.4 The following measures will be adopted as appropriate:

- Good housekeeping measures will minimise unsightly waste and secure storage will be provided for materials at risk from displacement by wind;
- Temporary stockpiles will be located in defined storage areas, away from sensitive visual receptors;
- No advertisements or fly posting will be permitted on any fence and all graffiti will be removed and made good as soon as reasonably practicable;
- All boundary fences will be maintained in a neat and tidy condition;
- Any temporary fencing will be removed as soon as reasonably practicable after completion of the works; and
- Temporary lighting will be selected and sited so as to minimise visual intrusion (as set out in Section 3.8 Artificial Lighting Plan), whilst maintaining the safe

and efficient operation of work areas. At night and during periods of darkness, directional security lighting will be used.

4.10.5 The following good practice measures will be adopted and implemented for the protection of trees retained onsite:

- A Root Protection Area (RPA) will be set up around trees to be retained onsite prior to commencement of construction;
- The RPA will be demarcated by 'Netlon' fluorescent mesh fencing or similar physical barrier. The protective fencing will be maintained for the duration of the construction phase and checked on a regular basis;
- In the event that an RPA cannot be maintained at 12 times the diameter at breast height (DBH) mitigation such as bog matting, flotation tyres and hand digging will be utilised;
- No machinery or material will be stored within the RPA;
- To ensure retained trees do not become hazardous, the condition of trees will be checked by the Environmental Manager or ECoW at an appropriate frequency and following storm events where there may be damage from wind throw;
- Where a tree is damaged or diseased advice will be sought from an Arboriculturalist (unless the ECoW is appropriately qualified) for appropriate treatment measures;
- Where hazardous branches or trees require to be felled this will be done by a qualified tree surgeon in line with BS 3998: 2010;
- Before felling trees will be surveys for potential bird nest or bat roosts by the ECoW; and
- The waste hierarchy will be applied to forestry arisings and alternate onsite uses will be sought before disposal is considered.

4.11 Peat Management Plan

4.11.1 A Peat Management Plan will be prepared after Ground Investigations have been conducted, post-consent. The Peat Management Plan will detail predicted volumes of peat excavated on the Project Site, the characteristics of the excavated peat, and how and where this excavated peat will be stored, reused and managed

4.12 Land Reinstatement and Restoration Management Plan

4.12.1 This plan sets out planned and good practice measures for the reinstatement of areas of the Project Site once they are no longer required for construction.

4.12.2 Prompt implementation of reinstatement and restoration measures aim to reduce the effects of:

- Compaction of subsoil, which can lead to inhibited drainage and root growth;
- Exposed ground, which can cause loss of topsoil, dust and water pollution through wind blow and erosion; and
- Visual intrusion.

a) Contents of Plan

4.12.3 Planned reinstatement at the Project Site includes the following considerations and measures:

- Land reinstatement will normally take place in the autumn following the construction phase. The length of the gas connection route will be reinstated to its original condition and returned to its previous use;
- Where compaction may have occurred a 'sub-soiler', which lifts and shatters the subsoil will be used before the topsoil is reinstated;
- Topsoil that has been stored in the Laydown Area will be spread and levelled across the width of the strip, using hydraulic excavators or bulldozers. In areas where stones have been brought to the surface, stone picking will be carried out mechanically;
- The finish in which the soil is left will be agreed with the relevant land occupier. Land to be reinstated as grassland will either be reseeded in the autumn or the following spring. The reptile fences will remain in place until the grass crop is established;
- Temporary construction fences will be removed once an agreement has been reached with the landowners that the land can be handed back to them; and
- Hedgerows will be reinstated in the first planting season following the completion of construction and land reinstatement work.

4.12.4 The following lists general reinstatement good practice measures that will be adopted for the implementation of the specific measures:

- Reinstatement will be carried out as soon as possible following any vegetation stripping to ensure integrity is maintained;
- The reinstatement of the construction areas will be undertaken to the standard to be agreed with CCS, using the existing soil and vegetation wherever possible;
- Stripped soil will be reinstated as close to where it was removed as possible;
- Subsoil, topsoil and turf will be replaced in the same order as removed;
- Restoration works will be carried out in suitable weather conditions noting that wet ground conditions can be difficult as can hot dry and windy spells; and
- Natural regeneration of habitats will be promoted in all appropriate areas as advised by the Environmental Manager or ECoW.

4.13 References

Ref 4.1 British Standards Institute (BSI). (2014). BS 5228 -1: 2009+ A1:2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise.

Ref 4.2 Environmental Protection Act 1990.

Ref 4.3 BSI. (1993). BS 7385-2: 1993. Evaluation and Measurement for Vibration in Buildings. Part 2: Guide to Damage Levels from Groundborne Vibration.

Ref 4.4 IAQM. (2012). Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites. [Online].
Available: http://www.iaqm.co.uk/wp-content/uploads/guidance/monitoring_construction_sites_2012.pdf
[Accessed: 30/11/17]

Ref 4.5 National Grid. (2014). NGTS 2.20: Oil Containment at Electricity Substations and Other Operational Sites.

Ref 4.6 CIRIA. (2015). C753: The SUDS [Sustainable Urban Drainage] Manual;

Ref 4.7 BSI. (2009). BS 6031:2009 Code of Practice for Earthworks.

Ref 4.8 BSI. (2015). BS 8004:2015. Code of Practice for Foundations.

Ref 4.9 HSE. (n.d.) Speed Limits. [Online]. Available:
http://www.hse.gov.uk/workplacetransport/factsheets/speed.htm
[Accessed 20/11/17].

Ref 4.10 Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016. W.S.I. 206/359/W112.

Ref 4.11 DEFRA. (2012). Process Guidance Note 3/01(12): Statutory Guidance for Blending, Packing, Loading, Unloading and Use of Cement. [Online]. Available:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/573004/blending-packing-loading-unloading-and-use-of-cement-process-guidance-note-3-01_12_.pdf
[Accessed 21/11/17].

Ref 4.12 BSI. (2012). BS 5837. Trees in Relation to Design, Demolition and Construction – Recommendations.

Ref 4.13 Directive 2008/98/EC The Waste Framework Directive L312/3.

Ref 4.14 The Waste (England and Wales) Regulations 2011. S.I. 2011/988. Environmental Protection, England and Wales.

Ref 4.15 The Environmental Permitting (England and Wales) Regulations 2016. S.I. 2016/1154. Environmental Protection, England and Wales.

Ref 4.16 NRW, SEPA, NIEA and EA. (2015). Waste Classification. Guidance on the Classification and Assessment of Waste (1st Edition 2015). Technical Guidance WM3. [Online]. Available:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427077/LIT_10121.pdf
[Accessed 20/11/17].

Ref 4.17 Welsh Government. (2012). Guidance on Applying the Waste Hierarchy. [Online]. Available:
http://gov.wales/docs/desh/publications/120119wastehierarchyguideen.pdf
[Accessed 01/12/17].

Ref 4.18 DEFRA. (2016). Waste Duty of Care Code of Practice. [Online]. Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/506917/waste-duty-care-code-practice-2016.pdf [Accessed 01/12/17].

Ref 4.19 HSE. (n.d). Available: http://www.hse.gov.uk/waste/hazardouswaste.htm. [Accessed 20/11/17].

Ref 4.20 The Conservation (Natural Habitats, &C.) Regulations 2017, Wildlife, Countryside.

Ref 4.21 The Hedgerows Regulations 1997. S.I. 1997/1160. Countryside.

Ref 4.22 The Town and Country Planning (Tree Preservation Order) Regulations 1999 as amended.

Ref 4.23 British Standards Institute (BSI). (2012). BS 5387:2012 Trees in Relation to Design, Demolition and Construction – Recommendations.

Ref 4.24 BSI. (2010). BS 3998: 2010 Tree Work. Recommendations.

Appendix A: Mitigation Register

A.1 Introduction

A.1.1 This Appendix provides a register of mitigation for all mitigation measures that have been identified in the PEIR for the Project, and are incorporated within the Outline CEMP and all other topic-specific Management Plans. The measures listed in this Appendix will be updated for the DCO Application to include relevant DCO Requirements.

A.1.2 Table A.1 – Table A. 2 collate the mitigation measures outlined in the PEIR and have been separated into construction, operation and phases. Decommissioning measures will be similar to that of construction. These tables show the corresponding reference to the PEIR, the relevant Management Plan(s) and their document reference, and also cross-referencing the responsibility for the preparation, approval and delivery as set out in the CEMP.

Table A.1 Construction Mitigation Register

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
General Environmental Management Principles and Responsibility							
GEN01	Embedded	A CEMP will be prepared and then implemented during construction to mitigate any adverse environmental effects. An Outline CEMP for the Project is provided in Appendix 3.1 of the PEIR. It includes measures relating to the environmental topics assessed in this PEIR which will mitigate the effects of construction. The CEMP will be finalised and followed by the Contractor on site, once the content has been agreed with CCS. The Outline CEMP includes the following information: • Community liaison; • Nuisance management including measures to avoid or minimise the impacts of construction works (covering dust, noise, vibration and lighting); • Site waste and materials management measures; • Surface and ground water protection measures; • Pollution control measures; • Peat management measures as required; • Landscape and visual impact mitigation (such as retention of existing trees and minimising visual intrusion of construction works); • Security measures; a protocol in the event that unexpected contaminated land is identified during ground investigation or construction; • A protocol for the restoration of land which is temporarily used for construction following the date of final commissioning; • Environmental training requirements; and • Ecological mitigation measures including avoidance of sensitive features.	3.11.2	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
GEN02	Embedded	Water courses and ditches will be diverted around the Generating Equipment Site, with silt traps, straw bale filters and attenuation pond formed for any surface water outlet from the Generating Equipment Site. Water from the attenuation ponds will be discharged in a controlled manner to the Afon Llan.	3.7.7	CEMP	APL/ Main contractor	CCS	Main contractor
GEN03	Embedded	Piling will be carried out using rotary driven piles in high load areas of the Generating Equipment Site such as plant and building column foundations. This technique will minimise disturbance of nearby sensitive ecological receptors. Shallow foundations for lighter buildings will be excavated.	3.7.16	CEMP	APL/ Main contractor	CCS	Main contractor
Air Quality							
AQ01	Embedded	The CEMP will include the standard good practice dust mitigation measures, as set out in the Outline CEMP in Appendix 3.1 of the PEIR.	3.11.11	CEMP	APL/ Main contractor	CCS	Main contractor
AQ02	Embedded	Daily visual inspections of dust emissions will be made in conjunction with dust emissions monitoring at locations to be agreed with NRW. If plumes of dust are visible, behind moving vehicles for example, or dust was visibly deposited on roads outside of the Project Site, additional control measures may be required.	3.11.12	CEMP	APL/ Main contractor	CCS	Main contractor
AQ03	Embedded	Institute of Air Quality Managers (IAQM) guidance on monitoring air quality at construction sites (Ref A.1) recommends that, in addition to visual inspections, ambient air monitoring is undertaken in the vicinity of high risk sites. This data is required for two reasons: the first relates to ensuring that mitigation measures are appropriate and being applied rigorously; the second is to provide early warning of increased dust emissions which allows for the cessation or modification of activities prior to impacts occurring.	3.11.13	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
AQ04	Embedded	Monitoring will be undertaken in the vicinity of the Lletty Morfil SINC. Since the risk for ecosystems relates to dust deposition, a real time monitor for total suspended particulate matter will be installed but this needs to be an 'indicative instrument' only. Trigger levels for the instrument, which would suggest increasing risk/emissions, should be agreed with NRW prior to the commencement of construction. The monitoring stations will be mobile and would be moved around the Project Site as the principal activities move.	3.11.14	CEMP	APL/ Main contractor	CCS	Main contractor
Noise							
N01	Embedded	It is anticipated that core working hours and boundary noise will be limited during construction by a Requirement in the DCO. Working hours are likely to be between 08.00 and 18.00 on weekdays, and between 08.00 and 13.00 hours on Saturdays and public holidays. Some works may be allowed to take place outside of normal working hours provided they do not cause any noise disturbance. Should it be necessary to conduct work with the potential to generate noise, outside these core hours, this would be with the prior written agreement of CCS. These limits will not apply during commissioning and testing of the Project.	3.11.18	CEMP	APL/ Main contractor	CCS	Main contractor
N02	Embedded	Measures to mitigate noise and ensure compliance with any imposed maximum boundary noise limits will be implemented during the construction phase of the Project in order to minimise impacts at local residential Noise Sensitive Receptors (NSRs), particularly with respect to activities required outside of normal working hours.	3.11.19	CEMP	APL/ Main contractor	CCS	Main contractor
N03	Embedded	Construction noise mitigation measures are included in the Outline CEMP (Appendix 3.1 of the PEIR). In order to keep noise effects from the construction phase to a minimum, all construction activities relating to the Power Generation Plant, Gas Connection, and Electrical Connection would be carried out in accordance with the recommendations of British Standard (BS) 5228 'Noise and Vibration Control on Construction and Open Sites' (Ref A.2) as explained in **Chapter 7: Noise and Vibration** of the PEIR.	3.11.20	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
N05	Embedded	Method statements regarding construction management, traffic management, and overall site management would be prepared in accordance with best practice and relevant British Standards, to help to minimise impacts of construction works. One of the key aims of such method statements would be to minimise noise disruption to local residents during the construction period.	3.11.22	CEMP	APL/ Main contractor	CCS	Main contractor
N06	Embedded	Consultation and communication with the local community throughout the construction period would also serve to publicise the works schedule, giving notification to residents regarding periods when higher levels of noise may occur during specific operations, and providing lines of communication where complaints can be addressed.	3.11.23	CEMP	APL/ Main contractor	CCS	Main contractor
N07	Embedded	A detailed noise assessment would be carried out once the contractor is appointed and further details of construction methods are known, in order to identify specific mitigation measures for the Project.	3.11.24	CEMP	APL/ Main contractor	CCS	Main contractor
N08	Embedded	In addition, it is proposed that the contractor would be a member of the 'Considerate Constructors Scheme' which is an initiative open to all contractors undertaking building work.	3.11.25	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
N04	Embedded	Mitigation measures for inclusion within the CEMP may contain, but is not limited to: • Abiding by any construction noise limits at nearby NSRs; • Ensuring that all processes are in place to minimise noise before works begin and ensuring that best practicable measures (BPM) are being achieved throughout the construction programme, including the use of localised screening around significant noise producing plant and activities; • Ensuring that modern plant is used, complying with the latest European noise emission requirements. Selection of inherently quiet plant where possible; • Hydraulic techniques for breaking to be used in preference to percussive techniques where practical; • Use of lower noise piling (such as rotary bored or hydraulic jacking) rather the driven piling techniques (if required), where possible; • Off-site pre-fabrication, where practical; • All plant and equipment being used for the works to be properly maintained, silenced where appropriate, operated to prevent excessive noise, and switched off when not in use; • All contractors to be made familiar with current legislation and the guidance in BS 5228 (Parts 1 and 2), which should form a prerequisite of their appointment; • Loading and unloading of vehicles, dismantling of site equipment such as scaffolding or moving equipment or materials around the Project Site, to be conducted in such a manner as to minimise noise generation; • Appropriate routing of construction traffic on public roads and along access tracks; • Consultation with BDC and local residents to advise of potential noisy works that are due to take place; and • Monitoring of noise complaints, and reporting to the main contractor for immediate investigation.	3.11.21	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
N09	Additional	The preferred approach for controlling construction noise and vibration is to reduce levels at source where possible, but with due regard to practicality. Sometimes a greater noise or vibration level may be acceptable if the overall construction time, and therefore length of disruption, is reduced.	7.6.3	CEMP	APL/ Main contractor	CCS	Main contractor
N10	Additional – Monitoring	During operation, monitoring is considered appropriate in order to track the success of delivery of proposed mitigation. Ideally this monitoring would be based on regular or fixed measurements close to the Project Site boundary to give consistency by minimising the impact of weather and extraneous sources. The measured levels at these locations must be calibrated against the levels at the receptors as part of the plant commissioning sound test procedure. Any change in Project Site boundary levels can then be related directly to changes at the receptors.	7.6.4	CEMP	APL/ Main contractor	CCS	Main contractor/ Environmental Manager/ ECoW
Ecology							
E01	Embedded	Local habitats and protected species would be protected during the construction works through measures included within the Outline CEMP (Appendix 3.1 of the PEIR) such as fencing to prevent access of species to working areas and translocation of protected species (e.g. reptiles).	3.11.32	CEMP	APL/ Main contractor	CCS	Main contractor
E02	Embedded	Sensitive ecology features such as the Ancient Woodland, trees and habitats have been avoided as much as possible during the Project design development and will continue to be considered in the potential improvements and widening of the existing access road from the B4489, drainage and landscape reinstatement.	3.11.33	CEMP	APL/ Main contractor	CCS	Main contractor
E03	Embedded	The Outline Ecological Management Plan will set out all necessary ecological mitigation measures as necessary to sufficiently mitigate the impacts on ecological receptors. The plan also outlines procedures to manage invasive species and will be submitted with the DCO Application.	3.11.34	Ecological Management Plan	APL/ Main contractor	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E04	Additional	*Lletty-Morfil SINC* Mitigation for the loss of SINC habitat (broadleaved semi-natural woodland, dense/continuous scrub and marshy grassland) will include the provision of replacement habitats, the locations and areas for which are to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. Indicative areas, based on the previous layout are as follows, although these figures are subject to change: • 0.91 ha of woodland/scrub; • 5.04 ha of grassland (acid grassland/marshy grassland mosaic); • 800 m of hedgerow; and, • Two wildlife ponds.	8.8.5	Landscape Plan/ CEMP	APL/ Main contractor	CCS and NRW	Main contractor
E05	Additional	*Ancient Woodland* Mitigation for the loss of Ancient Woodland habitat (broadleaved semi-natural woodland) will include the provision of replacement habitat, the location and area for which is to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. An indicative area, based on the previous layout of 0.91 ha of woodland/scrub habitat has been proposed, although this figure is subject to change.	8.8.7	Landscape Plan/ CEMP	APL/ Main contractor	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E06	Additional	*Row of Trees – Broadleaved and Hedgerows – Species-Poor* Loss of rows of trees and hedgerows utilised by wildlife such as commuting and foraging bats, and commuting badgers will be mitigated for through the introduction of linear habitat with similar properties such as hedgerows. This is still under consideration and dialogue is ongoing with National Grid regarding the shared access route and any widening which may be required. Mitigation measures will be confirmed in the DCO Application but could include that any habitats temporarily removed will be reinstated and that any mature trees removed may be replaced by standards of the same species or transplanted to a suitable location elsewhere within the Project Site boundary.	8.8.9	Landscape Plan/ CEMP	APL/ Main contractor	CCS and NRW	Main contractor
E07	Additional	*Marshy Grassland* Temporarily removed habitats will be reinstated. Mitigation for the loss of marshy grassland habitat will include the provision of replacement habitat, the locations and areas for which are to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. After which, this part of the assessment will be updated for final submission. The indicative area, based on the previous layout, is 5.04 ha of grassland (acid grassland/marshy grassland mosaic); however, this area is subject to change.	8.8.11	Landscape Plan/ CEMP	APL/ Main contractor	CCS and NRW	Main contractor
E08	Additional	*Standing Water* Mitigation for the loss of standing water habitat will include the provision of replacement habitat, the locations and areas for which are to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. After which, this part of the assessment will be updated for final submission. Provisionally, it has been suggested that two wildlife ponds will be provided.	8.8.12	Landscape Plan/ CEMP	APL/ Main contractor	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E09	Additional	*Amphibians* Recommendations for reptiles will help to limit the injury or killing of amphibians. Any amphibians captured during the reptile trapping programme will be moved to a safe and suitable location.	8.8.13 and 8.8.21	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor
E10	Additional	*Reptiles* Based on the positive result from the surveys reptile translocation will be required in areas of suitable habitat that are to be permanently or temporarily lost during construction. The trapping and translocation programme will be designed following the guidance set out in Herpetofauna Groups of Britain and Ireland 1998 publication (Ref A.3).	8.8.16	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor
E13	Additional	To reduce the risk of individual reptiles being injured or killed, all works will proceed under a Method Statement agreed with the Local Biodiversity Officer/Country Ecologist prior to works commencing.	8.8.22	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor
E14	Additional	The risk of reptiles and the mitigation measures will be included in the site induction package and prior to any site clearance and construction tasks.	8.8.23	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E11	Additional	Due to the 'Good' population of common lizard and the presence of low numbers of grass snakes within the survey area it is recommended that a trapping and translocation programme is undertaken to help protect any reptiles from being injured or killed. The actions involved in the proposed trapping and translocation are outlined below: • Any construction areas suitable or known to support reptiles, including any routes in and out, areas for site compounds, offices or storage of materials/waste, will be fenced off using suitable fencing (drift or semi-permanent) to limit individuals attempting to enter the site from the adjacent land. • No construction activities, including pedestrian access will be allowed outside of the fencing in areas of habitat suitable for supporting reptiles. • A number of refugia (at a density of 50/ha) will be placed within the fenced area to attract reptiles. • Each day, up to twice a day for a minimum of 60 days an ecologist will check the refugia for the presence of reptiles. • Any reptiles or amphibians found will be captured for relocation to a pre-determined receptor site (see below). • After 60 days the trapping can cease once there have been five consecutive days where no reptiles have been found. • After the fenced area has been cleared of reptiles and prior to soil stripping the vegetation can undergo a process habitat management and hand searches for reptiles • Supervision of the soil strip during construction work by a suitably qualified ecologist will be required to help protect injury or killing of reptiles.	8.8.18	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor
E11 cont.	Additional	• Any litter or rubble piles will be removed by hand under the supervision of an ecologist to avoid injuring or killing any reptiles. If the material is too heavy to be removed by hand it can be done so using a mini excavator carefully and slowly removing the material, under the supervision of an ecologist.	8.8.18	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E12	Additional	The receptor site for the trapped reptiles can be within the Project Site boundary, or alternatively a receptor site can be chosen off-site (within the same county or administrative area). However, there is a deficit of suitable receptor sites within the county and adjacent counties, and the costs associated with sorting and transporting trapped reptiles may be prohibitive. For either option the receptor site will: • Have habitat suitable for supporting reptiles (can be made suitable by undertaking habitat management works); • Not currently support a population of the species of common lizard or support only small numbers of the species but being capable of supporting more given suitable habitat management works; • Not be subject to planning or other threats in the foreseeable future; • Be subject to a written, agreed and funded pre- and post-translocation management agreement and monitoring programme.	8.8.19 to 8.8.20	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor
E15	Additional	*Breeding Birds* Habitat creation measures relating to the loss of the SINC, broadleaved woodland, marshy grassland, hedgerows and lines of trees will provide additional areas for breeding birds post construction. Embedded landscape planting will also provide additional habitat for the species assemblage recorded.	8.8.25	Landscape Plan	APL/ Main contractor	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E16	Additional	*Bats* To allow the most appropriate and effective mitigation measures to be determined and will be finalised for inclusion in the approved CEMP, the following surveys will be undertaken: • Building assessments and further bat surveys on Buildings 6, 7 and 8 within the Abergelli Farm; • During December 2017, January and February 2018 static bat detectors are placed as near to the estimated locations of the mine shaft and adit as is safe to do so. This will be done with the aim of any bat activity being recorded in these areas, suggesting a nearby hibernation-site; and; • Pre-construction checks on trees scheduled for removal for their current bat roost potential with consideration of the seasonal survey timings.	8.8.26	CEMP	APL/ Main contractor	CCS	Main contractor
E17	Additional	Based on the current Project design a European Protected Species Licence (EPSL) is not a requirement. However, should the scope of the Project change and/or if further bat roosts are identified an EPSL may be required.	8.8.27	CEMP	APL/ Main contractor	CCS	Main contractor
E18	Additional	Maintain connectivity of foraging and commuting habitats by the retention of trees and hedgerows wherever possible and utilising 'brown hedgerows' of brash, to maintain connectivity during construction. For linear features identified as key forging or commuting habitat, where possible the Gas Connection should be installed using drilling to retain feature and connectivity across the Project Site. Embedded mitigation includes the provision of replacement habitats that will benefit foraging and commuting bats. Indicative areas, based on the previous layout are as follows, although these figures are subject to change: • 0.9 1 ha of woodland/scrub; • 5.04 ha of grassland (acid grassland/marshy grassland mosaic); • 800 m of hedgerow; and, • Two wildlife ponds.	8.8.29	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E19	Additional	Night time working with its associated need for additional lighting should be avoided as far as possible within areas near to known roosts. There should be no night time illumination of the hedgerows, woodland or mature tree lines.	8.8.30	CEMP	APL/ Main contractor	CCS	Main contractor
E20	Additional	*Water Vole and Otter* A pre-construction check for water vole burrows, otter holts/couches and activity of both species will be undertaken where construction is present within 100 m of watercourses as identified as suitable for supporting the species during the 2017 field surveys. The check should be undertaken the year before works are due to commence and if the area declared clear, habitat management undertaken to help reduce the quality of the habitats for burrow and holt/couch creation for the period leading up to and for the duration of construction in that area. Additional mitigation may be required as a result of the survey.	8.8.31	CEMP	APL/ Main contractor	CCS	Main contractor
E21	Additional	*Badger* A pre-construction check for badger setts and activity will be undertaken where construction works are within 30 m of suitable habitats for badger sett creation.	8.8.32	CEMP	APL/ Main contractor	CCS	Main contractor
E22	Additional	Works likely to damage or destroy a badger sett will require a license to close the sett prior to works commencing. The terms of the license may stipulate the requirement for compensatory setts to be created should any main setts be destroyed and/or temporarily closed.	8.8.33	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E23	Additional	Excavations, if left unfilled overnight, should be covered to avoid badgers and other animals becoming trapped. Sloping escape ramps for badgers should be created by edge profiling trenches/excavations and/or excavations should be fitted with a scaffolding board ramp to allow any trapped animals to exit. Crossing places will be provided across open excavations for the duration of the works on the sections where known badger paths have been identified. Open pipework greater than 150 mm diameter that is left over night will be made secure by either filling in the end of the pipe or covering the end with a solid timber panel or similar.	8.8.34	CEMP	APL/ Main contractor	CCS	Main contractor
E24	Additional	Night time working with its associated need for additional lighting should be avoided as far as possible within areas near to setts and areas of known activity to reduce disturbance to badger when they are out of their setts and foraging. There should be no night time illumination of the hedgerows, woodland or setts.	8.8.35	CEMP	APL/ Main contractor	CCS	Main contractor
E25	Additional	The introduction of new woodland, scrub, species-rich grassland and hedgerows will increase opportunities for resting, breeding and foraging badger.	8.8.36	Landscape Plan	APL/ Main contractor	CCS and NRW	Main contractor
E26	Additional	*Invasive Species* It is recommend that an invasive species management plan is produced to control and eradicate the invasive species within the Project Site boundary. An updated invasive species survey should be undertaken to accurately assess invasive species and extents within the Project Site boundary.	8.8.37	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor
Water Quality and Resources							
WQ01	Embedded	Hydrological protection measures have been included in the CEMP (see Outline CEMP in Appendix 3.1 of the PEIR) to prevent pollution events, with particular reference to the Gas Connection and includes silt traps to reduce flow of suspended solids, suitable phasing to reduce the need for unprotected slopes and avoidance of stockpiled materials. The drainage strategy will be included within the DCO Application.	3.11.36	Drainage Strategy/ CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
WQ02	Embedded	The Project incorporates welfare facilities, which will require a site foul water drainage system. The Project Site is remote and it is believed it will be unfeasible to connect to a public sewer. Therefore, a foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. It is likely that the latter would be the preferred option for ease of maintenance and environmental criteria. The processed water would then discharge onsite or to a nearby watercourse.	3.11.3	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ03	Embedded	An oily water drainage system will be required to receive surface water from potentially contaminated oil retaining areas and prevent contaminated water discharging from site. Oily water drainage shall be designed in accordance with National Grid Technical Specification 2.20 ‘Oil Containment at Electricity Substations and Other Operational Sites’ (0) or similar approved guidelines.	3.11.4	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ03	Embedded	Rainwater will be removed from oil retaining areas by an automatic pump to the oily water drainage system. The automatic pumps will be designed to shut down in the event that a major oil spillage is detected. This will help prevent large quantities of oil entering the oily water drainage system.	3.11.38	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ03	Embedded	The oily water drainage system will ultimately pass through a Class 1 Full Retention Oil Separator (As defined in BS EN 858) before discharging into surface water bodies or drainage systems.	3.11.39	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ03	Embedded	All oil unloading areas on site have been designed to include containment for accidental spillage of fuel during unloading with the loading system equipped such that drainage is isolated during filling and any spillage goes to the dedicated interceptor	3.11.40	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ03	Embedded	The Oil Separator will be fitted with an alarm to indicate when the oil coalesce requires emptying. All oil separators will be sized to suit the oily water catchment area.	3.11.41	Drainage Strategy	APL	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
WQ04	Embedded	The surface water drainage system will be required to adequately drain the site and prevent ponding. The surface water drainage system will adopt the principles of the SuDS Manual – Ciria C753. – Updated SuDS Manual reference 2015 (0).	3.11.5	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ05	Embedded	To prevent inundation of the Project Site from surface runoff cut off drainage ditches will be placed around the uphill site perimeter. These new drainage ditches will be designed to carry the surface runoff around the Project Site and downstream back to the original drainage ditches/watercourses.	3.11.6	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ06	Embedded	Where possible, the new levels and surfacing will be designed so they naturally drain by infiltration into the surrounding ground. Where this is not economically possible or presents an unsatisfactory risk of flooding, infiltration drains will be installed. All infiltration drains will connect to the surface water drainage system.	3.11.7	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ07	Embedded	It is not expected that it will be possible to connect the surface water drainage system to an infiltration basin due to the presumed predominantly clayey ground and high groundwater level in places. This will be confirmed when the Ground Investigation surveys are carried out. Instead the discharged flow of water at the Generating Equipment Site boundary from the surface water drainage system will be attenuated in order to maintain the equivalent greenfield runoff flow for a range of events up to the 1 in 100 year event (with climate change allowance). The flow will be attenuated using suitably sized attenuation ponds with restricted discharge pipes to the existing greenfield runoff rates. An emergency overflow will be provided to the attenuation ponds to prevent site flooding in the event of an extreme rainfall event.	3.11.8	Drainage Strategy	APL	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
WQ08	Embedded	Where possible, roadside swales and infiltration drains will be used to remove and convey any standing water into the surface water drainage system from internal roads within the Project Site including the new Access Road. Where there are space constraints, or there is an elevated risk of contamination, the new site roads will be kerbed and drain via road gullies with pollution control measures. It is expected that roadside swales will discharge to nearby local watercourses at the existing greenfield runoff rate.	3.11.9	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ09	Embedded	Existing field drainage that will cross the new Access Road will be culverted or bridged for a short length to allow flow up to the 1 in 100 year return period.	3.11.10	Drainage Strategy	APL	CCS and NRW	Main contractor
WQ10	Embedded	Design layout has been adopted to avoid the 66" water mains crossing the Project Site (i.e.30m clearance from either side of the pipeline route).	Table 3.3	CEMP	APL/ Main contractor	CCS / Welsh Water	Main contractor
Geology, Ground Conditions and Hydrogeology							
G01	Embedded	The CEMP will be implemented during construction to mitigate any adverse environmental effects and includes working in accordance with best practices, such as the completion of all necessary ground investigation and risk assessments, maintaining safe working practices and the use of correct and appropriate Personal Protective Equipment (PPE).	3.11.44	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
G02	Embedded	The following information which relates specifically to geology, ground conditions and hydrogeology will be included within the CEMP: • Site waste and materials management measures; • Surface and groundwater protection measures; • Pollution control measures; • Peat management measures as required; • Security measures; a protocol in the event that unexpected contaminated land is identified during ground investigation or construction; and • Environmental training requirements.	3.11.45	CEMP	APL/ Main contractor	CCS	Main contractor
G03	Embedded	Intrusive ground investigation will be conducted to identify ground conditions and potential contaminants, as will risk assessments including gas, control waters and human health.	3.11.46	N/A	APL	CCS and NRW	Main contractor
G04	Embedded	A detailed mining risk assessment will be required to establish the risk of untreated shallow underground workings beneath the Project Site. There is potential for mine workings and entries requiring stabilisation treatment so ground stability will be improved.	3.11.47	N/A	APL	CCS and NRW	Main contractor
G05	Embedded	A dedicated mineral resources survey will be undertaken to establish the value of the sand, gravel and coal reserves.	3.11.48	N/A	APL	CCS and NRW	Main contractor
G06	Embedded	A foundations risk assessment is likely to be required to assess the risk of piling foundations to controlled waters.	3.11.49	N/A	APL	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
Landscape and Visual							
LV01	Embedded	Mitigation measures will be implemented during the construction phase as set out in the Outline CEMP (Appendix 3.1 of the PEIR) in order to limit impacts on the landscape and visual resource. These measures will include: • The use of tall hoardings to screen views of ground level construction activities in relation to sensitive receptors such as residential views and views from nearby PRoW; • Materials and machinery will be stored tidily during the construction works in order to minimise impacts on views; • Lighting of compounds and work sites will be restricted to agreed working hours and those which are necessary for security in accordance with the Institution of Lighting Professionals guidelines (**Error! Reference source not found.**); • The unnecessary removal of vegetation will be avoided; • The retention and protection of existing trees in accordance with BS5837:2012 Trees in Design, Demolition and Construction, Recommendations (0); • Public roads providing access to construction site will be maintained fee of dust and mud; • The Contractor will clear and clean all working areas and accesses as work proceeds and when no longer required for the works; • On completion of construction works, all structures, equipment, surplus materials, waste, notice boards and temporary fences used during construction will be removed from the Project Site with minimum damage to the surrounding area; and • Prompt reinstatement of areas that are no longer required following construction.	3.11.50	CEMP	APL/ Main contractor	CCS	Main contractor

Ref No	Is Measure Embedded or Additional?	Construction Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
Traffic, Transport and Access							
T01	Embedded	Modifications to the B4489/Access Road junction to facilitate movements by abnormal loads;	3.11.50	N/A	APL	CCS and NRW	Main contractor
T02	Embedded	Widening and extension of the access road to facilitate access by construction traffic;	3.11.50	N/A	APL	CCS and NRW	Main contractor
T03	Embedded	Physical management of the access road to ensure the security and safety of all staff;	3.11.50	CEMP	APL/ Main contractor	CCS	Main contractor
T04	Embedded	A Construction Traffic Management Plan (CTMP) including details of the management of construction traffic and Public Right of Way (PROW); and	3.11.50	CTMP	APL	Highway Authority, CCS and NRW	Main contractor
T05	Embedded	A Construction Staff Traffic Plan (CSTP) to minimise the level of single occupancy car use by construction staff travelling to/from the site.	3.11.50	CSTP	APL	Highway Authority, CCS and NRW	Main contractor
Cultural Heritage and Archaeology							
CH01	Embedded	A Written Scheme of Investigation (WSI) will be prepared in advance of construction commencing. A watching brief will then be implemented in accordance with WSI during construction for any works associated with ground disturbance.	3.11.59	WSI	APL	CCS and NRW	Main contractor
CH02	Additional	In the event that the watching brief reveals archaeological remains, sufficient time and resources will be allowed to ensure that these are adequately excavated, recorded and removed, and for samples to be taken if appropriate. Provision will also be made for post-excavation analysis and, if appropriate, publication of the results.	13.8.10	WSI	APL	CCS and NRW	Main contractor
Other Effects Considered							
OE01	Embedded	The Outline CEMP includes a section on Site Waste Management, which will encourage reuse and recycling of waste before disposal in accordance with the waste hierarchy.	3.11.60	CEMP	APL/ Main contractor	CCS	Main contractor

Table A. 2 Operation Mitigation Register

Ref No	Is Measure Embedded or Additional?	Operational Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
Air Quality							
AQ05	Embedded	The Generating Equipment will be designed to comply with Industrial Emissions Directive (IED) emission limits. In addition the stack sensitivity assessment (Appendix 6.2 of the PEIR) has demonstrated that a minimum stack height of 35 m is appropriate to ensure the adequate dispersal of pollutants to ensure that no harm is caused.	3.11.15	N/A	APL	CCS and NRW	Main contractor
AQ06	Embedded	The Project will require an Environmental Permit to operate, and monitoring the performance of the Generating Equipment against the permit conditions will be the responsibility of NRW. The performance of the emissions control will require monitoring by stack emissions testing throughout operation and the Generating Equipment will be 'fine-tuned' so as to ensure that limits are not exceeded.	3.11.16	EMS	The operator	NRW	The operator
AQ07	Embedded	The operation of the Project will not require a significant onsite workforce. Visits by service/maintenance vehicles etc. will occur on average once every year. Nevertheless, an outline Travel Plan will be been prepared to ensure that any impacts on traffic (and by definition roadside air quality) are minimised.	3.11.17	Travel Plan	APL	Highway Authority, CCS and NRW	The operator
Noise							
N11	Embedded	The selection of the Project Site and development of the indicative concept layout have already included consideration of potential noise effects and proximity to NSRs, with Generating Equipment being located as close to the existing electrical infrastructure as possible and as far from the NSRs as practicable.	3.11.26	N/A	APL	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Operational Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
N12	Embedded	Other measures with regards to noise and vibration during operation, to be incorporated into the design include: • The Gas Turbine Generator and major compressors are to be housed in acoustic enclosures. In addition, these will be housed within secondary acoustic enclosures specified at 75 dB(A) Sound Pressure Level at 1 m. • Gas turbine air inlet filter and ventilation apertures are to be fitted with silencers, and designed such that all sensitive noise receptors benefit from screening and/or directivity corrections. • Silencers are to be fitted in the exhaust stack. Due to the impracticality of screening stack noise, discharge noise will be controlled using these silencers, which will be tuned to attenuate low frequencies from the Gas Turbine Generator exhausts. • All plant items will be controlled to minimise noise of an impulsive or tonal nature. • Noise breakout from the stack will be controlled using silencers. To achieve the predicted noise levels used in this assessment, noise from the top of the stacks should not exceed the maximum octave band sound power levels identified in Table 7-8 of Chapter 7 of PEIR.	3.11.27	N/A	APL	CCS and NRW	Main contractor
N13	Embedded	During the detailed design stage, options to mitigate potential significant residual noise effects by design will be further explored.	3.11.28	N/A	APL	CCS and NRW	Main contractor
N14	Embedded	Several options for configuration and suppliers of the Generation Equipment are under consideration. Preliminary modelling has shown that options are available that are capable of meeting the threshold noise levels.	3.11.29	N/A	APL	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Operational Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
N15	Embedded	The Project would operate in accordance with an Environmental Permit issued and regulated by the NRW. This would require operational noise from the Generating Equipment to be controlled through the use of BAT, which would be determined through the Environmental Permit application.	3.11.30	Environmental Management System (EMS)	The operator	Relevant certification bodies	The operator
N16	Embedded	If any non-normal and/or emergency operations were to lead to noise levels in excess of the agreed limits specified in the DCO Requirements, the operator will inform the local authority and local residents of the reasons for these operations, the anticipated emergency period and the steps to be taken to bring it back to compliance.	3.11.31	EMS	The operator	Relevant certification bodies	The operator
Ecology							
E27	Embedded	The stack has been designed to minimise impacts from emissions during operation, which includes minimising deposition which that could affect ecological receptors.	3.11.35	N/A	APL	CCS and NRW	Main contractor
E28	Additional	*Protected Species* The mitigation for partial underground cable or pipework replacement or repairs will follow best practice and any intrusive works will only commence after consultation with an ecologist to assess whether there are any impacts associated with the work. Management of newly created habitats or compensatory features will be detailed in the Ecological Management Plan and will be designed to minimise disturbance or adverse effects on protected and/or priority species, such as avoiding vegetation management during nesting bird season, and cutting grass and scrub within the reptile receptor area to a height of no less than 150 mm.	8.8.39 to 8.8.40	Ecology Management Plan	APL/ Main contractor	CCS and NRW	Main contractor

Ref No	Is Measure Embedded or Additional?	Operational Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
E29	Additional	*Bats* The lighting should utilise warm light luminaire such as yellow or amber LED. White LED lamps have a broad spectrum of light with whilst yellow and amber LED lamps each have a specific, narrower spectrum and have peak wavelengths between 590 and 660 nm, which is less attractive to invertebrates. This in turn will reduce the number of bats that will be attracted to feed and be open to predation through increased visibility.	8.8.41	Lighting Strategy	APL	CCS and NRW	Main contractor
E30	Additional	*Protected Mammals* Any new fencing will continue to allow the movement of otters and badger across the Project Site through the inclusion of badger gates or large gaps between the bottom of the fence and the ground. Speed limits on the Access Road will be enforced to help reduce the likelihood of any traffic mortalities or collisions.	8.8.42	Ecology Management Plan / Travel Plan	APL/ Main contractor	CCS and NRW	Main contractor
Water Quality and Resources							
WQ11	Embedded	Adaptation of different platform levels at the locations of key elements of the Project development. In line with this, the ground level of the Welsh Water main easement area will be retained at the existing level in order to provide a path for any flood water to pass through the Project Site, thereby avoiding the elevated Power Generation Plant (PGP) areas – with the PGP finished floor level to be raised by approximately 150 millimetres (mm) above the site road crown level while keeping the plant plinths at 300 mm above the site level.	3.11.42	N/A	APL	-	Main contractor
WQ12	Embedded	Provision for all process water (i.e. gas turbine compressor wash water) to be collected in a drain tank removed by road tanker and disposed by an accredited company to a designated treatment facility off-site.	3.11.43	N/A	APL	-	Main contractor
WQ13	Embedded	The adoption of a single, Open Cycle Gas Turbine PGP with dry low NOx combustion technology will avoid the requirement for large amounts of demineralised water to be supplied for emissions control	Table 3.2	N/A	APL	-	Main contractor

Ref No	Is Measure Embedded or Additional?	Operational Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
WQ14	Embedded	Creation of new ecological ponds in the construction laydown area and southeast of the Generating Equipment Site (refer to Chapter 8 of the PEIR for details). These are additional to those proposed for attenuation of runoff and will mitigate for loss of habitat at the existing ponds in the south-eastern corner of the Generating Equipment Site.	9.9.4	N/A	APL	NRW	Main contractor
Landscape and Visual							
LV02	Embedded	Utilising technology (OCGT) will allow a significant reduction in stack height compared to other technology types. As a result of selecting OCGT technology, there will be no visible plume arising from the stack. The high temperature of the exhaust gases means that water vapour is well above the condensation point which would give rise to a visible plume. The minimum height of the stack is 35m in order to ensure the adequate dispersal of pollutants.	3.11.51	N/A	APL	-	Main contractor
LV03	Embedded	The architectural design of the buildings and structures on the Project Site has been designed to reduce glare and to assimilate the Project into the surrounding landscape as much as possible by using neutral recessive colours to lessen the contrast with the surrounding landscape and break up the overall massing of the large scale structures.	3.11.53	N/A	APL	-	Main contractor
LV04	Embedded	External lighting has been designed to reduce trespass and configured to avoid glare and spillage. Details will be provided in the Outline Lighting Strategy to be submitted as part of the DCO Application and undertaken in accordance with the Institution of Lighting Professionals Guidelines (Ref. A.9).	3.11.54	Outline Lighting Strategy	APL	-	Main contractor
LV05	Embedded	An outline landscape mitigation strategy has been developed to both provide reinstatement planting as well as to integrate the Project into the landscape and its wider setting. The planting proposals will be developed in accordance with the various utility and service constraints within the site and are presented on Figures 11.10 – 11.12.	3.11.55	Outline Lighting Strategy	APL	-	Main contractor

Ref No	Is Measure Embedded or Additional?	Operational Mitigation Measure	PEIR Reference	Relevant Management Plan	Responsibility		
					Preparation	Approval	Delivery
LV05	Embedded	The landscape proposals will cover a minimum period of five years of monitoring, management and maintenance to ensure the landscape objectives are successfully achieved.	3.11.56	Outline Lighting Strategy	APL	-	Main contractor
Traffic, Transport and Access							
T06	Embedded	Whilst any significant mode shift away from the private car is unlikely for the Project - there are likely to be only a maximum of five workers on site at the same time - a Travel Plan will be created specifically targeting employees to decrease the number of vehicles accessing the Project. A range of non-car Initiatives would be implemented to encourage the use of alternative modes of travel to the private car.	3.9.10	Travel Plan	APL	Highway Authority, CCS and NRW	The operator

A.2 References

Ref A.1 IAQM. (2012). Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites. [Online]. Available: http://www.iaqm.co.uk/wp-content/uploads/guidance/monitoring_construction_sites_2012.pdf [Accessed: 30/11/17]

Ref A.2 British Standards Institute (BSI). (2014). BS 5228 -1: 2009+ A1:2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise.

Ref A.3 Herpetofauna Groups of Britain and Ireland (HGBI) (1998). Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth. Unpubl.

Ref A.4 National Grid. (2014). NGTS 2.20: Oil Containment at Electricity Substations and Other Operational Sites.

Ref A.5 CIRIA. (2015). C753: The SUDS [Sustainable Urban Drainage] Manual.BSI. (2012). BS 5837. Trees in Relation to Design, Demolition and Construction – Recommendations.

Ref A.6 ILP. (2011). Guidance Notes for the Reduction of Obtrusive Light. [Online]. Available: https://www.theilp.org.uk/resources/free-resources/ilp-guidance-notes/ [Accessed: 30/11/17]

Ref A.7ILP. (2011). Guidance Notes for the Reduction of Obtrusive Light. [Online]. Available: https://www.theilp.org.uk/resources/free-resources/ilp-guidance-notes/