Glyn Rhonwy Pumped Storage Development Consent Order

Deadline 2 – Updated CoCP

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Contents

Appendices

Abbreviations & Glossary

$\mu g/m^3$	The concentration of an air pollutant (eg. ozone) is given in micrograms (one-millionth of a gram) per cubic meter air
Applicant	Snowdonia Pumped Hydro
AURN	Automated Urban Rural Network
BPM	Best Practical Means
BRE	Building Research Establishment
BS	British Standard
CCW	Countryside Council for Wales
CDM	Construction Design and Management
CoCP	Code of Construction Practice
CoPA	Control of Pollution Act 1974
COSHH	Control of Substances Harmful to Health
COMAH	Control of Major Accident Hazard (Regulations)
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DMP	Dust Management Plan
EA	Environment Agency
EAW	Environment Agency Wales
EMS	Environmental Management System
EPA	Environmental Protection Act
ERFMP	Emergency Response and Flood Management Plan
ES	Environmental Statement
HASP	Health and Safety Plan
HDV	Heavy Duty Vehicle

HGV	Heavy Goods Vehicle
HMP	Habitat Management Plan
HSG	Health & Safety Guidance
IAQM	Institute of Air Quality Management
m^3	metres cubed
MAPP	Major Accident Prevention Policy
MOD	Ministry of Defence
MPH	Miles per hour
MWC	Main Works Contractor
MWe	Mega Watts Electrical – measure of energy, one million watts
NMP	Noise Management Plan
NRW	Natural Resources Wales (formally EAW and CCW)
NSIP	Nationally Significant Infrastructure Project
NSR	Noise Sensitive Receptors
Order Limits	The site boundary denoted by a red line
PC	Principal Contractor
PPG	Pollution Prevention Guidelines
PM_{10}	Extremely small particulates or particulate matter (in the order of ~10 micrometres or less)
PPP	Pollution Prevention Plan
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TPO	Tree Preservation Order
UXO	Unexploded Ordnance
WTMP	Water Management Plan

WMP	Waste Management Plan
WWII	World War II

Revision	Date	Amends	Revised By:	Approved By:
0 - Submission	October 2015	Original – DCO Submission	CA	NP
1 – First Written Questions	April 2016	FWQ Appendix 2.24 and 2.25	DM	CA

1 INTRODUCTION

1.1.1 As part of the planning permission for the previously consented 49.9MW pumped storage development (Planning Reference: C12/1451/15/LL) a number of conditions were set by Gwynedd Council.

1.1.2 A Construction Environmental Management Plan (CEMP) was prepared for the approved scheme. This has developed into the Code of Construction Practice (CoCP) to accompany this DCO application.

1.1.3 A detailed CEMP and various other environmental management principles was required by the approved scheme planning permission. Table 16.1 below documents where the TCPA conditions have been considered in the development of this CoCP. A full copy of the conditions is provided in Volume 3 Appendix 1.1 of the Environmental Statement.

1.1.4 The CoCP has been written in regard to these conditions and has incorporated relevant construction methods and other requirements where applicable.

Table 1 Conditions of Decision Notice

Condition Reference	Where covered in the CoCP
1	Commencement of development - not required to be addressed by the CoCP.
2	Approved plans - not required to be addressed by the CoCP.
3	Submission of programme reviews - not required to be addressed by the CoCP.
4	Written notice of certain activities - not addressed by the CoCP, to be completed post consent
5	Lighting - addressed in Section 4.16 in this CoCP
6	White noise – to be addressed in the Noise Management Plan (NMP), see section 4.12 of this CoCP
7	Landscaping scheme – to be addressed in the Reinstatement /

	Landscape Plan, see section 4.13 of this CoCP
8	Seeding and planting scheme – to be addressed in the Reinstatement / Landscape Plan, see section 4.13 of this CoCP
9	Contaminated land - not required to be addressed by the CoCP.
10	Storage - addressed in the Pollution Prevention Plan (PPP)
11	Verification Report - not required to be addressed by the CoCP.
12	Unexpected contaminated - not required to be addressed by the CoCP.
13	Production of a Construction Environmental Management Plan - addressed as the CoCP
14	Drainage - addressed in Water Management Plan (WTMP)
15	Production of a Breeding Bird Method Statement - addressed in section 4.7 of this CoCP
16	Production of a reptile method statement - will be addressed in the HMP, see section 4.6
17	Production of a Construction Environmental Management Plan - addressed as the CoCP
18	Will be addressed in the HMP
19	Production of a bio-security risk assessment – secured through Requirement 7
20	Archaeology compensation and enhancement – secured through Requirement 7, see section 4.14 of this CoCP
21	Traffic Management Plan - addressed in the Construction Traffic Management Plan (CTMP)
22	Diversion of existing rights of way – to be secured through DCO
23	Tree Protection - will be addressed in the HMP, see section 4.6
24	Production of CEMP and other management plans - addressed by this CoCP and associated management plans
25	Working Hours and Operations – to be secured through DCO Requirement
26	Air Pollution Control Management Plan - secured through Requirement 7
27	Compliance with Air Pollution Control Management Plan - secured through Requirement 7
28	Limits for air quality - will be addressed in the DMP, see section 4.11 in this CoCP
29	Limits for air quality - will be addressed in the DMP, see section 4.11 in this CoCP
30	Limits for air quality - will be addressed in the DMP, see section 4.11 in this CoCP

31	Construction Traffic - addressed in the Construction Traffic Management Plan (CTMP), see section 4.11 of this CoCP
32	Construction Traffic Records - addressed in the Construction Traffic Management Plan (CTMP), see section 4.11 of this CoCP
33	Construction Noise - will be addressed in the NMP, see section 4.12 of this CoCP
34	Application of the best available techniques not entailing excessive cost (BATNEEC) - will be addressed in the NMP, see section 4.12 of this CoCP
35	Ground Vibration - will be addressed in the NMP, see section 4.12 of this CoCP
36	Monitoring of blasting - will be addressed in the DMP and NMP, see section 4.11 and 4.12 of this CoCP
37	Vibration from Tunnelling - will be addressed in the NMP, see section 4.12 of this CoCP
38	Vibration from Tunnelling - will be addressed in the NMP, see section 4.12 of this CoCP
39	Vibration from Blasting - will be addressed in the NMP, see section 4.12 of this CoCP
40	Noise from Tunnelling - will be addressed in the NMP, see section 4.12 of this CoCP
41	Working Hours for Tunnelling - not addressed by the CoCP
42	Air Quality from Blasting – secured through Requirement 7
43	Construction Noise - will be addressed in the NMP, see section 4.12 of this CoCP
44	Construction Noise from Tunnelling - will be addressed in the NMP, see section 4.12 of this CoCP
45	Noise Control Plan - will be addressed by the NMP, see section 4.12 of this CoCP
46	Excessive Noise - will be addressed by the NMP, see section 4.12 of this CoCP
47	Construction Noise - will be addressed in the NMP, see section 4.12 of this CoCP
48	External Finishes - to be secured through DCO Requirement
49	Finishes and Layouts - to be secured through DCO Requirement
50	Caravans on site - to be secured through DCO Requirement, not required to be addressed by the CoCP
51	Temporary Buildings - to be secured through DCO Requirement, not required to be addressed by the CoCP
52	Excess Slate Mound - to be secured through DCO Requirement, not

	required to be addressed by the CoCP
53	Excess Slate Mound Materials - will be addressed in the Waste Management Plan (MWP)in section 4.8 of this CoCP and section 4.9 to be secured by Requirement 7
54	Storage of Fuels and Lubricants - addressed in the Water Management Plan (WTMP)
55	Topsoil and Subsoil Reuse - will be addressed in the Reinstatement and Landscape Plan
56	Topsoil Stripping – to be addressed in the final CoCP
57	Storage of Dry Stone Wall Materials - will be addressed in the Reinstatement and Landscape Plan. See section 4.13
58	Surface Water Drainage and Treatment – to be addressed in the WTMP

2 CODE OF CONSTRUCTION PRACTICE

2.1 INTRODUCTION

2.1.1 Snowdonia Pumped Hydro ("the Applicant") is submitting an application for a Development Consent Order ("DCO") for a pumped storage facility known as Glyn Rhonwy Pumped Storage. The generating capacity of the Development exceeds 50 megawatts (MWe) and it is therefore designated as a Nationally Significant Infrastructure Project ("NSIP") under the Planning Act 2008.

2.1.2 This document has been prepared for the DCO application to comply with the requirements of Regulation 5(2)(q) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 and in accordance with the Department for Communities and Local Government guidance 'Planning Act 2008: Application Form Guidance' and the Planning Inspectorate Advice Note 6 on Preparation and Submission of Application Documents.

2.1.3 This document sets out the minimum standards to be adopted when constructing the Development; it forms part of a suite of application documents and should be read alongside them.

2.1.4 The objective of this CoCP is to provide initial information on how potential construction stage environmental impacts are to be minimised. The document provides minimum requirements rather than construction detail, as the Principal Contractor (PC) has not yet been instructed. Once a PC is in place the CoCP will be finalised and submitted to Gwynedd Council and Natural Resources Wales (NRW) for their approval. The need for this approval is secured under Requirement 6 of Part 2 in Schedule 1 of the DCO.

2.1.5 The CoCP is designed to ensure compliance with environmental legislation, the DCO Requirements, committed construction stage mitigation reported in the Environmental Statement and the PC's own Environmental Policies.

2.1.6 Whilst the CoCP will be finalised and approved through a DCO Requirement 6, the CoCP will remain a live document throughout the construction phase and will be regularly reviewed to take into account additional environmental information encountered during the construction phases; however at all times the minimum standards identified in the CoCP will be complied with.

2.1.7 All personnel and sub-contractors working on the Development will perform their duties in accordance with the requirements of the CoCP. The Environmental Manager will report regularly to the Project Manager on the status and effectiveness of its implementation.

2.1.8 The CoCP includes the following topic-specific environmental management plans:

Table 2 Table of Topic-Specific Management Plans

Management Plan	Status
Water Management Plan (WTMP)	Outline included within CoCP (Appendix 16.1.1) to be finalised by DCO Requirement 6
Pollution Prevention Plan (PPP)	Outline included within CoCP (Appendix 16.1.2) to be finalised by DCO Requirement 6
Construction Traffic Management Plan (CTMP)	Outline included within CoCP (Appendix 16.1.3) to be finalised by DCO Requirement 6
Dust Management Plan (DMP)	To be finalised as per DCO Requirement 6 by the PC
Waste Management Plan (WMP)	To be finalised as per DCO Requirement 6 by the PC
Reinstatement / Landscape Plan	To be finalised as per DCO Requirement 6 by the PC
Noise Management Plan (NMP)	To be finalised as per DCO Requirement 6 by the PC
Emergency Response and Flood Management Plan (ERFMP)	To be finalised as per DCO Requirement 6 by the PC

Table 2 Table of Topic-Specific Management Plans	
Management Plan	**Status**
Habitat Management Plan (HMP)	To be finalised as per DCO Requirement 6 by the PC
Silt Management Plan (SMP)	To be finalised as per DCO Requirement 6 by the PC
Breeding Bird Method Statement	To be finalised as per DCO Requirement 6 by the PC

2.1.9 These plans will be finalised by the PC and agreed with Gwynedd Council and NRW through the submission of the final CoCP for approval, as per Requirement 6.

Other plans required through Requirement 7 and not referred to in this CoP and further detail on the cotants of these management plans can be found in the Schedule of Other Required Plans and startegies.

3 ENVIRONMENTAL POLICIES, ROLES & COMMUNICATION

3.1 ENVIRONMENTAL POLICY AND MANAGEMENT SYSTEMS

3.1.1 The Applicant and Principal Contractor will ensure that a copy of their Environmental Policy are clearly displayed on site notice boards during the construction period. All employees are expected to comply with the requirements of the Environmental Policy and the requirements of the Environmental Management System (EMS).

3.1.2 The Applicant and its Principal Contractor expects its employees and support staff (contractors, sub-contractors, suppliers etc.) to actively promote and administer a strong environmental culture. To achieve this, a number of initiatives will be in operation during the life of the project. This will include the use of environmental inductions, poster campaigns to raise awareness of topical subjects and toolbox talks involving all members of the project team and site workforce.

3.2 LEGISLATION

Statutory Instruments

3.2.1 As part of the EMS for the site a Project Environmental File (PEF) will be maintained. Within this PEF, a legislation register will be stored which will be reviewed periodically and updated as necessary. Any changes to relevant environmental legislation will be disseminated to project management immediately, after which the method statements of any affected operations will be changed as necessary

Consents and Licences

3.2.2 A register of required consents and licences will be held in the project environmental file, including the relevant references numbers. The Applicant and the PC will identify and obtain all necessary consents and licenses prior to the commencement of any works requiring the consents or

licenses. These will be recorded and within a register of compliance for any conditions of consents and DCO Requirements, and progress recorded at regular intervals prior to commencement of works and during the construction phase.

Mitigation / Commitments Register

3.2.3 A register of all mitigation measures or commitments to be complied with will be kept by the Applicant and their PC. This register will detail the mitigation measure or commitment, its securing mechanism and relevant management plan (if appropriate), method and timing of implementation and responsibility. This will be maintained throughout the construction, commissioning and operational phases.

3.3 ROLES AND RESPONSIBILITIES

Project Manager

3.3.1 The Project Manager will be appointed as part of the Applicant's or PC team and shall have overall responsibility for the management of the construction phase. They will be responsible for:

- Appointing the Project Environmental Manager / Environmental Clerk of Works (ECoW);
- Appointing the Environmental Liaison Officer (ELO); and
- Appointing any other environmental support staff such as clerk of works for specific ecological watching briefs or ordnance removal

3.3.2 The Applicant and PC will ensure that a suitable, independent person with appropriate knowledge and experience of similar scale or type of projects will be employed. This is a crucial role and the Applicant and their PC will liaise with Gwynedd Council and NRW to seek their views on their requirements, which will be incorporated as far as reasonably possible.

Environmental Manager / Environmental Clerk of Works

3.3.3 The Environmental Manager / ECoW will be specifically appointed for this Development to assist the Project Manager and be responsible for the following:

- Ensuring the required consents are in place before work starts and compliance with consents;
- Ensuring that all mitigation measures and commitments are implemented properly and effectively
- Maintaining the consents register and also the mitigation / commitments register with the ELO (see below);
- Undertake weekly Site Compound Checks, and persons to supervise refuelling of tanks and bowsers;
- Ensuring environmental and waste requirements are included on requisitions and in subcontracts and orders;
- Ensuring oil, including diesel, is stored in properly bunded tanks / drip trays;
- Reporting incidents and non-conformances to the PC;
- Including environmental performance, review of Contract Objectives and Targets (including environmental), review of Incidents and Non conformances at the Contract Review Meetings;
- Ensuring employees and subcontractors implement the controls outlined in the finalised and approved CoCP and any other appropriate plans, mitigation measures or commitments;
- Ensuring employees and subcontractors receive Induction Training (including project environmental issues) and Tool Box Talks, as appropriate;
- Ensuring personnel needed for audits are available when required;
- Verifying actions resulting from Corrective Action Requests and Observations raised during audits are completed by the deadlines;
- Liaising and working with the ELO to ensure that construction programme is effectively communicated; and
- Ensuring environmental training is provided.

Environmental Liaison Officer (ELO)

3.3.4 The primary objective of the ELO will be to be the main point of contact between the PC, the Applicant, regulators and also the public. They will be the focal point for any community liaison committees, project meetings, reporting and also communication on critical activities of the Development. This will include communicating when enabling works are likely to commence and then keeping the local communities aware of the continuing activities which will occur during the construction phase including regular updates on progress.

3.3.5 The ELO will specifically communicate the following construction activities to local communities (please note this list is not exhaustive):

- which involve the loss or temporary replacement of access (for example the PRoWs and permissive routes at Q1);
- works adjacent or within Llyn Padarn;
- blasting and any temporary closures of PRoWs, permissive routes and roads such as Clegir Road;
- delivery of plant or abnormal roads on both the A4086 and A4085;
- progress / compliance with mitigation measures and reporting;
- progress of any ordnance management;
- changes in working hours.

3.3.6 Once the PC is appointed and the construction programme confirmed, the ELO will communicate this programme to community and facilitate meetings as required. The ELO will chair the Environmental Liaison Group, which is outlined more in Section 3.4.

3.3.7 The ELO will ensure that records of communication (including verbal communication) are kept, and that regular reporting is provided to Gwynedd Council, NRW and also to the local communities.

3.3.8 It is expected that the Environmental Manager / ECoW will work very closely with the ELO.

Clerk of Works

3.3.9 These may be required for very specific mitigation measures such as watching briefs or observation for a particular reason during a construction

phase activity, for example should any vegetation require removal during the breeding bird season, this will require an ecological clerk of works.

All Staff

3.3.10 All site staff have a responsibility to the environment, responsibilities include but are not limited to:

- In the case of an incident, stopping work, implementing control procedures and reporting it to the Project Manager;
- Contacting the Environmental Manager / ECoW when waste needs collecting;
- Passing any queries or correspondence on environmental issues to the site manager;
- Working in accordance with the finalised and approved CoCP and associated management plans; and
- Compliance with consents.

3.4 COMMUNICATION

3.4.1 Weekly construction meetings shall be held during the construction phase. These meetings shall include Health, Safety and Environmental matters and shall be attended by the Environmental Manager / ECoW. Any issues resulting from daily or weekly audits shall be discussed with appropriate corrective actions agreed. A 'Weekly look ahead' shall be provided at the construction meeting where any environmental constraints or special requirements can be discussed and agreed in advance.

3.4.2 The Environmental Manager / ECoW shall attend daily construction briefings alongside the Project Manager as required to ensure personnel are advised of any specific environmental requirements and constraints. The ELO will also attend for any critical path or construction activities which have the potential to affect the local community and need to be communicated.

3.4.3 Environmental performance meetings will be arranged as necessary. These meetings will be attended as appropriate by the Environmental Manager /

ECoW, Project Manager and representatives of the workforce. Notes of the meetings will be distributed and shall assist in the environmental management of the Development.

3.4.4 The ELO will arrange and attend meetings with relevant statutory bodies as necessary together with the Environmental Manager / ECoW.

3.4.5 The ELO will be responsible for chairing an Environmental Liaison Group and communicating information on the programme of construction activities. The Group will likely include representatives from the following parties:

- NRW
- Gwynedd Council
- Snowdonia National Park Authority
- CADW
- Representative from Waunfawr local community and surrounding communities
- Representative from Llanberis local community and surrounding communities;

3.4.6 All parties will be invited although it is likely that Gwynedd Council, NRW and local communities will likely form the core group participants, with other stakeholders attending when relevant

3.4.7 Site Environmental Notice Boards will display the Environmental Policy of the Applicant and the PC, Emergency Contacts List, relevant statutory and non-statutory advice and guidance; and any other relevant information. These Environmental Notice Boards will be situated in prominent positions in the main reception area of the Development construction office.

3.5 ENVIRONMENTAL TRAINING AND AWARENESS

Inductions

3.5.1 All project personnel and sub-contractors will receive an Environmental Induction. No personnel, including sub-contractors, will be permitted to undertake any work on site without undertaking a site induction. The site induction will evolve to reflect changes in the CoCP as the project develops.

Environmental topics covered in the induction shall include, but will not be limited to:

- Water Resources;
- Pollution Prevention;
- Emergency Response Procedures;
- Waste Management and Housekeeping;
- Management Structure;
- Duties and Responsibilities;
- Relevant Procedures;
- Ecologically Sensitive Areas;
- Incident and non conformance Reporting;
- Consents and Licenses and compliance;
- Legislation; and
- Environmental Good Practice.

Toolbox Talks

3.5.2 Regular 'Tool-Box Talks' (TBT) on specialised topics shall supplement the induction course. Toolbox talks shall be used to highlight issues of concern and to disseminate any new information or responsibilities. They will also be used as a means of providing basic environmental training to crews on a specialised topic, e.g. water management. The TBT also offer site personnel the opportunity to provide feedback.

3.5.3 TBTs would be provided routinely, but also when: :

- There is a change to existing legislation, which requires an operational change;
- Site inspections or audits have identified corrective actions which require rolling out;
- Work is being undertaken in particularly sensitive areas; and

- There are significant changes in Environmental conditions, e.g. heavy rainfall.

3.5.4 Records of all TBTs undertaken, including attendance, will be kept in the PEF.

Specialist Training

3.5.5 Specialist training for specific members of the construction crews will be provided as required. This may include, but will not be limited to:

- Emergency Environmental Crews;
- Confined spaces;
- Working at height;
- Water management;
- Waste Representatives; and
- Fuel Tanker Drivers and Refuellers.

3.6 SAFETY

3.6.1 Site specific risk assessments and method statements will be undertaken in accordance with the applicable legislation prior to the commencement of activities within the Order Limits; to identify any potential risks, assess their likelihood and significance, and to identify mitigation measures to be implemented to ensure the safety of workers and the general public.

3.6.2 Site security during the construction phase will be strict. Access to the site will be prevented by the use of temporary fencing to prevent unauthorised access. A compound for the temporary storage of equipment or materials will be provided. This will be locked with restricted access. Security staff will be utilised as appropriate.

3.6.3 The Applicant will ensure that adequate arrangements are in place for the discharge of all duties under the new Construction (Design and Management) Regulations 2015 (CDM).

3.6.4 A Health and Safety Plan (HASP) will be prepared by the contractor, which will set out how all health and safety matters on site and within the Order

Limits are to be managed and how risks are to be identified and managed in accordance with current good practice and legal requirements. The HASP will focus on the health and safety of construction workers; however, the PC will also be responsible for ensuring the health and safety of any visitors to the site and of the general public. The HASP will contain, but not be limited to the following:

- Working from height;
- Working near water;
- Working in confined spaces;
- Blasting;
- Emergency response;
- Fires;
- Spills or leakages;
- Falling equipment;
- Public safety;
- Noise and Vibration;
- Security fencing and lighting;
- Vehicle and plant movement; and
- Construction traffic.

3.6.5 All staff working on site and within the Order Limits will undergo a site induction. Staff will be briefed on a daily basis prior to work commencing. Project managers and CDM controllers will carry out audits throughout the project.

3.6.6 A Health and Safety Plan (HASP) will be finalised by the PC once appointed in compliance with Regulation 7 of the DCO.

3.7 SECURITY

3.7.1 A Permit to Work system will be introduced during construction to ensure that only authorised construction personnel are allowed within the

construction area and that an accurate record of site-based personnel is available in case of emergency.

3.7.2 The PC will ensure that the construction site is secure and staffed with security on a 24-hour basis. Access to the Development will be limited to specified entry points only and all personnel entries and exits will be recorded and monitored for both security and health and safety purposes.

3.7.3 Visitors to the Development site during construction will be required to report to the construction reception office and will only be permitted to access the construction area under escort by appropriately authorised staff or following successful completion of specific safety induction / training.

3.7.4 All working areas will be appropriately fenced off from members of the public and to prevent animals from straying onto working areas. A compound for the temporary storage of equipment or materials would be provided. This will be locked with restricted access. Security staff will be utilised as appropriate.

3.8 CONSTRUCTION SITE HOUSEKEEPING

3.8.1 Good construction site housekeeping practice will be applied at all times. As far as reasonably practicable the layout of the 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, where required, 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;
- All practicable measures will be taken to minimise the risk of fire and the Contractor will comply with the requirements of the local fire authority;
- 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.

3.9 CONSTRUCTION COMPOUNDS

3.9.1 The Construction compounds will meet standard good management practices which include but are not limited to:

- Compound design and layout will align with standards for distances from watercourses (7m)
- No crushers or noisy activities within the compounds will be located near residential dwellings or sensitive receptors;
- Bunds will be used where required to meet the requirements of Environment Agency pollution prevention guidelines and oil storage regulations
- Adequate parking will be provided to ensure that the safety and efficient operation of the public highway is not reduced
- Welfare facilities will be provided to minimise the need for offsite trips by staff during the working day
- Compound design and layout will ensure that dust emission sources are located away from sensitive receptors
- If compound lighting is required it will be designed to minimise light pollution to the surrounding area, and be compliant with the scheme approved under Requirement 19.

3.10 WELFARE FACILITIES

3.10.1 Welfare cabins, toilets and drying facilities will be provided within the construction areas for the use of construction workers.

3.10.2 Workers' Safety Information Sheets and COSHH safety data sheets will be kept on site.

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

3.10.4 No living accommodation will be provided within any construction working area.

3.10.5 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.

3.11 CRANE ARCS

3.11.1 Crane arcs will be confined within the construction areas and cranes will be operated in accordance with the requirements of BS 7121, Code of Practice for Safe Use of Cranes.

3.12 LOCAL COMMUNITY

3.12.1 The PC will ensure minimal impact upon the local community, and users of localised recreational routes/facilities and cycle paths during construction through various mitigation measures. Opportunities will also be explored for any beneficial effects that can be delivered for the local community during construction.

3.12.2 Mitigation measures that may be implemented include, but are not limited to:

- All work will be undertaken in accordance with the mitigation measures reported in chapter 15 of the ES, as summarised by Chapter 18 Summary of Mitigation;
- The Applicant, the appointed PC and ELO will work with local communities and businesses within the villages of Waunfawr, Croesywaun, Brynrefail, Cym-y-Glo, Fachwen, Dinorwig, Llanberis and Groeslon to ensure the phasing of the construction works is designed to minimise effects on the local community wherever reasonably practicable.
- Any permanent diversion to an existing Public Right of Way will be agreed through the DCO regime prior to the commencement of any development.
- Wherever reasonably practicable the workforce will be recruited from the local area. SPH or the PC will engage with local contractors at the Pre Qualification Questionnaire stage of the tender process, with the intention of providing local employment and investment in the area through the

appointed PC. These could include supply chain workshops and events; and

- Wherever reasonably practicable materials will be sourced from local suppliers.

3.13 TIMING OF WORKS

3.13.1 Works will be phased to minimise effects on the surrounding environment and local communities by:

- Avoiding summer school holidays to minimise impacts on the local residents and tourists visiting the area
- Avoiding breeding bird season to minimise ecological effects
- Scheduling construction activities to minimise the area and period of time that soil will be exposed, particularly during wetter periods
- Timing soil handling and overburden stripping to suit weather conditions

3.14 WORKING HOURS

3.14.1 Construction activities will be limited to 07.00 – 19.00 Monday to Friday and 07.00 – 13.00 on Saturday, although this may be extended to 19.00 at critical path construction phases, and at no time on Sundays and Bank Holidays. Where construction activities are required outside these hours, then this will be undertaken only with the prior approval of Gwynedd Council.

3.15 LIGHTING

3.15.1 At night and during periods of darkness directional security lighting will be used. Lighting will be selected and sited so as to minimise visual intrusion to local communities, whilst maintaining the safe and efficient operation of the Development.

3.15.2 Construction work will be carried out between 07:00-19:00 hours Monday to Friday and 07:00-13:00 hours on Saturday. Site lighting will be positioned and directed to minimise nuisance to residents, walkers and vehicle drivers. Implementation will conform to requirements and meet the Obtrusive Light Limitations for Exterior Lighting Installations for each respective

Environmental Zone in the area – contained within Table 1 of the Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light (2005).

3.15.3 Where lighting is necessary, appropriate low glare lighting will be used to minimise the impact of lighting on ecological receptors, including nocturnal species. Lighting will be designed to minimise spillage into surrounding habitats to avoid disturbance to wildlife. This will be secured through Requirement 19.

4 TOPIC SPECIFIC MANAGEMENT PLANS

4.1 INTRODUCTION

4.1.1 The management of topic specific Management Plans to be secured through the CoCP and Requirement 6 is outlined below. Chapter 18 Summary of Mitigation provides a schedule of mitigation for construction including all construction stage mitigation reported in the ES. The Applicant and the PC will adhere to these mitigation measures during construction of the Development.

4.2 WATER MANAGEMENT PLAN

4.2.1 An outline Water Management Plan (WTMP) is contained in Appendix 16.1.1 and the finalised version will detail how the PC will implement working methods to protect surface and groundwater resources from pollution and other adverse impacts including changes to water levels, flows and quality.

4.2.2 An outline water sampling monitoring plan has also been provided within the outline WTMP.

4.3 POLLUTION PREVENTION

4.3.1 A Pollution Prevention Plan (PPP) will be prepared by the PC and agreed with Gwynedd Council and NRW through DCO Requirement 6. This will include agreed emergency procedures in the event of a pollution incident.

4.3.2 A suitably trained Emergency Environmental Crew will be provided by the PC to deal with pollution incidents in conjunction with other safety-related incidents as required.

4.3.3 An Emergency Contact List and Spill Response Flowchart shall be displayed on notice boards and on fuel bowsers.

4.3.4 All plant and machinery shall be checked for leaks of fuel and lubricants before being allowed to commence works and maintenance and servicing records checked.

4.3.5 A suitable quantity of pollution control equipment, e.g. spill kits containing absorbent pads, absorbent granules, absorbent booms etc. will be kept on site in the event of an emergency. The Project Environmental Manager will check pollution control equipment on a weekly basis to ensure that it is adequately maintained (for example ensuring equipment is within date) within the construction areas,

4.3.6 “Emergency Grab Packs” or spill kits to be carried in site vehicles and mobile plant and larger kits with fuel bowsers and emergency vehicles.

4.3.7 Static plant such as pumps and generators will be placed on drip trays wherever practicable to prevent leaking materials, from contaminating the ground or surface waters.

4.3.8 Facilities for washing plant and equipment contaminated with concrete or other chemicals will be provided. Wash water from the facilities will be managed so as to prevent pollution of surface water and groundwater. If on-site batching facilities are required they will be operated under the conditions of the appropriate authorisation.

4.3.9 Chemicals, fuels and oils will be stored in secure and designated storage areas and in accordance with the appropriate regulatory requirements, including COSHH Regulations 1994. Storage areas will be located on hardstanding areas so as to prevent the possible infiltration of contaminants into the soil and will also be located 20m from surface water bodies. Stockpiles of dry materials will be stored in locations that prevent contamination of surface waters through dust generation or runoff and materials will not be stockpiled without appropriate safety and mitigation systems in place.

4.3.10 Further details of arrangements for dealing with spills, leaks and unplanned emissions, unplanned damage to the environment and other environmental incidents are provided in the Pollution Prevention and Control Plan, which forms Appendix 2 of this CoCP (Volume 3 Appendix 16.1.2).

Storage and Handling of Fuel and Lubricants

4.3.11 All fuels shall be stored in integral bunded fuel bowsers, designed to hold 110% of the contents of the tank. All connections shall be situated within the bund. Fuel shall be stored at least 20 metres away from any watercourse, where reasonably practicable. Refuelling within the construction areas shall be undertaken at least 20 metres from any watercourses. An impermeable bunded area for the storage of drums shall be constructed in accordance with NRW guidelines.

4.3.12 Oils and lubricants used within the construction areas will also be stored in temporary impermeable bunded areas or sealed bunded tanks designed to hold 110% of the container volumes. No oil or fuel shall be stored within 20 metres of a watercourse.

4.3.13 Further details are provided in the Pollution Prevention Plan (Volume 3 Appendix 16.1.2).

Herbicides

4.3.14 Only trained sub-contractors shall apply herbicides, and only where their use is essential. Certificates of competence shall be inspected before application is allowed and a record of application made in accordance with the Control of Pesticides Regulations 1986. Where herbicide use is essential a glyphosate herbicide, suitable for use in or near watercourses and approved by NRW, shall be used.

Control of Substances Hazardous to Health (COSHH)

4.3.15 A COSHH store will be set up in the site compound. COSHH assessments and Material Safety Data Sheets shall be held with the COSHH materials. A COSHH register shall be created and maintained on site.

4.3.16 All site personnel and subcontractors will be made aware of the COSHH requirements through site inductions and specific tool box talks. Daily site inspections will used to review and monitor the storage and issue of materials.

4.4 TRAFFIC MANAGEMENT

4.4.1 The preparation of a detailed Construction Traffic Management Plan (CTMP) is the subject of Requirement 6 of the DCO, although an outline is contained with Volume 3, Appendix 16.1.3. It will require the CTMP to be updated and finalised and then approved (as part of the CoCP) prior to construction commencing.

4.4.2 The CTMP will identify how traffic will be managed throughout the duration of the construction period to minimise disruption to other road users. The CTMP will identify how pedestrian and cyclist traffic will be safely and effectively managed in the event of closures and/or diversions to footpaths, footways and cycle routes due to construction works.

4.4.3 The appointed PC will liaise with all the relevant bodies to ensure that deliveries associated with construction occur outside of peak road networks periods, where reasonably practicable, to minimise delay on other road users.

4.4.4 Access to the local highway network will be via the A55 to the north and whilst the exact route beyond this is yet to be determined, the A55 is a high quality route which gives access to the wider network. This route is therefore considered to be able to accommodate the construction traffic and as such no further consideration is required in the CTMP.

4.4.5 The route to the local road network around the A4085 and A4086 would be gained via junction 11 of the A55, which is a grade separated roundabout, with the A55 passing underneath the junction. Traffic would then travel along a short length of the A5 before joining the A4244 at an at-grade roundabout.

4.4.6 In order to ensure compliance by contractors and suppliers, the minimum requirements of the CTMP will be included in all contract tender documents and will be discussed in detail prior to awarding a contract, with specific mention of the community at Waunfawr.

4.4.7 Deliveries and removal of plant, equipment and machinery and waste from site must only take place during the normal construction hours detailed above.

4.4.8 In addition, the residents within close proximity to the Development, including Waunfawr, Llanberis and Cwm y Glo and those who may be disrupted across the adjacent valley, such as Deiniolen, Fachwen and Brynrefail, will be notified of peak construction activities such as blasting, large deliverables and abnormal loads, at least six weeks in advance to minimise disruption although these will occur during peak hours.

4.4.9 The CTMP will be regularly reviewed and updated to take into account any changing patterns of both existing traffic and the construction traffic following consultation with Gwynedd Council.

4.4.10 Points of access and egress for the site will be identified and marked with warning signs in accordance with the requirements of the works and the local Highways Authority.

4.4.11 During the construction phase, drivers will be briefed regularly, and compliance with the plan will be checked regularly. Action will be taken in the event of any failure by contractors and/or suppliers to comply with the requirements, which will result in reprimands of those responsible followed by removal of the driver and/or the company from the project if failure to comply persists.

4.4.12 Adequate parking at the temporary compounds will be provided to ensure that the safety and efficient operation of the public highway is not reduced.

4.4.13 Welfare facilities will be provided within the temporary compounds to minimise the need for offsite trips by staff during the working day.

4.4.14 Measures to protect the public highway will be implemented through the highway improvements to be completed prior to the construction phase commencing. Condition surveys will be regularly undertaken throughout the construction phase.

4.4.15 At site accesses suitable supervision will be provided as required to ensure that traffic is controlled at access points during construction (e.g. banksman

checking road traffic and controlling construction vehicle movements) and mud deposits on the roads are minimised. Where required traffic signals (in accordance with New Roads and Street Works Act (NRSWA)) or stop-go boards will be used to control road traffic. Road signs will conform to Chapter 8 (Traffic Signs Manual 2009) and NRSWA.

4.4.16 The CTMP will be regularly reviewed and updated to take into account the changing patterns of both existing traffic and the construction traffic following consultation with Gwynedd Council.

4.5 DUST MANAGEMENT PLAN

4.5.1 The PC will, as far as reasonably practicable, seek to control and limit emissions to the atmosphere in terms of gaseous and particulate pollutants from vehicles and plant used on the construction site, and dust from construction activities. The PC will identify potential sources of such emissions and apply appropriate control techniques.

4.5.2 The objective of this Dust Management Plan (DMP) is to detail the manner in which the environmental impacts of the dust are to be minimised during the construction of the Development. This plan will be finalised and approved (as part of the CoCP) prior to construction commencing, when work is appointed with the selected PC.

4.5.3 General Mitigation Controls will be implemented in the following areas to minimise emissions of dust and other air pollutants:

- Site Management
- Preparing and Maintaining the Site
- Operating Vehicles and Sustainable travel
- Operations
- Waste Management

4.5.4 Table 16.3 describes potential sources of dust at different phases of the Development and relevant dust control guidance.

Table 3 Potential sources of dust and dust control guidance for different phases of the Development		
Phase	**Potential Dust Source**	**Dust Control Guidance**
Site Restoration and preparation	Site preparation activities including earthworks, excavation and landscaping, can lead to significant generation of dust, particularly during periods of dry weather followed by strong winds.	Surfaces should always be disturbed as little as possible and subsequently stabilised as soon as possible. Machinery and dust generating activities should be located away from sensitive receptors.
Extraction	Dust from extraction can have a significant effect on neighbouring areas. Potential sources of dust include blasting, removing materials from site and crushing materials for reuse.	Blasting should be avoided where possible but sheeting and screening can be used to protect sensitive receptors if required. Vehicles removing demolition materials must have their loads effectively sheeted if required. Crushers will be sited as far away as possible from sensitive receptors.
Materials Handling, Storage, Stockpiling, Spillage and Disposal	Materials handling operations, transport and storage of fine powdery materials, building stockpiles, spillages and disposal of waste material are all potential sources of dust in this phase.	Wherever reasonably practicable stockpiles and compounds will not be located near the site boundary or upwind of nearby sensitive receptors, i.e. they should be located away from the north east boundary near Q1. During high winds, extended dry periods or after recent movement of material, stockpiles shall be stabilised and/or covered to prevent wind-blown dust. Short-term or temporary controls will include water sprays, although sheeting, grass seeding or high fences may be more suitable depending on the proposed use of the material and where it is confirmed that these measures will not have indirect effects. The shape of the stockpiles shall also be considered, as several smaller piles may reduce windblown material compared to few, larger piles. Handling and transfer of soil and dusty materials will be controlled to minimise dust generation. During material handling operations care will be taken to keep

Table 3 Potential sources of dust and dust control guidance for different phases of the Development		
Phase	**Potential Dust Source**	**Dust Control Guidance**
		the number of handling operations to a minimum and to ensure that dusty material is not moved or handled unnecessarily. Dust generation is controlled within several pieces of legislation, as well as Town and Country Planning laws. Solid fencing or boarding can provide shelter from the wind and reduce the possibility of dust suspension from the ground. Areas of the site that are expected to be significant local sources of dust generation can be fenced in this way. In general, fences need to be of the same approximate size as, or slightly larger than the object being protected (e.g. stockpiles) if they are to be effective. Method statements should be established to define the procedures to be followed for the storage and handling of fine, powdery and dry materials.
Vehicle/Plant Movements and Roads, Surfaces and Highways	In addition to the dust caused by construction vehicles, non-road mobile machinery (NRMM) is capable of significant emissions. Engine emissions, especially from diesel engines, can be a significant source of fine particle matter and can have adverse health impacts.	In order to control the emission of excessive exhaust emissions and diesel smoke from plant and machinery, the Applicant and the PC shall ensure that all plant is correctly checked and maintained following manufacturer's instructions, to ensure it is in good working order before being allowed on to the construction areas. All Project vehicles will hold current certification that they comply with the exhaust emission regulations for their class. Appropriate location of plant and equipment and their exhausts away from sensitive receptors will also help mitigate air pollution. Vehicle exhausts should be directed away from the ground and other surfaces and preferably upwards to avoid

Table 3 Potential sources of dust and dust control guidance for different phases of the Development		
Phase	**Potential Dust Source**	**Dust Control Guidance**
		road dust being re-suspended to the air. Exhausts should be positioned at a sufficient height to ensure adequate local dispersal of emissions. Control measures with regard to routes used and their maintenance during the construction phases can also help minimise dust generation. As far as practical, routes should be located away from residential and commercial properties. Wheel washing at site exits will help minimise dust generation away from the site.
Construction and Fabrication Processes	Operations such as cutting, grinding and sand-blasting can be major sources of airborne particles during the construction phase.	Prefabrication should be used whenever possible to minimise dust generation from these operations on site. Dust minimisation systems and appropriate maintenance of equipment will also help mitigate dust emissions.

4.5.5 Part III of the Environmental Protection Act, 1990 (EPA, 1990) as amended by the Noise and Statutory Nuisance Act, 1993 contains the legislation that allows local authorities and the general public to take action to secure the abatement of statutory nuisances, including dust.

4.5.6 Other legislation and good practice guidance to be referenced within the DMP, but not limited to, as follows:

- Pollution Prevention and Control Act, 1999;
- Pollution Prevention and Control (England and Wales) Regulations 2000 (SI2000/1973);
- Health and Safety at Work Act, 1974; and
- Control of Substances Hazardous to Health (COSHH) Regulations, 1999.
- BRE, 2003a: Guidance on the Control of Dust from Construction and Demolition Activities;
- BRE, 2003b: Controlling Particulates, Vapours and Noise Pollution from Construction Sites;
- GLA&LC, 2006: The control of dust and emissions from construction and demolition: Best Practice Guidance; and
- IAQM, 2012 Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites.

4.5.7 Due to the size of the Development, there is potential for onsite concrete batching to be needed, for example during the construction of the dams. Concrete batching equipment shall be operated in accordance with Process Guidance Note 3/01 (12) and is regulated under the Environmental Permitting Regulations 2010.

4.5.8 During prolonged periods of dry weather damping will be used to control dust, but only where the risk of generating silt laden runoff or muddy track out onto roads is low.

4.5.9 The implementation of the above measures will be carried forward in the DMP which will be finalised as per DCO Requirement 6 by the appointed PC prior to construction commencing.

4.6 LANDSCAPE & REINSTATEMENT PLAN

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

4.6.2 The following measures will be adopted as appropriate within the Landscape & Reinstatement Plan:

- All work will be in accordance with the mitigation measures reported in Chapter 6 Landscape Character & Visual Amenity of the ES and summarised in Chapter 18 Summary of Mitigation;
- Good housekeeping measures identified in section 3.9 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 etc. 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 to Waunfawr, whilst maintaining the safe and efficient operation of the work site. At night and during periods of darkness directional security lighting will be used.

4.6.3 Due to the scale of the Development, an Outline Landscape & Reinstatement Plan will be submitted for the whole site, followed by Detailed Landscape & Reinstatement Plans for different areas of the site or phases as the works progress.

4.6.4 The Outline Landscape & Reinstatement Plan will be prepared and submitted to the Gwynedd Council and NRW for approval prior to construction commencing, when work is appointed with the selected PC. This will include, but not be limited to, the following:

- A schedule of landscape reinstatement performance objectives;
- Associated landscape works;
- Planting, reinstatement and maintenance requirements;
- Phasing of any construction operations, indicating the landscape reinstatement work associated with each phase and timescale for implementation;
- An outline management plan for the lifetime of the development;
- Areas of advance landscape works which can be implemented to bring about the integration of the development at the earliest possible stage;
- The employment of a landscape architect to advise and monitor the implementation of the landscape works and remedy any failures to the agreed reinstatement works.

4.6.5 The following should also be considered:

- Before any development commences a landscaping and tree planting scheme shall be submitted for approval to Gwynedd Council. This is to include indications of all existing trees and hedgerows on the land and details of any to be retained alongside measures for the protection throughout the course of the development.
- Planting, seeding or turfing included in the approved details of the landscape plan shall be carried out in the first planting and seeding seasons following the occupation of the buildings or the completion of the development, whichever occurs sooner.
- Any trees or plants which, within a period of 5 years from the completion of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of

similar size and species, unless Gwynedd Council gives written consent to any variation.

- Newly landscaped dam surfaces and new slate tip areas will be formed in accordance with best practice guidance to help create a diversity of landforms to favour the colonisation and establishment of a diverse range of plants and animals.

4.6.6 Where the site development is proposed to be phased, a Detailed Landscape Reinstatement Plan for that area and timescale for implementation is to be submitted to the Local Planning Authority and its approval in advance of work commencing. To include detailed proposals and specifications and any variations to the outline plan, in response to site factors such as ground conditions and knowledge gained.

4.7 NOISE MANAGEMENT PLAN

4.7.1 The PC will, as far as reasonably practicable, control and limit noise and vibration levels so that noise sensitive receptors are protected from excessive noise and vibration levels associated with construction activities.

4.7.2 Requirement 6 of the DCO requires the preparation of a Noise Management Plan (NMP) which will require approval of the LPA prior to the commencement of construction.

4.7.3 The NMP will identify mitigation measures to be adopted on the project which will include the following as necessary:

- All work will be in accordance with the mitigation measures reported in Chapter 13 of the Environmental Statement, and summarised in Chapter 18 Summary of Mitigation;
- Best Practicable Means (BPM) will be applied, as defined under Section 72 of the Control of Pollution Act (CoPA) 1974;
- Inherently quiet plant will be selected where appropriate and use will be made of electrical items of plant instead of diesel, especially in sensitive locations;

- Construction activities will be planned for the beginning of the week where reasonably practicable so that any delays in construction do not result in particularly noisy activities being conducted on Saturdays:
- Vehicles and plant will be regularly maintained and fitted with exhaust silencers. Unless otherwise directed, items or plant in intermittent use will be shut down during idle periods;
- Audible warning systems, such as vehicle reversing sirens, will normally be set to as low a setting as is compatible with safety requirements; white noise alarms will be used if acceptable;
- Where plant has been designed to operate with engine covers to reduce noise, these will be used and remain closed while the plant is in operation.
- Plant and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors or in locations where acoustic screening is provided by site cabins, buildings or barriers;
- On sites where a generator is required for prolonged periods of time, consideration will be given to the use of a silent generator;
- All blasting will be carried out using BPM, where available, to ensure that the resultant noise, vibration and air overpressure are minimised in accordance with current British Standards and Mineral Guidelines;
- No employees, subcontractors and persons employed on the site will cause unnecessary noise from their activities e.g. excessive ‘revving’ of vehicle engines, music from radios, shouting and general behaviour etc;.
- Road surfaces will be properly maintained, paying particular attention to the filling of any ‘potholes’ as these are the main cause of vibration;
- Contractors will be required to adhere to the codes of practice for construction working and piling set out in BS 5228 where appropriate;
- Plant that is not required to be mobile will be located and orientated with a localised barrier to provide attenuation to NSRs.

4.7.4 Should any reasonable and specific complaint regarding vibration due to construction activities be received, reasonable endeavours will be undertaken to investigate the source, this will include:

- Identification of the activity that triggered the complaint, where possible;
- If an activity can be readily identified, identification and execution of any obvious remedial measures (e.g. filling potholes) to address the source of vibration within a reasonable timeframe.
- If the vibration is persistent and/or remedial measures cannot immediately be identified, reasonable further investigation will be undertaken to help identify the source; and
- Identification and execution of appropriate remedial measures, where required.

4.7.5 Construction hours will be 07:00-19:00 Monday to Friday and 07:00-13:00 Saturday and no time on Sundays and Bank Holidays. Local Authority consent will be required for works outside normal hours and noisy activities will be scheduled early in the week to avoid weekend overruns.

4.7.6 Consent will be sought for any works that need to be undertaken outside of the normal construction hours, and noisy activities will be scheduled early in the week to avoid weekend overruns. Equipment will be maintained regularly to manufacturer's requirements and fitted with silencers or barriers to minimise noise and turned off when not in use.

4.7.7 Site layouts and screening will follow good practice for minimising noise and noise reduction techniques will be included in staff inductions.

4.7.8 The CoCP will take into account good practice guidance contained within, but not limited to, the following documents:

- BS 4142:1997 Method for Rating Industrial Noise Affecting Mixed Residential and Industrial areas;
- BS 5228: Code of practice for Noise and Vibration Control on Construction and Open Sites (2009) Parts 1 and 2;
- BS 6472-1: 2008. 'Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting';

- BS 6472-2: 2008. 'Guide to evaluation of human exposure to vibration in buildings. Blast-induced vibration';
- BS 8233:Sound Insulation and Noise Reduction for Buildings (1999)
- Minerals Planning Guidance (MPG) 11: "The control of noise at surface mineral workings"; and
- Design Manual for Roads and Bridges Volume 11 Section 3 Part 7 HD 213/11 (revision 1) 'Noise and Vibration'.

4.8 EMERGENCY RESPONSE & FLOOD RISK MANAGEMENT PLAN

4.8.1 An Emergency Response and Flood Management Plan will be prepared for approval of NRW under Requirement 6 of the DCO by the appointed PC.

4.8.2 The ERFRMP will detail the actions to be taken to prevent and manage a flood incident, and will follow guidance published by Natural Resources Wales (NRW) and the Environment Agency (EA). Its objectives will likely be as follows:

1. Raise awareness of the risks of flooding associated with the proposed development.
2. Detail the flood warning and estimated lead times where possible.
3. Detail how the Plan is triggered, by who and when.
4. Define any areas of responsibility for those participating in the Plan.
5. Describe what actions are required by any personnel present at the proposed development.
6. Establish a safe route to a safe location, and outline the evacuation procedure.
7. Establish procedures for implementing the Plan and the way it will be monitored.

4.8.3 In the incidence of a flood event, the ERFRMP will be implemented in conjunction with the Water Management Plan’s incident and emergency response procedures.

4.8.4 All construction works will be undertaken in accordance with the Control of Major Accident Hazard Regulations (COMAH Regs).

4.8.5 All construction areas and associated accommodation and welfare facilities will have in place appropriate plans and management controls to prevent fires. The site fire plans will be prepared, regularly reviewed, and updated as necessary, and will have due regard to the following documents:

- Fire Prevention on Construction Sites (Joint Code of Practice on the Protection from Fire of Construction Sites & Buildings Undergoing Renovation); and
- Fire Safety in Construction Work (HSG 168).

4.8.6 A project emergency plan will be developed by the PC, providing telephone contact details for the emergency services, local authorities, and maps showing the location of local hospitals. The project emergency plan will be displayed within the construction areas and will form part of the site induction.

4.9 WASTE MANAGEMENT PLAN

4.9.1 The WMP will be finalised and approved prior to construction commencing as per the DCO Requirement 6. All work will be in accordance with the mitigation measures reported in the ES.

4.9.2 Waste will be generated during the construction phase and this is likely to include:

- Excess concrete, mortar and grout;
- Wood off cuts and used wood (crates and concrete formwork);
- Bricks, pavers and concrete block off cuts;
- Roofing materials;
- Metal including steel reinforcement off cuts;
- Plastic wrapping and packaging;
- Paper;
- Delivered material bags, wrappings and coverings; and
- Miscellaneous materials.

4.9.3 The PC will undertake material resource management to minimise waste creation. All waste will be managed according to the Waste Hierarchy:

- Reduce;
- Reuse;
- Recycle;
- Recover; and
- Dispose.

4.9.4 General waste will be collected, segregated and stored temporarily in covered skips and disposed of offsite.

4.9.5 The WMP will set the framework for the management of wastes generated during the construction process. It will document the commitments made during the planning and design stages to minimise waste and set objectives and targets for the main waste types. It will also identify the following:

- Responsibilities of individuals within the construction team for waste management;
- Identification of Waste Representatives to manage waste streams;
- The types of waste, their classification and the quantities likely to be generated;
- Measures to be adopted during construction to minimise waste generation;
- Opportunities for recycling and/or reuse;
- Monitoring systems to be implemented for wastes removed from the site for reuse or disposal;
- Proposed Waste Carriers together with copies and verifications of their Waste Carrier Licences (Upper Tier);
- Proposed treatment and disposal sites, together with copies and verifications of their Environmental Permits;
- Methods proposed for recording Waste Transfer Notes and maintaining the Waste Log; and

- Identification of any Hazardous Waste streams to be disposed of separately and the method for recording Hazardous Waste Consignment Notes.

4.9.6 The Applicant and the PC shall ensure that all wastes are stored and managed in accordance with the Duty of Care under the Environmental Protection Act 1990 and in accordance with the 'Waste Management – A Duty of Care – A Code of Practice'. In particular, care shall be taken to identify and segregate Hazardous Wastes.

4.9.7 Some of the equipment delivered to the site will be packaged. The Principal Contractor will be responsible for the removal and disposal of all packaging and other waste materials that arise during construction and commissioning.

4.9.8 Waste collected from the Order Limits shall be stored prior to disposal. The Applicant and the PC shall ensure that all wastes are stored in accordance with the Duty of Care. In particular, care shall be taken to identify and segregate waste.

4.9.9 Good programming of the construction process will help to ensure that all raw materials likely to be used on site are considered in advance of ordering and delivery to the site. This will minimise waste from weather-spoiling or perishable goods.

4.9.10 Subject to geotechnical testing, all excavated materials will be re-used on site wherever possible and any contaminated material requiring remediation will be treated onsite as a preference. Slate waste will be reused wherever possible in dam construction, and excess spoil mounds will be landscaped to encourage natural colonisation of vegetation. However, if it is not possible to reuse materials on site, an appropriately licensed waste disposal facility will be used and waste will be disposed of in accordance with the WMP.

4.9.11 Where it is not possible to dispose of waste onsite, a licensed off-site waste disposal facility will be used and waste will be disposed of at a licensed facility and in accordance with the WMP, which may also include the following:

- The waste carrier registration certificates of all contractors and sub-contractors used to carry waste shall be checked with NRW;
- The waste management licenses of the receiving site shall also be checked with NRW; and
- A periodic check to see that waste is disposed of at the site listed on the Controlled Waste Transfer Notes shall be made.

Slate Waste

4.9.12 Slate excavated from Q1 and Q6 will be used in dam construction and tacks and excess spoil mounds will be landscaped to encourage natural re-colonisation of vegetation.

Organic Waste

4.9.13 The waste wood and foliage material resulting from the removal of trees will be managed in-line with the Waste Hierarchy as detailed within the Waste Framework Directive, thus helping to minimise potential environmental issues pertaining to this process.

4.9.14 Wherever feasible, the generation of tree and foliage waste will be prevented and these features will be retained in-situ, especially as the Development site has blanket and individual Tree Preservation Orders (TPOs).

4.9.15 However, the retention of trees and foliage will not always be possible; therefore the reuse of material on site will be explored wherever practicable, with wood material either reused in construction, or within landscaping aspects such as the use of wood chippings, or as mulch to enhance soil quality to aid the re-planting of trees.

4.9.16 Should this not prove to be a viable option for all generated material, then excess wood waste will be stored under cover, such as tarpaulin, to protect wood from the weather so that it may be re-used wherever possible off-site e.g. as carpentry material or offered to the local community for fire wood and biomass.

4.9.17 Attention will also be paid to the proximity principle, with local uses for waste materials considered where this represents the best practicable

environmental option. For all material that cannot be re-used on or off site, or recycled, then elements of the wood and foliage material can be converted into wood-chip. Through following this process, it will be possible to limit the volume of tree and foliage waste sent for disposal as far as practicably possible.

Site Waste Management Plan

4.9.18 Site Waste Management Plans are currently not compulsory but are considered to be best practice to ensure that waste is appropriately dealt with. Responses received during scoping consultation from the Secretary of State also request that the CoCP include a Waste Management Plan (WMP). Therefore a WMP will be developed and the principles of the waste hierarchy will be followed on site, to reduce the amount of waste generated, recycle/reuse as much material as possible and recover all suitable material/energy. The design of the Development and specification of materials will aim to avoid the generation of waste. Waste for disposal will, however, be generated on site and the final disposal option for this waste will be decided following the best practicable environmental option.

4.10 HABITAT MANAGEMENT PLAN

4.10.1 Construction works 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.

4.10.2 During construction the potential impacts identified include the risk of siltation, pollution incidents, the potential for disturbance of protected species and the potential to damage lake bed habitats. This is covered in the WTMP.

4.10.3 Where topsoil is removed, it will be stored on site in preparation for habitat restoration in accordance with practical guidance set out in Section 2 of *Restoring Habitats of High Conservation Value after Quarrying (Williamson et al).*

Bat Mitigation

4.10.4 To protect the known bat roosting locations a bat mitigation strategy has been submitted and approved by NRW. The mitigation will be completed prior to construction. This will likely include, but is not limited to:

- Fencing around adits to limit human disturbance;
- Grilling, using an approved horizontal bar bat grille to protect the site;
- The interface between T13 and T14 between Q6 and Q7 is a potential risk area as the former munitions store and Q7 area have good levels of bat activity. The tunnels T13 and T14 appear to be separated by a collapse although the true extent of this separation is not known. Measures will be taken to ensure that T13 is sealed to protect water ingress into T14 from the new reservoir at Q6 to create a long term durable barrier.

4.10.5 A number of the tunnels/adits where low levels of bats use was recorded will also be made more suitable for bats. Measures likely to include:

- Building low bunds to increase water levels close to the entrances (which increase internal humidity and stabilises temperature); and
- Building block walls to slow down air flow and to create a wider range of temperature pockets for bats to utilise.

4.10.6 To prevent any inhibition of bat movements through the site, illumination during the hours of darkness will be avoided.

Lichens

4.10.7 Slabs of slate or fence posts inhabited by rare or notable lichen will be translocated to areas with similar conditions.

Pre- Construction Ecology Surveys

4.10.8 Pre-construction surveys will be carried out for otter and badger along the shorelines of Llyn Padarn. If shelters are identified within 150m of the proposed pump-house and pipeline location mitigation and a European Protected Species Licence might be required.

4.10.9 Pre-construction surveys of plant flora will be undertaken in the proposed pipeline location in Llyn Padarn. If plant species including either floating

water plantain and/or small quillwort are found during the pre-construction surveys, NRW will be contacted for advice on mitigation. It is anticipated that in the unlikely incidence of either species being found the effects could be mitigated through micro-siting of the spillway infrastructure. Alternatively translocation of the floating water plantain will require a European Protected Species License. Surveys undertaken in 2015 confirmed that the presence either side of the lagoon area but not in the vicinity of the actual spillway pipes.

4.10.10 Fish surveys have also been undertaken in both quarries to determine the presence of any species – no fish were recorded in Q1 and a very small population of sticklebacks and a single eel were recorded in Q6.

4.10.11 The HMP will also include a Tree/Root Protection Plan which will include details of development locations and their effect upon protected trees, a works programme and site monitoring arrangements with a suitably qualified Arboriculturist during the period of development. This will also include measures to protect/avoid damage to trees which are subject of Tree Prevention Order Number 3/TPO/A30 which are trees of great value to the area.

4.10.12 Other specific measures to be employed throughout construction include:

- All work will be undertaken in accordance with the mitigation measures reported in the ES and summarised in Chapter 18 Summary of Mitigation;
- 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;
- Regular environmental inspections, incorporating biodiversity, will be undertaken to check that detrimental impacts on ecological features are being minimised; and

4.10.13 A Habitat Management Plan will be finalised as per the DCO Requirement 6 by the appointed PC.

4.11 BREEDING BIRD METHOD STATEMENT

4.11.1 A Method Statement will be prepared as part of the CoCP detailing that all works will be controlled and monitored during the bird breeding period to avoid disturbing bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), This Method Statement will be agreed with Gwynedd Council in consultation with NRW prior to commencement of any works in line with Requirement 6.

4.12 SILT MANAGEMENT

4.12.1 As well as a WTMP, a Silt Management Plan (SMP) will be implemented during the construction phase of the Development, as requested by NRW during consultation. The SMP will be finalised and approved prior to construction commencing under DCO Requirement 6.

4.12.2 This will detail how silt disturbed during the placement of the inlet and outlet in Llyn Padarn would be managed to minimise any potential adverse effects on aquatic ecology.

4.12.3 In addition, silt laden water can result from earthworks, rainfall on exposed ground, water collecting in excavations, runoff from stockpiled materials, plant and wheel washing facilities, site roads and ‘track out’ onto public highway. The PC will, as far as reasonably practical, seek to limit the potential for silt laden drainage to enter any watercourse using mitigation measures which include, but are not limited to, the following:

- Wheel and plant washing facilities will be provided on specifically designated hard standing areas;
- Mud will be controlled at entry and exits to the site using road sweepers;
- Earth stockpiles will be seeded as soon as possible, covered with geotextile mats or surrounded by bunds;
- Where slopes are disturbed by the construction works, temporary drainage measures would be designed to prevent the direct discharge of runoff to watercourses;

- Sediment control measures such as silt traps and settlement ponds will be used to ensure that runoff from construction activities does not drain directly into watercourses; and
- Sediment control methods will be continually monitored and inspected during the construction phase to ensure mitigation is adequate and effective.

5 MONITORING AND AUDITING

5.1 INTRODUCTION

5.1.1 Monitoring of the environmental effects and inspections during construction enable the effectiveness of environmental mitigation to be evaluated and also allow unforeseen environmental problems to be identified and responded to at an early stage. Monitoring and inspections/audits may also help the Applicant and the PC to identify and implement environmental enhancement and improvements, which may contribute to the overall environmental performance of the project.

5.2 INSPECTIONS AND AUDITS

5.2.1 The PC will undertake a programme of weekly environmental inspections and monthly environmental audits to record performance and identify any corrective actions required.

5.2.2 Provision will be made to carry out appropriate environmental inspections and monitoring of the PC's environmental performance in the form of monthly audits. Formal audits will be against an audit checklist which will provide a mechanism to monitor and assess compliance against DCO requirements, legislative standards, licence conditions and any other provisions agreed with statutory undertakers.

5.2.3 Where problems are identified, corrective actions will be identified by the Project Environmental Manager and PC and will be implemented by the PC within a defined time frame.

5.2.4 The Environmental Manager / ECoW will inform the Project Manager of any work that they feel should be stopped in order to avoid an unacceptable impact on the environment, in particular a breach of environmental legislation.

5.3 ENVIRONMENTAL MONITORING

5.3.1 Monitoring of specific environmental parameters will be carried out as necessary and requirements for environmental monitoring will be reviewed as further consents and licences are received and consultations completed.

5.3.2 Table 4 presents the key parameters that may require environmental monitoring.

Table 4: Environmental monitoring and the relevant securing mechanism in the Draft DCO.		
Topic	**Environmental Monitoring**	**Securing Mechanism**
Water	To monitor any variation in the water quality and quantity of abstractions from and discharges to Llyn Padarn and the potential impact of these operations on Llyn Padarn, a water quality monitoring programme will be established in conjunction with NRW. The programme will monitor water quality in Llyn Padarn and the reservoirs during abstraction in order to prevent uptake of nutrient-rich waters. Water temperature will also be monitored in the pumping station to ensure that it is within local natural tolerances.	As secured by the WTMP required under requirements 6 and 8 of the Draft DCO. Controlled by the Discharge consent issued by NRW if appropriate.
Waste	As part of the Waste Management Plan, waste generated within the construction areas shall be monitored as part of its classification to ensure the appropriate treatment, handling, management and disposal measures are applied. Records will be kept of quantities and types of waste handled, in accordance with company and client procedures	As secured by the WMP required under requirement 6 of the Draft DCO.
Noise	Before construction starts, noise-sensitive locations shall be identified and pre-construction monitoring undertaken to re-assess the baseline noise environment. This will allow for appropriate mitigation measures put in place. Monitoring will then be undertaken during construction to ensure compliance with the stated noise limits identified in Chapter 13 of the ES. A blast monitoring scheme for air overpressure and vibration is recommended to be implemented. All blasts at the site should be monitored and records maintained so that the historical peak particle velocity from blasts can be produced as required.	As secured by the NMP required under requirements 6 and 11 of the Draft DCO.
Traffic	Regular monitoring shall ensure the CTMP is being followed and shall enable possible refinements or alterations to be made as appropriate	As secured by the CTMP required under requirements 6 and 9 of the

Table 4: Environmental monitoring and the relevant securing mechanism in the Draft DCO.		
Topic	**Environmental Monitoring**	**Securing Mechanism**
		Draft DCO.
Dust	An adequate and appropriate monitoring programme, including periodic checks and continuous monitoring shall ensure the DMP is being followed and shall enable possible refinements or alterations to be made as appropriate.	As secured by the DMP required under requirements 6 and 10 of the Draft DCO.
Air Quality	A specification for baseline air quality monitoring will be prepared	As secured by the Air Quality Baseline Monitoring Plan required under requirement 7 and 14 of the Draft DCO.
Ecology	Any confirmed protected species presence will be monitored by an Ecological Clerk of Works to mitigate the likelihood and extent of disturbance.	As secured by the HMP required under requirements 6 and 12 of the Draft DCO.

5.4 ENVIRONMENTAL INCIDENT AND CORRECTIVE ACTION REPORTING

5.4.1 All environmental incidents and near misses shall be reported and investigated by the PC, reporting to the Undertaker. Incidents will be recorded and those that, in the judgement of the Environmental Project Manager, are deemed significant, will be reported to the Project Manger as soon as possible who shall inform the Applicant. Where relevant the appropriate statutory authority (e.g. NRW) shall be informed immediately. Copies of incident investigation reports shall be supplied by the PC to the Applicant and action taken to prevent recurrence.

5.4.2 All Corrective Action, incident and near miss report forms shall be held in a register maintained at the construction site office base.

5.4.3 Any incident that may result in an environmental impact, will be reported immediately to NRW through the 24 hour hotline 0800 80 70 60, together with details of date, time, location, type, potential impact and person calling.

5.5 NUISANCE MANAGEMENT

5.5.1 As outlined in the Statement in Respect of Statutory Nuisance (Document 5.02) it is considered that nuisance as a result of dust, noise or vibration is unlikely to arise due to the implementation of the DMP, NMP and overall CoCP. The Statement does however, outline the procedure to be followed should a nuisance complaint be made or an event occur.