

# 16 ENVIRONMENTAL MANAGEMENT

<b>16.1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>16.2</b>	<b>LEGISLATION AND POLICY FRAMEWORK.....</b>	<b>2</b>
<b>16.3</b>	<b>CONSULTATION.....</b>	<b>7</b>
<b>16.4</b>	<b>CODE OF CONSTRUCTION PRACTICE (COCP).....</b>	<b>8</b>
<b>16.5</b>	<b>SITE ENVIRONMENTAL MANAGEMENT DURING CONSTRUCTION .....</b>	<b>12</b>
<b>16.6</b>	<b>SITE ENVIRONMENTAL MANAGEMENT DURING OPERATION.....</b>	<b>12</b>
<b>16.7</b>	<b>SITE ENVIRONMENTAL MANAGEMENT DURING DECOMMISSIONING</b>	<b>13</b>
<b>16.8</b>	<b>PERMITS AND LICENCES .....</b>	<b>13</b>
<b>16.9</b>	<b>SUMMARY.....</b>	<b>14</b>
<b>16.10</b>	<b>REFERENCES.....</b>	<b>14</b>

# 16 ENVIRONMENTAL MANAGEMENT

## 16.1 Introduction

16.1.1 This chapter introduces and explains the Environmental Management strategy for the Development. The term 'Environmental Management', in the context of the Development, is used to describe the measures to be taken to protect the environment during construction.

### *Summary of 2012 Environmental Statement Chapter*

16.1.2 The 2012 ES chapter stated that as a Principal Contractor (PC) had not been appointed at the time of writing, the environmental management strategy would be developed into a Construction Environmental Management Plan (CEMP) once a PC was in place. This CEMP would provide the mechanism to ensure implementation of the mitigation measures outlined in the ES during construction. In addition the effects reported in the ES would be reduced further through ongoing consultation, additional surveys, monitoring and good practice. An Environmental Clerk of Works would also be employed during construction to ensure the contractor implements the CEMP.

### *Scope of 2015 Environmental Statement Chapter*

16.1.3 This chapter has been updated to take account of any changes in the Order Limits and construction methodology within the Rochdale Envelope outlined in Chapter 4 Project Description.

16.1.4 In addition, the principle of a CEMP will be maintained in the DCO but is now called a Code of Construction Practice (CoCP) which is contained in Volume 3 Appendix 16.1 to this ES. This CoCP is secured as a minimum specification and is the basis upon which the assessment of residual construction effects has been undertaken in each of the technical chapters. However, it will be developed further at the detailed design stage, after the

PC has been appointed and with agreement from Gwynedd Council and NRW.

16.1.5 The final CoCP will be submitted for approval to Gwynedd Council prior to construction works commencing in accordance with the Requirements set out in the DCO, and will include the associated topic-specific management plans which are set out below.

16.1.6 The CoCP provides a framework to ensure that the appropriate environmental management practices are adopted during construction of the Development. This will ensure that mitigation measures are implemented to avoid or reduce environmental effects.

16.1.7 The CoCP is in accordance with the discharge of conditions as provided by Gwynedd Council for the approved 49.9MW pumped storage Development. The details of this are also incorporated in the relevant management plans provided in section 16.5 of this chapter.

## **16.2 Legislation and Policy Framework**

### *EU Legislation*

16.2.1 The CoCP takes into account the EU Waste Framework Directive and EU Water Framework Directive (WFD).

### *National Legislation and Policy*

16.2.2 Relevant UK environmental legislation includes:

- The Environmental Protection Act 1990;
- Control of Pollution Act 1974;
- Environmental Permitting (England and Wales) Regulations 2010;
- The Waste (England and Wales) Regulations 2011;
- The Water Resources Act 1991 (as amended);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003;
- The Reservoirs Act 1975;
- Groundwater (England and Wales) Regulations 2009;

- The Pollution Preventions and Control (Designation of Landfill Directive) Order 2001;
- Groundwater Directive (2006/118/EC);
- The Land Drainage Act 1991 (as amended);
- The Flood and Water Management Act 2010;
- Environmental Damage (Prevention and Remediation) Regulations, 2009 SI 153; and
- Construction Design & Management (CDM) Regulations 1994 and amendments.

#### National Policy Statements (NPS)

16.2.3 Section 4.10 of the Overarching National Policy Statement for Energy (EN-1) concerns Pollution Control and Other Environmental Regulatory Regimes. The section outlines that issues relating to discharges or emissions from a proposed project which affect air quality, water quality and land quality, or which include noise and vibration may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes.

16.2.4 The section clearly highlights that the planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest. It plays a key role in protecting and improving the natural environment, public health and safety, and amenity, for example by attaching conditions to allow developments which would otherwise not be environmentally acceptable to proceed, and preventing harmful development which cannot be made acceptable even through conditions. Pollution control is concerned with preventing pollution through the use of measures to prohibit or limit the releases of substances to the environment from different sources to the lowest practicable level. It also ensures that ambient air and water quality meet standards that guard against impacts to the environment or human health.

16.2.5 Section 5.14 of EN-1 is dedicated to waste management. This highlights the importance of preparing a Waste Management Plan (WMP) and emphasises the need to implement the waste hierarchy:

- Prevent;
- Prepare for reuse;
- Recycle;
- Other recovery, including energy recovery; and
- Disposal.

16.2.6 Paragraph 5.14.7 states that waste management should ensure that:

- Any waste will be properly managed, both on-site and off-site;
- The waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area; and
- Adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.

#### Planning Policy Wales (PPW)

16.2.7 The PC will consult with Gwynedd Council and NRW in developing the CoCP prior to construction to ensure that it complies with PPW requirement for “*minimising adverse environmental impacts and avoiding risks to human health; protecting areas of designated landscape and nature conservation from inappropriate development; and protecting the amenity of residents, of other land uses and users affected by existing or proposed waste management facilities.*” [12.5.3] and Section 13 Minimising and Managing Environmental Risks and Pollution, making reference, where required to ‘Wise about Waste - The National Waste Strategy for Wales’, Welsh Assembly Government, 2002. ‘Waste Strategy 2009-2050 - Towards Zero Waste’.

16.2.8 PPW also emphasises the waste hierarchy of reduce, re-use and recover (section 12.5.4)

Technical Advice Notes (TANs)

16.2.9 TANs should be read alongside PPW and those relevant are summarised as follows:

16.2.10 TAN 5 Nature, Conservation and Planning (2009) provide advice about how land use planning should contribute to protecting and enhancing biodiversity and geological conservation.

16.2.11 TAN 10 Tree Preservation Orders (1997) provides advice on works that can be carried out on protected trees.

16.2.12 TAN 11 Noise (1997) provides advice on how the planning system can be used to minimise the adverse impacts of noise without placing unreasonable restrictions on development.

16.2.13 TAN 12 Design promotes sustainability through good design and provides advice on the preparation and validation of mandatory design and access statements.

16.2.14 TAN 15 Development & Flood Risk (July 2004) advises that “Developers will need to give good reason why Sustainable Drainage Systems could not be implemented.” [8.5] and that developments “on or adjacent to land that may be affected by contamination can have implications for water quality during times of flood” [7.8].

16.2.15 In line with the Welsh Assembly Government (WAG) principles of sustainable development, TAN 21 addresses the land use planning system’s contribution to sustainable waste resource management. It aims to drive the management of waste up the waste hierarchy and minimise the impact of waste management on the environment. Section 3.25 advises that waste reduction efforts should be made by developers at “*the design, construction and demolition Stage*”.

Pollution Prevention Guidelines

16.2.16 Pollution Prevention Guidelines provide guidance on how to avoid pollution and comply with the law.

16.2.17 PPG 6 Working at Construction and Demolition Sites offers guidance on risk assessment, preparation, planning and checklists for activities on site including Drainage, Excavation, Materials storage, stockpiles & exposed ground, Oil Storage Use and Refuelling, Nuisance, Cement, Concrete and Grout; Land Contamination and Invasive Species; Chemicals and Hazardous Substances; Waste Management; Incidents Response.

16.2.18 Also relevant are PPG 13 Vehicle washing and cleaning.

16.2.19 Pollution Prevention Technical Information note on Major Pipelines which recommends considering the following at design stage: sensitive watercourses, vulnerable groundwater, proximity of existing abstractions, groundwater Source Protection Zones (SPZs), sites of special scientific interest and other designated sites, contaminated land and old landfill sites, flood risk (see Chapter 9 Water Resources and Chapter 10 Flood Risk).

16.2.20 In addition, the CoCP will draw upon other general construction practice taking into account the guidance contained within, but not limited to, the following documents:

- CIRA Document C650 “Environmental Good Practice on Site”;
- PPG01: Understanding Your Environmental Responsibilities;
- PPG02 - Above Ground Oil Storage Tanks;
- PPG03 - Choosing and using oil separators: prevent pollution ;
- PPG05 - Works in, near or over watercourses; prevent pollution;
- PPG06 – Construction and demolition sites: prevent pollution ;
- PPG07 - Safe Operation of Refuelling Facilities;
- PPG08 - Safe Storage and Disposal of Used Oils; and,
- PPG21 - Incident Response Planning

*Local Planning Policy*

16.2.21 The Gwynedd Unitary Development Plan (UDP) addresses environmental and waste management issues in Part 2, Chapter C Prudent Use of Natural Resources. Waste Management, Sites and Facilities are covered in

sections 4.1.11 and 4.11.12 where the reduction and management of waste is to be promoted.

### **16.3 Consultation**

- 16.3.1 Consultation has taken place throughout the EIA process, both as part of the 2012 ES and the ES to support the DCO.
- 16.3.2 The recommendation for a finalised CEMP was included within the conditions of the T&CPA decision notice and this will be taken forward as the CoCP.
- 16.3.3 No specific consultation has been undertaken with NRW in relation to the CoCP although the previous comments from NRW on the 2012 Scoping Report, asking for clarification about the types of waste materials to be generated and waste arising at operational and decommissioning phases, have been addressed in the CoCP.
- 16.3.4 Previous discussions with the Environmental Health Officer (EHO) at Gwynedd Council and NRW have confirmed that the Environmental Permit will be determined based on Emission Limit Values (ELV) rather than actual emission data for Air Quality, and these have been carried forward into the relevant planning conditions.
- 16.3.5 The Scoping Opinion from the Secretary of State noted that consideration should be given to noise in relation to the use of piling on site, which has been addressed in Chapter 13 Noise & Vibration.
- 16.3.6 The Scoping Opinion also highlighted that an integrated Landscape and Ecology Master Plan should be outlined in the CoCP. This information has been incorporated into the Landscape Reinstatement Plan and the Habitat Management Plan which are included as part of the CoCP.
- 16.3.7 At the request of NRW, a Silt Management Plan and a Materials Management Plan have also been included as part of the CoCP.
- 16.3.8 No other comments were received on the CoCP provided within the Draft ES submission for consultation. Discussions with the North Wales Minerals and Waste Planning Service have been undertaken in relation to the



movement and storage of waste onsite during construction, such as wood from tree felling.

16.3.9 Consultation will continue through the detailed design, construction, operation and decommissioning stages of the Development. This will be managed by the Environmental Clerk of Works (ECoW) during construction and the operational staff during operation and decommissioning phases. This will include keeping people or groups affected by the works informed, notifying residents about construction activities in advance and consulting with relevant groups on the measures necessary to keep potential effects to a minimum. For specific issues during construction, consultation and communication will be via a local liaison group set up for the purpose. This will also serve to publicise the works schedule, giving warning to residents regarding periods when higher levels of, for example, noise and traffic may occur and providing them with lines of communication for any complaints or queries to be addressed.

16.3.10 The Applicant will apply for the discharge of relevant DCO requirements and the necessary consents and licences to construct, and operate the Development. These are contained with the accompanying “*Details of other consents and licences*” (ref Document 5.04).

#### **16.4 Code of Construction Practice (CoCP)**

16.4.1 The PC undertaking the Development will be required to operate under a detailed CoCP, which will be required by the terms of the DCO to be submitted to and approved by Gwynedd Council prior to construction commencing onsite.

16.4.2 The aim of the CoCP is to provide a framework to ensure:

- Mitigation measures identified in the ES and relied upon in identifying residual effects are implemented and that any unexpected environmental effects encountered during construction are also mitigated;
- The adoption of good construction practices, where appropriate;

16.4.3 That the PC and other subcontractors are complying with environmental legislation and statutory consents; and

- That the PC and other subcontractors comply with minimum auditing, environmental monitoring, environmental inspections and reporting requirements.

16.4.4 The PC will finalise the CoCP and:

- Set environmental objectives and targets;
- Define standards and requirements for its contractors;
- Define auditing, environmental inspections and monitoring and reporting requirements;
- Clarify roles and assign responsibilities for managing environmental issues;
- Finalise management plans, and
- Clarify roles and assign responsibilities for consultation and communication with statutory and non-statutory consultees and the public.

*Key Components of the CoCP*

16.4.5 The CoCP provides, prior to construction, a system against which to monitor and audit environmental performance. It also ensures that construction methods are prepared in accordance with current good practice and that the mitigation methods relied upon in the ES are implemented.

16.4.6 The CoCP sets out a variety of control measures for managing the potential environmental effects of construction works, including control and management of noise, dust, surface water runoff, waste and pollution control.

16.4.7 The CoCP included in Appendix 16.1 includes draft outlines of the following topic-specific environmental management plans which will be finalised prior to construction commencing as per Requirement 5 of the DCO:

- Water Management Plan (WTMP);
- Pollution Prevention Plan (PPP); and
- Construction Traffic Management Plan (CTMP).

16.4.8 The following plans or pre-commencement surveys are outlined in the CoCP and are to be finalised by the PC;

- Dust Management Plan (DMP)
- Waste Management Plan (WMP)
- Landscape and Reinstatement Plan;
- Noise Management Plan (NMP);
- Emergency Response and Flood Risk Management Plan (ERFRMP);
- Habitat Management Plan (HMP);
- Silt Management Plan;
- Air Quality Baseline Monitoring Plan;
- Materials Management Plan;
- Ordnance Management Strategy;
- Archaeological Compensation and Enhancement Strategy;
- Land Discovery Strategy;
- Health & Safety Plan (HASP);
- Breeding Bird Method Statement; and
- Bio Security Plan.

16.4.9 These plans will be finalised and agreed with Gwynedd Council, through the submission of the finalised CoCP, prior to construction commencing, in accordance with relevant DCO Requirements.

16.4.10 Statements and procedures that cannot be provided at this stage, but which will be included within the finalised CoCP (and therefore submitted and approved prior to construction commencing in accordance with the DCO requirement):

- Method Statements to explain the detailed construction methodologies to be used for the main construction activities, discussed and agreed, where appropriate, with relevant statutory and non-statutory consultees prior to construction.

- Training and site inductions to ensure personnel have a good general awareness of environmental issues and understand their responsibilities and specific procedures for monitoring, reporting and dealing with environmental incidents and emergencies. The PC will require staff to pass training, equivalent to the Energy & Utility Skills Register (EUSR) Safety, Health & Environment Awareness passport scheme, developed specifically for the power transmission and distribution and water distribution and processing sectors before being allowed to work on the site. Where training specific to reservoir and dam construction is necessary, it will be based on industry best practice.
- Briefings on Method Statements and Tool-box talks by the ECoW, supported by environmental specialists such as ecologists as and when required.
- Emergency Drills in accordance with the Emergency Response Plan.
- Prominent signage to indicate and explain environmentally important practices or sensitive areas.

16.4.11 The CoCP has drawn upon general construction best practice, taking into account the guidance contained within, but not limited to, the CIRIA Document C650 “Environmental Good Practice on Site”, the relevant Environment Agency Pollution Prevention Guidelines (PPGs) and other topic specific guidance, as identified in section 16.5 below.

16.4.12 Environmental monitoring regimes for water quality, noise and air quality at Llyn Padarn, will be put in place to evaluate the effectiveness of environmental mitigation, as outlined in Chapter 9 Water Resources, Chapter 13 Noise and Chapter 14 Air Quality, as well as any others identified with consultees during detailed design. These will include but not be limited to:

- Abstraction from and discharges to Llyn Padarn, a SSSI;
- Dust, air quality and noise;
- Quantity and quality of water draining from the site; and
- Vehicle movements.

## **16.5 Site Environmental Management during Construction**

- 16.5.1 The CoCP outlines the minimum environmental standards to be adopted when constructing the Development; it forms part of a suite of application documents and should be read alongside them. This is found in Appendix 16.1.
- 16.5.2 It is envisaged that the temporary construction compounds will be located on existing platforms at the Glyn Rhonwy Industrial Estate for the construction of the dam at Q6, and in close proximity to Q1. This is shown in Volume 4 Figure 4.1.
- 16.5.3 The exact make up, layout and dimensions of the temporary compound will be finalised post-consent following appointment of a PC, however in the ES a realistic worst case for the compounds was assumed which is described in Chapter 4 Project Description.
- 16.5.4 At the end of the construction period all temporary facilities will be removed from the site, with the excess spoil mounds at Q1 graded ready for natural re-vegetation, in line with the Restoring Habitats of High Conservation Value after Quarrying, Best Practice Manual (Bangor University et al, 2003).
- 16.5.5 There will also be a period of commissioning and testing prior to full operational start up.

## **16.6 Site Environmental Management during Operation**

- 16.6.1 The Development will have in place a health, safety and environmental integrated management system to the standard of ISO 18001, ISO 9001 and ISO 14001 or equivalent international standards. The Environmental Management System (EMS) will incorporate environmental control procedures, which will be regularly independently audited and certified.
- 16.6.2 An Environmental Policy will be established, which will form the framework for setting environmental objectives and targets. All staff and contractors will be made aware of the Environmental Policy and the EMS requirements as part of their induction training. As part of the formal EMS, systems will be developed and implemented for undertaking audits, record keeping, setting

and reporting of environmental performance, objectives, targets and programmes for future improvements.

## **16.7 Site Environmental Management during Decommissioning**

16.7.1 At the end of the 125 year operational life, the Development will be decommissioned. This will involve the following:

- Removal of all above ground buildings, notably the power station;
- Water will be drained from Q1 to Q6 and released at an agreed rate and timescale through the Environmental Permit into Llyn Padarn;
- Pumping station to be removed although the spillway pipework will remain;
- Access tracks will be left in situ;
- Security fences will remain although access through the dam structures will be secured; and
- Penstock pipework between Q1 and Q6 to remain in situ.

16.7.2 Clearly there will have been significant changes to environmental legislation and procedures in place 125 years from now. Therefore a Decommissioning Plan will be prepared and agreed with the relevant authorities at that time.

## **16.8 Permits and Licences**

16.8.1 NRW have approved an abstraction licence for the initial filling of the reservoirs (ref WA/065/0016/007).

16.8.2 During a meeting held on the 22<sup>nd</sup> January 2015 with NRW, it was confirmed that a discharge consent may be needed for the drainage of Q6 and that SPH should undertake further discussions with the permit team. NRW also advised that should the water within Q6 be found to be contaminated then this would require an Environmental Permit for the treatment of the water prior to discharge into Llyn Padarn. The rate at which water could be discharged would be advised by NRW and would also be subject to whether the catchment was in spate and if the discharge could cause issues for third party downstream users.

- 16.8.3 Slate waste will be re-used on site wherever possible in dam construction and tracks and excess spoil mounds will be landscaped to encourage natural re-colonisation of vegetation. Any materials disposed of off site will be at licensed waste disposal facilities in accordance with a Waste Management Plan (WMP) and a Materials Management Plan (MMP) to be prepared by the contractor prior to the commencement of works.
- 16.8.4 Further information regarding required consents and licenses are contained in the Document 5.04 “*Details of other consents and licenses*”.

## **16.9 Summary**

- 16.9.1 This chapter has outlined the environmental management strategy for the Development. This strategy has been developed into an outline CoCP and will be developed into a final CoCP at detailed design stage, subject to written approval from Gwynedd Council and NRW.
- 16.9.2 The CoCP will provide a framework to ensure that the appropriate environmental management practices are adopted during construction of the Development. This will ensure that environmental effects are minimised and mitigation measures, as described in the ES, are implemented.
- 16.9.3 The CoCP will also detail the relevant Legislation and Policy Framework, in relation to any consents, licences or permits required outside of the DCO.

## **16.10 References**

BRE, 2003a: Guidance on the Control of Dust from Construction and Demolition Activities;

BRE, 2003b: Controlling Particulates, Vapours and Noise Pollution from Construction Sites;

BS 8233:1999 Sound insulation and noise reduction for buildings

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 8233: Sound Insulation and Noise Reduction for Buildings (1999).

Control of Pollution Act 1974.

Construction Design & Management (CDM) Regulations 1994

CIRIA Document C650 “Environmental Good Practice on Site”

Dams and Reservoirs (2010), Marchlyn Mawr additional stored energy project, Giles Hird.

DECC. [Online] [Cited: 14 11 2011.] [http://www.decc.gov.uk/en/contentcms/meeting\\_energy/hydro/hydro\\_effects/hydro\\_effects.aspx](http://www.decc.gov.uk/en/contentcms/meeting_energy/hydro/hydro_effects/hydro_effects.aspx).

Department of Energy and Climate Change. Overarching National Policy Statement for Energy (EN-1). July 2011.

GLA&LC, 2006: The control of dust and emissions from construction and demolition: Best Practice Guidance;

Gwynedd Council (2001) Unitary Development Plan;  
BS 4142:1997 Method for Rating Industrial Noise Affecting Mixed Residential and Industrial areas;

Jongens Keet Associates (2007) Noise Impact Assessment of the Proposed Steelport Pumped Storage Scheme.

Planning Guidance (Wales): Planning Policy (1996).

PPG01 - Understanding Your Environmental Responsibilities - Good Environmental Practices;

PPG02 - Above Ground Oil Storage Tanks;

PPG03 - Use and Design of Oil Separators in Surface Water Drainage Systems;

PPG06 - Working at Construction and Demolition Sites;

PPG07 - Refueling Facilities;

PPG08 - Safe Storage and Disposal of Used Oils;

PPG13- Vehicle Washing and Cleaning;

PPG21 - Pollution Incident Response Planning.

PPG22 - Dealing with Spills.



Waste management The Duty of care A code of practice: ISBN 0-11-753210-X: The Stationery Office Tel 0171 873 9090

GP3 Groundwater protection: Principle and practice, parts 1 4

Fire Service Manual Vol2 Fire Service Operations Environment Protection (Version 1 2008) the Stationery Office ISBN 978 0 11 341316 4

Noise and Vibration Control on Construction and Open Sites (BS5228: 2009).

Directive 2000/14/EC on noise emissions from outdoor equipment.

ISO 3744:2010.

Mines and Quarries Act 1954.

Mines and Quarries (Tips) Act 1969.

Minerals Policy Statement 2: Controlling and Mitigating the Environmental Effects of Mineral Extraction in England Annex 2: Noise (2005).

The Contaminated Land (Wales) Regulations 2006

Welsh Assembly Government (2014) Technical Advice Note (TAN) 12: Design

Welsh Assembly Government (2004) Technical Advice Note (TAN) 15: Development and Flood Risk

Welsh Assembly Government (2014) Technical Advice Note (TAN) 21: Waste

Welsh Assembly Government (2014) Planning Policy Wales