



The Planning Inspectorate Yr Arolygiaeth Gynllunio

The Planning Act 2008

Glyn Rhonwy Pumped Storage (Generating Station)

Examining Authority's Report of Findings and Conclusions

and

**Recommendation to the
Secretary of State for Business, Energy and Industrial Strategy**

Examining Authority

Stuart Cowperthwaite

8 December 2016

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Examining Authority's findings and conclusions and recommendation in respect of an application by Snowdonia Pumped Hydro Limited for an Order granting Development Consent for Glyn Rhonwy Pumped Storage (Generating Station).

File Ref EN010072

The application, dated 21 October 2015 was made under section 37 of the Planning Act 2008 and was received in full by The Planning Inspectorate on 21 October 2015.

The Applicant is Snowdonia Pumped Hydro Limited.

The application was accepted for Examination on 17 November 2015.

The Examination of the application began on 8 March 2016 and was completed on 8 September 2016.

The Proposed Development is to construct, operate and maintain a pumped hydro-electricity storage facility with a capacity of 1,300,000m³ of stored water and a peak power output of 99.9MWe, together with integral dams, reservoirs, penstocks, tailrace, spillways, pumping station and other works on the slopes of Cefn Du mountain above Llyn Padarn, approximately 1km north west of Llanberis and 11km south east of the town of Caernarfon in the County Borough of Gwynedd.

Summary of Recommendation:

The Examining Authority recommends that the Secretary of State should make the Order in the form at Appendix D.

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APPENDIX A: EVENTS IN THE EXAMINATION

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APPENDIX C: LIST OF ABBREVIATIONS

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ERRATA SHEET – Glyn Rhonwy Pumped Storage Generating Station – Ref. EN010072

Examining Authority's Report of Findings and Conclusions and Recommendation to the Secretary of State for the Department of Energy and Climate Change, dated 8 December 2016

Corrections agreed by the Examining Authority prior to a decision being made

Page No.	Paragraph	Error	Correction
61	4.3.115	".. and a between monitoring and operational management."	".. and a mechanism linking the monitoring regime directly to operations management."
68	4.3.164	"..abstraction of from Llyn Padarn.."	"..abstraction of water from Llyn Padarn.."
106	4.4.155	"..for tree-rooting bats.."	"..for tree-roosting bats.."
112	4.5.20	"..the proposed highway improvements the.."	"..the proposed highway improvements to the.."
114	4.5.32	"..abnormal roads.."	"..abnormal loads.."
116	4.5.39	"..to transport of materials.."	"..to transport materials.."
126	4.5.80	"Ffordd Clegir provides access from the Llanberis and passes between Q5 and Q6 on its way to a number of properties.."	"Ffordd Clegir, which connects Llanberis to a number of properties, passes between Q5 and Q6.."
128	4.5.97	"..that are more sustainable than private car.."	"..that are more sustainable than private car.."
167	4.7.51	"..passive diffusion tubes were given.."	"..passive NO2 diffusion tubes were given.."
167	4.7.52	"..were kept within agreed limits.."	"..were not kept within agreed limits.."
167	4.7.54 (first bullet)	".. trigger levels at there would.."	".. trigger levels at which there would.."
192	4.10.58 (eighth bullet)	"commitment address"	"commitment to address"
193	4.10.66 (fourth bullet)	"..it appeared there would not viable for mitigation.."	"..it appeared there would be no viable mitigation.."
203	4.11.10	"Chapter 6 of PPW8 and PPW9 address.."	"Chapter 6 of PPW8 addresses the.."

1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 The Glyn Rhonwy Pumped Storage ('the Proposed Development') application [APP-001 to APP-234] was submitted by Snowdonia Pumped Hydro Limited ('the Applicant') to The Planning Inspectorate ('the Inspectorate') on 21 October 2015 under s37 of the Planning Act 2008 (PA2008) and accepted for Examination under s55 of PA2008 on 17 November 2015 [PD-002].
- 1.1.2 The Proposed Development is for the construction and operation of a pumped storage scheme with an output of 99.9MW at the Glyn Rhonwy and Chwarel Fawr quarries, near Llanberis. The Applicant is a subsidiary of the Quarry Battery Company Limited, which seeks to develop disused quarry systems into pumped storage facilities.
- 1.1.3 The location of the Proposed Development is shown in the Environmental Statement (ES) [APP-145] and Land Plans, final updated versions of which were received at Deadline 3 (D3) [REP3-002 to REP3-004]. The site lies wholly in Wales.
- 1.1.4 The legislative tests for whether the Proposed Development is a Nationally Significant Infrastructure Project (NSIP) were considered by the Secretary of State (SoS) for the Department Communities and Local Government (DCLG) during acceptance as set out at s55 of PA2008. The Inspectorate's comments [PD-004] included that:
- Part 5 of the Application Form [APP-003] states that the development proposal is for "... *a pumped storage hydro-electric power plant ... with an output capacity of 99.9MW ...*";
 - Footnote 39 of the Overarching National Policy Statement for Energy EN-1 (NPS EN-1) notes that "*pumped storage means using a temporary surplus of electricity to pump water to a high reservoir, and generating hydroelectric power when needed*"; and
 - the definition of a "*generating station*" in s235 of PA2008 refers back to the definition in the Electricity Act 1989, which states that "*in relation to a generating station wholly or mainly driven by water, includes all structures and works for holding or channelling water for a purpose directly related to the generation of electricity by that station*".
- 1.1.5 On this basis the Inspectorate [PD-004] agreed with the Applicant's view as stated in the application form [APP-003] and The Introduction to the Applicant [APP-001] that the Proposed Development is an NSIP as it includes an onshore generating station in England or Wales with a capacity of more than 50MW, is within s15 of PA2008, and so requires development consent in accordance with s31 of PA2008. The Proposed Development is therefore an NSIP to s14(1)(a) and s15(2) of PA2008.
- 1.1.6 On 5 January 2015 [Appendix 8.3 of APP-050] the Applicant notified the Inspectorate under Regulation 6(1)(b) of the Infrastructure

Planning (Environmental Impact Assessment) Regulations 2009 ('the EIA Regulations') that an ES would be provided for the scheme. The application was accompanied by an ES [APP-063 to APP-234].

- 1.1.7 A range of environmental impacts have been assessed and set out in the ES. The ES includes details of measures proposed to mitigate likely significant effects identified by the Applicant. Information provided by the Applicant throughout the Examination in response to my questions and matters raised by Interested Parties (IPs) are addressed in this report. The Applicant provided information within the ES on the main alternatives studied, including alternative technologies, site suitability and construction methodologies [APP-070]. I am satisfied that the ES met the requirements of Schedule 4 of the EIA Regulations and, together with the environmental information provided during the Examination, forms an adequate basis for decision making.
- 1.1.8 The Inspectorate issued s51 advice on 17 November 2015 [PD-003] to the Applicant to be read in conjunction with the published s55 Acceptance of Applications Checklist [PD-004]. The s51 advice was issued due to concern regarding the Applicant's consultation under s42 and therefore their duty to ensure that all those persons within s56(2)(d) of PA2008 would be notified and afforded the opportunity to submit a Relevant Representation (RR). Under s56 the Applicant gave notice of the accepted application. 63 RRs were received by the Inspectorate [RR-001 to RR-063].
- 1.1.9 On 17 November 2015, I (Stuart Cowperthwaite) was appointed to examine the application as Examining Authority under s78 and s79 of PA2008 [PD-001].
- 1.1.10 On 16 January 2016 the Applicant provided the Inspectorate with certificates confirming that s56 and s59 of PA2008 and Regulation 13 of the EIA Regulations had been complied with [OD-001 to OD-004].
- 1.1.11 Whilst changes have been made to the application (discussed below), these changes do not, in my view, change the Proposed Development to such a degree that it would be classed as materially different to that accepted for Examination.
- 1.1.12 This report sets out my findings, conclusions and recommendations to the SoS for the Department of Business, Energy and Industrial Strategy (BEIS).

1.2 STRUCTURE OF THE REPORT

- 1.2.1 This report sets out the main features of the Proposed Development, the legal and policy context, the principal issues examined and sets out the findings of the Examination by topic, including the Habitats Regulation Assessment (HRA) and consideration of the Water Framework Directive (WFD). It concludes with my recommendations in respect of the application, Compulsory Acquisition and the Development Consent Order (DCO).

1.2.2 Given that all the application and Examination material has been published online, this report does not contain extensive summaries of all the representations, although regard has been had to them in my conclusions. I have considered all important and relevant matters and set out my recommendations to the SoS against the PA2008 tests.

1.2.3 This report is structured:

- Chapter 1 introduces the application and summarises the Examination and procedural decisions;
- Chapter 2 sets out key features of the Proposed Development;
- Chapter 3 identifies and summarises the policy and legal context;
- Chapter 4 provides my detailed findings and conclusions on the main issues that I considered during the Examination;
- Chapter 5 deals with the HRA and the WFD;
- Chapter 6 concludes on the case for development following my consideration of all information submitted to the Examination;
- Chapter 7 deals with Compulsory Acquisition matters;
- Chapter 8 considers the recommended DCO and any changes made to the DCO during the Examination; and
- Chapter 9 presents conclusions and recommendations to the SoS.

1.2.4 Document references presented in square brackets in the text can be found in the Examination Library (Appendix B).

1.2.5 Should the SoS decide to make the Order, a recommended DCO is attached at Appendix D, as is the list of Events in the Examination (Appendix A) and the List of Abbreviations (Appendix C).

1.3 THE EXAMINATION AND PROCEDURAL DECISIONS

1.3.1 On 9 February 2016, I wrote to all IPs, Statutory Parties and Other Persons under Rule 6 of the Infrastructure Planning (Examination Procedure) Rules 2010 (EPR) inviting them to the Preliminary Meeting (PM) [PD-006 and PD-007], outlining:

- the arrangements and agenda for the PM;
- notification of first hearings;
- agenda for the Issue Specific Hearing (ISH) on the draft DCO;
- my initial assessment of the principal issues;
- the draft Examination Timetable;
- availability of RRs and application documents; and
- my procedural decisions.

1.3.2 In addition to the amendments to the Examination Timetable under Rule 8(3) of the EPR issued with my Rule 17 letters (discussed below), I also notified IPs of amendments to the Examination Timetable on 18 April 2016 [Notification of Hearings, PD-010 and PD-011] and on 7 June 2016 [Second Written Questions (SWQ), PD-014 and PD-016].

1.3.3 Ten deadlines for the submission of documents were included in the Examination. These are abbreviated as D1 - D10.

1.3.4 Details on procedural decisions and events in the Examination are provided in Appendices A and B. Procedurals decisions were published on the Glyn Rhonwy Pumped Storage website¹ ('our website').

1.3.5 Arrangements for Welsh speakers included that:

- submissions in Welsh were accepted into the Examination;
- all procedural decisions were made available in Welsh;
- a Welsh-speaking Inspectorate officer was available to all parties, including at hearings; and
- simultaneous Welsh to English translation at hearings provided any party the opportunity to make representations in Welsh.

PRELIMINARY MEETING AND HEARINGS

1.3.6 The PM took place on 8 March 2015 at Mynydd Gwefru (Electric Mountain), Llanberis, Gwynedd. An audio recording and a note of the meeting were published on our website [EV-010 and EV-011].

1.3.7 No Compulsory Acquisition hearings under s92 of PA2008 were requested by Affected Persons. I am satisfied that I was able to examine Compulsory Acquisition matters on the basis of the application documents and written submissions.

1.3.8 I held a number of hearings under s91 and s93 of PA2008 to ensure the thorough Examination of other topics.

1.3.9 Issue Specific Hearings (ISH) under s91 of PA2008 were held at Mynydd Gwefru (Electric Mountain), Llanberis, Gwynedd:

9 March 2016 [EV-013 to EV-015] into the draft DCO;

17 May 2016 [EV-016 and EV-018 to EV-021] into the:

- No Significant Effects Report (NSER);
- traffic; construction route from the A4085 to Q1;
- cumulative impact with the grid connection;
- ordnance, water discharges and contamination;
- recreation at Llyn Padarn lagoons;
- noise, vibration, dust deposition and air overpressure limits;
- Written Scheme of Investigation (WSI) and heritage impacts;
- the previous planning permission;
- Code of Construction Practice (CoCP); and Plans and Strategies;

and 18 May 2016 [EV-017, EV-024 and EV-025] into the draft DCO.

1.3.10 Open Floor Hearings (OFHs) were held under s93 of PA2008 at Mynydd Gwefru (Electric Mountain), Llanberis, Gwynedd on 8 March 2016 [EV-012] and 17 May 2016 [EV-022 and EV-023].

¹ <https://infrastructure.planninginspectorate.gov.uk/projects/Wales/Glyn-Rhonwy-Pumped-Storage/>

WRITTEN QUESTIONS

- 1.3.11 I posed two rounds of written questions. My First Written Questions (FWQ) [PD-009] and procedural decisions were set out in the Rule 8 letter [PD-007 and PD-008], dated 16 March 2016, and I subsequently issued my SWQ [PD-014 to PD-016] on 7 June 2016.
- 1.3.12 I issued several requests for further information and/or comments under Rule 17 of the EPR. These were issued on:
- 10 May 2016 to all IPs [PD-012 and PD-013];
 - 27 June 2016 to all IPs [PD-017 and PD-018];
 - 27 June 2016 to the Applicant and Natural Resources Wales (NRW) [PD-019 and PD-020];
 - 20 July 2016 to all IPs [PD-021 and PD-022]; and
 - 26 August 2016 to all IPs [PD-027 and PD-028].
- 1.3.13 Rule 17 letters of 10 May and 26 August 2016 notified IPs of my decision to amend the Examination Timetable under EPR Rule 8(3).

1.4 HABITAT REGULATIONS ASSESSMENT

- 1.4.1 Under Regulation 5(2) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 ('the APFP Regulations'), where required, an application must be accompanied with sufficient information to enable the relevant SoS to meet their statutory duties as the competent authority under the Conservation of Habitats and Species Regulations 2010 (Habitats Regulations) relating to European sites. The Applicant's NSER set out its own HRA [APP-054]. The HRA is considered in Chapter 5.
- 1.4.2 Subsequently, in relation to potential effects on European sites, a Report on the Implications for European Sites (RIES) was produced to summarise the environmental information available to the Examination [PD-024]. This compiled, documented, and signposted information provided within the application and subsequent information submitted throughout the Examination by both the Applicant and IPs, up to and including the 4 July 2016 (D6).
- 1.4.3 The RIES was issued on 20 July 2016 to all IPs. Comments on the RIES were requested for D7 (10 August 2016), as set out in the amended Examination Timetable [PD-014 and PD-016].

1.5 SITE INSPECTIONS

- 1.5.1 I undertook unaccompanied site inspections from 18 to 20 November 2015 [EV-001], on 16 May 2016 and from 18 to 20 May 2016 [EV-026] at locations and on routes planned with regard to the ES and suggestions from IPs. These enabled me to obtain views of the Proposed Development site and access routes. There were no accompanied site inspections.

1.6 LOCAL IMPACT REPORT

- 1.6.1 Gwynedd Council (GC) is the local authority for the Proposed Development. GC submitted a Local Impact Report (LIR) for D2 of the Examination on 13 April 2016 [REP2-037 to REP2-040].
- 1.6.2 Section 60(3) of PA2008 defines an LIR as a "*report in writing giving details of the likely impact of the Proposed Development on the authority's area (or any part of that area)*". The LIR was prepared in line with the Inspectorate's Advice Note. No further LIR were submitted. Matters in the LIR are discussed in Chapters 3, 4 and 5.

1.7 STATEMENTS OF COMMON GROUND

- 1.7.1 The Applicant submitted a Status of Statements of Common Ground (SoCG) document for D1 [REP1-014]. This detailed the progress on agreed and/or disputed matters. SoCG updates were received at D2 [REP2-017], D3 [REP3-011], D4 [REP4-004], D5 [REP5-025], D6 [REP6-005] and D7 [REP7-006].
- 1.7.2 During the Examination the Applicant submitted signed SoCGs with:
- Snowdonia National Park Authority [REP3-009]
 - NRW [REP3-010] and addendum submitted at D6 [REP6-006];
 - GC [REP4-006];
 - The Crown Estate [REP4-007];
 - Historic Environment Service (Cadw) [REP5-026]; and
 - SP Manweb [REP5-027];

1.8 OTHER CONSENTS REQUIRED

- 1.8.1 In addition to the consent required under PA2008 (which is the subject of this report), the Applicant will require other consents to construct, operate and maintain the Proposed Development. As set out by the Applicant in s23 of the Application Form [APP-003] and the details of Other Consents and Licences [APP-055], which was updated for D3 [REP3-022], D4 [REP4-010], D6 [REP6-008], D7 [REP7-003] and D9 [REP9-002], the following consents, licences and permits are expected to be required:

- OFGEM: Electricity Generation Licence (Electricity Act 1989) Exemption;
- Local Planning Authority (LPA): Building Regulation Approval (Building Regulations 2010);
- NRW: European Protected Species Licences (Habitats Regulations);
- NRW: Badger Set Closure Licence (Protection of Badgers Act 1992);
- Health and Safety Executive (HSE): Health and Safety related consents (Health & Safety at Work Act 1974);
- Abnormal Loads (Road Vehicles (Authorisation of Special Types) (General) Order 2003);

- LPA: Section 61 consent (Control of Pollution Act 1974);
- NRW: Abstraction Licence (Water Resources Act 1991);
- NRW: Electro-fishing and removal of caught fish (s5(2) or, from January 2011, 27A of the Salmon and Freshwater Fisheries Act 1975);
- LPA: Translocation of species (Wildlife & Countryside Act 1981);
- NRW: Storage of materials in the floodplain (Land Drainage Act);
- LPA: Diversion of Public Rights of Way (PRoWs) (s257 of the Town and Country Planning Act 1990);
- NRW: Flood Defence Consent (s109 Water Resources Act 1991);
- Welsh Government: Common Land Applications (Commons Act 2006);
- NRW: Environmental Permits (EPs) (Environmental Permitting Regulations 2012);
- LPA: Section 278 (Highways Act 1980 / T&CPA);
- NRW: Tree Felling Licence and Removal of Trees subject to Tree Preservation Orders (TPO) (Environmental Impact Assessment (Forestry) Regulations (1999) / T&CPA);
- HSE: Storage of Explosives (Explosives Regulations 2014); and
- Stopping Up and Diversion of Highways (s247 and s248 of T&CPA (under Part III, Growth & Infrastructure Act 2013)).

- 1.8.2 An abstraction licence for the initial filling of the reservoir from Llyn Padarn was approved by NRW on 20 July 2015 (ref: WA/065/0016/007) for up to 2,000m³ a day. A variation to this licence was granted on 3 June 2016 (ref: WA/065/0016/007/V001) for abstraction up to 3,300m³ per day. This, together with EPs for discharges, is addressed in Section 4.3.
- 1.8.3 Flood Defence Consent, for the installation of the pumping station and discharge/abstraction outlet was approved by NRW (ref NE2014LD130), as set out in Section 4.3.
- 1.8.4 European Protected Species licences, Badger Setts Closure licences and approval for electro-fishing, removal of caught fish, translocation of species and trees removal and damage are considered in Section 4.4.
- 1.8.5 The Applicant determined that the road improvements required to Ffordd Cefn Du from the A4085 to Q1 and any improvements needed to the access from A4086 to Q6 would be carried out under a s278 Highways Act Agreement. During the Examination a tripartite Agreement had been progressed with GC and The Crown Estate (landowner). This is considered further in Section 4.5, together with the stopping up and diversion of highways.
- 1.8.6 Common land applications and PRoW diversions are covered in Section 4.10.

2 MAIN FEATURES OF THE PROPOSAL AND SITE

2.1 THE APPLICATION AS MADE

- 2.1.1 The Applicant, Snowdonia Pumped Hydro Limited, submitted an application for the construction and operation of a pumped storage scheme with a capacity of 1,300,000m³ of stored water and a peak power output of 99.9MW at the Glyn Rhonwy and Chwarel Fawr quarries, near Llanberis. Snowdonia Pumped Hydro Limited is an operational subsidiary of Quarry Battery Company Limited.
- 2.1.2 The Proposed Development for which consent is sought comprises a pumped hydro-electricity storage facility² consisting of:
- one headpond (Quarry 1 (Q1) - Chwarel Fawr), its dam, access shaft and spillway infrastructure to the Nant Y Betws;
 - one tailpond (Quarry 6 (Q6) - Glyn Rhonwy), its dam, access shaft and spillway infrastructure to Llyn Padarn;
 - a pumping station at Llyn Padarn;
 - a power house at Glyn Rhonwy Industrial Estate Platform 5 (south of Q6) and ancillary buildings and equipment consisting of up to two underground turbines (combined electrical output of up to 99.9MW) and pumps approximately 70m below ground level;
 - a penstock (connecting Q1 to the power house); and
 - a tailrace (connecting the power house to Q6).

Scope of the proposed works

- 2.1.3 The Proposed Development is described in Schedule 1, Part 1 of the recommended DCO. In Wales, PA2008 makes limited provision for consent to be given for works not ancillary to the Proposed Development that would comprise 'Associated Development'³.
- 2.1.4 The application includes infrastructure such as an on-site substation, turbine hall, power house, temporary construction buildings and pumping station. Annexes A and B to the DCLG guidance⁴ include substations and improvements to vehicular accesses as examples of Associated Development. The guidance does, however, state that the development listed in the annexes should not be treated as Associated Development as a matter of course. Whether a specific element of a proposal is Associated Development for the purposes of s115 of PA2008 is a matter of fact and degree.
- 2.1.5 Section 3 of the Planning Statement [APP-057] describes all of the proposed works that the Applicant considers should be viewed as integral and ancillary to the development, which when taken together

² See paragraph 3.2.1 of the Applicant's Planning Statement [APP-057]

³ PA2008 s115

⁴ DCLG Guidance - Planning Act 2008: associated development applications for major infrastructure projects, April 2013

comprise the generating station, which is the NSIP. It confirms that highway improvement works to Ffordd Cefn Du and the electrical connection to the Proposed Development are considered to be Associated Development and do not form part of the DCO application. The Application Form also confirms that there is no Associated Development included in the application [APP-003].

- 2.1.6 I consider that the works applied for are part of the generating station and would be integral and ancillary parts of the NSIP. No works have a purpose other than the construction and/or operation of the pumped storage facility and without them the generating station would not be able to be constructed and operate. No IPs argued that any part of the application should be considered to be Associated Development. As such, I consider that no Associated Development within the meaning of s115(2)(a) of PA2008 is included with the application.

Grid connection

- 2.1.7 The Proposed Development will be connected to the electricity distribution network via a new 132kV line. Electricity will be exported from an onsite substation, adjacent to the power house, to an offsite connection point at Pentir, around 7km north east of the site.
- 2.1.8 Approval of the electrical connection would be secured through the appropriate separate consenting regime. The Grid Connection Statement [APP-056] provides further information on the proposed grid connection. The Applicant suggested [REP5-005] that a planning application would be made by the end of July 2016.

2.2 THE PROPOSED DEVELOPMENT SITE

- 2.2.1 The Proposed Development site covers an area of approximately 91.24ha located on the slopes of Cefn Du mountain, approximately 1km north west of Llanberis and 11km south east of the town of Caernarfon (National Grid Reference: SH 56268 60660, see Site Location Plan [APP-005]). Llyn Padarn, a glacially formed lake, lies adjacent to, and partly within, the Proposed Development site.
- 2.2.2 The Proposed Development site is located wholly within the administrative area of GC and includes several disused quarries; woodland; grazing land; and infrastructure and spaces in the form of 'platforms' (Industrial Estate platforms) for prospective users.
- 2.2.3 Three adopted highways cross the Proposed Development site: the A4086; Ffordd Clegir; and an unnamed road locally known as Ffordd Cefn Du, 'the Green Road' or the 'Llanberis Waunfawr Mountain Road'.
- 2.2.4 The Proposed Development site utilises part of an existing quarry system. The quarries are numbered 1 (in the west) to 8 (in the east), as shown on the Existing Site Location Plan [APP-006].

- 2.2.5 The slopes around the quarries are built up with slate waste and interspersed with the remains of outhouses and quarry workings, scattered over steep grazing land. The neighbouring land is mainly agricultural, although there are light industrial land uses between Glyn Rhonwy and Llyn Padarn, and a large Siemens manufacturing facility to the south of the site.
- 2.2.6 Although access to the Proposed Development site was improved by the development of the Glyn Rhonwy Industrial Estate, access to the majority of the Proposed Development site remains restricted and the quarries themselves are generally fenced off.
- 2.2.7 The Glyn Rhonwy Redevelopment Site, forming part of the Proposed Development site, has been formally designated as a redevelopment site in Policy C6 of the Gwynedd Unitary Development Plan (GUDP). Land use is addressed in Section 4.10 of this report.
- 2.2.8 The key location maps and plans submitted with the application were:
- Land Plans - Key Plan [APP-007];
 - Land Plans - Sheet 1 [APP-008];
 - Land Plans - Sheet 2 [APP-009];
 - Works Plan - Key Plan [APP-010];
 - Works Plans - Sheet 1 of 3 [APP-011];
 - Works Plans - Sheet 2 of 3 [APP-012];
 - Works Plans - Sheet 3 of 3 [APP-013];
 - Crown Land Plans - Key Plan [APP-040];
 - Crown Land Plan - Sheet 1 [APP-041]; and
 - Crown Land Plan - Sheet 2 [APP-042].

2.3 THE SURROUNDINGS

- 2.3.1 The village of Llanberis represents the nearest settlement to the site. Aside from Llanberis (1km to the south east), the villages of Cwm-y-Glo and Brynrefail (2km to the north west) and Waunfawr (2km to the west), the area around the Proposed Development is sparsely populated with residential land uses, the closest of which is less than 50m from the Order Limits. There are campsites north of the Proposed Development near Cwm-y-Glo and to the south in Llanberis; hotels and bed & breakfasts in Llanberis; and a caravan park to the east.
- 2.3.2 The surrounding area includes a number of quarries; slate tips; a former World War II munitions store; a mature plantation woodland; rough grazing land; and the existing highway network in the Glyn Rhonwy Industrial Estate that connects to the A4085. Ffordd Clegir separates two of the lower quarries and also forms the western boundary of the Glyn Rhonwy Industrial Estate.
- 2.3.3 Since the demise of the quarry industry, the area relies in part on a tourism-based economy, but much local employment is also provided by Dinorwig Power Station, which lies to the east of Llanberis, and a Siemens manufacturing facility approximately 350m to the south of

the Proposed Development. Although Dinorwig Power station is also a pumped storage scheme, I have been informed that the Applicant is entirely independent of the companies that manage and operate Dinorwig and I am not aware of any shared facilities between them.

- 2.3.4 The Proposed Development site is located within and also in proximity to statutory designated sites; Llyn Padarn and Cwm Dwythwch are Sites of Special Scientific Interest (SSSI) and Afon Gwyrfa a Llyn Cwellyn is both a SSSI and Special Area of Conservation (SAC). The Proposed Development site is approximately 1km from the boundary of the Snowdonia National Park; is within a Landscape Character Area designated for its historical interest as an important former slate quarrying location; and is also within the Dinorwig Registered Landscape of Outstanding Historical Interest.
- 2.3.5 There are several archaeological and cultural heritage sites within and in proximity to the Proposed Development site. There are no World Heritage Sites, Registered Parks and Gardens, Registered Battlefields, or Conservation Areas within 1km of the Order Limits. However there is one Scheduled Ancient Monument within this area and two Grade II Listed Buildings. The ES [APP-078] states that the Proposed Development area had been included as part of the Slate Industry of North Wales on the UK's tentative list for World Heritage Site nomination. The historic environment is addressed in Section 4.11.

2.4 THE APPLICATION AT THE CLOSE OF EXAMINATION

- 2.4.1 Changes to the key application documents, including the wording of the proposed DCO and the content of the NSER [APP-054], were submitted and updated during the Examination. The changes seek to address points raised by IPs and my questions; and to reflect improved information and changes arising during the Examination. These included matters such as clarity and/or discrepancies within the DCO, and other environmental matters.
- 2.4.2 The Applicant also submitted a range of updated, revised and/or additional information, including:
- Tree Preservation Order Plan;
 - Hedgerow Plan;
 - Land and Works Plans;
 - Indicative Elevations and Sections Plans;
 - Access Plan;
 - Explanatory Memorandum;
 - Book of Reference;
 - Statement of Reasons;
 - Outline Archaeological Compensation and Enhancement Strategy;
 - Outline Baseline Air Quality Monitoring;
 - Outline Biosecurity Plan;
 - Outline Code of Construction Practice;
 - Outline Common Access and Public Right of Way Strategy;
 - Outline Construction Noise Management Plan;

- Outline Construction Traffic Management Plan;
- Outline Dust Control and Air Quality Management Plan;
- Outline Excess Water Management Strategy;
- Outline Health and Safety Plan;
- Outline Land Discovery Strategy;
- Outline Materials Management Plan;
- Outline Operational Noise Management Plan;
- Outline Ordnance Management Strategy;
- Outline Silt Management Plan; and
- Outline Water Management Plan.

2.4.3 All of this information was accepted into the Examination.

2.5 RELEVANT PLANNING HISTORY

- 2.5.1 Quarry Battery Company Limited was granted planning permission by GC under the Town and Country Planning Act 1990 (T&CPA) on 19 February 2014 for the construction and operation of a 600 megawatt hours pumped storage facility, with a generating capacity of 49.9MW at Glyn Rhonwy (Ref: C12/1451/LL). An application for a non-material amendment to amend the list of plans was approved on 6 May 2015 (C15/0308/15/DA).
- 2.5.2 The T&CPA planning permission remains extant and capable of implementation until February 2019. The Proposed Development covers a larger area than covered by the T&CPA planning permission.
- 2.5.3 Other planning history related to the Proposed Development site includes planning permission for preparatory work in the lower part of the site, Glyn Rhonwy, to install infrastructure and create spaces ('platforms') for prospective users (GC Ref: C09A/0583/15/R3).
- 2.5.4 Section 4 of GC's LIR briefly outlines the planning history associated with the Proposed Development site [REP2-037 to REP2-040]. A table is provided in paragraph 2.4.5 of the Applicant's Planning Statement, which is stated to detail all recorded planning history within the Order Limits [APP-057].
- 2.5.5 No previous NSIP applications have been submitted relating to the Glyn Rhonwy and Chwarel Fawr quarries.

3 LEGAL AND POLICY CONTEXT

3.1 INTRODUCTION

- 3.1.1 This Chapter discusses the UK, Welsh and local legal and policy context for the Examination of the application to which I have had regard in carrying out the Examination, in reaching my findings and making my recommendation to the SoS for BEIS.
- 3.1.2 As such this Chapter sets out my findings, reasoning and conclusions on the relevance of different policy and includes my identification of 'important and relevant' matters in accordance with PA2008.
- 3.1.3 The Applicant has set out the policies that it considers relevant in the Planning Statement [APP-057] and the ES [APP-072]. GC's LIR signposts policy relevant to local impacts [REP2-037 to REP2-40].
- 3.1.4 The consideration of policy with respect to the need case and the Applicant's overall response to policy are addressed in Section 4.2.

3.2 PLANNING ACT 2008

- 3.2.1 The application is for a DCO under the PA2008. This application is a NSIP as it includes "*the construction or extension of a generating station*" (s14(1)(a) of PA2008), with a gross electrical output in excess of 50MW, that meets the provisions set out in s15(2) of PA2008.
- 3.2.2 Section 104(1) applies if "*a NPS has effect in relation to development of the description to which the application relates*" (a 'relevant NPS'). In such a case, the SoS would have to determine the application in accordance with the relevant NPS, subject to exceptions (s104(3)).
- 3.2.3 Where s104 does not apply, the application falls to be decided under s105 of PA2008. Section 105(2) requires the SoS to have regard to:
 - '(a) any local impact report (within the meaning given by section 60(3)) submitted to the Secretary of State before the deadline specified in a notice under section 60(2)*
 - (b) any matters prescribed in relation to development of the description to which the application relates, and*
 - (c) any others matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision.'*
- 3.2.4 This report sets out my findings, conclusions and recommendations taking these matters fully into account and applying PA2008. My conclusions regarding s104 and s105 of PA2008 are set out below.

3.3 NATIONAL POLICY STATEMENTS

- 3.3.1 NPS EN-1 was published in July 2011. It set out the UK Government's commitment to dramatically increasing renewable generation capacity

and recognised that in the short to medium term much of the new capacity was likely to come from onshore and offshore wind. Paragraph 3.3.12 noted that "*there are a number of other technologies which can be used to compensate for the intermittency of renewable generation, such as electricity storage*" and that "*these technologies will play important roles in a low carbon electricity system*". Paragraph 3.3.31 recognised that electrical energy storage allows energy production to be decoupled from its supply and provides a contribution to meeting peak demand.

- 3.3.2 The application is for a 'pumped storage' development. Footnote 39 of NPS EN-1 clarified that "*Pumped storage means using a temporary surplus of electricity to pump water to a high reservoir, and generating hydroelectric power when needed.*"
- 3.3.3 When generating electricity the Proposed Development would function as a hydroelectric generator and produce hydroelectric power.
- 3.3.4 NPS EN-1 states that, in conjunction with the relevant technology specific NPS, it will be the primary basis for decision making for onshore generating stations generating more than 50MW (paragraph 1.4.2). This would include fossil fuel, wind, biomass, waste or nuclear electricity generating stations. The contribution of pumped storage to a low carbon energy system is mentioned in paragraph 3.3.12, footnote 13 and paragraph 3.3.31 of NPS EN-1, but it does not fall within the scope of generation from fossil fuels, wind, biomass or nuclear referred to in paragraph 1.4.2.
- 3.3.5 NPS EN-1 states that the generation of electricity from renewable sources other than wind, biomass or waste is not within its scope (paragraph 1.4.5).
- 3.3.6 NPS EN-2 (Fossil fuel electricity generating infrastructure), NPS EN-4 (Gas supply infrastructure and gas and oil pipelines) and NPSs EN-6.1 and EN-6.2 (Nuclear power generation) are clearly not relevant.
- 3.3.7 The Proposed Development relies on imported energy to pump water to the upper reservoir, which it then uses to generate hydroelectric electricity. Hydroelectric power is not within the scope of NPS EN-3. I therefore consider that NPS EN-3 is not relevant.
- 3.3.8 NPS EN-5 is not relevant because the connection to grid is not part of the Proposed Development.
- 3.3.9 On that basis, my view is that none of the suite of Energy NPSs are a 'relevant NPS' within the meaning of s104(2(a)).
- 3.3.10 The requirement in s104(3) of PA2008 to determine the application in accordance with any relevant NPS does not therefore apply, and the application falls to be determined under s105 (Decisions in cases where no national policy statement has effect).

- 3.3.11 Nonetheless, I consider that NPS EN-1 is 'important and relevant' to the decision on this application because:
- the Proposed Development is a generating station with a capacity of over 50MW and the policies in NPS EN-1 are devised specifically for generating stations and energy infrastructure of this scale; and
 - NPS EN-1 contains a number of paragraphs that emphasise the national need for electricity and electricity infrastructure, including electricity storage. Pumped storage is a form of electricity storage that would contribute to consistency of electricity supply, particularly in the context of an increasing reliance on intermittent renewables.
- 3.3.12 However, NPS EN-3 is not 'important and relevant' as it makes no mention of hydroelectric power, pumped storage or electricity storage and hydroelectric power is not within its scope.
- 3.3.13 I consider that the other NPSs in the suite of Energy NPSs are clearly not 'important and relevant'.

Matters raised in the application and during the Examination

- 3.3.14 The Applicant assessed the Proposed Development against NPSs in section 5 of the Planning Statement [APP-057] and in its response to the FWQs [REP2-011]. The Applicant stated [APP-057] that NPS EN-1 is the NPS of principal relevance to the Proposed Development. It acknowledged that there is no designated NPS for pumped storage but argued that "*EN-1 is applicable to all energy sector DCOs*".
- 3.3.15 The Applicant argued [REP9-030] that pumped storage falls within the scope of NPS EN-1 on the basis that NPS EN-1 applied to all onshore generating stations with a capacity of more than 50MW.
- 3.3.16 The Applicant initially suggested that NPS EN-3 and NPS EN-5 "*are of some relevance in the context of the Development, but do not form key material considerations for decision making purposes*", although it did not give reasons for this opinion [APP-057]. However, it later clarified its view that EN-3 is not relevant as energy is required to pump water from the lower reservoir to the upper reservoir and therefore the development does not constitute renewable energy development [REP2-011]. The Applicant later stated that neither EN-3 nor EN-5 was applicable [REP2-011 and REP9-030].
- 3.3.17 GC [REP9-042] agreed with my preliminary view [PD-026] that pumped storage does not fall within the scope of NPS EN-1.
- 3.3.18 Both the Applicant [REP9-030] and GC [REP9-042] agreed with my preliminary view [PD-026] that NPS EN-1 is 'important and relevant', but that NPS EN-3 and NPS EN-5 are not.

Conclusion

- 3.3.19 Having considered all of the above, I am of the view that there is no NPS in place for this type of development in accordance with s104 of PA2008, and that it falls to be decided under s105 of PA2008. The criteria to which the SoS must have regard in deciding this application includes s105(2)(c) "*any other matters to which the Secretary of State thinks are both important and relevant to [his] decision*".
- 3.3.20 Apart from legislation, I consider that such 'important and relevant' matters for the purposes of s105(2)(c) of PA2008 include NPS EN-1 and other policy identified below and summarised in Section 3.10.
- 3.3.21 I consider that NPS EN-3 is not 'important and relevant' for the specific reasons that makes no mention of hydroelectric power, pumped storage or electricity storage; and hydroelectric power is not within its scope. My conclusions on the relevance of other renewable, low carbon or climate change policy also take account of pumped storage being an important part of a low carbon energy system that compensates for the intermittency of renewable generation and facilitates renewable energy development.

3.4 EUROPEAN REQUIREMENTS AND RELATED UK REGULATIONS

COUNCIL DIRECTIVE ON THE ASSESSMENT OF THE EFFECTS OF CERTAIN PUBLIC AND PRIVATE PROJECTS ON THE ENVIRONMENT (THE 'EIA DIRECTIVE') 2011/92/EU

- 3.4.1 The EIA Directive defines the procedure by which information about the environmental effects of a development is collected and taken into account by the relevant decision making body before consent can be granted. It applies to a wide range of public and private projects, which are defined in Annexes I and II of the Directive. The first EIA Directive came into force in 1985(85/337/EEC) and was implemented through over 40 different secondary regulations in 1988. The 1992 Directive has been amended four times: in 1997, 2003 and 2009, and was consolidated and codified by Directive 2011/92/EU on 13 December 2011. The most recent EIA Directive is 2014/52/EU, which came into force on 15 May 2014. The 2014 Directive is not yet transposed to UK law and has transitional arrangements, thus the Proposed Development falls to be considered under the UK legislation related to 2011/92/EU (see Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 below).

Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations)

- 3.4.2 The EIA Regulations establish the minimum information to be supplied by the Applicant within an ES, as well as information that can be request as being reasonably justified given the circumstances of the case. Part 2 of Schedule 4 represents the minimum requirements for an ES under the EIA Regulations and is reinforced by Regulation 3(2),

which sets out the core duty of the decision maker in making a decision on EIA Development and states that "*...the decision-maker must not make an order granting development consent unless it has first taken the environmental information into consideration, and it must state in its decision that it has done so.*"

- 3.4.3 The Proposed Development is EIA development under Schedule 2 of the EIA Regulations. The Applicant submitted a notification to the Inspectorate of their intention to submit an ES under Regulation 6(1)(b) on 5 January 2015 [APP-050] and has provided an ES [APP-063 to APP-234] as part of the submitted application.
- 3.4.4 I have taken into consideration the environmental information, as defined in Regulation 3(1), including the ES and all other information received during the Examination. The ES is addressed in Chapter 4.

RENEWABLE ENERGY DIRECTIVE 2009

- 3.4.5 The Renewable Energy Directive sets out legally binding targets for Member States with the expectation that by the year 2020 20% of the European Union's (EU's) energy mix and 10% of transport energy will be generated from renewable energy sources. The UK's target is for 15% of energy to be from renewable sources by 2020.

COUNCIL DIRECTIVE ON THE CONSERVATION OF NATURAL HABITATS AND WILD FAUNA AND FLORA (DIRECTIVE 92/43/EEC) (THE HABITATS DIRECTIVE)

- 3.4.6 The Habitats Directive (together with the Council Directive 79/409/EEC on the conservation of wild birds (2009/147/EC)) forms the cornerstone of the EU's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. The Habitats Directive protects over 1,000 animals and plant species and over 200 habitat types (for example: special types of forests; meadows; wetlands; etc.), which are of European importance. It requires designation of such areas as Special Areas of Conservation (SACs).
- 3.4.7 The Habitats Directive (together with the Council Directive on the conservation of wild birds (2009/147/EC), below) has been transposed into UK law through the Habitats Regulations (see below).

COUNCIL DIRECTIVE ON THE CONSERVATION OF WILD BIRDS (2009/147/EC) (THE BIRDS DIRECTIVE)

- 3.4.8 The Birds Directive is a comprehensive scheme of protection for all wild bird species naturally occurring in the EU. The Directive recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species. It requires classification of areas as Special Protection Areas (SPAs) comprising the most suitable territories for

these species. Since 1994 all SPAs form an integral part of the Natura 2000 ecological network.

- 3.4.9 The Birds Directive bans activities that directly threaten birds, such as: the deliberate killing or capture of birds; the destruction of their nests and taking of their eggs; and associated activities such as trading in live or dead birds. It requires Member States to take the requisite measures to maintain the population of species of wild birds at a level which corresponds to ecological, scientific, and cultural requirements while taking account of economic and recreational requirements.
- 3.4.10 The Birds Directive and the Habitats Directive been transposed into UK law through the Conservation of Habitats and Species Regulation 2010 (see below). The Birds Directive is addressed in Chapter 5.

THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (THE HABITATS REGULATIONS)

- 3.4.11 The protection given by the Habitats Directive and the Birds Directive is transposed into UK legislation through the Habitats Regulations. The Habitats Regulations apply in the terrestrial environment and in territorial waters out to 12 nautical miles.
- 3.4.12 When determining this application the SoS must consider whether the Proposed Development may have a significant effect on a European site of nature conservation importance alone or in combination with other plans or projects.
- 3.4.13 The Habitats Regulations have been taken into account in considering the application and are discussed in Chapter 5.

ESTABLISHING A FRAMEWORK FOR THE COMMUNITY ACTION IN THE FIELD OF WATER POLICY (2000/60/EC) (THE WATER FRAMEWORK DIRECTIVE)

THE WATER ENVIRONMENT (WATER FRAMEWORK DIRECTIVE) (ENGLAND AND WALES) REGULATIONS 2003 (THE 2003 REGULATIONS)

- 3.4.14 The Water Framework Directive (WFD) requires EU Member States to prevent deterioration of surface water bodies, groundwater bodies and their ecosystems and improve the quality of surface and groundwater bodies by reducing pollution and by restoration. The WFD requires Member States to identify 'river basin districts' (RBD). The Proposed Development is within the Western Wales RBD.
- 3.4.15 The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (the 2003 Regulations) implement the WFD in England and Wales. They require the 'appropriate agency' (Natural Resources Wales (NRW) in Wales) to prepare River Basin Management Plans (RBMPs) for each RBD, for the approval of 'the appropriate authority' (the Welsh Government in Wales).

- 3.4.16 The environmental objectives to be included in RBMPs are those required to comply with Article 4 of the WFD. Broadly the WFD requires that there be no deterioration in status and that good ecological and chemical status be achieved by 2015 (extended to 2021 and 2027, subject to derogations).
- 3.4.17 Regulation 3 places a general duty on the SoS, the Welsh Government and NRW to exercise their 'relevant functions' so as to secure compliance with the WFD. PA2008 is not a 'relevant function' for this purpose. However, these bodies, together with public bodies, also have a specific duty to have regard to the relevant RBMP and any supplementary plans made under it in exercising their functions, which would include functions under the PA2008. The WFD is addressed in Chapter 5 of this report.

3.5 WELSH LEGISLATION, POLICY AND GUIDANCE

- 3.5.1 Welsh legislation, policy and guidance include:

- Government of Wales Act 2006;
- Equality Act 2010 (Statutory Duties) Wales Regulations (2011);
- Planning Policy Wales;
- Wales Spatial Plan 2008;
- Energy Wales: A Low Carbon Transition (2012); and
- The Climate Change Strategy for Wales (2010).

GOVERNMENT OF WALES ACT 2006

- 3.5.2 The Government of Wales Act 2006 enables the Welsh Government to make legislation which then applies in Wales. The legislation must be within the legislative competence of the Welsh Government, i.e. relate to the devolved matters which are set out as a series of broad headings, or 'subjects', which include:

- environment: matters such as environmental protection, countryside, open spaces, nature conservation, habitats coast and marine environment;
- local government, including areas of local authorities which includes their boundaries of jurisdiction for matters such as development control and enforcement; and
- Town and Country Planning.

- 3.5.3 Some matters which would otherwise be encompassed by these broad headings are not devolved. Amongst the exceptions contained within the Government of Wales Act 2006, schedule 7, paragraph 18, is development consent under PA2008.

EQUALITY ACT 2010 (STATUTORY DUTIES) WALES REGULATIONS 2011

- 3.5.4 Section 153 of the Equality Act 2010 enables the Welsh Ministers to impose duties on certain Welsh public authorities through regulations.

- 3.5.5 The Equality Act 2010 (Statutory Duties) (Wales) Regulations 2011, enables the better performance of duties under s149(1) of the Equality Act 2010 in Wales, which are to have due regard to the need to:
- eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under that Act;
 - advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and to
 - foster good relations between persons who share a relevant protected characteristic and person who do not share it.

PLANNING POLICY WALES

- 3.5.6 Planning Policy Wales (PPW) was updated during and after the Examination. The application was based on PPW7. PPW8 came into force in January 2016, was considered during the Examination and is therefore generally addressed in this report. PPW9 was launched in November 2016 is also considered in this report where there are any relevant and significant differences between PPW9 and PPW8.
- 3.5.7 PPW8 sets out the land use planning policies of the Welsh Government and indicates that the Welsh Government is committed to playing its part in meeting the UK's required target of 15% of energy being from renewables by 2020 (paragraph 12.8.1). It seeks to deliver an energy programme which contributes to reducing carbon emissions as part of the approach to tackling climate change whilst enhancing the well-being of the people and communities of Wales, as outlined in Energy Wales: A Low Carbon Transition (see below).
- 3.5.8 PPW8 acknowledges that new approaches to infrastructure will be needed in light of the consequences of climate change and sets out one of the keys aims of this national policy to deliver infrastructure and services across Wales *"to promote the generation and use of energy from renewable and low carbon energy sources at all scales and promote energy efficiency, especially as a means to secure zero or low carbon developments and to tackle the causes of climate change"* (paragraph 12.1.4).
- 3.5.9 PPW8 is supplemented by a series of Technical Advice Notes (TANs), Mineral Planning Guidance (MPG) notes and Minerals Technical Advice Notes (MTANs). Relevant TANs that I have taken into account include:
- TAN 5: Nature Conservation and Planning (2009);
 - TAN 6: Planning for Sustainable Rural Communities (2010);
 - TAN 8: Land Use Planning of Renewable Energy (2005);
 - TAN 11: Noise (1997);
 - TAN 12: Design (2014);
 - TAN 13: Tourism (1997);
 - TAN 15: Development and Flood Risk (2004);
 - TAN 16: Sport, Recreation and Open Space (2009);
 - TAN 18: Transport (2007);

- TAN 20: Planning and the Welsh Language (2013);
- TAN 21: Waste (2014); and
- TAN 23: Economic Development (2014)

3.5.10 PPW is clearly an 'important and relevant' matter for the purposes of s105(2)(c) of PA2008.

WALES SPATIAL PLAN 2008

3.5.11 The Wales Spatial Plan sets out cross-cutting national spatial priorities and provides the context and direction of travel for local development plans. It identifies six sub-regions in Wales without defining hard boundaries, reflecting the different linkages involved in daily activities.

3.5.12 The Proposed Development is in the North-West sub-region for which the development of the renewable energy industry and new low-carbon power generation to support the development of the energy sector are identified as particular priorities.

3.5.13 I therefore consider that the Wales Spatial Plan 2008 is an 'important and relevant' matter for the purposes of s105(2)(c) of PA2008.

ENERGY WALES: A LOW CARBON TRANSITION (2012)

3.5.14 Energy Wales: A Low Carbon Transition (2012) sets out how the Welsh Government intends to drive the change to a sustainable, low carbon economy for Wales. It recognises that if Wales' energy ambitions are to be achieved, its energy infrastructure requires investment, reinforcement and upgrading.

3.5.15 It identifies that the Welsh Government is placed to take advantage of the transition to a low carbon economy due to key transport and electrical infrastructure and significant renewable resources. It recognises the importance of energy storage technologies to compensate for the intermittency in supply from renewable sources.

3.5.16 I therefore consider that Energy Wales: A Low Carbon Transition (2012) is an 'important and relevant' matter for the purposes of s105(2)(c) of PA2008.

THE CLIMATE CHANGE STRATEGY FOR WALES (2010)

3.5.17 The Climate Change Strategy for Wales seeks to reduce greenhouse gas emissions by 3% a year. The focus is principally on improving energy efficiency and the promotion of low carbon generation. The strategy aims to maximise renewable and low carbon energy generation in Wales. Low carbon energy generation, storage and distribution are identified as a priority area for research.

3.5.18 I have concluded that pumped storage is an important part of a low carbon energy system that compensates for the intermittency of renewable generation and facilitates renewable energy development.

- 3.5.19 I therefore consider that the Climate Change Strategy for Wales (2010) is an 'important and relevant' matter for the purposes of s105(2)(c) of PA2008.

OTHER POLICIES AND GUIDANCE

- 3.5.20 The Planning Statement [AD-057] refers to the Environment Strategy for Wales (2006) and the Renewable Energy Route Map for Wales (2008). I have taken account of those.

3.6 OTHER LEGAL AND POLICY PROVISIONS

UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY 1992

- 3.6.1 As required by Regulation 7 of the Infrastructure Planning (Decisions) Regulations 2010, I have had regard to this Convention in considering the likely impacts of the Proposed Development and appropriate objectives and mechanisms for mitigation and compensation. This Convention is of relevance to biodiversity, biological environment and ecology, which have been taken into account in considering the application and are addressed in Section 4.4 of this report.

THE NATIONAL PARKS AND ACCESS TO THE COUNTRYSIDE ACT 1949

- 3.6.2 The Proposed Development is close to the Snowdonia National Park. The 1949 Act provides the framework for the establishment of National Parks and Areas of Outstanding Natural Beauty (AONBs). It also establishes powers to declare National Nature Reserves; to notify Sites of Special Scientific Interest (SSSIs); and for local authorities to establish Local Nature Reserves (LNRs).
- 3.6.3 National Parks and AONBs have statutory protection to conserve and enhance the natural beauty of their landscape. They are designated for their landscape qualities and to conserve and enhance their natural beauty; including landform, geology, plants, animals, landscape features and the pattern of human settlement over the ages.
- 3.6.4 Section 5 of the Act requires that:
- "(1) The provisions of this Part of this Act shall have effect for the purpose-*
- (a) of conserving and enhancing the natural beauty, wildlife and cultural heritage of the areas specified in the next following subsection; and*
- (b) of promoting opportunities for the understanding and enjoyment of the special qualities of those areas by the public."*
- 3.6.5 Section 11A requires any 'relevant authority' (such as the SoS in this case) to have regard to the purposes specified in subsection (1) above

in exercising or performing any functions in relation to, or so as to affect, land in a National Park. These matters are addressed in Chapter 4 of this report.

THE WILDLIFE AND COUNTRYSIDE ACT 1981

- 3.6.6 The Wildlife and Countryside Act 1981 (W&CA) is the primary legislation which protects animals, plants and certain habitats in the UK. The W&CA provides for the notification and confirmation of SSSIs. These sites are identified for their flora, fauna and geological or physiographical features by the statutory nature conservation bodies (NRW in Wales). The W&CA also contains measures for the protection and management of SSSIs.
- 3.6.7 The W&CA is divided into four parts: Part I relating to the protection of wildlife, Part II relating to designation of SSSIs and other designations such as nature reserves, Part III relating to PRow and Part IV relating to miscellaneous provisions. It has relevance to consideration of impacts on SSSIs and on protected species and habitats, which are addressed in Section 4.4 of this report.

PROTECTION OF BADGERS ACT 1992

- 3.6.8 Under the Protection of Badgers Act (1992) it is an offence to capture, kill or injure a badger, to damage or destroy a sett, to block access to a sett or to disturb a badger in its sett. It is also an offence to treat a badger cruelly, to deliberately send or intentionally allow a dog into a sett or to bait or dig for badgers. Interference with badger setts in Wales due to development activities should be avoided, but if this is not possible, developers should apply to NRW for a protected species licence for development activities likely to affect badgers. Badgers and their setts are considered in Section 4.4 of this report.

ENVIRONMENT WALES ACT 2016

- 3.6.9 The Environment Wales Act 2016 places a duty on the Secretary of State to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, consistent with the proper exercise of those functions.
- 3.6.10 The Act requires that account be taken of the resilience of ecosystems, in particular diversity between and within ecosystems; connections between and within ecosystems; the scale of ecosystems; condition of ecosystems (including their structure and functioning); and the adaptability of ecosystems; having regard to the United Nations Environmental Programme Convention on Biological Diversity of 1992. Biodiversity and ecology are addressed in Section 4.4 of this report.

ELECTRICITY ACT 1989

- 3.6.11 The Electricity Act 1989 provided for the privatisation of the electricity supply industry in Great Britain. The Act established a licensing regime

and a regulator for the industry called the Office of Electricity Regulation, which has since become the Office of Gas and Electricity Markets. The Act places an obligation to connect the new generating station to the transmission system via connection agreements.

- 3.6.12 The Applicant has explained that the output peak output would be limited to 99.9MW in order to avoid the need for a Generating Licence, which would "*reduce the flexibility of trading behaviour, reducing revenues, and increase transmission costs*" [EV-004]. An application for exemption for an Electricity Generating Licence, as specified in the Electricity Act, was submitted to the Department for Energy and Climate Change (DECC) (now BEIS) in March 2016 [REP9-002].

3.7 LISTED BUILDINGS, CONSERVATION AREAS AND SCHEDULED MONUMENTS

- 3.7.1 When deciding an application which is likely to affect a listed building or its setting, a conservation area, or a scheduled monument or its setting; the decision-maker must comply with the duties set out in Regulation 3 of The Infrastructure Planning (Decisions) Regulations 2010. Section 4.11 of this report addresses the historic environment.

3.8 LOCAL IMPACT REPORT

- 3.8.1 There is a requirement under s60(2) of PA2008 to give notice in writing to each local authority falling under s56A inviting them to submit LIRs. This notice was provided in the Rule 8 letter of 13 October 2015 [PD-007 and PD-008].
- 3.8.2 The relevant local authority for this proposal is GC, who submitted a LIR at D2 of the Examination [REP2-037 to REP2-040]. The principal matters raised in the LIR are:
- the principle of the development;
 - visual effect/landscape;
 - the quality of air emissions, noise and vibration;
 - ecology and biodiversity;
 - traffic and transportation;
 - socio-economic impact;
 - land contamination; and
 - industrial and archaeological heritage.
- 3.8.3 I have paid full regard to the LIR in my Examination of the application. Matters raised in the LIR are considered in Chapter 4.

3.9 THE DEVELOPMENT PLAN AND OTHER LOCAL POLICIES

- 3.9.1 The relevant statutory development plan is the GUDP, which was adopted in July 2009.
- 3.9.2 GC and Isle of Anglesey County Council are preparing a Joint Local Development Plan to replace the GUDP. It is yet to be adopted and is therefore not given any significant weight.

- 3.9.3 GC's LIR [REP2-037 to REP2-40] identifies relevant GUDP policies and adopted Supplementary Planning Guidance, including those which formed part of the criteria against which the previous T&CPA application for a smaller pumped storage scheme was approved against in 2014.
- 3.9.4 Chapter 4 deals with how local plan policies are addressed.
- 3.9.5 GUDP is clearly an 'important and relevant' matter for the purposes of s105(2)(c) of PA2008.

3.10 'IMPORTANT AND RELEVANT' MATTERS

- 3.10.1 Based on the above, apart from legislation, I consider that 'important and relevant' matters for the purposes of s105(2)(c) of PA2008 are:
- NPS EN-1;
 - PPW;
 - Wales Spatial Plan 2008;
 - Energy Wales: A Low Carbon Transition (2012);
 - Climate Change Strategy for Wales (2010); and
 - GUDP.

3.11 THE SECRETARY OF STATE'S POWERS TO MAKE A DCO

- 3.11.1 I was aware of the need to consider whether changes to the application made during the Examination meant that the application had changed to the point where it was a different application and whether the SoS would have power therefore under s114 of PA2008 to make a DCO having regard to the development consent applied for.
- 3.11.2 The SoS will be aware of the March 2015 updated Planning Act 2008: Guidance for the examination of applications for development consent issued by the DCLG, which provides guidance in relation to changing an application post acceptance (paragraphs 109 to 115).
- 3.11.3 UK Government views expressed during the passage of the Localism Act was that s114(1) places the responsibility for making a DCO on the decision-maker, and does not limit the terms in which it can be made.
- 3.11.4 The SoS may wish to take into account my view that the nature and scope of the application did not materially change during the Examination to such a degree that by the close of the Examination it represented a different application. There were no representations received to suggest otherwise.

4 FINDINGS AND CONCLUSIONS IN RELATION TO POLICY AND FACTUAL ISSUES

4.1 INTRODUCTION AND MAIN ISSUES IN THE EXAMINATION

INTRODUCTION

4.1.1 This Chapter sets out my findings and conclusions on the main policy and factual issues that I considered during the Examination.

4.1.2 Following this introduction and a note on public equality duty, this section discusses the identification of the main issues, which were wide-ranging and came from sources including my Initial Assessment of Principal Issues, written submissions, the LIR and SoCGs.

4.1.3 Section 4.2 addresses the general, more high level and wide-ranging matters that I have examined, including the:

- need for the Proposed Development;
- Applicant's overall responses to policy;
- Environmental Impact Assessment;
- transboundary effects; and
- consideration of alternatives.

4.1.4 The remainder of this Chapter then provides my detailed findings and conclusions, grouped under topic-specific headings:

- water environment, contaminated land and waste (Section 4.3);
- biodiversity, ecology and geological conservation (Section 4.4);
- traffic and transportation (Section 4.5);
- noise and vibration (Section 4.6);
- air quality (Section 4.7);
- other health impacts, safety and security (Section 4.8);
- common law nuisance and statutory nuisance (Section 4.9);
- socio-economics, land use and accessibility (Section 4.10);
- historic environment (Section 4.11);
- good design, landscape and visual impacts (Section 4.12); and
- decommissioning (Section 4.13).

4.1.5 Construction and operation are considered in Sections 4.3 to 4.12, while decommissioning is addressed in Section 4.13.

4.1.6 A similar structure is followed for each of Sections 4.3 to 4.12:

- policy context;
- application and relevant management and mitigation plans;
- matters addressed in SoCGs and in the LIR;
- main factual issues, with the conclusions for each in turn; and
- overall conclusions on all factual and policy issues for the topic.

4.1.7 The Proposed Development is the first pumped storage scheme application for a DCO. It has raised issues particular to this type of

scheme, attracted wide ranging submissions from IPs and I asked a large number of questions. To help with the understanding, and in the interests of transparency, I have therefore felt it important to include a certain amount of detail on the Applicant's assessment and on the matters raised, particularly in Sections 4.3 to 4.13. This is often in bullet points, in the interests of being concise.

- 4.1.8 My overall conclusion on the case for development, having regard to my findings and conclusions on these matters, is set out in Chapter 6.

PUBLIC SECTOR EQUALITY DUTY

- 4.1.9 Throughout the Examination I have had due regard to the public sector equality duty and the need to eliminate discrimination, harassment and victimisation and any other conduct that is prohibited by or under the Equality Act 2010. I have been mindful of the need to advance equality of opportunity and foster good relations between persons who share a relevant protected characteristic and persons who do not share it, in accordance with s149 of the Act.

MY INITIAL ASSESSMENT OF PRINCIPAL ISSUES

- 4.1.10 In accordance with s88 of PA2008 and Rule 5 of the EPR, I made an initial assessment of the principal issues before the PM [EV-010 and EV-011] from my consideration of the application documents [APP-001 to APP-234] and Relevant Representations (RR) [RR-001 to RR-063]. This was sent to all IPs, Affected Persons and Statutory Parties, and was part of the agenda for the PM [PD-005].
- 4.1.11 The principal issues fell under the headings of:
- the DCO, policy and other consents;
 - the ES and mitigation and management plans;
 - biodiversity and ecology;
 - landscape, visual impacts, good design and land use;
 - historic environment and archaeology;
 - traffic, transportation and public access;
 - noise and vibration;
 - water resources, flood risk, geology and ground conditions;
 - traffic and transportation;
 - air quality and other health impacts;
 - socio-economics, tourism and recreation; and
 - Compulsory Acquisition and common land.
- 4.1.12 Full details are set out in the Rule 6 letter [PD-005, Annex H]. I confirmed in the Rule 6 letter that my Initial Assessment of Principal Issues was not a comprehensive or exclusive list and that I would have regard to all 'important and relevant' matters [PD-005].
- 4.1.13 During the PM IPs raised other issues including the dam breach assessment and community benefit [EV-10 and EV-11].

- 4.1.14 The principal issues, together with any relevant matters arising from the PM [EV-010, EV-011], the first OFH [EV-012] and the first ISH relating to DCO matters [EV-013, EV-014 and EV-015], formed the basis of my FWQ [PD-009] and decisions as to which topics might require oral Examination through hearings.

ISSUES ARISING FROM THE WRITTEN SUBMISSIONS

- 4.1.15 Sixty three RRs were received during the Pre-examination period [RR-001 to RR-063]. A number of issues were raised in written representations (WR), which generally fell within the categories of issues identified in my Initial Assessment of Principal Issues. The issues raised by IPs also informed the written questions that I asked during the Examination [PD-009 and PD-015] and my requests for further information [PD-025 and PD-026]. They were also matters that were examined at the ISHs [EV-013, EV-014, EV-018, EV-019, EV-020 and EV-024] and the OFHs [EV-012, EV-022 and EV-023].
- 4.1.16 Some IPs were critical of the consultation process carried out by the Applicant before the application was submitted [APP-050], including:
- suggestions that there was insufficient exchange of views and criticism of the engagement of elected representatives and how they represented the local community [RR-015];
 - that job creation and energy security benefits of the scheme were misrepresented during the consultation process [RR-024];
 - that the consultation was carried out in a single stage, whereas a detailed iterative consultation was required [RR-40];
 - a lack of response from the Applicant to requests for information regarding blight [REP2-031]; and
 - concerns with the Applicant's engagement on the construction access route through Waunfawr, tourism, recreation and related potential impacts [RR-024, REP2-026 and REP2-048].
- 4.1.17 The Applicant responded to these criticisms setting out how it considers that the consultation was adequate [REP2-012 and REP3-026].
- 4.1.18 The legislative tests for the adequacy of public consultation were considered by the SoS for DCLG during the acceptance stage of the application as set out in s55 of PA2008. The SoS concluded that compliance with public consultation requirements was of a satisfactory standard and decided to accept the application for Examination [PD-002]. The SoS took into account the views of relevant local authorities on the adequacy of consultation [AoC-001 to AoC-005].
- 4.1.19 I consider that even if there was a defect in the consultation before the application was submitted, the IPs that raised the concerns about not being consulted in the early stages of the process had opportunities to provide WRs to the Examination and participate in the hearings. I am satisfied that the substantive cases made by IPs

expressing such concerns, and the relevant issues raised, were fully explored and taken into account during the Examination.

- 4.1.20 In addition to the RRs, a number of WRs were received at D2 of the Examination [REP2-020 to REP2-057]. As well as the concerns about consultation considered above, these included IPs' comments on:
- water contamination, water quality monitoring, private water supplies, flood risk and the stability of the new dams;
 - ordnance and the potential for associated chemical, biological and radiological contamination;
 - fish, birds, trees and other ecology matters;
 - traffic, including heavy goods vehicle (HGV) movements and construction routes;
 - noise, vibration, air quality, dust, nuisance and blight;
 - health and safety;
 - job creation;
 - tourism, recreation and leisure activities in Llyn Padarn;
 - PRoW, accessibility and common land; and
 - visual impacts.
- 4.1.21 Full account of all the issues raised in the written and oral submissions has been taken in my findings and conclusions in this report.

ISSUES ARISING IN THE LOCAL IMPACT REPORT

- 4.1.22 GC's LIR includes details of relevant Development Plan policies and designated sites [REP2-037 to REP2-40].
- 4.1.23 Consideration of impacts and the adequacy of the Applicant's ES [APP-063 to APP-234] were addressed in the LIR [REP2-037 to REP2-40] under headings similar to my principal issue headings.
- 4.1.24 The LIR includes details of a T&CPA application made in 2012 for a 49.9MW pumped storage facility at the same site, for which GC granted planning permission on 19 October 2014 [REP2-037 to REP2-40]. Copies of the planning officer's report and of the permission and conditions were provided as Appendices to the LIR.
- 4.1.25 GC stated that "*there is no obvious physical change between what has already been approved by Gwynedd Council and what is now intended*", but went on to note the increase in the area of the Proposed Development site [REP2-037 to REP2-40].
- 4.1.26 In its conclusion to the LIR, GC stated that "*... a series of strict conditions have been added to T&CPA planning permission, it is believed that this ensures appropriate management of the development. In the same manner, it is believed that a series of conditions or similar requirements through the DCO arrangement (if approved) would ensure relevant management over elements of the development as required*" [REP2-037 to REP2-40].

- 4.1.27 I have had full regard to all of the matters identified in the LIR, which were explored and considered during the Examination.

ISSUES ARISING IN THE SOCGS

- 4.1.28 SoCGs were prepared between the Applicant and:
- GC on policy and other consents; overall issues regarding the ES, mitigation and management plans; ecology; landscape, visual impacts, good design and land use; historic environment and archaeology; traffic, transportation and public access; noise and vibration; water resources, flood risk, geology and ground conditions; air quality and other health impacts; socio-economics, tourism and recreation; the draft DCO; and grid connection consenting [REP4-006];
 - NRW on the ES; regulation and policy background; methodology; landscape and visual impacts; ecology; contaminated land and unexploded ordnance; water resources; flood risk; noise; air quality; CoCP; the habitats regulation assessment; other consents and licences; and the draft DCO [REP3-010];
 - NRW on EPs [REP6-006];
 - Snowdonia National Park Authority on landscape and visual impact; air quality and other health impacts; and socio-economics, tourism and recreation [REP3-009];
 - Cadw on landscape and visual impact; historic environment; and socio-economics, tourism and recreation [REP5-026];
 - The Crown Estate on common land and the draft DCO [REP4-007]; and
 - SP Manweb [REP5-027] on landscape, visual impacts, good design and land use; traffic, transportation and public access; the grid connection offer and planning; and the draft DCO.
- 4.1.29 The matters raised in SoCGs are considered throughout this report.

4.2 GENERAL CONSIDERATIONS

- 4.2.1 This section considers matters which, although they were not necessarily raised by IPs, are nonetheless relevant considerations to which the SoS should have regard in coming to a decision.

THE NEED FOR THE PROPOSED DEVELOPMENT

- 4.2.2 The Applicant's justification for the Proposed Development and the need for pumped storage are set out in the Planning Statement [APP-057]. It includes reference to NPSs, including NPS EN-1.
- 4.2.3 NPS EN-1 explains that electricity meets a significant proportion of our overall energy needs and our reliance on it is likely to increase (paragraph 3.3.1). It advises that all applications for such development should be assessed on the basis that there is a need for those types of infrastructure (paragraph 3.1.2).

- 4.2.4 NPS EN-1 sets out the UK Government's commitment to meet legally binding target to cut greenhouse gas emissions by at least 80%, compared to 1990 levels, by 2050 (paragraph 2.2.1). It seeks to ensure that developers invest in low carbon generation to decarbonise energy production, which would reinforce security of supply whilst retaining efficiency and competitiveness, and reducing greenhouse gas emissions. As part of the UK's need to diversify and decarbonise, the UK Government is committed to dramatically increasing renewable generation capacity. In the short to medium term much of the new capacity is likely to come from wind power (paragraph 3.3.10).
- 4.2.5 New projects are urgently needed to meet the UK Government's target of sourcing 15% of energy from renewable sources by 2020 (paragraph 3.4.1). Paragraph 3.3.12 notes that "*there are a number of other technologies which can be used to compensate for the intermittency of renewable generations, such as electricity storage*" and that "*these technologies will play important roles in a low carbon electricity system*".
- 4.2.6 It recognises that electrical energy storage allows energy production to be decoupled from its supply, and provides a contribution to meeting peak demand (paragraph 3.3.31). Pumped storage is a form of electricity storage that would contribute to consistency of electricity supply, particularly in the context of an increasing reliance on intermittent renewables.
- 4.2.7 Footnote 39 of NPS EN-1 clarifies that "*Pumped storage means using a temporary surplus of electricity to pump water to a high reservoir, and generating hydroelectric power when needed.*"
- 4.2.8 NPS EN-1 states that the energy NPSs have taken account of the relevant TANs in Wales (paragraph 4.1.5). TAN 8 suggests common matters between a pumped storage scheme when it is generating electricity and hydro-power. It notes that "*Pumped storage schemes utilise off-peak electricity to pump water from a low level to a higher level reservoir in order that it can be released into the hydro system when peaks in electricity demand need to be satisfied. The major schemes in Wales have thus far utilised base load conventional electricity production as their source of off-peak electricity but the same principles could be used to store intermittent renewable electricity production*" (paragraph 10.3). TAN 8 goes on to state that hydro-power is generally supported (paragraph 3.13).
- 4.2.9 PPW8 sets out a key aim "*to promote the generation and use of energy from renewable and low carbon energy sources at all scales ... and to tackle the causes of climate change*" (paragraph 12.1.4).
- 4.2.10 The Proposed Development is in the North-West sub-region of the Wales Spatial Plan (2008), for which the development of the renewable energy industry and new low-carbon power generation are identified as particular priorities.

- 4.2.11 The Welsh Government's Energy Policy Statement - Energy Wales: A Low Carbon Transition (2012) outlines the commitment to reduce carbon emissions and envisages the widespread deployment of a diverse range of low carbon technologies. The statement recognises the role of energy storage technologies to compensate for the intermittency in supply from renewable sources.
- 4.2.12 The Climate Change Strategy for Wales (2010) aims to maximise renewable and low carbon energy generation and identifies low carbon energy generation, storage and distribution as priority areas.
- 4.2.13 GUDP Policy C6 (Glyn Rhonwy redevelopment site) refers to the creation of quality employment opportunities for Gwynedd's communities. In its LIR, GC noted the importance of redeveloping previously developed sites, that specific emphasis has been placed on the Glyn Rhonwy site in its role as a Strategic Development Site and that it supported the Proposed Development to this end, subject to compliance with other policies [REP2-037 to REP2-40].
- 4.2.14 The Applicant [APP-057] referred to other support for electricity storage:
- National Grid's Future Energy Scenarios (July 2015) notes the significance of electricity storage for the future balancing toolkit and its ability to alleviate the problem of fuel availability; and
 - House of Parliament Post Note 492 (April 2015) considers that pumped storage contributes to cost-efficiency by "*helping to avoid costs for electricity network expansion*" and "*allowing energy to be bought and stored at cheap off-peak rates and sold back to the grid at expensive peak times*". It goes on to suggest that future energy storage could save consumers billions of pounds and contribute further billions to the UK economy.

Matters raised during the Examination

- 4.2.15 GC considered that "*the need case for the development has previously been made and accepted through the approval given for the T&CPA application as well as within the context of NPS EN-1*" [REP2-041].
- 4.2.16 Dr Jane Huuse [REP2-028] questioned the validity of the scheme in terms of value for money, small contribution to electricity generation and storage and the balance of benefits with environmental footprint. The Applicant [REP3-026] replied that the Proposed Development was of a similar cost per megawatt of energy produced to the other pumped storage scheme quoted by Dr Huuse. The balance of benefits and adverse impacts are considered in the remainder of this report.
- 4.2.17 I am satisfied with the Applicant's responses.

Conclusions on the need case

4.2.18 The Proposed Development would use off-peak surplus electricity to pump water to a high reservoir and use that to generate hydroelectric power when peaks in electricity demand need to be satisfied. It would therefore support UK and Welsh policy, principally by:

- helping to meet the urgent need for new electricity power generation, particularly at times of peak demand; and
- being an important part of a low carbon energy system that compensates for the intermittency of renewable generation and facilitates renewable energy development.

4.2.19 The Proposed Development would, subject to compliance with other policies, also support GC's policies for the previously developed Glyn Rhonwy Strategic Development Site to be redeveloped and provide employment opportunities for the benefit of local communities.

4.2.20 I am satisfied the need case is robust and that a compelling need for the Proposed Development is established in line with policy.

APPLICANT'S OVERALL RESPONSES TO POLICY

4.2.21 The following paragraphs set out the Applicant's overall responses to policy, except for:

- relevancy of different policy and my identification of important and relevant policy, which are set out in Chapter 3, and
- policy with respect to the need case, which is covered above.

NPS EN-1

4.2.22 Part 4 of NPS EN-1 sets out certain general principles against which applications relating to energy infrastructure are to be assessed. The Applicant considers that the Proposed Development is fully compliant with the aims and objectives of NPS EN-1 [APP-057].

4.2.23 The general principles of assessment set out in part 4 of NPS EN-1 relevant to the Proposed Development include the ES; protected habitats and species regulations; consideration of alternatives; good design; climate change adaption; pollution control and other environmental regulatory regimes; safety; health; common law nuisance and statutory nuisance; and security.

4.2.24 The application is accompanied by an ES describing the aspects of the environment likely to be significantly affected by the Proposed Development [APP-063 to APP-234]. The potential effects of the Proposed Development have been assessed alone, as well as cumulatively with other relevant plans and projects. Where necessary relevant mitigation measures have been identified.

4.2.25 The Applicant produced a HRA report to enable me to assess whether the Proposed Development is likely to have a significant effect on a

European site and whether an appropriate assessment is required [REP1-001]. The Applicant concluded that there would be 'no likely significant effect' on European sites of nature conservation importance [APP-074 and REP1-001].

- 4.2.26 The ES [APP-070] includes information about the evolution of the design and the alternatives studied. Resilience to climate change is outlined in the ES under Policy Context [APP-072], Flood Risk [APP-077] and the Flood Consequences Assessment (FCA) [APP-131].
- 4.2.27 NPS EN-1 advocates that when considering pollution control the decision maker should work on the assumption that the relevant pollution control regime would be applied and enforced by the relevant regulator and therefore should focus on whether the development itself is an acceptable use of land (paragraph 4.10.3). It concludes that consent should not be refused on the basis of pollution impacts unless there is good reason to believe that relevant permits, licences or other consents will not be granted. The ES has considered the likely requirement for EPs and other consents, and shown that the Applicant has liaised with relevant regulators [APP-076 and APP-081].
- 4.2.28 NPS EN-1 refers to the need to consult with the HSE on matters related to safety (paragraph 4.11.1) and recognises that energy distribution may have negative effects on some people's health (paragraph 4.13.1). The Applicant has confirmed that it undertook early consultation with the HSE [APP-057]. The Applicant's assessment and mitigation of health and safety issues is covered in relevant Chapters of the ES, including Project Description [APP-071], Design Evolution & Alternatives [APP-070], Environmental Management [APP-083], Traffic and Transportation [APP-089], Air Quality [APP-081], Water Resources [APP-076] and CoCP [APP-142].
- 4.2.29 Paragraph 4.14.2 of NPS EN-1 highlights that it is very important to consider at the application stage possible sources of nuisance and how they may be mitigated or limited. The Applicant has addressed this in a Statement in Respect of Statutory Nuisance [APP-053] and elsewhere in the application, including with respect to Noise and Vibration [APP-080], Air Quality [APP-081] and the CoCP [APP-142].
- 4.2.30 Part 5 of NPS EN-1, sets out generic impacts of energy infrastructure projects which must be considered in the ES accompanying an application. These have been addressed in the ES.
- 4.2.31 NPS EN-1 sets out the criteria that need to be satisfied for planning obligations to be taken into account (paragraph 4.1.8). The Applicant has stated that although it has agreed the terms of a community trust fund with GC, it considers that this is not considered necessary to make the Development acceptable in planning terms, is not material to the Examination and therefore should not be taken into account [REP5-005]. I am satisfied with the Applicant's position and have not taken the community trust fund into account.

PPW

- 4.2.32 The application, which was received in October 2015, addresses PPW7 and the Applicant considers that the Proposed Development is compliant with its aims and objectives [APP-057]. PPW8 came into force in January 2016, was considered during the Examination and is therefore generally referred to in this report. The LIR [REP2-037 to REP2-40] referenced PPW8. The main changes between PPW7 and PPW 8 related to Chapter 2 (Local Development Plans), Chapter 4 (Planning for Sustainability) and Chapter 14 (Minerals) and were not in the main focus areas for the Examination. I am satisfied that there was adequate opportunity for comment on any differences between PPW7 and PPW8 during the Examination.
- 4.2.33 PPW9 was launched after the end of the Examination in November 2016. The main changes in PPW9 relevant to the application are to Chapter 6, the historic environment, which has been fully revised. There was no opportunity for IPs to comment on any policy changes in PPW9 and so I have highlighted the changes of particular relevance in Section 4.11 and Chapter 6, which the SoS may wish to consider.
- 4.2.34 Chapter 14 of PPW8 gives guidance for the extraction of all minerals and other substances in or under land. Although the development does not involve the extraction of minerals, the Applicant, in discussion with GC, has used certain guidance within Minerals Planning Guidance 11: The Control of Noise at Surface Mineral Workings due to the similar nature of construction activity [APP-080]. Noise and vibration are considered in further detail in Section 4.6.
- 4.2.35 TAN 20 gives guidance on the implications of the Welsh language for planning. The Applicant said that it recognised the potential effects on the Welsh language and that all public-facing signage would be bilingual [REP9-030]. I am satisfied that this would be secured through the provisions in the recommended DCO for GC to approve the CoCP and detailed design. GC considered that the Proposed Development "*would ensure employment for the local population which would strengthen the Welsh language by providing employment opportunities for the local area's native population and the rest of Gwynedd*" [REP2-037 to REP2-40]. The Applicant's responses to other TANs are considered in detail where relevant in Sections 4.3 to 4.13.

GUDP

- 4.2.36 A number of GUDP policies seek to control impacts of the type that will potentially be generated by the Proposed Development. Policy C6 provides the policy context of specific relevance to the Glyn Rhonwy Redevelopment Site and states that proposals will be permitted if they meet a number of specified criteria.
- 4.2.37 The Planning Statement [APP-057] and individual Chapters of the ES identify key local plan documents and assess the Proposed Development against adopted and saved local planning policies. The

Applicant considers [APP-057] that the Proposed Development is fully compliant with the aims and objectives of the local plans and that it supports the Glyn Rhonwy Development Plan and Implementation Strategy strategic objective to exploit the Glyn Rhonwy site for its natural assets and for sustainable energy generation.

Matters raised during the Examination

- 4.2.38 GC's LIR [REP2-037 to REP2-40] reviewed the main areas of relevant local policy, identified where the Applicant has responded to them and commented on the application's impact and adequacy.
- 4.2.39 In a SoCG [REP4-006], the Applicant and GC agreed the relevance of UK, Wales and local policy designations and evidence set out in the Planning Statement [APP-057] and the Policy Context [APP-072] documents. GC later stated [REP2-041] that the Planning Statement [APP-057] made sufficient reference to Welsh and other local policy.
- 4.2.40 GC advised that only "*limited weight*" be given to the Glyn Rhonwy Development Plan and Implementation Strategy (2008) as "*no statutory status is attached*" [REP2-041].

General conclusions on the Applicant's overall responses to NPS EN-1, PPW and GUDP

- 4.2.41 I am satisfied that the Applicant has taken account of the general principles of assessment set out in relevant policies and responded to these within the application and during the Examination. I consider how the Proposed Development addresses policy in more detail in Sections 4.3 to 4.13 of this report.

THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

- 4.2.42 NPS EN-1 sets out the need for and the tests of adequacy of the ES, including the need to set out the likely residual environmental, social and economic impacts of the development and any proposed mitigation measures (section 4.2).
- 4.2.43 The Proposed Development is EIA development and the SoS prepared a Scoping Opinion [APP-090] that was taken into account by the Applicant in the EIA process and in the ES [APP-068 and APP-069].
- 4.2.44 The Applicant submitted a substantial ES [APP-063 to APP-234], including a non-technical summary [APP-063].
- 4.2.45 The application was reviewed on submission within the statutory period available for Acceptance and the ES was considered adequate in accordance with Schedule 4 of the EIA Regulations. During the Examination I considered the ES in detail, took account of all representations on it and sought clarification through written questions and in hearings. The Applicant submitted other environmental information in response to my questions and IPs' queries.

- 4.2.46 Cumulative effects with other projects were considered in Chapter 17 of the ES [APP-084] are considered later in this Chapter as relevant.
- 4.2.47 During the Examination the Applicant submitted a number of documents in support of the application and to clarify or provide updates on matters related to the EIA presented within the ES:
- clarification of the EIA Methodology [REP2-011, Appendix 2.4];
 - Rochdale Envelope parameters [REP2-011];
 - update to the Summary of Effects Tables [REP2-011];
 - Summary of Overall Significance of Impacts [REP2-011]; and
 - an updated Schedule of Mitigation [REP6-003].
- 4.2.48 Outline plans were submitted by the Applicant during the Examination to secure the mitigation measures relied on in the ES and identified during the Examination:
- Outline Code of Construction Practice [REP6-007];
 - Outline Construction Traffic Management Plan [REP9-012];
 - Outline Health and Safety Plan [REP9-006];
 - Outline Biosecurity Plan [REP5-022];
 - Outline Water Management Plan [REP9-026];
 - Outline Excess Water Management Strategy [REP9-020];
 - Outline Silt Management Plan [REP9-022];
 - Outline Land Discovery Strategy [REP10-004];
 - Outline Ordnance Management Strategy [REP9-024];
 - Outline Materials Management Plan [REP5-014];
 - Outline Baseline Air Quality Monitoring Plan [REP9-016];
 - Outline Dust Control and Air Quality Management Plan [REP9-014];
 - Outline Construction Noise Management Plan [REP10-006];
 - Outline Operational Noise Management Plan [REP9-008]; and
 - Outline Archaeological Compensation and Enhancement Strategy [REP9-003].
- 4.2.49 In the Applicant's SoCG with GC [REP4-006] and NRW [REP3-010] matters were agreed regarding the completeness and adequacy of the ES; the identification of realistic worst case scenarios; assessment methodologies; the assessment; and the methods used to secure mitigation measures. The cumulative assessments of the route and grid connection consenting options were not resolved.

General conclusions on the EIA

- 4.2.50 Many of the assessment conclusions in the ES were challenged during the Examination. However, I am satisfied that the ES meets the requirements of the EIA Regulations and, together with the other environmental information provided during the Examination, forms an adequate basis for decision making.
- 4.2.51 NPS EN-1 is not a designated NPS for the purposes of a pumped storage scheme and the strategic environmental assessment

associated with NPS EN-1 does not extend to the Proposed Development. Therefore, my consideration of the Proposed Development is on the basis that environmental matters and impacts are considered at project level. Detailed consideration of these matters is made for each topic area in Section 4.3 to 4.13 of this report.

TRANSBOUNDARY EFFECTS

- 4.2.52 The SoS carried out a screening exercise to determine whether the Proposed Development would result in any likely significant effects (LSE) on the environment in another European Economic Area (EEA) State. An initial screening on 11 May 2015 followed the Applicant's request for a scoping opinion. A second screening on 8 January 2016 followed the acceptance of the application [OD-001].
- 4.2.53 Under Regulation 24 of the EIA Regulations and on the basis of the information provided by the Applicant, the SoS was of the view that there would not be likely to be significant effects on the environment in another EEA State. In reaching this view the SoS applied the precautionary approach explained in the Inspectorate's Advice Note 12. Consultation under Regulation 24 of the EIA Regulations was therefore not considered necessary.
- 4.2.54 I have had regard to the ongoing duty of the SoS under Regulation 24 to have regard to transboundary matters throughout the Examination. I did not consider that any new information came to light during the Examination that would have prompted the need to reconsider the SoS's transboundary screening opinion [OD-001].

CONSIDERATION OF ALTERNATIVES

Policy context

- 4.2.55 NPS EN-1 sets out the requirement to consider alternatives in relation to the ES and the Habitats Regulations (section 4.4). It says that *"from a policy perspective this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option"* (paragraph 4.4.1). It then obliges Applicants to include information about the main alternatives they have studied in their ES, and provides that the consideration of alternatives should be carried out proportionately (paragraphs 4.4.2 and 4.4.3).
- 4.2.56 Chapter 5 concludes no LSE on European sites, so there is no need to consider alternatives in relation to the Habitat Regulations.
- 4.2.57 The EIA Regulations require that an ES should include an outline of the main alternatives that have been studied by the Applicant and an indication of the main reasons for its choices, taking into account the likely significant environmental impacts of each alternative.

Consideration of alternatives

- 4.2.58 The Applicant's consideration of alternatives is set out in detail in the Design Evolution & Alternatives [APP-070] Chapter of the ES and summarised in the Planning Statement [APP-057]. The alternatives considered include 'do nothing', alternative locations for the development, alternative use of the site and project optimisation.
- 4.2.59 The 'do nothing' option was considered to neglect the potential asset of the quarries, represent inefficient use of resources and conflict with policy [APP-057].
- 4.2.60 Alternative locations were considered through a mapping exercise that identified sites with suitable characteristics for pumped storage, including consideration of environmental sensitivity and the feasibility of mitigating environmental impacts [APP-057]. The Applicant concluded that there *"are not considered to be any alternative sites within the local area"*. NPS EN-1 notes a lack of appropriate locations in the UK for pumped storage facilities (paragraph 3.3.31).
- 4.2.61 Regarding alternative uses for the site, the Glyn Rhonwy Development Plan and Implementation Strategy (2008) is quoted [APP-057] as confirming that *"pumped storage is a suitable use for the quarries and that no alternative uses for them are worthy of further investigation"*.
- 4.2.62 Project optimisation alternatives considered by the Applicant during the evolution of the design include the use of Llyn Padarn as a tailpond rather than Q6; disposal of excess slate material offsite instead of excess slate mounds onsite; open cut excavation of the penstock rather than underground excavation; alternatives for the route of the penstock; and alternatives for the placement of the discharge outlet into Llyn Padarn [APP-070]. In each case the Applicant has detailed the reasons for selecting the chosen option [APP-070].
- 4.2.63 Dr Jane Huuse questioned whether other technology options for energy storage would be preferable [REP2-028]. The Applicant responded that the alternative energy storage options quoted by Dr Huuse are still only at the concept phase [REP3-026].
- 4.2.64 Tony Grant suggested more technology options and suggested that undersea cables linking to other countries could provide a 'cushion' for electricity supply [REP2-052]. The Applicant commented on the maturity and cost effectiveness of the technology options and said that *"they are not able to act at the required scale"* [REP3-026]. With respect to the interconnector links to other countries, the Applicant quoted publications by DECC (now BEIS) and the National Infrastructure Commission that included reference to the need for a mix of interconnection and storage [REP3-026].

Conclusions on the consideration of alternatives

- 4.2.65 I am satisfied that the ES and the Applicant's subsequent submissions have appropriately considered alternatives and find no policy or legal requirements that lead me to recommend that consent be refused for the Proposed Development in favour of another alternative.
- 4.2.66 Options for alternative construction routes and locations for the pumping station alongside Llyn Padarn that were raised during the Examination are considered later in this Chapter.

4.3 WATER ENVIRONMENT, CONTAMINATED LAND AND WASTE

- 4.3.1 This section covers the following, in two separate sub-sections:
- water quality, resources, contaminated land and waste management; and
 - flood risk and climate change.
- 4.3.2 Ordnance, which was a particular concern of IPs, is mainly addressed under contaminated land. The potential impacts of the water environment and contamination on biodiversity and ecology are dealt with in Section 4.4 and other health impacts in Section 4.8.

WATER QUALITY, WATER RESOURCES, CONTAMINATED LAND AND WASTE MANAGEMENT

Policy context

Water quality and resources policy

- 4.3.3 NPS EN-1 states that where there are likely to be effects on the water environment, the ES should include an assessment of the existing status of, and impacts on, water quality, water resources and physical characteristics of the water environment (paragraph 5.15.2).
- 4.3.4 Paragraph 5.15.3 states that the ES should in particular describe:
- the existing quality of waters affected and the impacts on water quality, noting existing discharges, proposed new discharges and proposed changes to discharges;
 - the impacts of the proposed project on water resources, noting any relevant existing abstraction rates and proposed changes to abstraction rates, including any impact on the use of mains supplies; and
 - existing physical characteristics of the water environment (including quantity and dynamics of flow) affected and any impact of physical modifications to these characteristics.
- 4.3.5 The Environmental Permitting (England and Wales) Regulations 2010 control activities that could cause water pollution and require operators to obtain a permit for water abstraction and discharge.

- 4.3.6 Chapter 13 of PPW8 deals with minimising and managing environmental risks and pollution, which includes water quality. It states that the Welsh Government's objectives are to maximise environmental protection for people, natural and cultural resources, property and infrastructure; and to prevent or manage pollution and promote good environmental practice (paragraph 13.11.2).
- 4.3.7 PPW8 highlights that the potential for pollution affecting the use of land will be a material consideration in deciding whether to grant planning permission (paragraph 13.12.1). It then goes on to list material considerations for potentially polluting development which include the:
- impact of potential pollution from the development, and effects on the use of other land and the surrounding environment;
 - prevention of nuisance; and
 - need and feasibility of restoring the land and water resources to standards sufficient for an appropriate after use.
- 4.3.8 GUDP Policy C29 states that proposals that would cause significant harm on surface water, groundwater sources or freshwater systems would be refused.

Contaminated land policy

- 4.3.9 NPS EN-1 states that Applicants should consider the risk posed by land contamination for developments on previously developed land (paragraph 5.10.8).
- 4.3.10 PPW8 advocates that the effects of pollution should be taken into account. Where a site is affected by contamination, responsibility for dealing with it rests with the developer (paragraph 13.5.1). Where a development may result in land becoming contaminated the onus remains with the developer to ensure that the development will not result in the land becoming contaminated (paragraph 13.7.4).
- 4.3.11 GUDP Policy C30 states that proposals to develop contaminated land must include a detailed report on the nature and extent of any contamination; a strategy consistent with good practice for removing, reducing or treating the contamination; and that the threat of contamination would not continue.
- 4.3.12 GUDP Policy B33 states that proposals causing significant harm to the quality of public health, safety or amenities or to the quality of the built or natural environment as a result of higher levels of soil pollution will be refused unless adequate controls can be attained and arrangements made for monitoring.

Waste policy

- 4.3.13 NPS EN-1, at paragraph 5.14.7, states that that the decision maker should be satisfied that:

- waste will be properly managed, both on 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; 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 outcome.

4.3.14 PPW8 says that, "[a]ll opportunities should be explored to incorporate re-used or recyclable materials or products into a new building or structure. Information regarding such efforts could be included in the Design and Access Statements" (paragraph 12.7.3).

4.3.15 TAN 21: Waste (2014) advocates the need to prevent waste from arising and where this is not possible to be capturing waste in ways that enable materials to be reclaimed and to be used again; and to harness waste as a resource in its own right.

4.3.16 GUDP Policy C23 requires that industrial developments of 500m² or more provide on-site facilities for recycling/composting.

The Application

4.3.17 The main relevant sections of the ES are:

- Chapter 8 Geology and Ground Conditions [APP-075]
- Chapter 9 Water Resources [APP-076]
- Chapter 16 Environmental Management [APP-083]
- Chapter 17 Cumulative Effects [APP-084]
- Appendices 8.1 to 8.6 [APP-119 to APP-124]
- Appendices 9.1 to 9.5 [APP-126 to APP-130]

Water quality and resources

4.3.18 The Water Resources Chapter of the ES considers potential effects on surface water and groundwater [APP-076]. It describes the existing baseline surface water and groundwater conditions; identifies potential effects on the water environment; describes mitigation measures; and sets out the residual environmental effects.

4.3.19 For the construction phase the ES identifies potential effects on water resources [APP-076], including:

- quality of controlled waters (Nant-y-Betws stream, Llyn Padarn, the rivers Afon Gwyrfa and Afon Seiont and groundwater);
- the bathing waters at Llyn Padarn; and
- private water supplies;

due to (as relevant):

- accidental spillage of contaminants;
- high sediment load in surface water run-off;
- dewatering of quarries Q1 and Q6; and

- tunnelling activity.
- 4.3.20 The key mitigation measures identified in the ES [APP-076] for the construction phase include compliance with NRW's Pollution Prevention Guidelines; with the CoCP; and with the conditions of EPs for water discharge. With these mitigation measures in place the residual significance of effects on water resources during construction were assessed by the Applicant as negligible or minor adverse [APP-076].
- 4.3.21 For the operational phase the ES identifies potential effects on water resources [APP-076] including:
- Nant-y-Betws, Llyn Padarn and Afon Gwyrfa; private water supplies;
 - bathing waters in Llyn Padarn; and
 - existing quarry Q5;
- due to (as relevant):
- discharges from the reservoirs at Q1 and Q6;
 - future 'top-up' water abstraction;
 - culverting and diversion of Nant-y-Betws and its tributaries; and
 - blocking of existing quarry drainage pathways from Q5.
- 4.3.22 The key mitigation measures identified in the ES for the operational phase [APP-076] include:
- compliance with the conditions of EPs for water abstraction and discharge;
 - the monitoring of water quality in the reservoirs;
 - the establishment of preferences to discharge via Q6 to Llyn Padarn rather than via Q1 to Nant-y-Betws;
 - flow control measures to the outfall to Nant-y-Betws;
 - measures to be identified during the detailed design of culverting and diversion, alongside a land drainage consent application; and
 - measures to be identified following later investigation and detailed design of a water management system in Q5.
- 4.3.23 With these measures in place the residual significance of effects on water resources during operation were assessed by the Applicant as negligible or minor adverse, with the exception of a moderate adverse effect relating to the loss of a small area of the lake bed of Llyn Padarn and the culverting and diversion of the Nant-y-Betws and its tributaries [APP-076].
- 4.3.24 The Cumulative Effects Chapter of the ES considered the simultaneous construction of Q1 together with other works in the area of quarries Q2 to Q8 and found no pathways for potential effects [APP-084]. Potential intra-project cumulative effects for private water supplies from dust and water pollution were assessed as negligible [APP-084].

- 4.3.25 Potential cumulative effects on water quality in Llyn Padarn and Afon Seiont were assessed for the Proposed Development together with the existing Dinorwig pumped storage scheme and the residual effect was considered to be of negligible significance [APP-084].
- 4.3.26 The Applicant clarified [REP2-011, FWQ Appendix 2.7] its assessment that the overall potential residual effect on water resources would be negligible or minor adverse and not significant.

Contaminated land and waste management

- 4.3.27 The Geology and Ground Conditions Chapter of the ES provides details of ground conditions, geological conditions, the presence of potentially contaminated land and hazardous materials [APP-075]. It considers potential impacts of the Proposed Development on ground conditions and identifies how adverse impacts could be mitigated.
- 4.3.28 The ES [APP-075] identifies potential impacts related to:
- unexpected contamination and management of excess material around Q1 and Q6;
 - disposal of excess material and transfer of excess material to Q1;
 - re-profiling of Q6 and stabilisation of the slate mound;
 - unexploded ordnance and munitions in Q1, Q6 and Q8; and
 - Ffridd y Glyn quarry landfill.
- 4.3.29 The key mitigation measures identified in the ES [APP-075] include:
- compliance with the CoCP;
 - implementation of an Ordnance Management Strategy; and
 - measures to be identified following later site investigation works.
- 4.3.30 No mitigation was proposed for the Ffridd y Glyn quarry landfill as it is outside the Proposed Development site and the potential magnitude of impact was considered to be low and not significant.
- 4.3.31 With these mitigation measures in place the residual significance of effects on geology and ground conditions were assessed by the Applicant [APP-075] as negligible or minor adverse.
- 4.3.32 In response to my question [PD-009] the Applicant clarified [REP2-011, FWQ Appendix 2.7] its assessment that the overall potential residual effect on geology and ground conditions would be negligible or minor adverse and not significant.
- 4.3.33 The ES sets out measures to be taken to protect the environment during construction, including the management of waste [APP-083].

SoCGs and the LIR

- 4.3.34 In their SoCG the Applicant and GC agreed that [REP4-006]:

- the baseline information is adequate for assessing the effects on water resources, geology and ground conditions;
- adequate assessment of silting and contamination has been undertaken for private water supplies;
- implementation of the Pollution Prevention Plan and Water Management Plan would be sufficient to manage run-off and water quality;
- NRW's Pollution Prevention Guidelines would be adhered to;
- an Excess Water Management Strategy would be an appropriate way to secure mitigation during operation; and
- a Land Discovery Strategy would be appropriate for addressing contaminated land.

4.3.35 In their SoCG [REP3-010] the Applicant and NRW agreed that:

- the assessment methodology for the water resources assessment presented in the ES is appropriate;
- an adequate assessment of water resources impacts has been undertaken;
- the implementation of the CoCP, Pollution Prevention Plan and Water Management Plan would be an appropriate way of securing the necessary mitigation;
- an abstraction licence has been granted, the restrictions outlined in its conditions would be adequate to mitigate any adverse impacts, and the Applicant had applied for a variation to the abstraction licence; and
- the Applicant had applied for EPs for two discharge consents covering six discharges during construction and operation.

4.3.36 The Applicant and NRW later agreed that the abstraction licence variation was approved and that the applications for EPs for discharge consents were withdrawn [REP6-006].

4.3.37 In the SoCG between the Applicant and GC it was also agreed that the ES adequately assesses the impacts of waste arising from the development and that a Waste Management Plan would be produced and approved prior to commencement [REP4-006].

4.3.38 Matters raised in GC's LIR [REP2-037 to REP2-40] include:

- reference to the proposed water extraction and discharge element within Llyn Padarn;
- potential pollution due to the historical slate quarry uses;
- historical use of parts of the site for bomb and weapon storage;
- the potential that parts of the site were used for landfill;
- that pollution could spread from the site into the water table;
- there is low potential of significant contamination being on the site, but that a precautionary approach should be taken;
- that the geology and ground conditions Chapter of the ES [APP-075] is thorough and indicates that impacts associated contaminated land could be managed; and

- adequate mitigation measures need to be in place to deal with the remains of explosive materials.

Outline management and mitigation plans

- 4.3.39 Relevant outline plans were developed during the Examination.
- 4.3.40 The Outline CoCP [REP9-028] provides initial information on how potential construction stage environmental impacts are to be minimised and incorporates a pollution prevention plan and a waste management plan. The pollution prevention plan includes measures for the storage and handling of fuel and lubricants, herbicides and the control of substances hazardous to health. The waste management plan sets the framework for the managing wastes during construction, including waste minimisation, storage, reuse and disposal.
- 4.3.41 The Outline Water Management Plan [REP9-026] describes the water management principles, procedures and pollution control techniques to be adopted during construction. It covers control of runoff, mitigation against water-borne hydrocarbon and chemical pollution, abstraction and discharge of water, protection of private water supplies, water quality monitoring and incident and emergency response.
- 4.3.42 The Outline Excess Water Management Strategy [REP9-020] sets out the principles by which water would be managed during the operation of the Proposed Development. It describes the basic operation of the development, reservoir safety, water abstraction and discharge, and the incidental release of water.
- 4.3.43 The Outline Silt Management Plan [REP9-022] details how the construction works would be managed to ensure that the water environment would be adequately protected from the potential adverse impacts of fine sediments in site runoff during construction. It identifies potential sources of fine sediment, mitigation measures, a proposed temporary drainage system and monitoring.
- 4.3.44 The Outline Land Discovery Strategy [REP10-004] describes previous uses of land within the Proposed Development site, known or potential areas of contamination, assesses potential effects on controlled waters and provides a methodology for managing any previously unidentified areas of contaminated ground discovered during construction. It specifically excludes Ordnance.
- 4.3.45 The Outline Ordnance Management Strategy [REP9-024] sets out the framework to mitigate risk from potential ordnance hazards during construction. It includes ordnance identification and mapping, the screening of slate waste, clearance and disposal.
- 4.3.46 The Outline Materials Management Plan [REP9-007] characterises and quantifies the materials generated on the site during construction, how they would be used, moved and stored within the site and how adherence with best practice would be recorded and audited.

- 4.3.47 These outline plans would be certified by Article 36 of the recommended DCO. They contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).
- 4.3.48 GC noted [REP7-044 and REP9-042] that it was content with previous versions of the Outline CoCP [REP7-012], Outline Water Management Plan [REP7-014], Outline Excess Water Management Strategy [REP6-009]; Outline Silt Management Plan [REP7-016], Outline Ordnance Management Strategy [REP7-022], Outline Land Discovery Strategy [REP5-015] and Outline Materials Management Plan [REP5-014]. I have not been given any reason to believe that GC would have a different view on the latest versions submitted at D9 and D10.
- 4.3.49 NRW noted [REP10-011] that it had no further comments on the CoCP [REP9-028], Outline Water Management Plan [REP9-026], Outline Excess Water Management Strategy [REP9-020], Outline Silt Management Plan [REP9-022] or Outline Ordnance Management Strategy [REP9-024].
- 4.3.50 NRW [REP10-011] noted the amendments to the updated Land Discovery Strategy [REP9-005] and did not raise any issue with them, with the exception of a spelling correction that the Applicant then addressed in a final update [REP10-004]. NRW noted [REP9-043] that it had no further comments on the Outline Materials Management Plan [REP7-032] and I have not been given any reason to believe that NRW would have a different view on the latest version [REP10-011].
- 4.3.51 NRW stated that its comments were without prejudice to any decisions that it might make on any applications for EPs and that the plans would be subject to on-going discussion through the Environmental Permitting regime [REP10-011].

Other factual issues considered during the Examination

- 4.3.52 Other water quality, water resources, contaminated land and waste management issues considered during the Examination include:
- baseline information - surface and groundwater flows;
 - baseline information - ordnance and ground contamination;
 - baseline information - water quality in quarries Q1 and Q6;
 - 2015 ground investigation;
 - drainage pathways - changes to the drainage of Q5;
 - drainage pathways - potential for changes due to blasting;
 - water quality monitoring;
 - construction run-off;
 - Nant-y-Betws crossings;
 - other potential effects on Llyn Padarn;
 - private water supplies;
 - cumulative effects on water quality;
 - Environmental Permits;

- contaminated land and ordnance mitigation; and
- waste management, slate waste and re-use of materials.

Baseline information - surface and groundwater flows

- 4.3.53 The Proposed Development site is underlain by bedrock that is fractured in places which, together with various mine working and other structures, are likely to be a legacy of historical quarrying activities [APP-076]. These features could influence surface and groundwater flows and on the potential for the Proposed Development to affect those flows and cause other related effects.
- 4.3.54 I questioned the adequacy of the baseline information and the need for more site investigation information [PD-009]. In reply the Applicant summarised a preliminary ground investigation that was carried out on the site in 2015 and for which results were not available for the ES [REP2-011]. Taking this information into account alongside the information provided in the ES [APP-076] the Applicant stated that *"groundwater conditions are generally well understood"* and that no more intrusive investigations were required at this stage [REP2-011].
- 4.3.55 The Applicant also clarified that before construction the contractor would carry out more investigations to inform the detailed design; that the information from these investigations was only expected to be relevant at the local scale; and that the scope of the investigations would be agreed with GC and NRW [REP2-011].
- 4.3.56 NRW considered that the groundwater baseline information is suitable [REP2-047]. GC did not comment [REP2-041].
- 4.3.57 Jeff Taylor suggested that there was a high possibility of unexpected flow paths deriving from earlier documented and undocumented quarry workings [REP2-035, REP4-029 and REP6-020]. The Applicant responded to this concern, stating that the investigation works indicated that groundwater flow via fissures was extremely limited [REP5-006] and recognised that more features may be uncovered as construction work progressed [REP5-006].

Conclusions

- 4.3.58 The need to agree the scope of the later ground investigations with the relevant planning authority is addressed in the definition of *"commence"* in the recommended DCO. Authority to investigate the land is provided in Article 18 of the recommended DCO. Approval of the detailed design by the relevant planning authority in consultation, as appropriate, with NRW is secured by Requirement 5 of the recommended DCO. Schedule 1, Part 1 of the recommended DCO allows, with restrictions, *"further development ... as may be necessary or expedient for the purposes of the authorised development"*.
- 4.3.59 Consideration of the results of the ground investigation and NRW's comment lead me to be satisfied that the baseline information is

sufficient for the assessment of effects on groundwater flows. I consider it reasonable and appropriate that more local investigations would be required to finalise the detailed design, which I take to include the design of surface water drainage systems, and note that no comments from NRW or GC conflict with that view. I am satisfied that the recommended DCO allows provision for more investigations, including through the Outline Water Management Plan [REP9-026], as secured by Requirement 8 of the recommended DCO.

- 4.3.60 I therefore conclude that the baseline information on groundwater and surface water flows is adequate for the purposes of the assessment and that suitable provisions are in place for the more detailed investigations required for the detailed design.

Baseline information - ordnance and ground contamination

- 4.3.61 Under this heading I consider whether the Applicant's baseline studies are sufficient for the purposes of its assessment and for the identification of appropriate mitigation in the DCO.
- 4.3.62 The baseline assessment information [APP-075] and the Ground Investigation summary report [REP2-011, Appendix 8.5] explain that the site specific investigations generally demonstrate an absence of contaminated material, other than possible contamination in and around Q6 as a result of the former ordnance and munitions storage and disposal activities. Landfill sites at 300m and 500m from the Proposed Development site were not considered to present a risk of significant effects [APP-075].
- 4.3.63 Starting in the 1940s, quarries on the Proposed Development site were used for the storage and decommissioning of ordnance and munitions [APP-075]. Then, starting in the late 1960s, *"the biggest bomb clearance operation every undertaken by the Royal Air Force"* was carried out on in the quarries over a period of 6 years [APP-122].
- 4.3.64 The Applicant has provided desk study and risk assessment reports that set out sources of information considered in the assessment; the history of ordnance storage and disposal; previous ordnance disposal activities; and the types of ordnance considered most likely to still be present [APP-123 and APP-124].
- 4.3.65 The Applicant stated that the German nerve agent tabun was stored in the quarries and provided evidence that *"all German chemical weapons appear to have been successfully remove from RAF Llanberis to RAF Llandwrog before being sea dumped"* [APP-075].
- 4.3.66 Q6 was the main area used for the decommissioning of ordnance and contained a former *"bomb pile"* that was not completely cleared [APP-075]. Untreated ordnance is likely to be present under approximately 2m of slate waste on the floor of Q6; other material including explosives could be present in crevices in Q6; and ordnance could be buried in the slate waste in the area [APP-075].

- 4.3.67 No evidence was found of any prolonged military activities in Q1 and the Applicant considered Q1 not to present a significant unexploded ordnance hazard [APP-075].
- 4.3.68 The 2015 ground investigation works noted "*an absence of contaminated materials, other than possible residual contamination in and around Q6 as a result of the former ordnance and munitions storage and disposal activities*" [REP2-011, Appendix 8.5]. A mortar fin found at Q1 was attributed to an isolated incident or to subsequent importation from other parts of the site [APP-075].
- 4.3.69 The completeness of the Applicant's ordnance baseline information was questioned by a number of Interested Parties (IPs) in a hearing [EV-016 and EV-21] and in writing, including by Jeff Taylor [REP1-025, REP2-034, REP3-030, REP4-030, REP4-032, REP6-020, REP7-048, REP7-052, REP8-003, REP10-009 and REP10-010] and Ann Lawton [REP4-018 and REP6-019]. The concerns include:
- archive information that was not referenced by the Applicant;
 - references to chemical weapons on the site and related injuries to personnel;
 - the potential for tabun, mustard gas, phosgene or hexachloroethane still being on the site;
 - letters from the Ministry of Defence (MoD) referring to the disposal of containers designed to hold mustard gas and nerve agents, responding to disclosure requests from an IP and Hywel Williams MP [REP7-048, REP10-009 and REP10-10];
 - the presence of bombs and mustard gas containers larger than suggested by the Applicant;
 - a greater amount of ordnance than reported by the Applicant;
 - the potential for radioactive contamination; and
 - inconsistencies in the information provided by the Applicant.
- 4.3.70 With the exception of IP submissions at D10, the Applicant responded to these concerns [REP5-006, REP7-005, REP8-001], stating that:
- whilst more collaborative records have come to light, the records available at the time of the assessment were considered sufficient to provide a reasonable assessment;
 - MoD responses have been detailed and helpful and there is no indication that any significant records are being withheld;
 - the documentation referred to regarding chemical weapon injuries to personnel have not been seen by the Applicant, have been removed from the archives for review by the MoD, and will be considered by the Applicant when they are available;
 - it is documented that tabun bombs were temporarily stored at RAF Llanberis railways sidings during transit, but there is no evidence that they were stored in the quarries;
 - claims that phosgene bombs were dumped in the pits were considered by a board of enquiry and considered unfounded;

- there is a potential for very small amounts of mustard gas to be present, but this is common at many RAF sites and could be dealt with in a straightforward and safe fashion;
- there remains no positive, corroborative evidence to indicate that munitions containing nerve agents were disposed of at the site;
- the documentation continues to support the conclusion that the potential for chemical munitions on the site is very low;
- the assessment concentrated on live rather than inert recoveries and the presence of larger inert items than identified in the assessment is irrelevant; and that
- there is no evidence to support radioactive waste or munitions as being present and no surveys are considered necessary.

4.3.71 More information provided by the Applicant in response [REP5-005, REP7-023 and REP9-030] to my questions about the baseline information on ordnance include that:

- records for this site are unusually voluminous and comprehensive in their detail;
- hexachloroethane is a common source of contamination that requires no more consideration than is normal for this type of site; and that
- measures to monitor for mustard gas contamination, detect ordnance and locate it in quarry crevices have been added to the Outline Ordnance Management Strategy [REP9-024].

4.3.72 GC considered that the information provided by the Applicant "*is far more detailed than any investigations carried out by Gwynedd Council or its predecessor*" and "*appears to be comprehensive*" [REP2-041]. The Applicant and GC agreed that the baseline information on ground conditions was adequate for assessing the impacts [REP4-006].

4.3.73 NRW stated that there is a risk of contamination from ordnance and recognised the significant number of concerns raised regarding the previous historical uses of the site [REP2-047 and REP3-032].

4.3.74 Towards the end of the Examination and in response to my request, the Applicant provided a letter from the MoD stating that the 1975 explosive ordnance clearance certificate for the Llanberis quarry disposal certificate lists containers that were designed to hold mustard gas and a nerve agent, although it was not clear if they contained any such material [REP7-004, Appendix 8.3].

4.3.75 Measures in the Outline Ordnance Management Strategy [REP9-024] or in the Outline Land Discovery Strategy [REP10-004] include:

- a preliminary risk assessment of potential contamination;
- a detailed ordnance risk assessment;
- unexploded ordnance survey and detection; and
- a secondary site investigation.

Conclusions

- 4.3.76 A number of parties have commented on the large volume and detail of baseline information available on the potential for ordnance in the Proposed Development site. IPs have challenged whether the Applicant has obtained sufficient information and correctly interpreted that information. My view is that the Applicant has addressed the material points raised sufficiently for the purposes of the assessment.
- 4.3.77 Although there remain some differences and gaps in the baseline information, this does not surprise me given the nature of the potential issues, the timescales involved and the range of primary and secondary information sources that have been quoted. These do not give me cause for concern about the adequacy of the baseline information considered by the Applicant and I find that there is not sufficient evidence that any such differences or gaps in knowledge of the baseline conditions would be likely to materially change the results of the impact assessment or the mitigation measures.
- 4.3.78 I am satisfied that suitable mechanisms are in place to address the differences or gaps in knowledge through later liaison with the MoD and the provisions for risk assessments, surveys, investigations, and consideration by NRW and the relevant planning authority through the Outline Ordnance Management Strategy [REP9-024] and the Outline Land Discovery Strategy [REP10-004], as secured by Requirement 8 of the recommended DCO.
- 4.3.79 I therefore conclude that the baseline information for the consideration of ordnance is adequate for the purposes of the assessment and for the identification of appropriate mitigation measures in the DCO. The mitigation measures, including further investigations and a Land Discovery Strategy, are considered below under the heading of 'Contaminated land and ordnance'.

Baseline information - water quality in quarries Q1 and Q6

- 4.3.80 Under this heading I consider whether the Applicant's baseline studies are sufficient for its assessment and for the identification of appropriate mitigation in the DCO.
- 4.3.81 Quarries Q1 and Q6 contain standing water to depths of 7m in Q1 and 17m in Q6 that the Applicant proposes to pump out and discharge into Nant-y-Betws and Llyn Padarn, respectively, before the construction of the reservoirs [APP-076].
- 4.3.82 Water discharge would be controlled by the conditions of an EP [APP-076]. However, I consider that the question of the robustness of the baseline information on the quality of water in quarries Q1 and Q6 is also material to the assessment of other potential effects, including in relation to the Water Framework Directive, on recreational activities in Llyn Padarn and on private water supplies.
- 4.3.83 The Applicant carried out water quality sampling in Q6 in 2012 [APP-128] and in Q1 and Q6 in 2015 [APP-129]. Based on that sampling the

ES [APP-076] concluded that the water quality in the quarries was generally good, although both contained elevated levels of dissolved copper, dissolved iron and total phosphorous [APP-076]. Elevated copper concentrations were described as a naturally occurring feature associated with the bedrock in the area [APP-076].

4.3.84 Sampling of groundwater water in four boreholes in the vicinity of Q1 and five boreholes in the vicinity of Q6 was also carried out as part of the 2015 ground investigation, which concluded that there was no evidence for the presence of contaminated groundwater within the Proposed Development site [REP2-011, Appendix 8.5].

4.3.85 More water samples were collected from Q6 in February, March and April 2016 [REP7-014].

4.3.86 Concerns regarding the previous water quality sampling in the quarries were expressed by a number of IPs, including Oggy East [REP2-049], the Snowdonia Society [REP2-051 and REP4-040] and Jeff Taylor [REP4-031] and include that:

- it is not clear that adequate testing was carried out at depth;
- levels of copper in Q6 are 6.5 times WFD standards and levels of iron are 20 times the environmental standard;
- copper and iron levels appear to exceed the limits and maximum value appear to have been ignored;
- phosphate levels were 6.5 times the Good Ecological Status target for Llyn Padarn;
- average phosphate levels were given, not the maximum value;
- the maximum electrical conductivity was not given; and that
- given the storage and disposal of munitions-related materials it seems inconceivable that the pit residues do not contain at least some contaminated materials.

4.3.87 The Applicant responded to these concerns [REP5-005 and REP5-006], stating that:

- extensive water sampling of surface and groundwater has been undertaken in agreement with NRW in terms of frequency, testing suite, methodology and assessment;
- water samples from Q1 and Q6 were taken from just below the surface in accordance with best practice techniques;
- water quality depth profiling indicated no significant variation with depth and water samples collected when the water was well mixed were generally consistent with samples at other times;
- water quality sampling would be undertaken during dewatering when the level was a few metres above the quarry bed;
- attempts to take fine sediment samples were made at 20 locations within Q6 and multiple times in Q1, but no discernible sediment samples were possible;
- fine sediment samples would be taken during dewatering, if available;

- levels of dissolved iron do not exceed the environmental standard, which was incorrectly quoted in the ES;
- assessment criteria for iron and copper as based on annual average concentrations rather than maximum values;
- phosphate levels should be converted to phosphene levels, which were 2.2 to 1.2 times Llyn Padarn's Good Ecological Standard target and the 2016 testing indicated levels 0.5 times the target;
- there are no maximum environmental quality standards for total phosphorous; and that
- electrical conductivity was very low and very stable.

4.3.88 The inability to collect sediment samples in Q1 and Q6 was also noted in the ES [APP-076].

4.3.89 Jeff Taylor provided results of "*independent water testing of our own*" and raised particular concerns about levels indicated for Hafnium and Dysprosium, which Mr Taylor understood had applications in nuclear technology in the manufacture of fuel rods [REP7-052].

4.3.90 In response the Applicant stated that there was no indication that reasonable practice has been followed in either the sampling or the analysis referred to by Mr Jeff Taylor; that the results were not consistent with results of the Applicant's professional monitoring and testing; and that any conclusions were unlikely to be valid [REP8-001]. The Applicant also noted that Mr Jeff Taylor's data indicated levels of Uranium and Thorium at the limits of detection or below it, which supported the Applicant's view that there was no reason to believe that nuclear fuel rods had been dumped at the Proposed Development site [REP8-001].

4.3.91 Responding to my invitation to set out concerns regarding the extent of sampling and testing undertaken [PD-015, PD-025 and PD-026]:

- GC stated that it had no concerns regarding the extent of sampling and testing in quarry 6 [REP7-044]; and
- NRW said that it had concerns relating to the EP application process independent to the DCO process that it had made the Applicant aware of [REP5-049].

NRW's concerns regarding the EP application are considered below.

4.3.92 Requirements for water quality sampling and for silt sampling during dewatering are included in Requirement 9 of the recommended DCO and in the Outline Water Management Plan [REP9-026], which also clarifies that final monitoring requirements during dewatering would be determined as part of the Environmental Permitting process in consultation with NRW.

Conclusions

4.3.93 A number of parties have provided detailed comments on the water sampling and testing of the water in Q1 and Q6. The Applicant has

responded to those and provided clarifications of the standards for different contaminants that have satisfied me that the sampling and testing is likely to be adequate for the purposes of the assessment.

- 4.3.94 There is no evidence that significant contamination has been dissolved into surface water in the quarries or into the adjacent groundwater. However, I consider that the information of the presence of ordnance and historical related activities in Q6 make it likely that contamination is present in Q6, and particularly below its base where no sampling has been undertaken to date. My view is that there is a risk that this material could later contaminate waters, particularly during the dewatering of Q6 and during the subsequent clearance of its base.
- 4.3.95 I am able to give little weight to the water testing results submitted by Mr Jeff Taylor due to uncertainties about whether the methods used for the sampling and testing provided reliable results. However, even if the results were correct, I do not consider that either those results or the other submissions from IPs are sufficient evidence for it to be considered likely that nuclear fuel rods, or indeed any other radioactive waste material, may be present in Q6.
- 4.3.96 Appropriate provisions of water quality and silt sampling during the dewatering of the quarries are set out in Requirement 9 of the recommended DCO and the Outline Water Management Plan [REP9-026], as secured by Requirement 8 of the recommended DCO. Other measures for the investigation of any contamination found in the quarries are outlined above under the heading of 'Baseline information - ordnance and ground contamination'. Discharges would also be controlled by an EP. My view is that these provisions are sufficient to address any gaps in baseline information and allow the identified mitigation measures to be developed accordingly.
- 4.3.97 I therefore conclude that the baseline information for the consideration of water quality in Q1 and Q6 is adequate for the purposes of the Applicant's assessment and for the identification of mitigation measures in the DCO. The mitigation measures are considered below under the headings of 'Water quality monitoring', 'Other potential effects on Llyn Padarn', and 'Contaminated land and ordnance'.

2015 ground investigation

- 4.3.98 A preliminary ground investigation of the presence of historical contamination and geotechnical conditions was carried out in 2015; however the results were not available for the ES [APP-075].
- 4.3.99 I sought the results of the investigation to understand whether it had any implications for assessments. Responding to my request for a copy, the Applicant provided a summary report [REP2-011, Appendix 8.5] of the investigation and a summary of EIA implications [REP2-011, Appendix 2.8], which concluded that the assumptions in the ES regarding the geological and hydrogeological conditions remain valid. No representations from GC or NRW disagreed with that conclusion.

Conclusions

- 4.3.100 Based on the above, I consider that the summary of the preliminary ground investigation is useful clarification of the baseline conditions and have no reason to doubt that the relevant assumptions in the ES [APP-075 and APP-076] remain valid.

Drainage pathways - changes to the drainage of Q5

- 4.3.101 Q5 is believed to drain into Q6. When Q6 would be converted to a reservoir there would be a risk that Q5 would no longer drain and could flood [APP-076]. The Applicant proposed to investigate the connection between the quarries and identify measures to maintain the drainage of Q5 at a later stage, before construction [APP-076].
- 4.3.102 Responding to my request for clarification, the Applicant advised that survey work had confirmed that there was an existing drainage path between Q5 and Q6 [REP2-011]. To maintain the drainage of Q5 the Applicant therefore proposed to incorporate a permanent tunnel into the scheme, extending from the base of Q5 to Q6 and discharging above the maximum operating water level in Q6.
- 4.3.103 NRW considered that these measures created potential additional flows that would need to be addressed in an application for an EP providing discharge consent [REP3-032, REP5-049 and REP7-042]. Although the Applicant initially questioned the necessity for this on the basis that the drainage solution would simply be replicating the current situation [REP4-011], NRW later advised that the Applicant "*confirmed that they did not intend to pursue the requirement of a drain from Q5 at this current point in time*" [REP7-042].
- 4.3.104 The Applicant clarified that it was not applying for an EP at this time, but would reconsider once further investigations had been undertaken to establish the requirement for a drain [REP3-030].

Conclusions

- 4.3.105 I accept the Applicant's view that further investigation and progress in the detailed design is appropriate before the requirements for any mitigation measures to maintain drainage from Q5 can be finalised.
- 4.3.106 I find that necessary mitigation measures would be identified and implementation measures secured during detailed design, which Requirement 5 of the recommended DCO secures is subject to approval by GC in consultation with NRW. NRW haven't suggested that an EP wouldn't be likely to be consented and neither do I.

Drainage pathways - potential for changes due to blasting

- 4.3.107 Blasting of the rock underlying the Proposed Development may be carried out during the stabilisation of the sides of Q1 and Q6, for the tunnelling of the penstock and tailrace, and for the construction of the underground turbine hall and access shaft [APP-071].

- 4.3.108 Although the ES noted that comments had been made by stakeholders regarding the potential for modifications to groundwater flow from blasting activities, these did not appear to be addressed in the assessment [APP-076]. I sought reassurance regarding the potential for additional drainage pathways to be created by fracturing caused by blasting and for this to then mobilise existing contamination [PD-009].
- 4.3.109 The Applicant clarified [REP2-011] that any additional fracturing from blasting would be limited to the immediate area, would not extend into the bedrock and would have no significant impact on existing drainage pathways or on the movement of soluble contaminants.

Conclusions

- 4.3.110 I find no reason to disagree with the Applicant's explanation and consider it unlikely that there would be any significant change in drainage pathways or the mobilisation of contamination due to blasting. On that basis I am satisfied that drainage pathways have been identified sufficiently for the purposes of the assessment.

Water quality monitoring

- 4.3.111 A catchment water quality monitoring programme has been proposed for the construction phase, and would address private water supplies and the preparation of an action plan to address any adverse or unusual results, for approval by NRW [APP-076].
- 4.3.112 Concerns regarding water quality monitoring during the initial dewatering of the quarries, and particularly Q6, were expressed by a number of IPs, including Lledr Hall Outdoor Centre [RR-001], Ann Lawton [RR-020]; Dr Rebecca Williams [RR-040], Oggy East [REP2-049], Jeff Taylor [REP4-031 and REP7-052] and Dr Dawn Wimpory [REP2-027] and include:
- the Proposed Development has the potential to affect the quality of water in Llyn Padarn, which is extremely important;
 - the proposals to monitor and control the discharge of large volumes of water from the quarries, which could carry harmful chemicals, are inadequate;
 - the methodology of the monitoring, what would be tested and at which point action would be required, are not clear;
 - whether there would be sampling of all water from the base of the quarries before discharge;
 - the monitoring should be upstream of the discharge location in order to prevent discharge of unsuitable material;
 - discharges should be held in lagoons or holding tanks pending full analysis prior to discharge; and
 - subtle and potentially damaging contamination, including radioactivity, could easily go unnoticed.
- 4.3.113 The Applicant responded to these concerns [REP2-012; REP5-005 and REP5-006], stating that:

- discharge of water from the quarries would be controlled by the strict conditions of EPs for discharge drainage consents, which would be likely to include monitoring and on-going sampling;
 - the results of water sampling show no evidence of contamination;
 - high explosives are insoluble and relatively immobile in water;
 - water quality samples of bottom waters would be laboratory tested together with observational and in-situ monitoring;
 - the dewatering of Q6 would be paused at an intermediate stage for more sampling and analysis to be undertaken; and that
 - details of the proposed water quality monitoring have been included in the Outline Water Management Plan [REP9-014].
- 4.3.114 Responding to my requests [PD-009 and PD-025] to clarify details of water quality monitoring, the action plan, monitoring of the Nant-y-Betws, the water sampling plan and the sediment testing suite, the Applicant stated [REP2-011 and REP7-004] that:
- details were added to the Outline Water Management Plan [REP9-026] and Outline Silt Management Plan [REP9-022];
 - the draft DCO was updated in discussion with NRW to include water quality monitoring and an action plan; and that
 - the water sampling protocol and proposed suite of analysis for sediment samples agreed with NRW had been added to the Outline Water Management Plan [REP9-026].
- 4.3.115 The Snowdonia Society [REP2-051] considered that the level of detail provided in the ES [APP-076] for the discharging of sediments and possible contaminants to the Nant-y-Betws to be inadequate and suggested that this should include the monitoring methodology; identification what would be tested for; an indication of the acceptable limits; and a between monitoring and operational management.
- 4.3.116 The Applicant (REP7-004) clarified that the Outline Water Management Plan [REP9-026] included a defined period of monitoring for post completion of construction to consider any potential on-going impacts from construction and that operational phase monitoring would be agreed with NRW and addressed in the relevant EP.
- 4.3.117 Replying to my questions about the health implication of discharges to Llyn Padarn [EV-016, EV-21, PD-015 and PD-026] the Applicant [REP4-014, REP5-005 and REP7-004] said that there was no evidence of significant contamination of water in the quarries; that discharges would be controlled by the EP; and that the Outline Water Management Plan [REP9-026] set out tests to be agreed with GC once the Ordnance Management Strategy had been developed.
- 4.3.118 The Applicant stated that Requirement 10 (Operational Water Quality Monitoring) was necessary as monitoring during operation was for differing purposes and different specifications to monitoring during construction [REP7-007 and REP9-029]. NRW's view [REP8-002 and REP10-011] was that Requirement 9(5)(iii) should be amended (from 6 months) to 12 months post-construction monitoring for private

water supplies in line with the Outline Water Management Plan [REP9-026] and that Requirement 10 should be removed to avoid potential conflict in enforcement responsibilities.

Conclusions

- 4.3.119 I accept NRW's advice [REP7-042] that 12 months of post completion water monitoring would be necessary to eliminate any doubts concerning seasonality and so this has been included in Requirement 9 (5)(iii) of the recommended DCO, thereby replacing the 6 month period previously suggested by the Applicant [REP9-035].
- 4.3.120 NRW have requested that Requirement 10 should be removed to avoid potential conflict with the Environmental Permitting regime during operation. I note that NRW have accepted some overlap between the DCO and Environmental Permitting regimes with respect to water quality monitoring during construction. I find no evidence that Requirement 10 would prevent NRW from including any monitoring conditions it considers necessary in an EP and have not been provided with sufficient evidence to conclude that having water quality monitoring during operation that is separately specified by both the DCO and Environmental Permitting regimes would be unmanageable.
- 4.3.121 I also accept that post-construction and operational monitoring can be considered separately and consider that water quality monitoring during operation is necessary to secure mitigation measures identified during the Examination, including in relation to health. I have therefore included the Applicant's suggested Requirement 10 for Operational Water Quality Monitoring in the recommended DCO.
- 4.3.122 I have amended the monitoring period for private water supplies from 6 months to 12 months in the recommended DCO to address potential seasonality issues as I have no evidence that these would differ from those mentioned by NRW for construction monitoring [REP5-013].
- 4.3.123 NRW commented that the monitoring of the dewatering activities and discharge from the spillway and scour valves would be defined within relevant EP discharge consents [REP2-047].
- 4.3.124 Regarding proposals to test water from the Q6 during dewatering before discharge, I share concerns that although previous samples have indicated no contamination in the water there are risks of contamination from ordnance resulting from disturbance during dewatering and the subsequent clearing of Q6. The Applicant's proposals for on-going testing during dewatering and monitoring are welcomed. NRW and GC have accepted the Outline Water Management Plan [REP9-026] and there is scope for this to be refined in agreement with NRW and GC as more information comes available. I am satisfied that this provides appropriate mitigation.
- 4.3.125 Although the Applicant, in its reply to the Snowdonia Society, erroneously referred to the Outline Water Management Plan [REP9-

026] as mitigation for potential operational impacts, I am satisfied that these would be capable of being addressed by the appropriate EP.

- 4.3.126 Monitoring is secured by Requirements 9 and 10 of the recommended DCO; and by the Outline Water Management Plan [REP9-026] and Outline Silt Management Plan [REP9-022], both as secured by Requirement 8 of the recommended DCO.
- 4.3.127 Based on the above, I find that the combination of the conditions that are capable of being imposed on the EPs and the monitoring measures secured by the recommended DCO would appropriately address water quality monitoring during construction and operation, including in relation to health impacts. I am satisfied that the secured monitoring measures are sufficient for the purposes of GUDP Policy B33.

Construction run-off

- 4.3.128 Surface water run-off during construction, including of dams, spoil heaps, stockpiles, access routes and construction compounds, could mobilise fine sediment, existing land contamination or chemicals and materials used during construction, and lead to the pollution of surface water bodies [APP-076]. In particular, slate would need to be carefully controlled as it has the potential to create fine sediment when worked or transported, is high in aluminium, and would be used extensively in the works and in the vicinity of surface water bodies [APP-076].
- 4.3.129 Measures identified in the ES to manage surface water and mitigate pollution include ensuring separation distances from slate mounds to water courses; minimising the disturbance of land; controlling the movement of construction vehicles; providing a temporary drainage infrastructure to intercept and filter run-off; and properly storing construction materials, chemicals and waste [APP-076].
- 4.3.130 In parallel with discussions on related consents between the Applicant and NRW, I sought clarification of the potential impacts arising from the proposed use of bentonite, clarifications of the proposed mitigation measures and how these were secured, and NRW's comments on the Applicant's proposals [EV-016, EV-021, PD-009 and PD-015].
- 4.3.131 Responding to those queries the Applicant [REP2-011 and REP7-016]:
- stated that managing fine sediment in run-off needed to be an on-going process that adapted to actual construction activities;
 - clarified that relatively low and diminishing quantities of fine sediment would be washed out of the slate;
 - described potential provisions for settlement tanks and lagoons;
 - clarified the use of bunded tanks to store drilling fluid;
 - provided examples of fine sediment treatment measures; and
 - provided either new or updated copies of the Outline Water Management Plan [REP9-026], Outline Silt Management Plan [REP9-022], Pollution Prevention Plan in the Outline CoCP [REP9-

028] to clarify the potential impacts, proposed mitigation measures and monitoring arrangements.

- 4.3.132 NRW said that the risk of fine particulates leaching from the development would be minimised by the mitigation measures within the Silt Management Plan [REP4-036 and REP5-049].

Conclusions

- 4.3.133 I am satisfied that the Applicant's clarifications have addressed my concerns. Mitigation is secured in Requirement 9 of the recommended DCO and in the Outline Water Management Plan, the Outline Silt Management Plan [REP9-022] and the Pollution Prevention Plan in the Outline CoCP [REP9-028], all as secured by Requirement 8 of the recommended DCO.
- 4.3.134 Based on the above, and noting the earlier consideration of water quality monitoring, I am satisfied with the Applicant's assessment of potential impact and consider that the mitigation secured by the recommended DCO and the conditions that are capable of being imposed on the EPs, means that it is unlikely that there would be any significant effects on water quality due to construction run-off. In that respect I consider that the relevant policies of NPS EN-1 paragraph 5.15.7, Chapter 13 of PPW8 and GUDP Policy C29 have been addressed satisfactorily.
- 4.3.135 Land contamination and ordnance impacts and mitigation measures are considered below.

Nant-y-Betws crossings

- 4.3.136 The Nant-y-Betws is a small upland water course that runs through the Proposed Development site in the vicinity of Q1 and would be crossed for access during construction and by a diverted public right of way [APP-076]. These works were said by the Applicant to represent the greatest risk to the water course [REP4-014].
- 4.3.137 The Applicant stated that the crossing proposals would be finalised during the detailed design stage as part of the consent from the Lead Local Flood Authority; that culverting was considered to be the worst case hydro-morphological scenario; and that the potential residual effects were of moderate adverse significance [APP-076].
- 4.3.138 During the Examination the Applicant provided a detailed description of culverting and of other potential construction options for the crossings, and clarified that they would require land drainage consent from GC as the Lead Local Flood Authority [REP7-004].
- 4.3.139 NRW considered [REP2-047] that the Silt Management Plan and the Pollution Prevention Plan would include suitable mitigation for the potential impacts. GC did not have any more comments [REP7-044].

Conclusions

4.3.140 I note the considerations of water quality monitoring and construction run-off above, the Applicant's clarifications, comments from NRW and GC and that relevant mitigation measures have now been included in the Outline Silt Management Plan [REP9-022] and the Pollution Prevention Plan in the Outline CoCP [REP9-028]. On that basis I am satisfied that the Nant-y-Betws crossings would be unlikely to lead to any significant effects on water quality. In that respect I find that NPS EN-1 paragraph 5.15.7, Chapter 13 of PPW8 and GUDP Policy C29 have been addressed satisfactorily.

Other potential effects on Llyn Padarn

4.3.141 Water discharged to Llyn Padarn during the emptying of Q6, during the construction of the outfall and during the management of excess water and potential dewatering of the reservoirs during operation, has the potential to cause temperature change, pollution, nutrient change and sediment disturbance [APP-076].

4.3.142 The ES sets out mitigation measures, including the use of a silt curtain during the construction of the outfall, the fitting of a diffuser head to the outfall and the conditions of the necessary EPs for water discharge and abstraction [APP-076 and APP-126]. The Outline Excess Water Management Strategy sets out the principles by which water discharges would be managed during operation [REP9-020].

4.3.143 In response to concerns raised in a number of RRs [including RR-009 and RR-040] and my requests to clarify the potential impacts and the proposed mitigation measures, the Applicant stated [REP2-011] that:

- the levels of nutrients in Q2 and Q6 were low, with the exception of total phosphorous;
- Q6 already drains to Llyn Padarn via existing watercourses;
- initial dewatering of the quarries would be rapidly diluted and dispersed into the lake and no adverse effects were predicted;
- during operation the water quality in the pumped storage system would be similar to that in the lake, having been sourced from it;
- water temperature in the pumped storage system would not differ significantly from that in the lake;
- any discharges are expected to be low and discharges during construction would comply with the conditions of an EP;
- the use of a silt curtain during the construction of the outfall would ensure that any sediment disturbance would be restricted to the area of the works; and that
- mitigation measures during construction had been added to the Outline CoCP [REP9-028], the Outline Water Management Plan [REP9-026] and the Outline Silt Management Plan [REP9-022].

4.3.144 Neither NRW nor GC raised any particular concerns regarding the Applicant's clarifications and are satisfied with the Outline Excess Water Management Strategy [REP9-020], the Outline CoCP [REP9-028], the Outline Water Management Plan [REP9-026] and the Outline Silt Management Plan [REP9-022].

Conclusions

- 4.3.145 I have considered the ES, the responses provided by the Applicant and other parties, and the earlier conclusions in this section regarding the baseline information on the quality of water in Q6, water quality monitoring and construction run-off. Based on that evidence I conclude that the potential effects on water quality in Llyn Padarn have been adequately addressed in the ES and for the purposes of paragraph 5.15.3 of NPS EN-1 and paragraph 13.12.1 of PPW8.
- 4.3.146 I find that appropriate mitigation measures have been secured in Requirements 9 and 10 of the recommended DCO and in the Outline Excess Water Management Strategy [REP9-020], the Outline CoCP [REP9-028], the Outline Water Management Plan [REP9-026] and the Outline Silt Management Plan [REP9-022], all as secured by Requirement 8 of the recommended DCO, such that the water quality impacts on Llyn Padarn are unlikely to be significant. Further protection would also be provided by the conditions of EPs. I therefore consider that NPS EN-1 paragraph 5.15.7, Chapter 13 of PPW8 and GUDP Policy C29 have been addressed satisfactorily in respect to potential effects on water quality in Llyn Padarn.
- 4.3.147 Land contamination and ordnance impacts and mitigation measures are considered below.

Private water supplies

- 4.3.148 Up to thirty private groundwater and surface water supplies identified in the area are predominately located downstream of the upper (Q1) portion of the Proposed Development, including some that abstract from the Nant-y-Betws, and could potentially be affected by changes in water quality [APP-076, APP-127 and APP-130]. The Applicant contacted the majority of properties where a private water supply was anticipated and received replies from all but nine [APP-076].
- 4.3.149 [REDACTED] Cottage, which is below Q6, is identified but its location and nature of the source is indicated as not known [APP-076, Table 9-2].
- 4.3.150 The ES states that the mitigation measures for surface water run-off during construction would ensure no effects on private water supplies [APP-076]. Risks that discharges into Nant-y-Betws could increase sediment loading and deteriorate abstracted water during operation would be addressed during detailed design [APP-076].
- 4.3.151 Public Health Wales confirmed that effects on drinking water supplies should be considered [RR-033].
- 4.3.152 I questioned the Applicant on the likelihood that all potentially affected properties had been identified; on the measures taken to contact potentially affected properties; on how the quality and quantity of supplies would be maintained; and on monitoring [PD-009, PD-015,

PD-025 and PD-026]. The Applicant [REP2-011, REP5-005, REP7-004 and REP9-030] clarified that:

- although all the supplies may not have been identified it was unlikely that any unidentified private water supplies were at risk;
- there were there was no reason to suspect that flows would be reduced as there were no proposals to change catchment areas;
- compliance with the conditions of an EP would protect against adverse effects during abstraction from the Nant-y-Betws;
- measures to avoid erosion of the Nant-y-Betws during operation would involve the use of an energy dissipator prior to discharge;
- details of private water supplies were only required to define monitoring locations and were therefore better contacted later;
- potentially affected properties that had not replied would be visited post consent and the Outline Water Management Plan [REP9-026] updated accordingly;
- the catchment of any private water source at [REDACTED] Cottage was likely to include the area around Q6; and that
- in accordance with the Outline Water Management Plan [REP9-026], [REDACTED] Cottage would be visited to establish whether it had a private water supply and the need for a risk assessment and monitoring would then be confirmed.

- 4.3.153 In response to concerns raised by Mr and Mrs Neville Gray-Parry regarding potential impacts to private water supply at Bryn Bras Castle [REP1-027], the Applicant explained that there were no hydrological or hydrogeological connections between the Proposed Development and the water supply to Bryn Bras Castle and therefore those private water supplies would not be affected [REP2-011].
- 4.3.154 Although Mr Neville Gray-Parry stated at the ISH that he had not seen the response, I asked to Applicant to run through this with Mr Neville Gray-Parry after the hearing [EV-018, EV-019 and EV-020]. The Applicant then provided Mr Neville Gray-Parry with a hard copy of their response [REP4-014], since when no more submissions have been received from Mr Neville Gray-Parry.
- 4.3.155 GC raised concerns regarding measures for the sampling and testing of private water supplies and queried whether affected parties would have sufficient water during an incident [REP4-026]. The Applicant updated the Outline Water Management Plan to add the provisions regarding sampling and testing and to clarify arrangements for access to alternative potable drinking supplies. GC confirmed that it was satisfied with the updates [REP7-044].
- 4.3.156 In a SoCG between the Applicant and GC it was agreed that an adequate assessment of silting and contamination had been undertaken for private water supplies [REP4-006].
- 4.3.157 NRW considered that, give the distances involved, the risks to groundwater fed private water supplies (springs and boreholes) was likely to be negligible [REP2-047].

Conclusions

- 4.3.158 I consider that the Applicant has made reasonable attempts to contact any parties that have water supplies that could potentially be affected and that suitable provisions have been secured in the Outline Water Management Plan [REP9-026] to contact other parties and to then establish detailed sampling and testing arrangements through the Water Management Plan that would be approved by GC.
- 4.3.159 Noting the comments from GC and NRW and the considerations of water quality monitoring and construction run-off above, I am satisfied with the mitigation measures, including monitoring, sampling and testing, secured by Requirements 9 and 10 of the recommended DCO and in the Outline CoCP [REP9-028] and Outline Water Management Plan [REP9-026], as secured by Requirement 8 of the recommended DCO. On that basis I find that there would be unlikely to be significant effects on private water supplies and I consider that appropriate measures would be in place for the purposes of GUDP Policy C29.

Cumulative effects on water quality

- 4.3.160 Potential cumulative impacts of the Proposed Development together with the existing Dinorwig pumped storage scheme were considered on water quality in Llyn Padarn and Afon Seiont [APP-084].
- 4.3.161 I was concerned about cumulative effects with construction of the grid connection, including where it crosses the Afon Rhythallt. Responding to my question [PD-009], the Applicant clarified that no significant adverse effects would be expected as the grid connection would cross the Afon Rhythallt through existing ducting within the A4244 bridge and no works were anticipated within the watercourse [REP2-011].
- 4.3.162 However, responding to my request [PD-015] to provide an update on the proposed route of the grid connection, the Applicant later reported that the existing ducting within the bridge may be at capacity; that it was considering options of passing within the thickness of road over the bridge or directional drilling deep under the riverbed; and that the cumulative assessment remained valid [REP5-005].

Conclusions

- 4.3.163 Based on the above I have no reason not to accept the Applicant's assessment that the potential cumulative effects on water quality in Llyn Padarn and Afon Seiont would not be significant and am content that cumulative effects have been considered sufficiently for the purposes of paragraph 4.2.5 of NPS EN-1.

Environmental Permits

- 4.3.164 EPs are required from NRW for discharges from the dewatering of quarries Q1 and Q6, abstraction of from Llyn Padarn for the initial filling of the reservoirs and for discharges during operation [APP-055].

- 4.3.165 The Applicant and NRW agreed that the conditions of EPs would be adequate to mitigate any adverse effects [REP3-010].
- 4.3.166 An abstraction licence for up to 2000m³ per day was consented by NRW on 20th July 2015 (reference WA/065/0016/007) [REP3-010] and a variation for an increase to 3,300m³ per day was consented on 3rd June 2016 (reference WA/065/0016/007/V001).
- 4.3.167 Applications for the discharge permits were made by the Applicant to NRW during the Examination and were expected to be determined by 18 June 2016 [REP1-015]. Subsequently the Applicant reported that:
- NRW had requested more information, which would be provided by 27 April 2016, that this was likely to delay matters, but that determination was likely before close of Examination [REP2-024];
 - the information was issued to NRW on 13 May 2016 and a revised determination date was awaited from NRW [REP4-010];
 - NRW advised that there was a lack of technical information required that the Applicant confirmed could only be provided from a Principal Contractor and that there was a lack of clarity on the status of the Operator [REP5-007]; and that therefore
 - the Applicant had decided to withdraw the discharge consent applications [REP5-007].
- 4.3.168 I then issued a rule 17 request for information to the Applicant and to NRW in order to clarify the reasons for the withdrawal of the discharge consent applications; the implications for the draft DCO; the implications for the timing of future discharge consent applications; and whether NRW had any reason to believe that the discharge consents would not be granted [PD-020].
- 4.3.169 In response to my request, the Applicant [REP6-001]:
- provided detail on the sequence of events leading to withdrawal of the applications;
 - clarified that the original discharge consent applications were made on 4 February 2016 and that NRW requested more information on 5 April 2016;
 - understood that NRW was unable to determine the discharge consents for the quarry dewatering as the Water Management Plan, Biosecurity Plan, Silt Management Plan and Excess Water Management Plan would not be finalised until the Principal Contractor was appointed;
 - considered that NRW's comments on the Outline Excess Water Management Strategy [REP9-020] did not require fundamental changes to the outline strategy or its agreed principles;
 - considered that sufficient detail had been provided in support of the discharge consent applications;
 - expressed a high degree of confidence that the EP conditions would be consistent with the DCO; and said that
 - it would continue dialogue with NRW and endeavour to resubmit the discharge consent applications again during the Examination.

4.3.170 In response to my request, NRW [REP6-017] stated that:

- they had been in regular contact with the Applicant regarding the inadequacies of the applications;
- more technical information was required to assess the impact of the discharges on the surrounding environment;
- the deadline for receipt of the information was extended a number of times at the request of the Applicant;
- clarity of the appointment of an operator was required in accordance with the Environmental Permitting Regulations 2010 and had been raised with the Applicant numerous times;
- the Applicant had not acted on NRW's pre-submission advice; and that
- in the absence of a valid application it could not comment on any implications for the draft DCO, on any implications for the timing of future applications, or on whether there was any reason to believe that the discharge consents would not be granted.

4.3.171 The Applicant later advised that since the withdrawal of the discharge consent applications there had been discussions with NRW regarding the applications, the Water Management Plan and the Silt Management Plan, and that the EP would be resubmitted during September 2016 [REP7-003 and REP9-030].

4.3.172 I made further requests of the NRW to clarify whether it had any reason to believe that the discharge consents would not be granted [PD-025 and PD-026]. NRW maintained its position that it could not comment in the absence of a valid application [REP7-042, REP9-043].

Conclusions

4.3.173 Dialogue between the Applicant and NRW regarding applications for EPs are well documented and demonstrate that the Applicant has made reasonable attempts to secure the EPs during the Examination.

4.3.174 Although NRW have not been willing to commit to stating whether or not the EPs would be granted, I note that NRW and GC have stated that they are satisfied with the ES and have not raised any particular concerns that the EPs would not be granted. On that basis, I have not been given any reason to believe that the EPs would not be granted.

Contaminated land and ordnance mitigation

4.3.175 The baseline assessment information [APP-075] and the Ground Investigation summary report [REP2-011, Appendix 8.5] explain that the site specific investigations, which were limited, generally demonstrate an absence of contaminated material within the site, other than possible contamination in and around Q6 as a result of the former ordnance and munitions storage and disposal activities. Landfill sites at 300m and 500m from the Proposed Development site were not considered to present a risk of significant effects [APP-075]. The

baseline information on ordnance and related water contamination is considered earlier in this section.

- 4.3.176 The Applicant submitted an Outline Land Discovery Strategy [REP10-004], which had been updated in response to comments from NRW [REP6-017 and REP8-002] and myself [PD-025], including:
- to clarify its intent and its relationship with the Outline Ordnance Management Strategy [REP9-024];
 - to cover the matters previously included directly in earlier versions of the draft DCO [REP4-009, Requirement 16];
 - to clarify the need for a secondary site investigation; and
 - to include the conditions from the approval of the 2012 T&CPA planning application regarding the contamination, remediation strategy and verification report [APP-086].
- 4.3.177 The Applicant and GC agreed that the baseline information on ground conditions was adequate for assessing the impacts, and that a Land Discovery Strategy was appropriate for addressing land potentially affected by contamination [REP4-006].
- 4.3.178 NRW said that there is a risk of contamination from ordnance and that prior to the construction of the development an intrusive site investigation should be carried out and the risks of contamination assessed [REP2-047].
- 4.3.179 NRW considered that a radiological survey should be considered to pick up radium present in the paint in the dials of aeroplane cockpits [REP2-047]. NRW later clarified that, as there is low/no expectation of radiological contamination being present on the site [REP5-049], any requirements for radiological surveys could be addressed by the Ordnance Management Strategy.
- 4.3.180 Later site investigation of land contamination is secured in the Outline Land Discovery Strategy [REP10-004] and ordnance mapping is secured in the Outline Ordnance Management Strategy [REP9-024].
- 4.3.181 NRW [REP6-017 and REP8-002] considered that the previous Requirement within the draft DCO [REP4-009, Requirement 16] should be reinstated as it stipulated what would be required within the Land Discovery Strategy and saw no benefit of its removal.
- 4.3.182 The Applicant said that the Outline Land Discovery Strategy [REP10-004] included the information; that the provisions of the Outline Land Discovery were adequately secured; and that duplication with the DCO would be unnecessary and risk creating inconsistencies [REP7-005]. NRW again requested the Requirement to be reinstated [REP10-011].
- 4.3.183 Concerns regarding the management of ordnance in the quarries, in addition to those addressed earlier in this section regarding the baseline assessment and dewatering, were expressed by a number of

IPs, including Tammy Lewis-Jones [RR-015], Stephanie Duits [RR-028] and Jeff Taylor [REP7-048] and include that:

- there was a level of uncertainty with regards to risk to public health and the environment;
- the previous disposal process was incomplete and live ordnance items remained, constituting a significant hazard; and that
- given the evidence that toxic residues remain present and that disturbing them may prove catastrophic, any development on the site must proceed with considerably more caution than foreseen.

4.3.184 The Applicant responded to this concern [REP2-012 and REP8-001], stating that the Ordnance Management Strategy, to be agreed with GC prior to construction commencing, would detail the methods for identifying, managing and disposing of any ordnance found within the Proposed Development site and that a specialist contractor would be used for those works. I observe that these commitments are set out in the Outline Ordnance Management Strategy [REP9-024].

4.3.185 NRW [REP3-032 and REP4-036] noted concerns had been raised by IPs regarding the previous historical uses of the site but were satisfied that these would be fully addressed by the recommended DCO and by measures set out in the Outline Land Discovery Strategy [REP10-004].

4.3.186 I raised [PD-015, PD-025 and PD-026] concerns regarding consultation with the HSE; communications with stakeholders during the works; programming of ordnance related works; timing of controlled explosions; the level of detail provided in the Outline Ordnance Management Strategy; and the potential for ordnance management to delay the overall construction programme.

4.3.187 The Applicant responded [REP5-005, REP7-004 and REP9-030] that:

- HSE would be informed under the Construction Design Management Regulations and as required for the storage and use of any explosives used for ordnance disposal;
- the Outline Ordnance Management Strategy required consultation with HSE before explosive ordnance clearance [REP9-024];
- ordnance management would be fully compliant with all current industry guidance and UK health and safety regulation;
- there were no formal or statutory requirements to inform other parties of ordnance disposal activities;
- the Environmental Liaison Officer would update stakeholders, as required by the Outline CoCP [REP9-028];
- liaison with the MoD and police was added to the Ordnance Management Strategy [REP9-024];
- the Outline Ordnance Management Strategy was updated to require that explosive ordnance disposal operations would be carried out during normal working hours, unless considered necessary in the interests of health and safety [REP9-024];

- the Outline Ordnance Management Strategy was updated to set out more detail on the information to be provided in later versions of the Strategy [REP9-024]; and that
- ordnance management was not anticipated to result in delays to the overall construction programme.

Conclusions

- 4.3.188 I am satisfied with the Applicant's responses to the concerns raised by IPs and to my questions. I find that insufficient evidence has been provided for me to doubt that the Applicant has adequately considered the ordnance and associated contamination that may be present and that appropriate measures are in place for dealing with those matters, including with respect to public health, safety and the environment.
- 4.3.189 I note that GC and NRW are satisfied with the conclusions of the ES and note the mitigation measures secured by the recommended DCO, including in the Outline Ordnance Management Strategy [REP9-024], and Outline Land Discovery Strategy [REP10-004], as secured by Requirement 8 of the recommended DCO. I therefore consider it likely that with these measures there would be no significant adverse effects from contaminated land or ordnance.
- 4.3.190 I therefore consider that land contamination has been adequately addressed in the ES and that suitable mitigation has been secured in the recommended DCO for the purposes of paragraph 5.10.8 of NPS EN-1, section 13.7 of PPW8 and GUDP Policies B33 and C30.

Waste management, slate waste and re-use of materials

- 4.3.191 The Proposed Development site contains numerous slate spoil heaps attributed to the historical tipping of reject slate [APP-075], some of which would be remodelled [APP-071]. The proposals would require the excavation of slate material during the formation of the reservoirs, the tunnelling of the penstock and tailrace and the construction of the underground turbine hall and access shaft [APP-071]. The slate waste would then be used the construction of the dams, new spoil heaps, in access routes and in areas of hard standing [APP-071].
- 4.3.192 A Waste Management Plan and a Materials Management Plan would be produced to set out the measures to be taken to protect the environment from waste generated during construction, while slate waste would be reused on site where possible and materials disposed of off-site would be to licenced waste disposal facilities [APP-083].
- 4.3.193 In the SoCG between the Applicant and GC it was agreed that the ES adequately assessed waste arising and that a Waste Management Plan would need to be approved prior to commencement [REP4-006].
- 4.3.194 The sources, nature, quantity and end locations of slate materials were clarified by the Applicant and said to represent the vast majority of waste volumes [REP2-011 and REP5-005]. The Applicant committed

to transport excess material from Q6 to Q1 via a conveyor in the underground penstock, as set out in the Outline CoCP [REP9-028].

- 4.3.195 The Waste Management Plan section of the Outline CoCP [REP9-028] outlines how waste would be identified, minimised and recycled while the Outline Materials Management Plan [REP9-007] sets out measures to record and audit any movement of materials within the Proposed Development site.
- 4.3.196 The Outline CoCP was updated during the Examination to restrict materials that could be used in the spoil heaps [REP9-028].
- 4.3.197 Responding to my request [PD-025], the Applicant [REP7-004] clarified the scope of testing of reused excavation materials, secured those in the Outline Land Discovery Strategy [REP10-004] and clarified that the testing methodology and assessment criteria would be agreed with NRW in advance of the investigation.

Conclusions

- 4.3.198 Observing that GC are content that the ES adequately assess waste from the development, I am satisfied that the Outline CoCP [REP9-028] and Outline Materials Management Plan [REP9-007] have been updated to address comments from GC and myself regarding the management of waste during construction. On that basis, I am satisfied that there are unlikely to be any significant adverse effects associated with Waste Management.
- 4.3.199 I am satisfied that the Applicant has considered the waste that would be generated during construction and consider that with the secured mitigation measures a Site Waste Management Plan would be produced sufficient for the purposes of NPS EN-1 paragraph 5.14.6. The proposed reuse of site won materials supports paragraphs 12.5.1 and 12.7.3 of PPW8. I am content that Requirement 5 of the recommended DCO would be likely to ensure that on-site facilities would be provided in line with GUDP Policy C23.

Conclusions on policy and factual issues

- 4.3.200 I have had particular regard to the policies set out in NPS EN-1 and PPW and to the guidance provided by TAN 21 in my consideration of the water quality, water resources, contaminated land and waste management aspects of the Proposed Development.
- 4.3.201 Following from the above, I am satisfied that the ES has described the physical characteristics of the water environment, including the dynamics of flow and the existing quality of waters and existing water sources that could be affected by the Proposed Development and that the potential impacts have been appropriately assessed.
- 4.3.202 The delivery of necessary mitigation would take place under the recommended DCO provisions to the satisfaction of NRW and the

drainage authority. I also consider that appropriate requirements necessary to secure the mitigation of adverse effects on the water environment are included within the recommended DCO, particularly Requirements 8, 9, 10 and 11. I note that EPs under the Environmental Permitting Regulations would be required from NRW.

- 4.3.203 I have not been given any reason to believe that outstanding EPs would not be granted and, noting paragraph 4.10.8 of NPS EN-1, my view is that consent should not be refused on this basis. NRW said that there would be discussion on the management and mitigation plans through the Environmental Permitting regime. EPs should be determined before the SoS decides on the Proposed Development.
- 4.3.204 I find that appropriate mitigation measures have been secured in the recommended DCO and the measures that secures in the Outline Excess Water Management Strategy [REP9-020], the Outline CoCP [REP9-028], the Outline Water Management Plan [REP9-026] and the Outline Silt Management Plan [REP9-022]. I am therefore satisfied that water quality impacts on Llyn Padarn, the Nant-y-Betws and other water bodies are unlikely to be significant, that NPS EN-1 paragraph 5.15.7, Chapter 13 of PPW8 and GUDP Policy C29 have been addressed satisfactorily in respect to the assessment of potential effects on water quality and that monitoring is secured sufficiently for GUDP Policy B33.
- 4.3.205 I am satisfied that with the mitigation measures, including monitoring, sampling and testing, secured by the Requirement 8 of the recommended DCO in the Outline CoCP [REP9-028] and Outline Water Management Plan [REP9-026], that there would be unlikely to be significant effects on private water supplies and that appropriate measures would be in place for the purposes of GUDP Policy C29.
- 4.3.206 The risks of land contamination have, in my view, been adequately addressed in the ES and for the purposes of paragraph 5.10.8 of NPS EN-1, section 13.7 of PPW8 and GUDP Policies B33 and C30.
- 4.3.207 I am satisfied that the Outline CoCP [REP9-028] secures waste management measures during construction measures sufficient for the purposes of NPS EN-1 paragraph 5.14.6. I am content that Requirement 5 of the recommended DCO would be likely to ensure that on-site facilities for recycling and composting would be provided in line with GUDP Policy C23.
- 4.3.208 My view is that cumulative effects have been considered sufficiently for the purposes of paragraph 4.2.5 of NPS EN-1.
- 4.3.209 A large quantity of information was submitted by IPs in respect to potential ordnance on the site, and particularly in Q6. Some IPs sought to demonstrate that materials such as chemical, biological or radiological weapons might be present and that the scale and range of the potential contamination was beyond the scope considered by the

Applicant and beyond the capability of the secured mitigation measures to deal with. The Applicant responded to those concerns.

- 4.3.210 It is clear to me that ordnance is likely to be present and that the precise details of it are not fully known. I find no evidence of contamination associated with biological or radiological weapons and note that specific measures have been added in the Outline Ordnance Management Strategy [REP9-024] to address "*the unlikely scenario in which Mustard Gas or other suspected chemical-filled munitions are found*". I therefore find that there is insufficient information for me to conclude that the Applicant's baseline studies, assessment or mitigation measures are inadequate.
- 4.3.211 GC and NRW are satisfied with the ES and I note the mitigation measures secured by the recommended DCO, including in the Outline Ordnance Management Strategy [REP9-024], and Outline Land Discovery Strategy [REP10-004]. I consider it likely that, with those measures, the concerns expressed by IPs would be likely to be addressed and that there would therefore be unlikely to be significant adverse effects arising from ordnance, including in respect to public health, safety, or the environment.
- 4.3.212 The Outline CoCP, Outline Water Management Plan, Outline Excess Water Management Strategy, Outline Silt Management Plan, Outline Land Discovery Strategy, Outline Ordnance Management Plan and Outline Materials Management Plan would appropriately address potential effects on the water environment and in respect of contaminated land and waste during construction and operation.
- 4.3.213 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for water quality, water resources, contaminated land and waste management, in addition to those specifically identified in this section. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided by the Applicant during the Examination, the agreements reached with statutory bodies, the mitigation measures and the recommended DCO.
- 4.3.214 I am therefore satisfied that the Proposed Development complies with relevant policy and that with the secured mitigation measures there would be unlikely to be any significant effects on water quality or arising from land contamination or waste management. My view is that these matters should not weigh against the Order being made.

FLOOD RISK AND CLIMATE CHANGE

Policy context

Flood risk policy

- 4.3.215 NPS EN-1, in paragraph 5.7.3, states that flood risk is taken into account "*to avoid inappropriate development in areas at risk of*

flooding, and to direct development away from areas at highest risk. Where new energy infrastructure is exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and, where possible, by reducing flood risk overall."

- 4.3.216 Chapter 13 of PPW8 deals with managing the risks associated with climate change and flooding (section 13.4). For flooding it advocates that development proposals in areas defined as being of high flood hazard should only be considered where (paragraph 13.4.1):
- new development can be justified in that location, even though it is likely to be at risk from flooding;
 - the development proposal would not result in the intensification of existing development which may itself be at risk; and
 - new development would not increase the potential adverse impacts of a flood event.
- 4.3.217 TAN 15: Development and Flood Risk (2004) provides technical advice on the approach to flooding, defines flood zones, and states that new development should be directed away from zone C towards land in zone A, otherwise to zones C1 or C2 where river and coastal flooding would be less of an issue. However, it also acknowledges that in some cases development may be required in zone B and zones C1 and C2.
- 4.3.218 TAN 15 provides further guidance on land uses which are acceptable within the defined flood zones. Utilities infrastructure, which would include a pumped storage scheme, would be considered as "*less vulnerable development*" (paragraph 5.1). As a result TAN 15 permits the construction of utilities infrastructure within zones C1 and C2 subject to meeting the justification criteria defined within section 6 of TAN 15 and the provision of a Flood Consequence Assessment (FCA).
- 4.3.219 The Justification Test (paragraph 6.2) states that development will only be justified where it can be demonstrated that:
- *"its location in zone C is necessary to assist, or be part of, a local authority regeneration initiative or a local authority strategy required to sustain an existing settlement; or*
 - *its location in zone C is necessary to contribute to key employment*
 - *objectives supported by the local authority, and other key partners, to sustain an existing settlement or region; and*
 - *it concurs with the aims of PPW and meets the definition of previously developed land; and*
 - *the potential consequences of a flooding event for the particular type of development have been considered, and in terms of the criteria contained in sections 5 and 7 and Appendix 1 (which define the requirements for a FCA) found to be acceptable".*
- 4.3.220 GUDP policies relevant to flood risk include:
- Policy B29, which enforces TAN 15 acceptability criteria;

- Policy B32, which requires that runoff rates to water bodies are not increased and do not lead to an increase in flood risk; and
- Policy C7, which states that drainage systems must not increase flood risk.

Climate Change policy

- 4.3.221 NPS EN-1 requires Applicants to consider climate change when planning the location, design, build and operation of new energy infrastructure (paragraph 4.8.5). The ES should set out how account will be taken of the projected impacts of climate change.
- 4.3.222 PPW8, in paragraph 4.11.6, states that good design should address the causes of climate change and ensure resilience to climate change.
- 4.3.223 GUDP recognises links between climate change and flood risk.

The Application

- 4.3.224 The main relevant sections of the ES are:
- Chapter 10 Flood Risk [APP-077]
 - Appendix 10.1 Flood Consequences Assessment [APP-131]
 - Figure 10.1 Flood Risk Map [APP-208]
- 4.3.225 The majority of the development is located in Flood Zone A, with the exception of the pumping station adjacent to Llyn Padarn, which is located in Flood Zone C and is therefore at risk of fluvial flooding [APP-131]. With the exception of the small area occupied by the control kiosk, the pumping station would not result in land raising in the flood plan as it would be constructed underground [APP-131]. The very slight loss of flood plain storage due to the control kiosk was considered to be insignificant when considered against the total extent of the flood plain area and was therefore not considered to pose a significant risk of increasing the risk of flooding [APP-131].
- 4.3.226 The ES [APP-077] provides an assessment of flood risk undertaken following the IEMA "*Guidelines for Environmental Impact Assessment*" and TAN 15. It sets out the baseline hydrological conditions, the potential impacts on flood risk during construction and operation, mitigation measures and residual effects.
- 4.3.227 Potential flood risk impacts are identified on the construction work, workers, third parties, Llyn Padarn, Nant-y-Betws, Afon Rhythallt, the surrounding environment, pumping station equipment, Llyn Padarn users and operational staff [APP-077].
- 4.3.228 These potential impacts were identified as being due to working within the flood plain; temporary restriction of flow by mud or debris; temporary increases in impermeable areas; fluvial flooding, operational discharges; overtopping of the reservoirs; dam breach, groundwater flooding; flooding from surface and foul drainage systems; and flooding from existing quarries [APP-077].

- 4.3.229 The key mitigation measures identified in the ES include implementation of emergency response and site management plans; installation of temporary drainage or attenuation; dewatering of excavations; raising the pumping station kiosk above the 1:100 year flood level; the conditions that are capable of being imposed on the EP discharge consent; the detailed design of the reservoirs; and drainage systems and compliance with the Reservoir Act 1975 [APP-077].
- 4.3.230 No potential significant cumulative effects were identified [APP-084] and, with the mitigation measures in place, the residual effects of flood risk were assessed [APP-077] as negligible and not significant.

SoCGs

- 4.3.231 Matters agreed in SoCG between the Applicant and NRW [REP3-010] include that:
- the assessment methodology for the FCA was appropriate;
 - an assessment of water resources impacts was adequate;
 - the provisions of the recommended DCO were necessary to deliver the agreed mitigation;
 - the implementation of an Emergency Response and Flood Risk Management Plan and the wider CoCP was an appropriate way of securing the necessary mitigation during construction;
 - the implementation of the Excess Water Management Strategy and the legislative requirement to design and build in line with the Reservoirs Act 1975 was an appropriate way to secure the necessary mitigation during operation; and that
 - Flood Defence Consent had been approved (reference WA/065/0016/007] for the construction of the intake/discharge structure in Llyn Padarn.
- 4.3.232 Matters agreed in SoCG between the Applicant and GC [REP4-006] include that:
- the baseline information used for flood risk was appropriate for assessing the impacts and the assessment methodology for the flood risk assessment was appropriate and considered potential increases to run-off and climate change;
 - the implementation of an Emergency Response and Flood Risk Management Plan and the wider CoCP was an appropriate way of securing the necessary mitigation during construction;
 - the Excess Water Management Strategy was an appropriate way of securing the necessary mitigation during operation; and that
 - the development would be designed and built in full compliance with the Reservoirs Act 1975.

Outline management and mitigation plans

- 4.3.233 Two outline management and mitigation plans relevant to flood risk and climate change have been submitted by the Applicant and considered and developed during the Examination.

- 4.3.234 The Outline CoCP [REP9-028] incorporates an Emergency Response and Flood Risk Management Plan that details the actions to be taken to prevent and manage a flood incident during construction.
- 4.3.235 The Outline Excess Water Management Strategy [REP9-020] sets out the principles by which the water would be managed during the operation of the Proposed Development. It describes the basic operation of the development, reservoir safety, water abstraction and discharge, the incidental release of water and measures relevant to flood risk during operation.
- 4.3.236 These outline plans would be certified by Article 36 of the recommended DCO. They contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).
- 4.3.237 GC said [REP7-044 and REP9-042] that it agreed with previous versions of the Outline CoCP [REP7-012] and Outline Excess Water Management Strategy [REP6-009]. I have not been given any reason to believe that GC would have a different view on the versions submitted at D9.
- 4.3.238 NRW noted [REP10-011] that it had no further comments on the CoCP [REP9-028] or Outline Excess Water Management Strategy [REP9-020]; that its comments were without prejudice to any decisions that it might make on any applications for EPs; and that the plans would be subject to on-going discussion through the Environmental Permitting regime.

Other factual issues considered during the Examination

- 4.3.239 Other flood risk and climate change issues considered included the flood consequences assessment, dam stability and breach analysis.

Flood consequences assessment (FCA)

- 4.3.240 NRW confirmed that the FCA was based on NRW's latest flood risk data, considered the appropriate parameters from TAN 15, and made appropriate allowances for future rainfall and peak river flow volumes due to climate change [REP2-047].
- 4.3.241 NRW confirmed that it agreed with the FCA conclusions [REP9-043].
- 4.3.242 Responding to my queries [PD-009], the Applicant said [REP2-011];
- the loss of wooded areas was very small and that any effect on downstream receptors was therefore negligible;
 - drainage measures would ensure no increase in run-off rates from hard standing areas;
 - the new slate dam and spoil heaps were porous and direct run-off from them would percolate to the underlying ground and continue down the catchment in the same manner as existing;

- the loss of existing usable flood water storage capacity and working would be addressed by a proposed freeboard provision within the new reservoirs that provided capacity for both direct rainfall on the reservoirs and run-off from contributing areas draining into the reservoirs; and
- there would be no increase in run-off rates compared to existing.

4.3.243 There was an exchange of views between the Applicant [REP2-011 and REP5-005] and NRW [RR-053, REP5-049, REP7-042] regarding the need to secure discharge rates during the dewatering of the quarries in the recommended DCO, in the Outline CoCP [REP9-028], in the Outline Excess Water Management Strategy [REP9-020] or whether they would be adequately covered by the conditions of the relevant EPs. NRW confirmed that rates and volumes would be assessed during the determination of any future EP applications, but suggested that they were also relevant to the DCO. The Outline Excess Water Management Strategy [REP9-020], which is secured by the recommended DCO, states that reference should be made to EP applications for discharge rates.

4.3.244 [REDACTED]

Conclusions

4.3.245 I am satisfied that discharge rates would be secured as necessary by the Excess Water Management Strategy, which is to be approved by GC in consultation with NRW.

4.3.246 I am satisfied with the Applicant's responses to matters raised by IPs and to my questions.

4.3.247 Noting NRW's comments, I am content with the FCA and that it is adequate for the purposes of NPS EN-1 paragraph 5.7.9, section 13.4 of PPW8, TAN 15 and GUDP Policy B29.

Dam stability and breach analysis

4.3.248 I queried whether GC or NRW had any comments on the risk of a dam breach, on related emergency planning measures or whether there were any specific related matters that should be considered during the Examination [PD-009]. NRW clarified that the reservoirs were liable to its regulation under the Reservoirs Act 1975, which included provisions

for the design, supervision of construction, periodic inspection and monitoring of the dams [REP2-047]. GC advised [REP2-041] that this matter would be subject to the Emergency Response and Flood Risk Management Plan, which I note was subsequently included in the Outline CoCP [REP9-028].

- 4.3.249 The Applicant clarified that the measures required to ensure the stability of the slate dams would be governed and controlled by the Reservoirs Act 1975 [REP2-011 and REP5-005].
- 4.3.250 Jeff Taylor raised concerns regarding the potential for collapse of the existing former bomb store at Q8 to lead to a failure of the lower reservoir (Q6) dam [REP4-049]. The Applicant clarified that matters surrounding dam stability such as this were subject to control through the Reservoirs Act 1975; that the member of the All Reservoirs Panel was involved in the preparation of the preliminary design; and confirmed that they were satisfied with stability issues relating to the bomb store [REP5-006]. The Applicant also provided evidence that the bomb store walls took support from the walls of the quarry in which it was built, rather than the other way round [REP5-006].
- 4.3.251 NRW said that the production of an onsite emergency flood plan in accordance with the Reservoirs Act 1975, s12A was best practice but not obligatory and would only be required when notice to do so was served by the Minister or identified by an Inspecting Engineer when carrying out a periodic inspection [REP5-049 and REP7-042]. NRW considered that the production of such a plan would increase the safety of people living and working downstream of the reservoirs, albeit that a reservoir failure is considered a low likelihood event, and suggested that this may be a matter for discussion with the SoS.
- 4.3.252 NRW therefore considered that the DCO should require the Applicant to produce an onsite emergency flood plan, which should be specified, reviewed and certified by an All Reservoirs Panel Engineer in accordance with the Reservoirs Act 1975, s12A and that the flood plan should be subject to periodic review [REP5-049 and REP7-042].
- 4.3.253 The Applicant considered that such a DCO requirement would not be appropriate [REP9-30] because:
- the provisions were covered by another regime that the DCO did not need to and should not replicate;
 - the Reservoirs Act 1975 required a consultation process and measures that would specify the contents of a flood plan that should not be pre-empted by a non-aligned DCO process;
 - it was not appropriate for the DCO to seek to replace the requirements of the Reservoirs Act 1975 without regard to all the matters which are set out in the Act;
 - a planning authority did not necessarily have the engineering expertise to adequately assess the flood plan and should not be required to do so; and

- a flood plan required by the DCO may not satisfy the Reservoirs Act 1975, thereby potentially leading to two flood plans, unnecessary duplication and confusion.

Conclusions

- 4.3.254 I am satisfied with the Applicant's responses to matters raised by IPs.
- 4.3.255 Regarding the need for an onsite emergency flood plan, I note that this matter is addressed by the Reservoir Act 1975 and have no reason to doubt that the need for the plan would be identified by the Minister and/or Inspecting Engineer under that regime as needed. I do not feel it necessary to duplicate or second guess the provisions of the Reservoir Act 1975 in the recommended DCO.
- 4.3.256 I note that that the Outline CoCP [REP9-028], which has been accepted by NRW and GC, includes for an Emergency Response and Flood Risk Management Plan during construction.
- 4.3.257 I am satisfied that the combination of the Outline CoCP [REP9-028], the approval of the detailed design secured by Requirement 5 of the recommended DCO and the Reservoir Act 1975 would provide appropriate mitigation for the risks of dam stability and breach, and these would be likely to address the matters that have concerned IPs.

Conclusions on policy and factual issues

- 4.3.258 I have had particular regard to the policies set out in NPS EN-1, PPW, GUDP and to the guidance provided by TAN 15 in my consideration of flood risk and climate change.
- 4.3.259 Responding to my request to clarify compliance with policy, the Applicant stated its view that policy was satisfied [REP2-011] as:
- the pumping station was the only element located in an area of flooding and that this represented ancillary utilities infrastructure that required to be located next to the water and was not critical to the safe operation of the scheme and should therefore be classified as "*less vulnerable development*";
 - the construction of the pumping station in that location was necessary to support the wider development, which was in line with policy objectives to deliver the redevelopment of the wider Glyn Rhonwy site; and that
 - the ability of the reservoirs to store flood waters meant that they could make a contribution to reducing flood risk.
- 4.3.260 Based on the above, I consider that reasonable steps have been taken to avoid, limit and reduce the risk of flooding. Reasonable measures have also been made to ensure that the infrastructure would remain functional in the event of predicted flooding. I am also satisfied that the Proposed Development would be likely to be sustainable and as

durable, adaptable and resilient as it could reasonably be in terms of flooding and climate change.

- 4.3.261 For flood risk, and noting the comments from NRW and GC, I find that the application is supported by an appropriate FCA and the Proposed Development satisfies the relevant requirements of NPS EN-1 paragraph 5.7.9, section 13.4 of PPW8, TAN 15 and GUDP Policy B29.
- 4.3.262 I have noted NRW's concerns regarding an onsite emergency flood plan and find that this would be covered by the Reservoir Act 1975.
- 4.3.263 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for flood risk and climate change, in addition to those specifically identified in this section. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided during the Examination, the agreements reached with statutory bodies, the mitigation measures and the recommended DCO.
- 4.3.264 I note the mitigation in the Outline CoCP [REP9-028] and Outline Excess Water Management Strategy [REP9-020], as secured by Requirement 8 of the recommended DCO, which have been accepted by GC and which NRW have not objected to. These have all been subject to Examination and updated in response to the matters raised. I am satisfied that those measures, together with the provisions of the Reservoir Act 1975, adequately address potential effects of flooding.
- 4.3.265 With respect to climate change, I am satisfied that appropriate allowances have been made in the FCA and that appropriate good design measures would be secured through the approval of detailed design secured by Requirement 5 of the recommended DCO. On that basis I am content that climate change would be addressed sufficiently for the purposes of NPS EN-1, PPW and GUDP.
- 4.3.266 I am therefore satisfied that the Proposed Development complies with relevant policy and that flood risk and climate change should not weigh against the Order being made.

4.4 BIODIVERSITY, ECOLOGY AND GEOLOGICAL CONSERVATION

- 4.4.1 This section covers biodiversity, ecology and geological conservation. It should be read together with Chapter 5 HRA, Section 4.3 water environment, Section 4.6 noise and vibration, Section 4.7 air quality and Section 4.13 Decommissioning.

Policy context

- 4.4.2 NPS EN-1 states that where the development is subject to EIA the ES is required to set out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on habitats, protected species and other species identified as being of principal importance for the conservation of biodiversity.

- 4.4.3 The biodiversity, ecological and geological conservation matters of importance to this Examination covered in NPS EN-1 include:
- internationally designated sites for biodiversity;
 - Sites of Special Scientific Interest (SSSIs);
 - regional and local sites;
 - ancient woodland and veteran trees;
 - opportunities to benefit biodiversity of geological features; and
 - protection of habitats and of wildlife species which receive international and national statutory protection.
- 4.4.4 NPS EN-1 states that as a general principle, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. It also requires the Applicant to show how it has taken advantage of opportunities to conserve and enhance biological and geological conservation interests (paragraph 5.3.4).
- 4.4.5 NPS EN-1 recognises that noise can also have adverse effects on wildlife and biodiversity and requires that noise effects on ecological receptors should be assessed (paragraph 5.11.2).
- 4.4.6 PPW8 sets out objectives for the conservation and improvement of the natural heritage (paragraph 5.1.2), which include:
- promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;
 - ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;
 - ensure that statutorily designated sites are properly protected;
 - safeguard protected species; and
 - promote the functions and benefits of soils.
- 4.4.7 Section 5.5 of PPW8 sets out the biodiversity and landscape matters to be taken into account when determining applications.
- 4.4.8 TAN 5 provides advice on biodiversity and geological conservation.
- 4.4.9 GUDP Policies B15 and B16 relate to developments likely to cause direct or indirect significant harm to international conservation sites (SACs, SPAs or Ramsar) and nationally important conservation sites (SSSIs or National Nature Reserves), respectively.
- 4.4.10 Policy B17 states that a proposal likely to cause significant harm to sites of regional or local significance will be refused unless it fulfils needs that override the site's importance and unless damaged is minimised and compensated for and remaining features are protected.
- 4.4.11 Policy B19 says that proposals leading to a loss or damage of trees, woodland or hedgerow that is protected or lies within a designated and semi-natural woodland will be refused unless any harm is clearly outweighed by the economic or social benefits of the development.

- 4.4.12 Policy B20 states that proposals likely to result in disturbance or harm to European Protected Species (EPS) will be refused unless there is no satisfactory alternative; the development would not be detrimental to the maintenance of the population of the species; and there are imperative reasons such as over-riding public interest. It also states that proposals likely to result in disturbance or harm to national protected species will be refused unless the effects would be minimised, or effective steps taken to relocate the species or habitat.
- 4.4.13 Policy B21 says that proposals which may adversely affect the integrity or continuity of landscape features of major importance for flora and fauna will only be permitted if clearly outweighed by the reasons for the development and if mitigating measures are provided.
- 4.4.14 Policy B34 states that proposals for lighting schemes will be permitted provided that they do not significantly harm the environment.
- 4.4.15 Policy B35 covers avoiding the spread of invasive species.

The Application

- 4.4.16 The main relevant sections of the ES are:
- Chapter 7 Ecology [APP-074]
 - Chapter 8 Geology and Ground Conditions [APP-075]
 - Chapter 17 Cumulative Effects [APP-084]
 - Appendices 7.1 to 7.20 [APP-099 to APP-118]
- 4.4.17 The Ecology Chapter identifies and assesses the potential effects on biodiversity [APP-074]. It describes the desk study and surveys that established the baseline conditions and sensitive receptors; identifies potential impacts; describes proposed mitigation and enhancement measures; and, based on those, sets out the residual environmental impacts of the Proposed Development.
- 4.4.18 The Ecology Chapter, together with the relevant Appendices and figures referred to in that Chapter, then provides an assessment of effects on natural features in accordance with the APFP Regulations 2009, identifying statutory and non-statutory sites, features of nature conservation, habitats of protected species, important habitats, other diversity features, and any effects on them considered likely to be caused by the Proposed Development [APP-074].
- 4.4.19 The ES assessed effects on European, national and local designated sites within 2km of the Proposed Development [APP-074], including:
- Eryri/Snowdonia Special Area of Conservation (SAC), Afon Gwyrfai a Llyn Cwellyn SAC and Glynllifon SAC;
 - Llyn Padarn SSSI, Coed Dinorwig, Llwyn y Coed, Eryri/Snowdonia and Afon Gwyrfai a Llyn Cwellyn Sites SSSIs;
 - Glyn Rhonwy Quarries 1, Glyn Rhonwy Quarries 2, Bwlch-y-Groes Quarry, Coedydd Glyn Rhonwy, Bryn Mawr, Coed Donen Las,

Glyn Rhonwy Quarries Woodland Mosaic, Llwyn Coed Heath, Barrack Mawr, Pen Gilfach, Cefn Du and Donen Las Local Wildlife Sites (LWSs);

- Coed Dinorwig LNR; and
- two Restored Ancient Woodland Sites (RAWS).

4.4.20 The ES also assessed potential effects on different types of habitat and species and groups [APP-074], including:

- diatoms, phytoplankton and aquatic plants;
- lichens, bryophytes and fungi;
- invertebrates, including the small theridiid spider;
- fish, including Arctic charr;
- amphibians and reptiles;
- birds - Schedule 1 species, BOCC red and amber list species and other common species;
- polecats, badgers, water voles, otters, red squirrels, bats; and
- invasive and non-native species.

4.4.21 The assessment considered potential effects on receptors in relation to the following impacts during construction and operation, as relevant:

- pollution and run-off, nutrient enrichment, water temperature changes, disturbances of lake bed sediment and other reductions in water quality and alteration of the natural hydrological regime;
- drawing into pipes during abstraction;
- introduction or spread of invasive or non-invasive species;
- dust deposition, noise and vibration;
- foot traffic and movements of vehicles and machinery and other physical disturbance and habitat loss;
- light spill; and
- increases in aquatic, dam and spoil heap habitats.

4.4.22 The key mitigation measures identified in the ES [APP-074] include:

- compliance with NRW's Pollution Prevention Guidelines, a CoCP and the conditions that are capable of being imposed on the EPs;
- monitoring during construction to identify water quality, noise, vibration or dust deposition issues requiring further mitigation;
- measures to address water quality issues during operation;
- pre-construction ecological surveys and micro-siting;
- intake screens to prevent drawing species into abstraction pipes;
- detailed design of lighting to avoid disturbance;
- good site working practices and fencing off of habitats;
- excluding bats and badgers from some areas during construction;
- use of existing tracks and areas of hard standing;
- keeping site compounds and stock piles away from scrub;
- protection of trees and woodland in accordance with BS5837;
- on-site monitoring by an Environmental Clerk of Works;
- restrictions to works during the nesting bird breeding season;
- translocation of slate slabs colonised by notable lichens;
- installation of stock-proof fencing to enhance retained quarries;

- dust, noise and vibration control measures; and
 - improvements in the quality of foraging and commuting habitats.
- 4.4.23 The Applicant concluded that the overall potential residual effect on ecology was minor adverse, with the exception of minor beneficial effects on spoil habitat and moderate adverse effects on bats from roost loss [REP2-011]. Overall residual effects were considered to be not significant, except for significant effects due to bat roost loss.
- 4.4.24 NRW [REP2-047] and GC [REP2-041] both stated that they were satisfied with the assessment and the conclusions reached by the Applicant in respect of the significance of potential effects on ecology.
- 4.4.25 The Geology and Ground Conditions Chapter of the ES identifies nationally important geological features in the Afon Gwyfrai a Llyn Cwellyn SSSI, which is upstream of the Proposed Development and considered not to be affected [APP-075]. The Ecology Chapter states that Llyn Padarn SSSI was designated for Cambrian Rock exposures and concludes that the effect on the Llyn Padarn SSSI would not be significant [APP-074]. It identifies potential damage to exposures, such as fluorite mineralisation due to construction activities [APP-075].
- 4.4.26 Following mitigation, including compliance with the CoCP and measures to be identified following later site investigation works, the residual significance of effects on geology and ground conditions were assessed by the Applicant as negligible or minor adverse [APP-075].
- 4.4.27 The ES does not identify any significant effects on biodiversity, ecology or geological conservation cumulatively with the grid connection, Wylfa Newydd Nuclear Power Station, Caernarfon to Bontnewydd Bypass or with the Dinorwig Pumped Storage Scheme [APP-084].

SoCGs and the LIR

- 4.4.28 In their SoCG [REP4-006], the Applicant and GC agreed that:
- an agreed CoCP and Habitat Management Plan (HMP) should ensure the protection of habitats;
 - the mitigation proposed within the ES and secured within the draft DCO is adequate to protect ecological receptors during construction and operation; and that
 - effects on habitats, designated sites, Arctic charr, badgers, bats, breeding birds, other fish, reptiles, spiders, trees, hedgerows, invasive species and lichen have been adequately assessed within the ES [APP-074] and appropriate mitigation proposed and secured within the draft DCO.
- 4.4.29 In their SoCG [REP3-010], the Applicant and NRW agreed that:
- the appropriate scope of research and surveys has been undertaken for statutory designated species and habitats;
 - the EPS licence for bats has been grant;

- significant effects on the species and habitats outlined in Tables 7-5 to 7-9 of the ES [APP-074] are unlikely with implementation of an agreed CoCP, Breeding Bird Method Statement, HMP, Biosecurity Plan, control over working hours and a lighting scheme to be agreed; and that
- cumulative effects have been adequately considered.

4.4.30 Matters raised in GC's LIR [REP2-037 to REP2-40] include that:

- the Proposed Development could impact several protected sites;
- the Applicant identified the main species that could be impacted;
- mitigation measures must include method statements detailing restrictions to work during birds' breeding period and measures to avoid harmful effect on mollusc species;
- concern has been highlighted on potential effects on the Llyn Padarn SSSI, "*which includes the rare Arctic Char fish*"; and that
- measures similar to those agreed with the previous application [APP-086] would make it possible to "*ensure this element*".

Outline management and mitigation plans

4.4.31 Outline plans were developed during the Examination, in addition to those specific to water quality, air quality, noise and vibration that are covered in other sections of this report.

4.4.32 The Outline CoCP [REP9-028] incorporates outline versions of:

- a pollution prevention plan that includes measures for dealing with fuel, lubricants, herbicides, other chemicals and materials;
- a breeding bird method statement detailing controls during the bird breeding period to avoid disturbing Schedule 1 bird species;
- a HMP to minimise disturbance to nearby ecological receptors and avoid effects on protected species in accordance with statutory requirements; and
- a landscape and reinstatement plan that covers replacement planting of any trees and vegetation; landscaping of dam surfaces and new slate tip areas to favour the establishment of a range of plants and animals; and opportunities for enhancement.

4.4.33 The Outline Biosecurity Plan [REP9-018] addresses compliance with legislation in respect of invasive non-native species.

4.4.34 These outline plans would be certified by Article 36 of the recommended DCO. They contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).

4.4.35 GC confirmed [REP7-044 and REP9-042] that it agreed with previous versions of the Outline CoCP [REP7-012] and of the Outline Biosecurity Plan [REP4-026]. I have not been given any reason to believe that GC would have a different view on the latest versions submitted at D9.

- 4.4.36 NRW noted [REP10-011] that it had no further comments on the CoCP [REP9-028] or Outline Biosecurity Plan [REP9-018], stating that its comments were without prejudice to any decisions that it might make on any applications for EPs and that the plans would be subject to on-going discussion through the Environmental Permitting regime.

Designated sites, habitats, protected species and other factual issues considered during the Examination

- 4.4.37 Key ecology matters considered during the Examination included:

- SSSIs;
- Nant-y-Betws;
- trees;
- continuity of habitats in the vicinity of Ffordd Cefn Du;
- local designated sites and other habitats;
- opportunities for habitat enhancement;
- noise, vibration, air overpressure and deposited dust impacts;
- molluscs, fish, reptiles, bats, birds, and badgers;
- invasive species; other species; and
- pre-commencement surveys.

- 4.4.38 Potential effects on water quality, including in Llyn Padarn and Nant-y-Betws, are considered in Section 4.3 of this report.

SSSIs

- 4.4.39 The Applicant has assessed potential effects on the designated features of the Llyn Padarn SSSI in relation to Arctic charr and floating water-plantain, and of other related areas of interest within Llyn Padarn for otters and some aquatic plants [APP-074].

- 4.4.40 Potential effects occur due to the alteration of the hydrological regime; construction of the spillway structure; water discharges; draw into the abstraction pipe; light spill; the spread of invasive or non-native species; and routine maintenance. These would be mitigated by the measures in the CoCP, HMP, Pollution Prevention Plan and Biosecurity Plan; the likely conditions applicable to EPs; and intake screens to the intake pipe. Following these measures the ES concludes that residual effects on the Llyn Padarn SSSI would be minor adverse and not significant [APP-074].

- 4.4.41 Afon Gwyrfai a Llyn Cwellyn SSSI is 2km downstream of the Nant y Betws stream near Q1 and is designated for features of running and standing water, aquatic plant assemblage, floating water-plantain, Arctic charr, Atlantic salmon and otter.

- 4.4.42 Potential effects occur to the designated features of the SSSI due to the alteration of the hydrological regime, water discharges and the spread of invasive or non-native species and routine maintenance. The effects would be mitigated by the measures outlined in the CoCP, the Pollution Prevention Plan, the Biosecurity Plan and the likely conditions

applicable to EPs. With those measures the ES concludes that residual effects on the Afon Gwyrfaï a Llyn Cwellyn SSSI would be minor adverse and not significant [APP-074].

- 4.4.43 The Applicant also identified that no impacts of the Proposed Development would be likely to result in effects on other SSSIs, including Coed Dinorwig SSSIs and Llyn y Coed SSSI, due to their distance from the development or lack of linkages [APP-074].
- 4.4.44 Both NRW [REP2-047 and REP3-010] and GC [REP2-041 and REP4-006] are satisfied with the conclusions of the ES [APP-074].
- 4.4.45 I note the Applicant's responses to concerns expressed by IPs about potential effects on Llyn Padarn in relation to water discharges and the construction of the outfall, which I have addressed in Section 4.3.

Conclusions

- 4.4.46 Based on the above, I have no reason to disagree with the Applicant's approach and consider that the concerns raised by IPs would be likely to be addressed through the detailed design process and the mitigation measures contained within the CoCP and other relevant plans such as the HMP, as secured by Requirement 8 of the recommended DCO; together with the water quality mitigation measures identified in Section 4.3. Further protection would be provided by the conditions of EPs.
- 4.4.47 I am satisfied that appropriate consideration has been given to SSSIs in accordance with paragraph 5.3.11 of NPS EN-1, paragraph 5.5.8 of PPW8 and GUDP Policy B16. I find that suitable mitigation measures have been adequately secured by the recommended DCO and therefore conclude that there would be unlikely to be any significant adverse effects on the notified special interest features of SSSIs.

Nant-y-Betws

- 4.4.48 Discharges of water to the small upland Nant-y-Betws stream would be made during the dewatering of Q1 during construction; and during the release of excess water and the potential emptying of Q1 for maintenance during operation [APP-055]. The discharges would be covered by an EP and the water quality aspects are considered in Section 4.3 of this report. The Nant-y-Betws would also be disturbed during the construction of access crossings [APP-076]. The ES states that the residual effects would be negligible [APP-074].
- 4.4.49 Dr Rebecca Williams [REP2-026] and Tony Grant [REP2-052] considered that substantial increases in flows would be likely to have an adverse effect on the ecology of the Nant-y-Betws by depopulating invertebrates and important food stuffs for fish and birds; and that increasing risk of contamination would affect spawning grounds.
- 4.4.50 The Applicant responded to these concerns [REP3-026], stating that:

- water quality monitoring would be undertaken during construction and operation, and subsequent Action Plans required to address any issues identified would be agreed with NRW;
- the operator would ensure that any discharges would be consistent with the conditions of the EPs; and that
- under normal operation all release of excess water would be from Q6 to Llyn Padarn and there was no anticipated need to allow the reservoirs to spill or to release water to the Nant-y-Betws.

4.4.51 Potential effects on the habitats of fish, including salmonids, in Nant-y-Betws are considered below.

Conclusions

4.4.52 I have no reason to disagree with the Applicant's response and note that the mitigation measures set out by the Applicant have been included in the Outline Water Management Plan [REP9-026] and in the Outline Excess Water Management Plan [REP9-020], as secured by Requirement 8 of the recommended DCO, which have been accepted by NRW and GC. I also note that protection would be provided by the conditions of the EP. On this basis I am satisfied that Dr Williams' and Mr Grant's concerns have been addressed and that there are unlikely to be significant effects on the Nant-y-Betws of the type suggested.

Trees

4.4.53 With the exception of managed coniferous plantation woodland, trees are relatively scarce in the western upland section of the Proposed Development site around Q1. Broadleaf woodland is more prevalent at the lower elevations around Q6, providing almost continuous cover in places, and including several high and medium quality trees and large mature oak trees [APP-074 and APP-104]. Trees within the Proposed Development site are under a blanket TPO [APP-115].

4.4.54 The Proposed Development would result in the loss of some trees, particularly due to works in Q6 and the construction of the adjacent dam, pumping station and outflow pipe into Llyn Padarn [APP-104]. The precise nature and scale of the tree loss was not identified in the ES [APP-074 and APP-104], which states that the residual effects of tree loss would be negligible, except for the loss of broadleaved semi-natural woodland where the residual effect would be minor adverse.

4.4.55 I asked [PD-009, PD-015, APP-025 and APP-026] the Applicant to clarify and/or justify the extent and necessity of tree removal, cutting and lopping; authorisation required to remove trees; and the mechanisms for securing a tree survey, agreeing the extent and locations of tree loss, agreeing the number of replacement trees and agreeing opportunities for enhancement.

4.4.56 The Applicant responded [REP2-011, REP5-005, REP7-004 and REP9-030] to my questions by:

- providing an overlay of the Proposed Development and the TPO plan [REP1-011], noting areas lost for construction compounds;
- clarifying that any trees of note or value within the working width of the spillway structure would be avoided through micro-siting;
- stating that tree removal, cutting and lopping would be quantified at detailed design stage and mitigation identified in the HMP;
- adding provisions for tree surveys, tree loss and replacement trees to the HMP section of the Outline CoCP [REP9-028];
- adding provisions for identifying and agreeing opportunities for enhancement to the Outline CoCP [REP9-028]; and by
- updating the Outline CoCP to secure the need to agree the scope and implementation of tree enhancement opportunities.

4.4.57 GC was content [REP2-041; REP5-044 and REP7-044]:

- with an amendment to the draft DCO [REP9-035, Article 29] whereby felling cutting or lopping of trees subject to TPO would be agreed in advance with the relevant planning authority;
- that agreement in advance was not required for the felling or lopping of trees not subject to a TPO;
- that the tree replacement formula would be agreed after the tree survey had been undertaken;
- that mitigation could be monitored by the Environmental Clerk of Works, provided the implementation was supervised by a qualified arboriculturist; and
- that the Applicant had demonstrated sufficient commitment regarding opportunities for tree enhancement.

4.4.58 NRW said [REP2-047, REP5-049] that:

- tree removal, cutting, lopping and replacement should be covered by the CoCP and associated plans;
- it was content that agreement in advance was not required for the felling or lopping of trees not subject to a TPO, subject the provisions of the CoCP; and that
- it was content with the provisions for tree surveys and replacement included in the Outline CoCP [REP9-028].

4.4.59 Responding to Emily Wood's concerns about the potential for damage to established trees on the Llyn Padarn shoreline due to the proposed pumping station [RR-022], the Applicant noted that some trees would be removed and referred to mitigation measures of tree surveys, replacement and micro-siting to avoid trees of note [REP2-012].

Conclusions

4.4.60 Noting the comments from GC and NRW, I am satisfied that the Applicant has clarified the matters in my questions and addressed the concerns raised by Emily Wood. With the exception of supervision by a qualified arboriculturist, the mitigation measures set out by the Applicant have been included in the Outline CoCP [REP9-028], as

secured by Requirement 8 of the recommended DCO, which have been accepted by NRW and GC.

- 4.4.61 GC would be able to ensure that its concern that a qualified arboriculturist should supervise the implementation of the replacement tree planting works is addressed when it agrees the content of the CoCP, as secured by Requirement 6 of the recommended DCO. I therefore find it likely that the measures would provide the mitigation needed to address the matters raised.
- 4.4.62 With respect to GUDP Policy B19, I am satisfied that any harm would be appropriately mitigated by the replacement trees and vegetation secured in the Outline CoCP [REP9-028].
- 4.4.63 I am satisfied that appropriate consideration has been given to trees for the purposes of paragraph 5.3.14 of NPS EN-1, paragraph 5.2.9 of PPW8 and GUDP Policy B19.

Continuity of habitats in the vicinity of Ffordd Cefn Du

- 4.4.64 The Proposed Development involves improvements to Ffordd Cefn Du, a minor road that provides access to Q1 and which passes through a number of habitats [APP-071 and APP-074]. There would be increases in traffic on this road, particularly during construction [APP-079]. The ES considered that effects on habitats in the vicinity of Ffordd Cefn Du would not be significant [APP-074].
- 4.4.65 Tony Grant stated that the road is a narrow peaceful lane that allows badgers, otters, toads, barn owls and bats to move seamlessly over it as they travel to and from foraging grounds, but that the construction work and increases in traffic would sever the continuity of the habitats and cause adverse effects on those species [REP2-052].
- 4.4.66 The Applicant [REP5-005 and REP7-004] replied that there would not be a barrier to movement because:
- no changes in lighting level were proposed and construction works were due to take place during daylight hours;
 - existing road boundary features would be replaced like for like;
 - a 20 mph speed limit and negligible noise or vehicle movements when species of concern were active would mean that the risk of collision with site vehicles and any potential for species to avoid crossing the road would not lead to a significant adverse effect.
- 4.4.67 GC believed that noise and vehicle movement on Ffordd Cefn Du would not create a barrier to the continuity of habitats [REP7-044].

Conclusions

- 4.4.68 I have no reason to disagree with the Applicant's suggestion that the s278 agreement would ensure no increase in lighting, that road boundary features would be reconstructed on a like for like basis and that these would not be a barrier to movement of species.

- 4.4.69 I note that there would be an increase in traffic on Ffordd Cefn Du and that the recommended DCO would allow construction traffic during the hours of darkness at the beginning and end of the working day in the winter, as well as in relation to security and to potential 24 hour underground excavation works. I find no evidence that traffic levels and durations would result in significant effects on habitats or species.
- 4.4.70 On this basis, and noting the comments from GC, I have not been given any reason to believe that the Proposed Development would be likely to cause the significant adverse effects in the manner suggested by Mr Grant. I find insufficient evidence of adverse effects on the continuity of landscape features of major importance for flora and fauna for the purposes of GUDP Policy B21.

Local designated sites and other habitats

- 4.4.71 Few concerns were raised in relation to the assessment of potential effects on local designated sites and other habitats [APP-074]. However, I feel that some matters need to be addressed.
- 4.4.72 The ES has identified that there would be some loss of habitats used by protected and important flora and fauna, including loss of fish habitat following the draining of Q6, and loss of habitats for nationally scarce lichens following construction of the Q1 dam [APP-074].
- 4.4.73 Loss of bat tree roosts is covered below under the heading of 'Bats'.
- 4.4.74 The Applicant does not confirm [APP-078] whether the loss of habitat in Q6 would be significant, however when taking into account the small populations and mitigation measures secured in the Outline CoCP [REP9-028], which has been agreed with GC and NRW, I am satisfied that this matter has been adequately addressed.
- 4.4.75 The Applicant also does not conclude whether the effects on lichen would be significant. I note that other habitats are available for lichen and that the Applicant would translocate slate slabs colonised by notable lichens to those areas. I have no reason to conclude that effects on lichen habitats would be likely to be significant.
- 4.4.76 There would be some other disturbance to local designated sites and to habitats during construction and operation, although areas affected would generally be a small proportion and considered to lead to a negligible or minor adverse effect on LWSs, LNRs or RAWS [APP-074].
- 4.4.77 Both NRW [REP2-047 and REP3-010] and GC [REP2-041 and REP4-006] are satisfied with the conclusions of the ES [APP-074].

Conclusions

- 4.4.78 I have no reason to disagree with the Applicant's approach and am satisfied that appropriate consideration has been given to local designated sites and to other habitats in accordance with paragraphs 5.3.13 and 5.3.17 of NPS EN-1, and section 5.5 of PPW8.

- 4.4.79 With respect to GUDP Policy B17, and noting the conclusions in the ES and GCs and NRW's acceptance of those, I find no evidence that there would be significant disturbance to local designated sites.
- 4.4.80 Mitigation measures have been provided, including through the HMP in the Outline CoCP [REP9-028] as secured by Requirement 8 of the recommended DCO. Other protection would be provided by the conditions of other permits and licences. I am satisfied these ensure that there would unlikely to be significant adverse effects on local designated sites or other habitats.

Opportunities for habitat enhancement

- 4.4.81 Further to a clarification from the Applicant [REP2-011], I note that the Outline CoCP [REP9-028] requires that opportunities for enhancement would be identified in the Landscape and Reinstatement Plan and agreed with GC in consultation with NRW. This is secured through Requirement 6 of the recommended DCO. I also note potential enhancements, as referenced in the ES, may include slate habitat reinstatement and seeding, installation of stock-proof fencing, enhancement and protection of bat tunnel roosts [APP-074].
- 4.4.82 GC considered that the Applicant demonstrated sufficient commitment regarding opportunities for habitat enhancement [REP7-044].

Conclusions

- 4.4.83 Enhancement measures are secured in the Landscape and Reinstatement Plan; other opportunities are mentioned in the ES and there would be scope to secure more enhancements in relevant plans that are to be agreed with GC in consultation with NRW.
- 4.4.84 Based on the above, I am satisfied that the Applicant has committed to making habitat enhancements to biodiversity and that appropriate mechanisms are in place for identifying and implementing more opportunities as detailed design and mitigation measures would be finalised. I am therefore satisfied that sufficient consideration has been given to habitat enhancement for the purposes of paragraph 5.3.18 of NPS EN-1 and GUDP Policy B17.

Noise, vibration, air overpressure and deposited dust impacts

- 4.4.85 No significant residual effects on biodiversity were considered likely due to noise, vibration, air overpressure or deposited dust following mitigation including the temporary nature of construction activities; distances from sources to receptors; restrictions of construction activities during breeding and spawning seasons; and good practice during construction [APP-074]. Negligible effects were generally identified to species, although minor adverse residual effects were anticipated to Arctic charr, reptiles and bats [APP-074].

- 4.4.86 GC said that it was content with the Applicant's assessment and proposed mitigation measures and that these were adequately secured [REP5-044], whereas NRW did not raise any concerns regarding potential effects on protected species [REP5-049].

Conclusions

- 4.4.87 Appropriate mitigation measures are secured by the Requirement 6 of the recommended DCO in the CoCP, HMP, Breeding Bird Method Statement, Construction and Operational Noise Management Plans and Dust Control and Air Quality Management Plan. On this basis I consider it unlikely that noise, vibration, air overpressure or deposited dust would lead to significant effects on biodiversity.
- 4.4.88 I am satisfied that sufficient consideration has been given to the potential adverse effects of noise on wildlife and biodiversity for the purposes of paragraph 5.11.2 of NPS EN-1.

Molluscs

- 4.4.89 GC's LIR [REP2-037 to REP2-40] noted that mitigation measures would be required to avoid harmful effect on mollusc species. GC later clarified that these were no longer required as no molluscs were identified in the vicinity of the spillway structure [REP7-044].
- 4.4.90 Neither the ES [APP-075 and APP-103] nor the Outline CoCP [REP9-028] mention mollusc in Llyn Padarn. The Applicant advised that no molluscs had been identified in the vicinity of the proposed spillway structure [REP5-005].
- 4.4.91 NRW were not aware of any protected mollusc species in Llyn Padarn and, given the relatively small footprint of the proposed spillway infrastructure, they were confident that potential impacts would be temporary and the effects insignificant [REP7-042].

Conclusions

- 4.4.92 Further to the responses from GC and NRW and noting that GC has revised the opinion that it originally set out in its LIR, I am not aware of any reason why specific mitigation measures for molluscs during construction or operation would be needed in the recommended DCO.

Fish

- 4.4.93 Protected and notable fish species potentially affected by the Proposed Development [APP-074] include:
- Atlantic salmon, which is a designated feature of the Afon Gwyrfa a Llyn Cwellyn SAC and SSSI designation, 1.8 km from the Proposed Development site;
 - Arctic charr, a notified feature of the Llyn Padarn SSSI; and
 - European eel, which was found in Q6.

- 4.4.94 The Afon Gwyrfai, Nant-y-Betws and Llyn Padarn have the potential to support a number of non-protected species, and a small population of 3-spine stickleback had been found in Q6 [APP-074].
- 4.4.95 Potential effects on fish species may arise from activities including discharges of water to Llyn Padarn and to Nant-y-Betws; abstraction of water from Llyn Padarn; disturbance to Llyn Padarn during the construction of the outfall; disturbance to the Nant-y-Betws during the construction of access crossings; and the dewatering of Q6. Potential water quality impacts are considered in Section 4.3 of this report.
- 4.4.96 The ES states that the residual effects would be negligible, with the exception of minor adverse effects on Atlantic salmon in Afon Gwyrfai a Llyn Cwellyn SAC and SSSI due to pollution, alternation of the flow regime, nutrient enrichment and reduction of water quality [APP-074]. There would be minor adverse effects on Arctic charr in the Llyn Padarn SSSI due to potential loss and disturbance of a small area of spawning grounds due to construction of the outfall; pollution, injury or killing during water abstraction; noise; and vibration [APP-074].
- 4.4.97 IPs, including Dr Rebecca Williams [REP2-026], Jeff Taylor [REP2-034] and the Snowdonia Society [REP4-040], raised concerns regarding effects on fish, including:
- the Arctic charr in Llyn Padarn *"have suffered for many years as a result of industrial discharges and inadequate regulation"*;
 - Llyn Padarn is home to rare fish that must be protected from pollution during the dewatering of Q6, which contained contaminated ordnance;
 - smoke float filling was *"lethal to fish in v small concentrations"* and there were *"hundreds of these items found dumped"*;
 - pit residues would be likely to contain contaminated materials with a potential for toxicity to animals; and that
 - substantial increases in flows in the Nant-y-Betws would be likely to flush out salmonid nests.
- 4.4.98 The Applicant responded to these concerns [REP3-026], stating that:
- water has drained from Q6 to Llyn Padarn over several decades without any apparent impacts;
 - water quality monitoring and any subsequent Action Plans required to address unusual results would be agreed with NRW;
 - the operator would ensure that any discharges would be consistent with the conditions of the EPs; and that
 - there are a number of likely barriers to the movement of salmonids in the Nant-y-Betws, which was not found to support any significant spawning ground.
- 4.4.99 NRW stated that it was satisfied with the assessment of potential effects on fish in the Nant-y-Betws and that these would be considered within the EP applications [REP2-047].

- 4.4.100 The Applicant does not confirm whether effects on fish in Q6 would be significant, however when taking into account the small populations and low value of 3-spine stickleback and European eel and the mitigation measures secured in the Outline CoCP [REP9-028], which has been agreed with GC and NRW, I am satisfied that this matter has been addressed adequately.
- 4.4.101 The Applicant noted that pre-commencement surveys may identify the need for NRW's consent for electro-fishing and removal of caught fish [APP-074 and REP9-002]. I have not been given any reason to believe that this would not be granted.

Conclusions

- 4.4.102 I have no reason to disagree with the Applicant's responses. I note the conclusions reached regarding water quality, contamination and ordnance in Section 4.3 and the relevant mitigation measures set out by the Applicant in the Outline CoCP [REP9-028], Outline Water Management Plan [REP9-026] and in the Outline Excess Water Management Plan [REP9-020], as secured by Requirement 8 of the recommended DCO, which have been accepted by NRW and GC. Further protection would be provided by the conditions of the EPs.
- 4.4.103 Based on the above, I am satisfied that the IPs' concerns have been addressed and that with the secured mitigation measures and EPs in place there are unlikely to be significant effects on fish. I am satisfied that sufficient consideration has been given to potential effects on fish for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policy B20.

Reptiles

- 4.4.104 Common lizard and slow worm were found within the Proposed Development site in very small numbers that were not felt to be significant in national and regional terms, or in local terms due to adjacent areas being known to support larger numbers [APP-074].
- 4.4.105 Potential effects due to habitat loss or degradation, disturbance or direct injury would be mitigated by measures in a Reptile Method Statement, including good site working practice, pollution prevention, habitat management, creation of new habitats and removal of species from working areas [APP-074]. The ES considered that there would be negligible or minor adverse residual effects [APP-074].
- 4.4.106 I was concerned that insufficient detail had been provided within the outline CoCP on the content of the Reptile Method Statement to align with the commitments expressed in the ES and how this was to be agreed [PD-025 and PD-026]. NRW commented that they would expect the minimum mitigation measures in the CoCP to include that the translocation methodology would follow best practice guidance and for a competent ecologist to oversee the works [REP7-042].

4.4.107 In reply the Applicant [REP7-004 and [REP9-030]:

- stated that it intended to undertake consultation on the Reptile Method Statement with NRW;
- updated the HMP section of the Outline CoCP [REP9-028] to note that the Reptile Method Statement would be submitted to GC before commencement; and
- included the points raised by NRW [REP7-042], with the exception that it included an option for a competent Clerk of Works to oversee the translocation works.

Conclusions

4.4.108 Although useful detail has been added to the Reptile Method Statement, I consider that the Applicant has not clearly and unambiguously confirmed that NRW would be consulted on later revisions to the Reptile Method Statement, that GC and NRW approval of it would be required prior to commencement of the works, or that a competent ecologist would oversee the translocation works.

4.4.109 However, I note that Requirement 6 the recommended DCO secures that the CoCP, of which the HMP and Reptile Method Statement are a part of, is to be approved by the relevant planning authority in consultation, where appropriate, with NRW. I am content that this mechanism would allow GC and NRW to ensure that the necessary consultations and approvals of the Reptile Method Statement would occur and that suitable requirements then would be put in place for the overseeing of the translocation works.

4.4.110 I am therefore satisfied that measures to ensure a suitable Reptile Method Statement would be secured by the recommended DCO and consider it likely that there would not be significant residual effects on reptiles. I am also satisfied that sufficient consideration has been given to the potential adverse effects on reptiles for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policy B20.

Bats

4.4.111 Baseline information on bats was established through desk studies and surveys [APP-111, APP-112, APP-113 and APP-114]. Activity, summer roosting and winter hibernation of several protected species of bats, including the Annex II species lesser horseshoe, were found within and in the vicinity of the Proposed Development site, including in existing tunnels near quarries Q5, Q6 and Q7 and in the former bomb store in Q8 [APP-074]. Nine potential tree roosts were identified. Bat droppings were found at the entrance to a culvert while optimal foraging habitat was found near Q5, Q6 and Q7 [APP-074].

4.4.112 Glynllifon SAC, 8km from the Proposed Development, is designated as a SAC due to the presence of a large population of lesser horseshoe bats. Consideration of the potential effects on the Glynllifon SAC in the context of the Habitat Regulations is provided in Chapter 5. The Llyn

Padarn SSSI has features which contribute to the special interest of the site, including semi natural broadleaved woodland and open water that provide foraging habitats for bats [APP-074].

- 4.4.113 The effects resulting from construction related impacts including disturbance, vibration, lighting and the loss and modification of some tunnel roosts, would be mitigated by the enhancement of retained tunnels, exclusion of bats from tunnels to avoid injury, habitat management and the design of lighting to relevant guidelines. The ES concludes that the residual effects to bats relating to those impacts would be minor adverse and not significant [APP-074].
- 4.4.114 It is likely that a tree with the potential to support roosting bats would be removed during the construction of the dam at Q6. The impact of removing trees which potentially support roosting bats was assessed to result in a permanent moderate adverse effect [APP-074].
- 4.4.115 Woodland and scrub would be removed due to the construction activities around Q6 and the outflow pipe and pumping station into Llyn Padarn, leading to a loss of foraging and commuting habitats. The long term impact on the local population of bat species due to the resulting fragmentation and isolation was assessed in the ES to be a permanent adverse moderate effect [APP-074].
- 4.4.116 Reduced disturbance due to increased security during operation was considered to result in a moderate beneficial effect [APP-074].
- 4.4.117 I asked NRW and GC for their comments on the suitability of the Applicant's assessment of effects and proposed mitigation methods, particularly in relation to blasting [PD-009 and PD-015].
- 4.4.118 NRW considered [REP2-047, REP5-049 and REP7-042] that:
- it had no information on the effects of air overpressure on bats;
 - it was content with the level of detail provided on the mitigation and enhancement measures for lesser horseshoe bats; and that
 - suitable mitigation had been included within the EPS licence.
- 4.4.119 GC reported that it was satisfied with the suitability of mitigation measures for bats in relation to blasting [REP2-041].
- 4.4.120 The Applicant anticipated that air overpressure impacts were not likely to be significant in the tunnels in which bats would roost due to the distances and the limits on air overpressure [REP6-002].
- 4.4.121 The Applicant received an EPS licence for bats from NRW to disturb, capture and transport and damage and destroy a breeding site or resting place of lesser horseshoe, Daubenton's and Natterer's bats [REP9-030]. This licence refers to a method statement, which focuses on tunnel roosting bats [APP-116]. I have seen no evidence to suggest that the licence would cover tree roosting bats, should any later be found in the suitable trees that have been identified.

Conclusions

- 4.4.122 I note that NRW and GC are content with the Applicant's proposed mitigation methods for bats, including with respect to blasting, and that NRW considers that sufficient mitigation has been secured in the EPS licence. I am not aware of any evidence that air overpressure impacts from blasting would have a significant adverse effect on bats.
- 4.4.123 The ES states that there "*may also need to be some trees felled on the fringes of Q6. SPH confirmed that bat surveys would be carried out prior to any felling and that appropriate mitigation will be put in place, likely in the form of replanting elsewhere within the Order Limits. This will be incorporated in to the Habitat Management Plan*" [APP-095]. However, I note that this mitigation has not been secured. Pre-commencement bat surveys are considered further below.
- 4.4.124 If, following pre-commencement surveys and detailed design, it was later identified that tree-roosting bats would be likely to be disturbed then my view is that an EPS licence may be required. The three tests for an EPS licence are that:
- the actions are for a purpose specified in regulation 53(2)(e) of the Habitats Regulations, which include imperative reasons of overriding public interest;
 - there is no satisfactory alternative; and
 - the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.
- 4.4.125 In terms of satisfying the three tests, I note the public benefits of the Proposed Development; the necessity for the trees to be removed or the roosts to be disturbed; and the likelihood that the populations effected would be small. I note that NRW and GC are content with the Applicant's proposed mitigation methods for bats. Based on the above, I am not aware of any reasons why an EPS licence for tree roosting bats would not be granted, should one be required.
- 4.4.126 I consider it unlikely that there would be any significant effects on bats, with the exception of the significant adverse effects on the local population of bat species due to the loss of tree roosts and fragmentation and isolation.
- 4.4.127 I am satisfied that potential adverse effects on bats have been assessed appropriately for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policies B20 and B21 and that these policies have been complied with, apart from with respect to the effects due to loss of tree roosts and fragmentation and isolation.

Birds

- 4.4.128 Birds considered to be confirmed, probable or possible breeders in the Proposed Development site following the desk studies and surveys [APP-074, APP-107, APP-109 and APP-118] included:
- Wildlife and Countryside Act 1981 Schedule 1 species of peregrine falcon and chough;
 - Birds of Conservation Concern red list species of cuckoo, lesser redpoll, ring ouzel, skylark, song thrush, linnet and yellowhammer;
 - BOCC amber list species of wheatear, whitethroat, meadow pipit, dunnock, redstart, willow warbler, kestrel, mistle thrush, redstart, grey wagtail, bullfinch and greylag goose; and
 - other common species of local importance.
- 4.4.129 Schedule 1 birds were recorded and red and amber list birds were found in Q6 and outside the quarries [APP-074].
- 4.4.130 Destruction of habitats of Schedule 1, red list and amber list species were considered to result in minor adverse residual effects [APP-074].
- 4.4.131 Potential effects due to the disturbance of Schedule 1 species during construction would be mitigated by supervision of the works and by prohibiting access to known nesting areas during the breeding season [APP-074]. Potential effects due to disturbance to red and amber list birds during construction would be mitigated by only allowing the removal of vegetation outside the breeding season, or inside the breeding season following inspection by an ecologist; and by fencing off retained areas of vegetation [APP-074]. In each case the ES considered that the residual effects would be negligible [APP-074].
- 4.4.132 Tom Hutton [RR-012], Snowdonia Wildlife Tours [RR-031], [REDACTED] [REP2-048], Ann Lawton [REP4-018] and Jeff Taylor [REP4-028], suggested that preliminary drilling investigations had disturbed nesting birds, including peregrine falcons, and that this lead to concerns about disturbance during construction.
- 4.4.133 The Applicant responded to these concerns [REP2-012, REP3-026 and REP5-006], stating that:
- the peregrine falcon is relatively good at withstanding some disturbance and often nests in active quarries;
 - a qualified ecologist had been employed with a watching brief for the preliminary investigation works;
 - construction works would be subject to a CoCP, Breeding Bird Method Statement and Construction Noise Management Plan that included measures such as for the timing of the works; and that
 - the Applicant had already provided mitigation through design, such as tunnelling the penstock rather than open cut.

- 4.4.134 I sought to clarify how controls of timing of the works would be agreed and secured. The Applicant provided an update to the Breeding Bird Method Statement section of the Outline CoCP to set out that all works would be controlled and monitored during the bird breeding period in accordance with a Method Statement to be agreed with GC in consultation with NRW prior to commencement of the works, thereby avoiding disturbance to Schedule 1 species [REP2-011 and REP5-005].
- 4.4.135 GC was of the view that NRW and GC should be consulted in advance of any works proposed during specified sensitive periods [REP5-044].
- 4.4.136 NRW [REP2-047 and REP5-049] stated that works that could affect birds during the bird nesting period should be avoided; it was satisfied with the assessment of effects on Schedule 1 species, subject to compliance with the mitigation plans; and that it considered that there were no specific confidential matters regarding Schedule 1 species that I needed to be made aware of.

Conclusions

- 4.4.137 I note the matters raised by IPs' regarding disturbances during the drilling works, but do not consider this material to the SoS's decision.
- 4.4.138 Based on the above, I have no reason to disagree with the Applicant's conclusion that there were unlikely to be any significant effects on birds. I am also satisfied that sufficient consideration has been given to the potential adverse effects on birds for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policy B20.

Badgers

- 4.4.139 An active badger sett was found within the area extending to 100m beyond the Proposed Development site. No evidence of foraging or badger paths indicated significant use of habitats within the Proposed Development site and the residual effects of the Proposed Development were considered to be negligible [APP-074].
- 4.4.140 The Applicant noted that pre-commencement surveys may identify the need for a badger sett closure licence under the Protection of Badgers Act 1992 [APP-074 and REP9-002]. I have no reason to doubt that would be granted.
- 4.4.141 NRW felt that a pre-commencement badger survey should be undertaken and that mitigation and licensing requirements should then be assessed to allow the design of mitigation measures and the need for a protected species licence to be determined [REP2-047].
- 4.4.142 GC advised that previous surveys had not found evidence of badgers, although there was a small sett nearby [REP2-041]. It considered that measures of conducting a survey prior to construction and good construction practice such as the closing of excavated holes overnight would be proportionate and adequate.

Conclusions

- 4.4.143 I note the current low level of badger activity and that the requirement for a pre-construction badger survey within 100m of the Proposed Development site is secured through the Outline CoCP [REP9-028], as secured by Requirement 8 of the recommended DCO. Appropriate mitigation measures would be based on the survey results and, if required, the conditions of a badger sett closure licence.
- 4.4.144 I am therefore satisfied that sufficient consideration has been given to avoiding potential adverse effects on badgers for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policy B20.

Invasive species

- 4.4.145 The phase 1 habitat survey recorded evidence of invasive plant species subject to legal controls, including instances of Himalayan balsam, rhododendron, Cotoneaster and Nuttall's pondweed [APP-099]. Following the implementation of mitigation measures including regular surveys to identify locations and measures to prevent disturbance and/or spread of the species, the residual effects were considered to be negligible [APP-074].
- 4.4.146 Further to my requests [PD-009, PD-015, PD-025 and PD-026], the Applicant provided and updated an Outline Biosecurity Plan [REP9-018] to clarify control measures set out in the ES [APP-074], provide more details of monitoring and set out more detail of what would be provided in the Biosecurity Plan.

Conclusions

- 4.4.147 I am content with the information provided to the Outline Biosecurity Plan [REP9-018], as secured by Requirement 8 of the recommended DCO, and recognise that both GC and NRW are satisfied with it. I therefore consider it likely that there would be no significant adverse effects with to invasive species. I am also satisfied that sufficient consideration has been given to avoiding the spread of invasive species for the purposes of GUDP Policy B35.

Other species

- 4.4.148 Other than as noted above in relation to fish, reptiles, bats, birds, badgers and invasive species, few concerns were raised in relation to the Applicant's assessment of potential effects on species [APP-074]. However, I do feel that some matters need to be addressed.
- 4.4.149 Potential effects on habitats that would also have a potential effect on species, and related mitigation are considered earlier in this Section of the report. Other effects on species considered in the ES include damage or killing through direct contact with vehicles, machinery or people and from noise, vibration or dust deposition [APP-074].

- 4.4.150 The Applicant has assessed potential effects on European and nationally protected and notable species, including plants, fungi, polecats, otter, water voles and invertebrates [APP-074].
- 4.4.151 Of the potential EPS considered, otters were not recorded during field surveys and no suitable habitats were found [APP-074].
- 4.4.152 The Applicant has agreed that a method statement would be submitted to NRW for the translocation of slow worms should the need for those be identified following pre-construction surveys [APP-074] and this is secured through the Outline CoCP [REP9-028].
- 4.4.153 Following the proposed mitigation no significant effects were identified on plants, fungi, polecats, water voles or invertebrates [APP-074].
- 4.4.154 The Applicant noted that pre-commencement surveys may identify the need for an EPS licence for floating water-plantain if found within the working width of the spillway [APP-074 and REP9-002].
- 4.4.155 Pre-commencement surveys for tree-rooting bats are considered further below, under the heading of 'Pre-commencement surveys'.
- 4.4.156 Although NRW have not advised that there would be no impediment to the granting of EPS licences, both they [REP2-047 and REP3-010] and GC [REP2-041 and REP4-006] have stated that they are satisfied with the conclusions of the ES, which includes reference to the potential requirement for an EPS licence for floating water-plantain [APP-074].
- 4.4.157 In terms of the three tests for EPS licences, I note the public benefits of the Proposed Development; the necessity for spillway infrastructure into Llyn Padarn; the small area of habitat involved; and the potential for micro-siting. I am not aware of any reason why an EPS licence for floating water-plantain would not be granted, should one be required.

Conclusions

- 4.4.158 I have no reason to disagree with the Applicant's approach.
- 4.4.159 Based on the above, I am of the view that the effects on floating water-plantain are likely to be limited and where adverse would be satisfactorily mitigated by measures including pre-commencement surveys and other measures set out in the HMP section of the Outline CoCP [REP9-028], as secured by Requirement 8 of the recommended DCO. Other protection would be provided by EPs and EPS licence(s).
- 4.4.160 I am also satisfied that the Proposed Development would not be likely to result in undue harm to other plants, fungi, polecats, water voles or invertebrates following mitigation provided through the Outline CoCP [REP9-028], as secured by Requirement 6 of the recommended DCO.
- 4.4.161 In my view, sufficient consideration has been given to avoiding the potential adverse effects on other species for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policy B20.

Pre-commencement surveys

- 4.4.162 Pre-commencement surveys were identified in the ES as being necessary to finalise mitigation measures [APP-074].
- 4.4.163 Responding to my requests to clarify pre-commencement surveys and how they were secured, the Applicant [REP2-011]:
- stated that pre-commencement surveys, were required for otter, badger, water vole, red squirrel dreys, trees, non-native species and depending on the timing of the works, Arctic charr spawning grounds and vegetation suitable for nesting birds;
 - clarified that the results would be provided to NRW and GC for comment, together with the final mitigation strategy; and
 - added more detailed reference to the pre-commencement surveys to the Outline CoCP [REP9-028].
- 4.4.164 NRW [REP2-047] and GC [REP2-041] agreed that pre-construction surveys were necessary for certain species due to their mobile nature and NRW considered that they should be set out in the CoCP.
- 4.4.165 I note that NRW and GC are satisfied with the Outline CoCP [REP9-028], that there would be opportunities to finalise the mitigation measures set out in the various relevant plans subject to agreement by the relevant planning authority in consultation with NRW.

Conclusions

- 4.4.166 The Applicant has not secured pre-commencement surveys for water floating plantain or tree roosting bats. I note that these are EPSs and have therefore added Requirement 6(7) to the recommended DCO for the CoCP to require pre-commencement surveys for floating water-plantain in the vicinity of the spillway infrastructure in Llyn Padarn and for tree-roosting bats.
- 4.4.167 On that basis I am content that appropriate measures would be in place for the pre-commencement surveys and for the subsequent finalisation of mitigation measures.

Conclusions on policy and factual issues

- 4.4.168 I have had particular regard to the policies set out in NPS EN-1, PPW, GUDP and the guidance in TAN 5 in my consideration of the biodiversity, ecology and geological conservation aspects of the Proposed Development. European sites in the context of the Habitats Regulations are addressed separately in Chapter 5.
- 4.4.169 NRW and GC both stated that they were satisfied with the scope of the impact assessment, its methodology and the conclusions reached in respect to the assessment of significant effects. They were also satisfied with versions of the key outline mitigation plans that were developed during the Examination, including the Outline CoCP [REP9-028] (incorporating outline versions of the Pollution Prevention plan,

Breeding Bird Method Statement, HMP and Landscape and Reinstatement Plan) and the Outline Biosecurity Plan [REP9-018]. These are secured by Requirement 8 of the recommended DCO.

- 4.4.170 In accordance with NPS EN-1, the ES assesses the LSE on internationally, nationally and locally designated sites of ecological importance, protected species, habitats and other species identified as being of principal importance for biodiversity [APP-074]. The potential effects on ecological receptors during construction and operation of the scheme have been identified. The ES also proposed avoidance and mitigation measures and identified residual effects [APP-074].
- 4.4.171 I find that there is not likely to be a significant adverse effect on the notified special interests of the Llyn Padarn SSSI features or the Afon Gwyrfai a Llyn Cwellyn SSSI features. I am content that appropriate consideration has been given to SSSIs in accordance with paragraph 5.3.11 of NPS EN-1, paragraph 5.5.8 of PPW8 and GUDP Policy B16.
- 4.4.172 Although there will be some removal of trees, in my view that is necessary for the Proposed Development. My view is that trees have been addressed adequately in accordance with paragraph 5.3.14 of NPS EN-1, paragraph 5.2.9 of PPW8 and GUDP Policy B19.
- 4.4.173 Based on the above, I have no reason to disagree with the Applicant's approach to the assessment of locally designated sites and to other habitats in accordance with paragraphs 5.3.13 and 5.3.17 of NPS EN-1, and section 5.5 of PPW8 and consider it likely that there would be no significant effects on them, as required by GUDP Policy B17.
- 4.4.174 Potential adverse effects from noise on wildlife and biodiversity have been assessed in the ES, which has demonstrate that the effects due to noise, vibration or air overpressure from blasting are not likely to be significant. In my view the purposes of paragraph 5.11.2 of NPS EN-1 have been satisfied in this respect.
- 4.4.175 The spread of invasive species has been considered and mitigation secured in the Outline Biosecurity Plan [REP9-018], that I find to be sufficient for the purposes of GUDP Policy B35.
- 4.4.176 I am therefore satisfied that sufficient consideration has been given to species for the purposes of section 5.3 of NPS EN-1, section 5.5 of PPW8 and GUDP Policy B20.
- 4.4.177 Although an EPS licence has been granted for bats I have seen no evidence that this would cover tree roosting bats [REP9-030].
- 4.4.178 I have added Requirement 6(7) to the recommended DCO to require pre-commencement surveys for floating water-plantain in the vicinity of the spillway infrastructure in Llyn Padarn and for tree roosting bats.
- 4.4.179 I note that pre-commencement surveys may identify the need for EPS licences for tree roosting bats and for floating water-plantain if found

within the working width of the spillway. With respect to paragraph 5.3.20 of NPS EN-1 and following consideration of the three tests for EPS licences noted earlier in this section, I am not aware of any reasons why those EPS licences would not be granted, if required.

- 4.4.180 Similarly I have no reason to doubt that a badger sett closure licence under the Protection of Badgers Act 1992 would be granted, should one be required. I have not been given any reason to believe that consent for electro-fishing and removal of caught fish, or approval of a method statement for slow worms translocation would not be granted should their need be identified following pre-construction surveys.
- 4.4.181 I find it likely that the loss of tree roosts coupled with fragmentation and isolation due to the loss of foraging and commuting habitats would result in permanent significant adverse effects on the local population of bat species roosting within the area of the Proposed Development. In my view it is unlikely that there would be any other significant effects on bats.
- 4.4.182 GUDP Policy B21 only permits fragmentation of habitats if the reasons for the development clearly outweigh the need to retain the features. This is addressed in the overall planning balance in Chapter 6 as part of the overall consideration of adverse effects on bats.
- 4.4.183 Other than with respect to pre-commencement surveys and effects on bats, in my opinion the concerns raised by IPs about the impact of the Proposed Development on Llyn Padarn, the Nant-y-Betws, trees, habitats in the vicinity of Ffordd Cefn Du, fish, birds, and other habitats and species would be likely to be addressed through the detailed design process, the mitigation measures secured through the Outline CoCP [REP9-028], Outline Biosecurity Plan [REP9-018], as secured by Requirement 8 of the recommended DCO, and the likely conditions of other consents and licences.
- 4.4.184 Noting NRW's and GC's comments, I am content with the assessment of potential effects on biodiversity and ecology and that appropriate mitigation measures have been secured by the recommended DCO. I therefore find that, with the exception of significant adverse effects related to bats, no significant adverse effects are likely on designated sites, protected species, or other species or habitats. With the provisions of the CoCP and the Landscape and Reinstatement Plan, I am also satisfied that the Applicant has demonstrated sufficient commitment to securing opportunities for enhancement in line with paragraph 5.3.18 of NPS EN-1 and GUDP Policy B17.
- 4.4.185 My view is that the Applicant has sufficiently addressed potential lighting impacts for the purposes of GUDP Policy B34 and that with the mitigation secured in Requirement 14 and 16 of the recommended DCO that there would be unlikely to be any significant effects.
- 4.4.186 I have found no evidence of significant adverse effects on geological conservation. Although the underground elements of the Proposed

Development would effectively sterilise some areas for future mineral extraction there is no evidence that this would be significant in the terms of the resources available in the adjacent area.

- 4.4.187 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for biodiversity, ecology and geological conservation, in addition to those specifically identified in this section. On that basis, I am satisfied that biodiversity, ecology and geological conservation have been appropriately addressed in terms of the Application; clarifications provided during the Examination process; the agreements reached with statutory bodies; and the mitigation measures secured by the recommended DCO and other consents and licences.
- 4.4.188 With the exception of likely significant adverse effects on bats, I am satisfied that relevant policy has been addressed and that the Proposed Development would be unlikely to have an unacceptable effect on biodiversity, ecology or geological conservation.
- 4.4.189 I conclude that the significant adverse effects on the local population of bat species due to the loss of tree roosts and fragmentation and isolation should weigh against the Order being made.

4.5 TRAFFIC AND TRANSPORTATION

- 4.5.1 This section covers traffic and transportation. Noise and vibration, including potential damage to buildings from vibration from traffic, are covered in Section 4.6, air quality in Section 4.7 and PRoW and accessibility in Section 4.8. Section 4.10 covers common law nuisance and statutory nuisance, while decommissioning is in Section 4.13.

Policy context

- 4.5.2 NPS EN-1 identifies traffic and transportation as a topic that should be considered in the assessment of any NSIP (Section 5.13). It advocates that *"the transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Impacts may include economic, social and environmental effects. Environmental impacts may result particularly from increases in noise and emissions from road transport"* (paragraph 5.13.1).
- 4.5.3 PPW8 requires that account be taken of travel demand impacts and of environmental impacts, including noise (paragraph 8.5.7).
- 4.5.4 TAN 18 recognises that road traffic can have negative effects on human health and the environment and sets out thresholds and criteria for assessing new development. Although it doesn't refer to construction traffic, the Applicant adopted the principles of TAN 18 as part of its construction methodology [APP-079].

- 4.5.5 GUDP Policy CH28 states that developments that promote sustainable and environmentally accepted modes of transport will be favoured.
- 4.5.6 Policy CH33 requires vehicular access to the site to be safe; that improvements required to the existing road network are in keeping with the local area; and that appropriate traffic calming measures are provided where there is a substantial increase in traffic.
- 4.5.7 Policy CH34 states that proposals will be refused if they create an unacceptable increase in traffic on Rural Lanes.

The Application

- 4.5.8 The main sections of the ES relevant to traffic and transportation are:
 - Chapter 12 Traffic & Transportation [APP-079]
 - Appendices 12.1 and 12.2 [APP-136 and APP-137]
- 4.5.9 The ES sets out the potential highway effects during construction and operation [APP-079]. Traffic counts were carried out at junctions relevant to the access routes proposed from the west (to Q1) and east (to Q6) to identify base traffic levels. Anticipated construction and operational traffic numbers were then quantified for the Proposed Development and combined with the base flows. These, together with consideration of the capability of the network to accommodate abnormal loads and accident records, informed an assessment of potential effects, mitigation and potential residual effects [APP-079]
- 4.5.10 The ES assessed potential effects on highways, pedestrians, cyclists, public transport, road safety and driver delay due to increases in daily light traffic and HGV movements on the route from the A4085 along Ffordd Cefn Du to Q1 and from the A4086 to Q6 [APP-079].
- 4.5.11 Key mitigation measures which aimed to reduce additional vehicle movements and their effects, were identified through the implementation of a Construction Site Safety Plan and a CoCP.
- 4.5.12 Once operational the development would typically be manned by 25-35 staff. Access would be from the A4086 with occasional maintenance trips to Q1 from the Waunfawr side. Traffic flows would be "*notably less than those experienced during the construction phase*" [APP-079].
- 4.5.13 The Cumulative Effects Chapter of the ES [APP-084] considered that:
 - there would not be significant cumulative effects with the grid connection works due to availability of alternative routes;
 - there would not be significant cumulative effects with the Wylfa Newydd Nuclear Power Station due to the staggered timing of the construction periods and the potential for Wylfa Newydd to reduce traffic volumes if required; and that
 - cumulative effects with the Caernarfon to Bontnewydd Bypass would not be significant due to their scale and temporary nature.

- 4.5.14 The Applicant clarified [REP2-011, FWQ Appendix 2.7] its assessment that the overall potential residual effect on traffic and transportation would be minor adverse due to increases in traffic and not significant.

SoCG and the LIR

- 4.5.15 In their SoCG the Applicant and GC agreed that an adequate traffic and transportation assessment had been undertaken and that a Construction Traffic Management Plan (CTMP) was an appropriate way of agreeing construction routes, traffic management and restrictions and signage to reduce effects on local communities [REP4-006].

- 4.5.16 Matters raised in GC 's LIR [REP2-037 to REP2-40] include that:

- Q6 could be accessed from the A4086 highway via a wide junction and standard internal road and it was not believed that there would be excessive impacts as traffic would be kept away from the most prominent residential concentration in Llanberis;
- access to Q1 was more complex due to the nature of the existing road and its proximity to houses, road improvement works were required through a s278 agreement to facilitate additional movements and transport management would be required to safeguard local residents during construction; and that
- the information submitted in the ES [APP-084] was thorough and clear and that it was possible to ensure the implementation of measures to safeguard the roads network and local residents.

Outline management and mitigation plan

- 4.5.17 An Outline CTMP [REP9-012] was developed during the Examination. This plan sets out the measures that would be implemented to mitigate the impact of construction vehicle trips, especially HGVs, to and from the Proposed Development, the requirements made of contractors and an overview of a Travel Plan.
- 4.5.18 The Outline CTMP would be certified by Article 36 of the recommended DCO. It contains matters that must be addressed and minimum standards to be complied with in subsequent versions of the plan (Requirement 8) to be submitted to and approved in writing by the relevant planning authority (Requirement 6).
- 4.5.19 GC stated in an email provided by the Applicant [REP-030] and previously [REP4-026, REP7-044 and REP9-042] that it was satisfied with previous versions of the Outline CTMP. I have not been given any reason to believe that GC would have a different view on the latest version submitted at D9.
- 4.5.20 The Applicant submitted the document 'Ffordd Cefn Du Highway Improvements' for explanatory purposes during the Examination to provide an overview of the proposed highway improvements the Ffordd Cefn Du section of the construction route to Q1 [REP3-025].

- 4.5.21 As works to Ffordd Cefn Du are not integral to the Proposed Development and are subject to a separate s278 agreement with GC, it is not appropriate for either the explanatory document or provisions included the s278 agreement to be secured by the recommended DCO. Nevertheless, the information assisted with my consideration of whether the effects of the Proposed Development on Ffordd Cefn Du would be mitigated and whether that mitigation would be secured.
- 4.5.22 GC advised [REP4-026] that the Ffordd Cefn Du Highway Improvements document [REP3-025] accurately reflected their understanding in respect to the s278 agreement and considered that it did not conflict with or prevent measures set out in the Outline CTMP.

Other factual issues considered during the Examination

- 4.5.23 Traffic and transportation issues included:

- baseline traffic data;
- construction trip generation;
- Ffordd Cefn Du;
- alternative construction routes;
- Ffordd Clegir temporary closure; and
- other traffic and transportation matters.

Baseline traffic data

- 4.5.24 Traffic data used to inform the 2012 T&CPA planning application was updated by counts to establish peak hour traffic data and daily traffic flow on the key routes to Q1 from the west and to Q6 from the east. The traffic counts were carried out from 07:00 to 19:00 on Thursday 26 March 2015 at 6 junctions and to a scope agreed with GC Highways Authority [APP-079 and REP2-041].
- 4.5.25 Dr Jane Huuse [REP2-028, REP2-030, REP3-031 and REP4-021] said:
- the March 2015 traffic count indicated 54% higher traffic for Ffordd Cefn Du than indicated by the 2012 traffic count and yet the Applicant provided no explanation of the difference;
 - the 2015 traffic count was potentially compromised by overlapping with the pilot drilling operations;
 - traffic counts undertaken by the community on Thursday 17 March 2016 were within 12% of the Applicant's 2012 figures;
 - the 2015 traffic count was anomalously high and invalid;
 - any realistic impact assessment should consider projected construction traffic against the lower 2012 and 2016 traffic data;
 - the assessment of effects on residents further up Ffordd Clegir should be based on traffic counts at the cattle grid instead of at the Groeslon crossroads, which were three times higher; and that
 - the Applicant should carry out a count above the cattle grid.
- 4.5.26 The Applicant responded to these concerns [REP3-026, REP4-014 and REP5-006] by:

- providing details of the March 2015 traffic count [REP3-023];
- stating that the March 2015 traffic count was undertaken by an independent company and had been reviewed by GC;
- noting that the preliminary ground investigations started on 30 March 2015 and therefore did not conflict with the traffic count;
- saying that it could not comment on the traffic count undertaken by the local community;
- stating that it did not accept that the Applicant's 2012 count and the community 2016 count were the most realistic;
- suggesting that recent traffic counts by GC [REP2-041] had aligned with the Applicant's;
- stating that the crossroads was a key point on the network that would cover the majority of receptors; and by
- noting that the use of the traffic counts at the crossroads for the assessment of effects on Ffordd Cefn Du was agreed with GC.

4.5.27 GC considered that a traffic count above the cattle grid would not be of significant value [REP4-026].

4.5.28 In their response to my question regarding the potential effects of tourism traffic, GC were content that the Applicant's traffic counts had been carried out in a neutral month; that recent traffic counts carried out by the Highway Authority during a peak month only showed a marginal increase over a neutral month; and that the Applicant's assessments were considered to be acceptable [REP2-041].

Conclusions

4.5.29 I observe that the Applicant has not explained the difference between its 2012 and 2015 traffic counts or commented on the figures provided by Dr Jane Huuse. I am, however, satisfied that the Applicant has demonstrated that its 2015 results would not have been invalidated by traffic for the ground investigation, given that the ground investigation did not start until the week after the traffic count.

4.5.30 I am unsure how GC's peak month count could be said to align with its own neutral month count, given that the two counts were carried out at different times of the year, and therefore gives little weight to this in respect to representative neutral traffic counts in the assessment.

4.5.31 I find insufficient evidence to invalidate the Applicant's 2015 traffic count. Noting that GC are content with the approach and that the 2015 traffic counts are the most recent undertaken by the Applicant, I am satisfied with the use of the 2015 traffic counts in the assessment.

Construction trip generation

4.5.32 The number of vehicles that would use the access routes to Q1 and Q6 during construction were based on the construction methodology, information on the number of workers on site and the types, sizes and numbers of abnormal roads [APP-079]. The numbers were increased by 25% *"to provide a level of robustness to any assessment"*.

- 4.5.33 The approximate durations of the main construction traffic were envisaged to be 29 months to Q1 and 48 months to Q6 [APP-079].
- 4.5.34 The Welsh Government requested details of abnormal loads and vehicles and the access routes from the port of entry or the Welsh border [REP2-056]. The Applicant referred to the information provided in the CoCP and CTMP and said that it would continue to liaise with GC and the Welsh Government [REP3-026].
- 4.5.35 A number of comments were made by IPs, including Dr Jane Huuse [REP2-028, REP2-030, REP3-031, REP4-021, REP5-039, REP7-049], Dr Mads Huuse [REP3-031 and REP10-008], Mike Vitkovitch [REP5-047] and Cherry Bartlett [REP7-046], and included:
- that increasing the number of HGV's from the 2 HGVs per day in the 2012 plans to 79 per day during the peak construction times was "*unfathomable*" and not consistent with the Applicant's statement that "*the revised scheme is identical in every respect to the original one, save for the size of the buried equipment ... I can't say more clearly: nothing above ground would change*";
 - whether Ffordd Cefn Du would be used at night and whether the figures included all services traffic such as catering and security;
 - whether there would be a worker's village on the site; and
 - whether sufficient allowance had been made for the vehicle movements required to construct the penstock.
- 4.5.36 In reply the Applicant [REP3-026] stated that:
- traffic counts had increased from 2012 following discussions with GC and a third party specialist haulage company, to ensure a suitably precautionary approach and to provide further flexibility;
 - the figures should be seen as a worst case scenario;
 - the number of HGV movements along Ffordd Cefn Du would generally be 9 each way per day, apart from 25 per day each way in two months and 35 each way per day in one month;
 - the quote attributed to the Applicant comparing with the 2012 T&CPA planning application related to the physical nature of the Proposed Development and was taken out of context;
 - no 24 hour shift working was proposed with the exception of the penstock excavation and there were no proposals to use Ffordd Cefn Du outside the working hours proposed in the DCO;
 - security would be present 24 hours per day;
 - catering traffic would be within construction working hours;
 - there was no requirement for vehicles to access Q1 during the night with the exception of security;
 - it has not proposed a worker's village onsite; and that
 - the penstock design had been fully assessed within the Rochdale Envelope used for the ES and even with the worst case over break and bulking scenarios proposed by the IP there was enough space in the proposed tips to accommodate the waste material without the need to transport off-site.

4.5.37 Responding to my questions [PD-009, EV-016, EV-021, PD-015 and PD-025] regarding volumes of materials and waste; the number of offsite trip by workers during the day; the basis for the 25% increase; and the increases in predicted HGV movements since the approval of the 2012 T&CPA planning application [APP-086], the Applicant [REP2-011, REP4-014, REP5-005 and REP7-004] stated that:

- tonnages of materials to be imported and removed from the site had been estimated by consideration of engineering and design;
- the majority of material generated was slate/rock that would be incorporated into the construction of the Proposed Development with 650,000m³ transported from Q6 to Q1 by underground conveyor and some used for highway improvements;
- it was intended that adequate on-site canteen and welfare facilities would be provided for construction staff;
- the 25% increase was an arbitrary figure that was considered to represent an overestimate of fluctuations during construction;
- more detailed assessment had been undertaken since the approval of the 2012 T&CPA planning application that had led to changes in the construction methodology for Q1 and transport of materials from Q6 to the excess slate mounds near Q1; and that
- increases in predicted HGV movements since 2012, including the 25% increase adopted in the ES, were an increase in HGV movements to Q1 from 788 to 11,208, an increase in HGV movements to Q6 from 8,702 to 19,448 and an increase in duration for Q6 from 36 months to 48 months.

Conclusions

4.5.38 I consider it appropriate that the Applicant has taken a precautionary approach to the estimate of construction trip movements and that, at the current, it is also appropriate to allow some flexibility for the choice of working methods by the contractor. Although the comparison with the 2012 figures is noted, I consider that the priority is to establish an appropriate basis and assessment for the current scheme.

4.5.39 In my opinion the Applicant has addressed questions regarding estimates of the number of vehicle movements required to transport of materials, or indeed for other traffic movements, and there is not sufficient evidence for me to disagree with those estimates.

4.5.40 Regarding working hours, I consider these are clearly set out in the recommended DCO and in the Outline CTMP [REP9-012], as secured by Requirement 8 of the recommended DCO, and am not convinced of suggestions that these have not been properly assessed.

4.5.41 Based on the above, and noting that GC are content, I conclude that the Applicant's estimates of construction trip numbers are likely to be appropriate for the assessment and that the secured mitigation would be likely to assist in reducing trip generation. The need to put a cap on construction trip generation is addressed below.

Ffordd Cefn Du

- 4.5.42 Access is proposed to the Q1 area from the A4085 on minor roads, passing a number of residential properties and running straight through, and against the current priority of the Groeslon crossroads. It then runs via a number of bends on its way up to and over a cattle grid to a 2.5m wide road with grass verges in the higher reaches, before arriving at the site of the Proposed Development [APP-079].
- 4.5.43 Increases in total traffic at the Groeslon crossroads would be between 38% and 64% during normal construction activity and between 59% and 112% during two peak months; the large percentage increases being attributed to the low base traffic levels [APP-079].
- 4.5.44 Mitigation measures delivered through a proposed s278 agreement with GC would include general highway improvements, widening to 4m and bend straightening where possible, new passing places, cattle grid replacement and a temporary change in priority at the crossroads. Mitigation measures secured by the recommended DCO, particularly in the CTMP, would relate to traffic management, speed limits, timing restrictions for HGV, pedestrian and cyclist safety, the use of banksmen for abnormal loads and arrangements for any footpath or footway diversions. Following this mitigation the residual effects were considered to be minor adverse and not significant [APP-079].
- 4.5.45 Waunfawr Community Council considered that there would be adverse nuisance and safety effects on residents located on the access route and those who used the road network around Waunfawr [REP2-057, REP4-019 and REP7-043]. They suggested that the road was unsuitable for heavy vehicles, was very dangerous when vehicles were trying to pass each other and expressed concerns about the safety of children on the way to and from school and about people with prams on the stretches of the road where there were no pavements.
- 4.5.46 A large number of representations were received from IPs raising concerns about the potential adverse impacts arising from the use of Ffordd Cefn Du as the construction route to Q1, including Tom Hutton [RR-012], Dr Mads Huuse [RR-025, REP3-031, REP7-050, REP8-004 and REP10-008], Dr Jane Huuse [RR-026, REP2-028, REP2-030, REP3-031, REP4-021, REP5-039, REP7-049 and REP8-004], Christine Jordan [RR-030, REP2-025 and REP7-047], Cherry Bartlett [RR-035, REP4-020, REP6-023, REP7-046 and REP10-007], Alessa Jaendling [RR-041], Dorrie Jandling [RR-042] and Michael Vitkovitch [REP7-053].
- 4.5.47 IPs' comments and the Applicant's responses [REP2-012, REP3-026, REP4-011, REP5-005; REP5-006, REP6-002, REP7-004 and REP9-029] are covered below under headings of 'general matters', 'disruption', 'security', 'controlling vehicle movements' and 'post-construction'.
- 4.5.48 General matters:
- IPs' comments:

- the road is single track with blind bends, adverse gradients and no pavements;
- there are no speed restrictions in the upper part of the road;
- 56 households use the road and 16 drives exit directly onto it;
- residents use part of the road as their only means of parking;
- the assessment grossly misrepresents adverse traffic effects, which would make life a misery for the community;
- 92% of respondents to a Waunfawr village survey in March 2016 objected to the use of the proposed access route;
- HGV trips represented an increase of 300-900% and should be considered substantial adverse effect and not minor adverse;
- with delays, construction could take 4-6 years and therefore should not be considered a temporary effect;
- if the conveyor option to transfer slate to Q1 was impractical, then it would need to be transported via the highway network;
- no satisfactory mitigation has been put forward; and
- the community would like an opportunity for dialogue with GC.

Applicant's responses:

- key mitigation including timing restrictions, speed and safety measures would be secured in the CTMP for approval by GC;
- highway improvements would be carried out under a s278 agreement to a specification agreed with GC;
- an Outline CTMP [REP3-025] and summary of the Ffordd Cefn Du Highway Improvements [REP9-012] provided more detail of the proposed mitigation measures and had been accepted by GC;
- improvements included drainage repairs and stabilisation works;
- an Environmental Liaison Officer would provide information to local residents and provide a point of contact for any concerns;
- daily traffic would increase by a maximum of 112%;
- the Applicant had committed [REP9-028] to using a conveyor in the penstock to transport slate material from Q6 to Q1; and
- the Outline CTMP [REP9-012] had developed significantly in response to IPs' comments and to my requests.

4.5.49 Disruption:

IPs' comments:

- increased traffic for up to 3 years would severely impact school children, walkers, bikers, equestrians and residents;
- there was potential for grid lock from vehicles not seeing each other in time to use the passing spaces without reversing;
- there were no passing spaces possible for the first 500m up from the Groeslon crossroads, where local traffic was greatest;
- no new passing spaces were proposed on the section below the crossroads where large vehicles and cars struggled to pass;
- there would be poor access for emergency vehicles; and
- the highway improvement works would cause disruption.

Applicant's responses:

- the highway improvements, with widening to 4m above the cattle grid, allow the road to accommodate the additional traffic;
- a swept path analysis had confirmed the suitability of the highway improvements for HGV and abnormal loads;
- there was sufficient road width to the majority of places below the cattle grid;
- passing places above the cattle grid were positioned to ensure sufficient forward visibility to allow giving way to other users and were not located directly outside residential properties;
- a temporary car park would allow residents to park off-road during construction, although it was only needed during the infrequent movement of abnormal loads;
- the CTMP included a commitment not to block driveways;
- the existing road is already tarmacked, in poor repair and needs to be fixed irrespective of the Applicant's involvement; and
- given the amount of local traffic, local access was a manageable problem during the widening works.

4.5.50 Safety:

IPs' comments:

- there were large sections where anyone walking, riding or cycling would have no path or physical option to avoid HGVs;
- the construction traffic would be frightening and intimidating;
- school children congregate at the Groeslon crossroads to wait for the school bus and walk along the road to and from home;
- school children walk home before the 4.30pm cut off for HGV;
- providing pavements in narrow sections would improve safety;
- houses, many without foundation, were within a few metres of the road on slope beneath the road level and had significant risk of collapse from repeated HGV traffic; and
- an independent road safety audit should be carried out.

Applicant's responses:

- public safety was of paramount concern for the CTMP;
- a road width of 4m is appropriate for streets with a contraflow cycle lane, allowing sharing of the road with pedestrians;
- the proposed works would reduce fear and intimidation;
- the HGV start time of 8.30am would reduce any effect on school children waiting for the school bus;
- a 20mph speed limit would be implemented during construction;
- footway improvements and measures to reduce traffic speeds would be introduced at the Groeslon crossroads;
- it was not expected that HGV would cause damage to properties;
- the Applicant invited anyone concerned about the structural integrity of a property to make them aware of any concerns; and
- a road safety audit was being carried out.

4.5.51 Controlling construction vehicle movements:

IPs' comments:

- it is not clear how it was practical for construction vehicles to give way to other users or how that would be enforced;
- use should be restricted to 8.00am to 6.00pm, rather than 7.00am to 7.00pm;
- monitoring proposals would take 6-10 weeks to address any traffic movements exceeding the predictions when it should be possible for this to be investigated immediately; and
- CCTV could be used to monitor vehicles and any damage caused.

Applicant's responses:

- construction traffic was required to give way to other road users;
- a communication system between control units at each end of the road would be used during peak activity or abnormal loads;
- HGV drivers would be required to communicate with each other as they travel along Ffordd Cefn Du to ensure that they use passing places and warn other drivers of other road users;
- the timing of HGV movements would be restricted to 8.30am - 4.30pm and other construction traffic to 7.00am - 7.00pm;
- traffic counts would be automatically recorded, reported on a regular basis and measures to address flows in excess of predicted levels would be agreed with GC, as appropriate;
- monthly reports of traffic to GC would also provide an estimate of traffic movements for the following month;
- traffic movements exceeding predictions would be addressed within a maximum of 6 weeks; and
- remote security cameras were not considered appropriate due to privacy issues, requirements for landownership agreements, electrical connections and the erection of poles for the cameras.

4.5.52 Post-construction:

IPs' comments

- widening of the road would potentially open up the hillside to future development and lead to nuisance by attracting speeding cars and people using passing spaces for parking;
- traffic calming measures should be required; and
- Ffordd Cefn Du should be reinstated to its current width and character after the construction works.

Applicant's responses

- it was agreed with GC that the widened road and passing places would be retained after construction and this would lead to permanent safer and improved access to Cefn Du for recreation;
- the Applicant was not responsible for public use of the road outside its own use for construction and operation; and
- it understood that traffic calming may be implemented after the works if this was deemed to be a problem.

- 4.5.53 Alternative construction routes are considered later in this section.
- 4.5.54 I also raised [PD-009, EV-016, EV-021, PD-015, PD-025 and PD-026] other matters, including:
- requests to secure mitigation and provide more detail on traffic management measures in the Outline CTMP [REP9-012];
 - whether construction traffic movements should be capped;
 - whether The Crown Estate had agreed to the acquisition of land required for the widening works;
 - whether the local community would be consulted on the s278 highway improvements; and
 - requests for GC's comments on various aspects of the proposals.
- 4.5.55 In response to my questions the Applicant stated [REP2-011, REP4-014, REP5-005, REP7-004 and REP9-030] that:
- updates were provided to the Outline CTMP [REP9-012], including the 20mph speed limit, measures to avoid gridlock, monitoring of vehicle numbers, measures to address where vehicle movements were greater than predicted, timing and notice for abnormal loads; timing restrictions for HGV, measures to identify causes of damage to properties, a temporary car park for residents, a commitment not to block driveways, a complaints register and references to mitigation provided by the s278 agreement;
 - it was highly confident that the measures would be successful;
 - it was inappropriate to place a cap on vehicle movements at this stage as a contractor had not been appointed and so a confirmed programme and construction methodology were not available;
 - a cap on vehicle movements at this stage would not allow reasonable flexibility and would affect the overall programme;
 - a letter of consent [REP4-005] had been received from The Crown Estate for the highway improvement works;
 - 'Ffordd Cefn Du Highway Improvements' [REP3-025] gave IPs the opportunity to comment on the s278 proposals; and that
 - a community consultation event was held on 29 June 2016 and the Applicant welcomed further feedback from residents.
- 4.5.56 GC responded [REP2-041, REP4-026, REP5-044 and REP7-044] that:
- the road above the cattle grid was predominately for access and recreational use and the predicted construction traffic levels were clearly a significant increase;
 - a 20mph speed limit was a reasonable compromise in reducing construction traffic speed without frustrating other road users;
 - the Applicant's swept path analysis had identified the widening works required to accommodate abnormal loads;
 - HGV movement limits should be included in the CTMP;
 - fear and intimidation were sufficiently addressed and mitigated in the Outline CTMP [REP9-012];

- safety for school children and at blind bends and pinch points were addressed to a degree in the Outline CTMP [REP9-012] and other concerns would be addressed in the full CTMP;
- opportunities to improve the highway between the crossroads and cattle grid were very limited due to the narrow corridor;
- no more measures needed to be added to the mitigation proposals to address the community's safety concerns; and that
- appropriate mitigation had been proposed to deal with the increase in traffic that would result from the development.

Conclusions

- 4.5.57 Given that GC have agreed with the Applicant's assessment that there would not be a significant effect, my view is that GC's comment that construction traffic levels above the cattle grid were a "*significant increase*" was not intended to suggest that there would be a "*significant effect*" in the context of the EIA Regulations.
- 4.5.58 Opportunities afforded to IPs to comment on the construction route during the Examination helped me to understand the potential for safety and disruption impacts. A number of IPs have made an important contribution to developing the mitigation measures that are now set out in the Outline CTMP [REP9-012], as secured by Requirement 8 of the recommended DCO. I am grateful for the assistance that IPs have provided and, although I suspect that few will be fully satisfied with the final document, I do consider that their input has resulted in an Outline CTMP that achieves a satisfactory and appropriate balance and is likely to address the concerns raised.
- 4.5.59 The matter of whether numbers of HGV vehicles should be capped merits careful consideration. The Applicant considers that a cap would not provide it with reasonable flexibility going forward. I also note that the Applicant had taken a precautionary approach to its estimate of numbers, which included consideration of options for different working methods, and that 25% had been added to allow a robust assessment.
- 4.5.60 I consider that the Applicant should reasonably be expected to provide realistic predictions of construction traffic at this stage of the development and am mindful that the Applicant was required to identify a worst case scenario for the purposes of the assessment. If the predicted traffic levels considered in the ES were exceeded it is not clear to me what the consequences would be for the effects reported in the ES or whether the mitigation measures would be sufficient to ensure that no significant effects would occur.
- 4.5.61 I observe that the predicted traffic levels already represent a large increase over current levels; GC's comments on the increases; that GC recommend that the levels be capped; and that a cap was included as a condition of the consent of the 2012 T&CPA planning application.
- 4.5.62 I consider that confidence that the number of HGV movements assumed in the ES would not be exceeded is necessary for me to be

satisfied and have confidence that the potential impacts as assessed, consulted on and examined are not exceeded. My view is that insufficient evidence has been provided to justify that a limit would be unlikely to allow reasonable flexibility and I am not convinced by the Applicant's argument for why there should not be a limit.

- 4.5.63 I consider that a similar argument presented above for caps to HGV movements along Ffordd Cefn Du also applies to the route to Q6.
- 4.5.64 I note that the Application and Examination were based on movements being no higher than identified in the ES and that there has been no opportunity for consultation on or Examination of the potential additional effects of mitigation measures that would be required should the assessed movements be exceeded.
- 4.5.65 I therefore conclude that a limit on the movements of HGV vehicles on access routes during construction should be set to the levels assessed in the ES and have included a provision for this in Requirement 6(6) of the recommended DCO. The SoS's attention is drawn to the fact that this has not been agreed with the Applicant and that the Applicant is likely to disagree that it is necessary.
- 4.5.66 Although GC indicated [REP7-044] that few matters remained to be resolved with the s278 agreement and that it could be finalised before the close of the Examination, no confirmation of this was received. I am not aware of any reasons why the proposed s278 agreement would not be agreed or why those works would not provide the mitigation measures relied on by the Proposed Development.
- 4.5.67 Noting the measures added to the Outline CTMP [REP9-012] and GC's comments, I find that, subject to adding a cap on HGV movements, it is likely that the mitigation measures would ensure no significant effects. The measures would be secured by Requirement 6 of the recommended DCO; the Outline CTMP [REP9-012], as secured by Requirement 8 of the recommended DCO; and the proposed s278 agreement. I am satisfied that the assessment is appropriate for the purposes of NPS EN-1, PPW, TAN 18 and GUDP Policy CH33.
- 4.5.68 I am satisfied that the Applicant has taken appropriate measures for pedestrians, cyclists and horse riders. No evidence has been provided that designated Rural Lanes may be affected under GUDP Policy CH34.

Alternative construction routes

- 4.5.69 IPs, a number of who were concerned about the potential impacts of the proposed route to Q1 along Ffordd Cefn Du, suggested a potential alternative construction route to Q1 directly from the area of Q6.
- 4.5.70 Waunfawr Community Council requested that the Applicant provide an assessment of alternative routes, that it justify why a temporary track directly between Q6 and Q1 that used existing slate piles for

landscaping would not be preferable and that it provide evidence that other organisations would not favour such a route [REP2-057].

4.5.71 Comments from IPs, including Dr Jane Huuse [REP2-028, REP4-021 and REP5-039], Michael Vitkovitch [REP5-046 and REP7-053], Cherry Bartlett [REP10-007] and Dr Mads Huuse [REP10-008], included that:

- a temporary road from Q6 to Q1 would keep traffic within the site, provide visual benefits and avoid the disruption and safety impacts of the Applicant's Ffordd Cefn Du route;
- there was no evidence that GC, NRW, SNPA, Cadw and others had been properly consulted on the Q6 to Q1 option;
- a 1.8km route from Q6 to Q1 was possible with reasonable slopes and minimal cut and fill and may be shorter and cheaper than the highway improvement works proposed to Ffordd Cefn Du;
- GC's archaeological advisors, Gwynedd Archaeological Planning Service (GAPS), had been consulted about the alternative direct route from Q6 and Q1 and agreed that it appeared to avoid the main archaeological features;
- there were no landowner objections to a direct Q6 to Q1 route;
- the alternative would be more environmentally friendly and had the potential to be landscaped after construction;
- there was no evidence that the Applicant had properly considered a route between Q6 and Q1 that took the opportunity to follow the side of the hillside to reduce the gradient; attempted to avoid historic landscape features; or properly considered the feasibility of slopes greater than 10%; and that
- the Applicant had not properly justified their rejection of a direct route from Q6 to Q1.

4.5.72 The Applicant summarised options for alternative access to Q1 following an ISH [REP4-014 and REP4-015], which included that:

- the use of an existing "Mountain Road" was discounted as it was longer than the alternatives, had a series of tight bends and steep slopes that made it unsuitable for construction traffic and would require extensive earthworks;
- a direct Q6 to Q1 route had been considered in combination with a cut and fill option for the construction of the penstock and discussed with GC, the predecessor to NRW, GAPS and SNPA in 2012, but had been discounted due to potential adverse effects on historical and archaeological features, landscape and visual amenity, protected species, communities and water supplies;
- a straight curve option of 1.4km length would be too steep at 1:3 or 1:4 or require excessively large earthworks and embankments to achieve a 1:10 grade;
- a 1:10 zig-zag alignment option would require a 2.6km length of road and significant earthworks;
- there would be a number of potential adverse effects of each alternative, including on landscape and visual, ecology, archaeology and cultural heritage that could be significant;

- it would be disproportionate to provide more information on alternatives which had been rejected by the statutory authorities;
- improvements to Ffordd Cefn Du would be required in any case due to operational access requirements; and that
- Ffordd Cefn Du was clearly the better option.

4.5.73 The Applicant further responded [REP3-026, REP5-006, REP6-002 and REP9-029] to comments from IPs' that:

- the consideration of options had been summarised in documents submitted following the ISH [REP4-014 and REP4-015];
- the route between Q6 and Q1 would result in multiple likely significant environmental effects;
- following consideration of the direct route from Q6 to Q1 in 2012 it was agreed with GC that the Ffordd Clegir route to Q1 was the most appropriate, subject to highway improvements;
- GC and NRW supported this view for the Proposed Development;
- the topography and nature of the hillside meant that a temporary access road required substantial reinstatement and engineering;
- the "Mountain Road" would put traffic in the centre of Llanberis;
- a full environmental assessment had not been made of the direct route as it had been ruled out prior to the application;
- Michael Vitkovitch's proposed route from Q1 to Q6 appeared to cross a number of inclines and boundaries forming elements of historical field systems and the Applicant did not agree that it would result in no significant effects;
- however, Michael Vitkovitch hadn't provided sufficient information on his route for the Applicant to comment fully and the Proposed Development did not include such a route; and that
- the Ffordd Cefn Du route provided construction and operation access without any significant detrimental environmental impact.

4.5.74 GC noted that the proposed route along Ffordd Cefn Du would use an existing road, but recognised that upgrading works would be required and that *"its use will inevitably affect local residents"* [REP5-044]. However, it considered that the alternative routes from Q6 to Q1 would require substantial engineering works, would result in substantial impacts in terms of visual amenities, loss of habitat and loss of archaeological features and would not be a realistic option.

4.5.75 NRW [REP5-049] concurred with the summary table of potential effects in the Applicant's report on the alternative routes from Q6 to Q1 [REP4-015] and considered that those options would be likely to result in significant adverse effects on the landscape and visual amenity of Snowdonia National Park and the character of the Dinorwig Registered Landscape of Outstanding Historic Interest.

4.5.76 On a related matter, and in response to a concern raised by Dr Jane Huuse [REP4-021] that construction traffic may be tempted to take alternative short cuts to Q1 rather than use the route identified in the ES [APP-079], the Applicant updated the Outline CTMP [REP9-012] to

clarify the route that contractors were required to use and that there would be penalties in the Construction Contract if they did not do so.

Conclusions

- 4.5.77 I note the optional route suggested by Michael Vitkovitch and the potential for it and for other options considered by the Applicant to alleviate the potential impacts of the Applicant's proposed construction route through Ffordd Clegir on Waunfawr residents.
- 4.5.78 I consider that a full environmental assessment of the alternative options is not required and am content to rely on the assessment provided by the Applicant and on the professional opinions of GC and NRW, who concur that the Applicant's assessment.
- 4.5.79 I am satisfied that the Applicant has considered alternatives for the route to Ffordd Cefn Du. Insufficient evidence has been provided for me to conclude that the likely overall impacts of the alternatives identified by IPs would be any less than the overall impacts of the route proposed by the Applicant.

Ffordd Clegir temporary closure

- 4.5.80 Ffordd Clegir provides access from the Llanberis and passes between Q5 and Q6 on its way to a number of properties and may need to be closed for short periods for health and safety reasons during drilling and blasting operations [APP-079].
- 4.5.81 Responding to my questions [PD-009, PD-015, PD-025 and PD-026], the Applicant [REP2-011, REP5-005] stated that around 20 dwellings would have a 8.5km diversion to Llanberis during the temporary closure. Mitigation measures would include providing advanced notice of closures, and liaison with local stakeholders would minimise disruption by selecting appropriate times for the works to take place.
- 4.5.82 The Outline CTMP [REP9-012] was updated to include details of the circumstances in which the road would be temporarily closed and a requirement for letters to be sent to residents of affected properties at least 2 weeks before any closure to detail timings and alternative routes. There would also be an opportunity to identify appropriate times for the works in the CTMP, which is to be approved by GC.
- 4.5.83 GC noted that the diversion distance for most properties was closer to 6km and that it was satisfied with the Applicant's assessment and proposed mitigation measures [REP7-044].

Conclusions

- 4.5.84 Based on the above, I find that appropriate mitigation measures are set out in the Outline CTMP [REP9-012], as secured by Requirement 8 of the Recommended DCO, and consider it likely that potential effects of temporary closures of Ffordd Clegir would not be significant.

Other traffic and transportation matters

- 4.5.85 [REDACTED]
- 4.5.86 The Applicant updated the Outline CTMP [REP9-012] to include a requirement for a Travel Plan, to be agreed with GC and reviewed annually, that encouraged the use of sustainable travel modes by workers during the operational phase of the Proposed Development.
- 4.5.87 I raised a number of queries regarding the assessment of potential cumulative effects with the grid connection and with the Caernarfon and Bontnewydd bypass and whether necessary mitigation measures had been secured [PD-009, EV-021, PD-015, PD-025 and PD-026].
- 4.5.88 The Applicant responded to these concerns [REP4-014, REP5-005 and REP7-044], stating that:
- traffic management during the construction of the grid connection would be subject to approval by GC who had a duty to make sure that traffic moves freely and quickly on their roads;
 - no construction traffic would be diverted from the construction route to Q6 during the grid connection works; and that
 - the grid connection and the Caernarfon and Bontnewydd bypass would make separate applications to GC regarding traffic management and it was not appropriate to secure mitigation measures of those separate applications within the CTMP.
- 4.5.89 GC considered [REP2-041; REP5-044 and REP7-044] that:
- there was scope for the grid connection works to be undertaken within the verges and highway on the proposed route;
 - potential impacts of the use of alternative construction routes for the Proposed Development during the construction of the grid connection had been adequately considered in the ES [APP-079];
 - any traffic management for the grid connection would be subject to agreement with GC and it was appropriate to discuss detailed measures and diversions nearer the time;
 - any traffic interactions with the grid connection would be manageable and unlikely to have a significant effect; and that
 - timing of the construction of the Caernarfon and Bontnewydd bypass had yet to be finalised but much of the construction would be offline to minimise effects on the highway network.

Conclusions

- 4.5.90 Noting that GC is content with the Outline CTMP [REP9-012], I am satisfied that the Travel Plan has been addressed adequately and note that Requirement 12 of the recommended DCO would secure a Travel Plan for the operation phase of the Proposed Development.
- 4.5.91 I am satisfied that potential cumulative traffic impacts have been assessed appropriately. Recognising GC's responsibilities to maintain traffic flows and noting that their approval would be required of the relevant traffic management plans, I consider it likely that potential cumulative traffic impacts would not be significant. I am therefore content that cumulative effects have been considered sufficiently for the purposes of paragraph 4.2.5 of NPS EN-1.

Conclusions on policy and factual issues

- 4.5.92 I have had particular regard to the policies set out in NPS EN-1, PPW, GUDP and the guidance contained in TAN 18 in my consideration of the traffic and transportation impacts of the Proposed Development.
- 4.5.93 The potential noise, vibration, and economic impacts of traffic are considered in Sections 4.6 and 4.10 and are not addressed here.
- 4.5.94 Based on the above, my view is that the ES [REP-079] satisfies NPS EN-1's requirement to consider the transport of materials, goods and personnel, the potential impacts due congestion and social impacts and how those should be mitigated. I am also satisfied that sufficient consideration has been given to the impact on travel demand and the environmental impacts, including noise, for the purposes of PPW8 paragraph 8.5.7.
- 4.5.95 In terms of social impacts I particularly note the consideration of the potential effects on disruption and safety and am satisfied that, subject to including a cap on HGV movements, the Applicant has taken opportunities to avoid disruption and improve road safety through the introduction of proportionate measures that are appropriate for the purposes of GUPD Policy CH33.
- 4.5.96 No evidence has been provided of any designated Rural Lanes that may be affected under GUDP Policy CH34. Nevertheless, I am satisfied that the Applicant has taken reasonable and appropriate measures for pedestrians, cyclists and horse riders.
- 4.5.97 The Applicant has proposed to ensure that the site would be accessible by a range of transport modes that are more sustainable than private car and to provide Travel Plans for the construction and operational phases of the Proposed Development [APP-079 and REP9-012]. On that basis, and noting that no particular concerns have been raised by GC and that GC would be required to approve the final versions of relevant mitigation plans, I have not been given any reason to believe that the Proposed Development would not satisfy climate change and sustainability policy requirements, including GUPD Policy CH28.

- 4.5.98 The Applicant has provided as assessment of options for construction routes to Q1 and in this regard I am satisfied that the Applicant has satisfied the NPS EN-1 obligation to include information regarding the main alternatives studied to enable alternatives to be considered.
- 4.5.99 NPS EN-1 goes on to say that; *"from a policy perspective this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option."* On that basis, although the Applicant did not provide a full environmental assessment of the alternative construction routes to Q1, I am satisfied that it was not required to do so.
- 4.5.100 Various concerns have been raised regarding insufficient consideration of alternative construction routes to Q1. From the above however it can be seen that the issue has been addressed and that no alternatives are sought by any statutory bodies. Having reviewed the various representations, my view is that there is insufficient evidence to suggest that a more favourable alternative route exists.
- 4.5.101 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for traffic and transportation, in addition to those specifically identified in this section. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided during the Examination, the agreements reached with statutory bodies, and the mitigation measures secured by the recommended DCO, including in the Outline CTMP [REP9-012], as secured by Requirement 8 of the recommended DCO.
- 4.5.102 In order for me to be satisfied and have confidence that the potential impacts as assessed, consulted on and examined are not exceeded, I conclude that a limit on the movements of HGV vehicles on access routes during construction should be set to the levels assessed in the ES and have therefore included this provision in Requirement 6(6) of the recommended DCO. The SoS's attention is drawn to the fact that this has not been agreed with the Applicant and that the Applicant is likely to disagree that it is necessary.
- 4.5.103 Based on the above, I am satisfied that the Proposed Development complies with relevant policy and that, subject to the provisions of the recommended DCO, it would be unlikely have any unacceptable impacts in terms of traffic or transportation. My view is that these matters should not weigh against the Order being made.

4.6 NOISE AND VIBRATION

- 4.6.1 This section considers noise and vibration impacts during construction and operation, and air overpressure impacts from blasting during construction. Potential effects on biodiversity and ecology are considered in Section 4.4; common law nuisance and statutory nuisance in Section 4.9; and decommissioning in Section 4.13.

Policy context

- 4.6.2 NPS EN-1 includes stipulations for noise and vibration and says that *"excessive noise can have wide ranging impacts on the quality of human life, health (for example owing to annoyance or sleep disturbance) and use and enjoyment of areas of value such as quiet places and areas with high landscape quality"* (paragraph 5.11.1). Its references to noise apply equally to vibration (paragraph 5.11.1).
- 4.6.3 PPW8 states that noise can affect health, well-being, wildlife and local amenity (paragraph 13.13.1); notes that it can be a material planning consideration; and requires account to be taken of noise levels, effects on protected species and enjoyment of landscape, wildlife and historic value (section 13.15). PPW9 also mentions the potential for traffic to generate high levels of noise (paragraph 8.1.9).
- 4.6.4 Although TAN 11; Noise (2007) deals specifically with noise, its main focus is in assessing the suitability of land for residential development. However, it does state that mitigation measures may include reduction of noise at point of generation, containment of noise generated and the protection of noise-sensitive buildings.
- 4.6.5 PPW8 also gives guidance for the extraction of all minerals and other substances in or under land (Chapter 14). Although the development does not involve the extraction of minerals, the Applicant, in discussion with GC, has used certain guidance within Minerals Planning Guidance 11: The Control of Noise at Surface Mineral Workings due to the similar nature of construction activity.
- 4.6.6 GUDP Policy B33 states that proposals that cause significant harm to the quality of public health, safety or amenities or to the quality of the built or natural environment as a result of higher levels of noise pollution will be refused unless adequate controls can be attained and arrangements made for monitoring.

The Application

- 4.6.7 The main sections of the ES relevant to noise and vibration are Chapter 13 Noise and Vibration [APP-080] and Appendices 13.1 and 13.2 [APP-138 and APP-139].
- 4.6.8 The ES sets out the potential noise effects during construction and operation [APP-080]. It establishes the receptors on which effects are assessed; describes existing baseline conditions following an appraisal of background noise levels; provides an acoustic assessment that identifies the potential effects; describes mitigation measures; and sets out the residual effects.
- 4.6.9 For the construction phase the ES identifies potential effects on a range of different type of receptors, particularly residential properties, due to potential noise and vibration impacts from surface plant,

blasting, tunnelling, construction traffic and the storage and disposal of unexploded ordnance [APP-080].

- 4.6.10 Mitigation measures identified in the ES for the construction phase include measures to be set out in the Noise Management Plan, Construction Traffic Management Plan (CTMP) and Ordnance Management Strategy, including the implementation of "*Best Practicable Means*" (BPM) as defined in s72 of the Control of Pollution Act 1974 (CoPA) [APP-080].
- 4.6.11 With the mitigation measures in place the residual effects during construction were assessed as negligible or localised temporary minor adverse, with the exception of 8 representative locations where effects due to surface plant noise were considered to be localised temporary major adverse and 3 representative locations where they would be localised temporary moderate adverse [APP-080].
- 4.6.12 For the operational phase the ES identifies potential effects on various receptors, particularly residential properties, due to potential noise and vibration impacts from turbines, generators, transformers, switch gear, the workshop and the pumping station [APP-080].
- 4.6.13 The key mitigation measure identified for the operational phase was appropriate building design, following which the residual effects were considered to be negligible [APP-080].
- 4.6.14 The Cumulative Effects Chapter of the ES considered simultaneous construction activities, where negligible cumulative effects were identified with the exception of the cumulative impacts of surface plant and blasting, where there would be a minor additive cumulative effect [APP-084]. The cumulative effects of noise and dust deposition impacts were considered to be negligible or minor.
- 4.6.15 No cumulative effects were identified with other projects [APP-074].
- 4.6.16 The Applicant clarified its assessment that the overall residual effects in respect of noise and vibration was considered to be minor adverse, with the exception of surface plant noise on residential dwelling that were considered to be major adverse and tunnelling vibration, which was considered to be negligible [REP2-011, FWQ Appendix 2.7]. The overall potential residual effects were considered to be not significant.

SoCGs and the LIR

- 4.6.17 In their SoCG [REP4-006] the Applicant and GC agreed that:
- the scope of the noise assessment and the impact assessment for noise, vibration and air overpressure were appropriate;
 - it was inappropriate for specific noise, vibration or air overpressure limits to be set in a DCO requirement;

- a CoCP, Construction Noise Management Plan (CNMP), CTMP and Operational Noise Management Plan (ONMP) were appropriate mechanisms to manage the impacts;
- each of those plans would provide a methodology to establish an up to date base position, identify the sources of any impact, specify the relevant legislative context and set out the processes for monitoring, audit, response and community liaison during construction and operation; and that
- works outside the normal working hours specified in the DCO may be subject to a s61 agreement under the CoPA.

4.6.18 In their SoCG the Applicant and NRW agreed that NRW's remit was limited to effects on protected species and that any residual effects could be mitigated by measures set out within the CoCP and Breeding Bird Method Statement [REP3-010].

4.6.19 Matters raised in GC 's LIR [REP2-037 to REP2-40] include that:

- there was potential for significant effects on local businesses and dwellings due to noise and vibration impacts;
- the conditions imposed by the T&CPA approval were believed to be an acceptable way to control noise and vibration [APP-086];
- apart from tunnelling work, or as approved under the CoPA, construction works should be between 7.00am and 7.00pm from Monday to Friday and from 7.00am and 1.00pm on Saturday;
- suitable control measures were described in the ES and could be implemented by a CoCP and other such formal agreements;
- together with GC's statutory powers, such as under the Environmental Protection Act 1990 (EPA), the measures described in the ES would ensure acceptable management of noise and vibration, although there would occasionally be impacts resulting in adverse effects during construction; and that
- with effective monitoring and management the Proposed Development could be acceptable and not have significant long-term unacceptable adverse effects on local residents.

Outline management and mitigation plans

4.6.20 Relevant outline plans were developed during the Examination.

4.6.21 The Outline CoCP [REP9-028] includes consideration of general measures to control noise, vibration and air overpressure and provisions for nuisance management.

4.6.22 The Outline CNMP [REP10-006] details the principles to be followed in the management of noise, vibration and air overpressure during construction. It sets out the methodology to establish the baseline position; the framework for setting noise, vibration and air overpressure limits; mitigation measures; and arrangements for monitoring and incident response.

- 4.6.23 The Outline Ordnance Management Strategy [REP9-024] sets out the basic framework of processes and plans for the mitigation of risk from potential unexploded ordnance hazards during construction. It includes measures to control impacts during explosive ordnance disposal.
- 4.6.24 The Outline ONMP [REP9-008] sets out the principles of noise and vibration management, including low frequency noise and ground borne noise and vibration, throughout the operational phase. It sets out the methodology to establish the baseline position; the framework for setting noise and vibration limits; mitigation measures; and arrangements for monitoring and incident response.
- 4.6.25 In addition the Outline CTMP [REP9-012] contains related mitigation measures relevant to noise and vibration for construction traffic.
- 4.6.26 These outline plans would be certified by Article 36 of the recommended DCO. They contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).
- 4.6.27 GC noted [REP7-044 and REP9-042] that it was in agreement with previous versions of the Outline CoCP [REP7-012], Outline CNMP [REP5-011], Outline Ordnance Management Strategy [REP7-022] and Outline ONMP [REP5-012]. I have not been given any reason to believe that GC would have a different view on the latest versions submitted at D9 and D10.
- 4.6.28 NRW noted [REP10-011] that it had no further comments on the CoCP [REP9-028] or Ordnance Management Strategy [REP9-024] and that its comments were without prejudice to any decisions that it might make on any applications for EPs and that the plans would be subject to on-going discussion through the Environmental Permitting regime.

Other factual issues considered during the Examination

- 4.6.29 Key noise and vibration issues considered include:
- baseline surveys;
 - traffic noise and vibration;
 - surface plant noise;
 - other construction noise, vibration and air overpressure;
 - construction working hours;
 - operational noise and vibration; and
 - noise, vibration and air overpressure limits and monitoring.

Baseline surveys

- 4.6.30 24-hour unattended background noise surveys and some attended surveys were carried out in July 2012 and April 2015 at representative noise sensitive receptor locations agreed with GC [APP-080 and APP-222]. No vibration surveys were undertaken as there were considered

to be no significant sources of vibration and pre-development vibration levels were not required for the assessment [APP-080].

- 4.6.31 The Applicant carried out surveys along Ffordd Cefn Du to assist with the development of the proposals during a three week period at around the time of the 2015 ground investigation [REP3-026].
- 4.6.32 Comments from IPs including Dr Jane Huuse [REP2-028 and REP4-021] and Tony Grant [REP2-052, REP3-033, REP4-041 and REP5-051] were mainly about the surveys along Ffordd Cefn Du:
- delays in setting up equipment in April 2015 led to surveys missing the heaviest traffic, which included the heaviest vehicles being used by the Applicant for the ground investigation;
 - GC's acceptance of flawed surveys made the public concerned about whether they would be protected;
 - microphones had not been protected against wind and rain;
 - rigging and location of the equipment and monitoring of weather and other variables was not in line with accepted practice;
 - readings taken by an IP on a calm day suggested that insufficient allowance had been made for atmospheric conditions; and that
 - vibration surveys should have been carried out to establish if local geology could result in "*subterranean reflection/s*".
- 4.6.33 The Applicant [REP3-026, REP4-011 and REP5-006] responded that:
- although some of the initial site deliveries along Ffordd Cefn Du were missed, the heaviest deliveries were captured;
 - there were 30 heavy vehicle transits during the survey period and none of those were measurable at any recorder;
 - equipment was set up by an acoustic specialist; and that
 - measurements taken during the ground investigation works were not used for the assessment within the ES [APP-080].
- 4.6.34 I questioned why the April 2015 measurements were used at location 4 given that they were higher than those for July 2012 [PD-009 and EV-016]. The Applicant clarified that the April 2015 survey at that location was long term while the July 2012 one were short term and so the April 2015 survey measurements were considered to be more representative [REP4-014]. I am satisfied with that explanation.
- 4.6.35 GC was satisfied with Applicant's baseline surveys [REP2-041].

Conclusions

- 4.6.36 The background surveys were in the eastern part of the Proposed Development (the area surrounding Q6) and not in the western part (around Q1) [APP-080]. However, this was as agreed with GC, it is not necessary for background surveys to be carried out in all areas and in their absence a lower threshold value is required to be used in the assessment. I therefore find no reason why surveys would have been required at other locations at this stage.

- 4.6.37 The survey methodology concerns raised by IPs appeared to be based on the surveys undertaken along Ffordd Cefn Du, which were not used in the assessment. I find insufficient evidence that incorrect methods were employed for the baseline surveys used in the assessment and that this would have resulted in any change to the conclusions.
- 4.6.38 Based on the above and noting GC's comments, I consider it likely that the baseline survey information used in the assessment is representative of conditions at those locations and find no reason why further locations would be required for the purposes of the DCO.

Traffic noise and vibration

- 4.6.39 Potential traffic noise impacts along the construction routes to Q1 and Q6 were assessed for the traffic levels predicted for different months during construction using methodology from the Design Manual for Roads and Bridges (DMRB) to derive increases in noise level from percentage increases in traffic levels [APP-080].
- 4.6.40 The assessment of potential effects from traffic vibration was based on DMRB guidance and professional judgement. It considered the speed of HGV, proximity to residential properties, that the level of vibration would increase and that it would be above 0.3mm/s [APP-080].
- 4.6.41 The greatest potential for adverse effects before mitigation was considered to be at residential properties along Ffordd Cefn Du and at the caravan park next to the A4086 junction for Q6.
- 4.6.42 Mitigation measures for traffic noise and vibration in the CTMP include consideration and planning of the construction routes, planning of deliveries throughout the day, speed limits for construction vehicles and the maintenance of a smooth road surface [APP-080].
- 4.6.43 Following this mitigation the residual effects due to traffic noise and vibration during construction were considered to be a localised temporary minor effect and not significant [APP-080].
- 4.6.44 A large number of IPs expressed concerns about potential impacts from traffic noise and vibration, including Dr Jane Huuse [REP2-028, REP2-030, REP4-021, REP5-039 and REP8-004], Dr Mads Huuse [REP7-050, REP8-004 and REP10-008], Tony Grant [REP3-033, REP4-041 and REP5-051] and Cherry Bartlett [REP7-046]. These were mainly regarding the construction route along Ffordd Cefn Du to Q1 and included that:
- the routing of heavy construction traffic through the otherwise peaceful village of Waunfawr and past isolated cottages higher up Ffordd Cefn Du would affect quality of life;
 - there was no valid assessment of the potential impacts of heavily loaded vehicles "*grinding their way*" up Ffordd Cefn Du;
 - impacts would be longer lasting and more intense than identified;

- 4.6.45 The Applicant [REP3-026, REP4-011, REP5-006, REP6-002 and REP9-029] responded that:

- 4.6.46 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

-
- | Age Group | Should Take Action (%) | Should Not Take Action (%) |
|-----------|------------------------|----------------------------|
| 18-29 | 85 | 15 |
| 30-49 | 85 | 15 |
| 50-69 | 85 | 15 |
| 70+ | 85 | 15 |

4.6.47 In addition to the general points made in response to comments regarding Ffordd Cefn Du, the Applicant [REP3-026, REP4-011, REP5-006, REP6-002 and REP9-029] [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

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- there is no recognised reliable method for making quantified predictions of construction traffic vibration;
- requirement for a construction traffic vibration risk assessment including identification of potentially vulnerable properties, surveys, vibration monitoring and repair of damage was added to the Outline CNMP [REP10-006];
- requirements to fill potholes and ensure that road irregularities on Ffordd Cefn Du and the Q6 access road do not exceed 20mm were included in the Outline CNMP [REP10-006]; and that
- a 20mph speed limit on Ffordd Cefn Du during construction was secured in the Outline CTMP [REP9-012].

Conclusions

- 4.6.49 In my conclusions in Section 4.5 I found that a limit on the movements of HGV vehicles during construction should be set to the levels assessed in the ES. The noise assessment for construction traffic was based on percentage increases in traffic levels [APP-080]. In my view it is likely that more noise would be caused by HGV than by other vehicles. On that basis, I find that a limit on the movements of HGV vehicles during construction should be set to the levels assessed in the ES for me to be satisfied and have confidence that the potential impacts as assessed, consulted on and examined are not exceeded.
- 4.6.50 Otherwise I am satisfied with the Applicant's responses.
- 4.6.51 With the exception of limits on HGV movements, sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential noise and vibration impacts from road traffic or to doubt whether the mitigation measures proposed by the Applicant would address the potential impacts raised by IPs.
- 4.6.52 Appropriate mitigation measures have been added to the Outline CTMP [REP9-012] and to the Outline CNMP [REP10-006] during the Examination, as secured by Requirement 8 of the recommended DCO.
- 4.6.53 The processes of finalising noise and vibration limits, monitoring, auditing and incident response are considered later in this section. Subject to those being satisfactory and noting GC's comments, I consider it likely that the mitigation measures secured by the recommended DCO would ensure there would be no significant effects.
- 4.6.54 Therefore, with the exception of limits on HGV numbers, I am satisfied that the assessment of traffic noise and vibration is adequate for the purposes of section 5.11 of NPS EN-1; paragraph 13.13.1 and section 13.15 of PPW8; paragraph 8.1.9 of PPW9 and GUDP Policy B33.

Surface plant noise

- 4.6.55 The assessment of potential noise impacts of heavy plant operating on the surface during construction within the Proposed Development site such as drilling and spoil excavation, crushing, transport and tipping

were based on assumed working methods [APP-080]. The assessment took a worst case approach, for example in terms of plant working at the nearest approach to receptors and plant operating simultaneously.

- 4.6.56 Using the guidance detailed in BS 5228, potential effects were assessed at 30 representative locations around the Proposed Development site, including Waunfawr, Llanberis and Fachwen during different phases of the construction programme [APP-138].
- 4.6.57 Mitigation measures would include the location and orientation of fixed plant, use of localised barriers, appropriate use and maintenance of plant, use of exhaust silencers, locating plant and activities away from sensitive receptors and restrictions in working hours [APP-080]. The CoCP would ensure that BPM measures were adopted and further mitigation measures would be included in the CNMP [APP-80].
- 4.6.58 Following this mitigation the residual effects due to surface plant noise were considered to be major adverse at 8 representative residential properties along the A4086, above Ffordd Clegir and in Fachwen; and moderate adverse at 3 other representative locations [APP-080].
- 4.6.59 It was predicted that the daytime construction noise limits would be exceeded by 10 dB or more at 3 representative locations and by between 4 dB and 9dB at 5 representative locations. For the night time penstock construction the night time limit was predicted to be exceeded by between 0 and 4dB at two representative locations [APP-080]. As representative locations had been assessed it is likely that the total number of properties potentially affected would be greater.
- 4.6.60 Effects were considered to be temporary as they would last less than 5 years and it was considered that the worst case effects with all plant operating simultaneously and/or at the closest approach would only last for a matter of days, or even hours [APP-080]. The Applicant's Statement in Respect of Statutory Nuisance clarified that the noise impacts predicted to potentially cause a nuisance or be prejudicial to health would be temporary and intermittent in nature from construction Year 1 Quarter 3 to Year 3 Quarter 1 [APP-053].
- 4.6.61 [REDACTED] [REDACTED] [REDACTED] [REP2-048, REP4-023, REP5-042, REP7-051 and REP9-041], Jeff Taylor [RR-048], Dr Jane Huuse [REP2-030 and REP8-004], Dr Mads Huuse [REP7-050 and REP10-008] and Michael Vitkovitch [REP5-047 and REP7-053] included that:
- noises from around the valley bounced off surrounding hills and it was not clear if this had been taken account of;
 - the noise model did not account for the loss of a noise barrier after an area of forest south-west of Q1 had been felled;
 - impact of noise from the use of a continuous conveyor to move excess material uphill had not been adequately assessed;
 - sufficient consideration had not been given to the effects of noise from large equipment above Q1 on Waunfawr and other villages;

- Waunfawr is a similar distance from Q1 as Fachwen is from Q6, however less effect is predicted at Waunfawr;
- no noise was indicated at Waunfawr from the slate tipping at Q1 and yet trail bikes can easily be heard on the current slate heaps;
- different noise levels are predicted at adjacent properties;
- noise barriers were mentioned but there was no information about their location, size, height or appearance;
- there was not sufficient mitigation to prevent suffering from noise
- [REDACTED]
- [REDACTED]

4.6.62 The Applicant responded to these concerns [REP3-026, REP5-006, REP6-002 and REP9-029], stating that:

- topography was included in the noise model, but the forest near Q1 was not included as it would not provide significant screening;
- it disagreed with suggestions that the assessment was inadequate and noted that GC were satisfied with it;
- at times there could be the potential for adverse effects on residents in close proximity to the Proposed Development;
- noise levels at adjacent properties may differ due to differences in positioning of plant and the effects of localised shielding;
- information on noise barriers would be determined following the detailed construction noise assessment and detailed design;
- the assessment in the ES gave an indication of potential impacts and mitigation measures were based on experience, relevant standards, guidance documents and BPM [APP-080];
- it disagreed that mitigation measures would not be effective;
- a detailed construction noise assessment would be undertaken by the contractor, based on actual construction methods, and mitigation would then be identified to help minimise impacts and meet the limits that would be set out in the CNMP; and that
- [REDACTED]
- [REDACTED]

4.6.63 The Applicant [REP2-011, REP4-014, REP5-005, REP7-004 and REP9-029] responses to my questions [PD-009, EV-016, PD-015, PD-025 and PD-026] included that:

- the assessment had included for batching plant at 3 locations;
- commitments to locate batching plant away from receptors, provide necessary noise screening and plan for its use in normal working hours were added to the Outline CNMP [REP10-006];
- the commitment to transport excess material from Q6 to Q1 by conveyor in the underground penstock was added to the Outline CoCP [REP9-028] and it was envisaged that stockpiling of material at Q6 would be within the footprint of Q6;
- potential impacts of sheet piling at Llyn Padarn were likely to be a temporary moderate adverse effect at a distance of 50m;
- a piling construction statement was added to the Outline CNMP setting out methods and limits to be agreed with GC once the contractor's chosen method had been identified [REP10-006];

- a s61 CoPA agreement would be required for the piling;
- various items of plant were modelled at the closest approach to receptors, all operating at the same time;
- it had provided drawings of the positions of plant considered in the assessment [REP9-030, Appendix 6.3];
- it was not expected that the works would extend towards Lake View Hotel, but the Order Limits would be maintained in close proximity to it to maintain the secure working area;
- [REDACTED]
- any further restriction of construction activities in works areas in the vicinity of receptors was not acceptable; and that
- [REDACTED]

4.6.64 GC agreed that a s61 CoPA consent was an appropriate means of controlling piling at Llyn Padarn [REP5-004].

Conclusions

4.6.65 My view is that sufficient evidence has not been provided by the Applicant to support its assertion, made and questioned a number of times during the Examination, that surface plant had been modelled at their closest approach to receptors. Given the spread of receptors such an approach would have required a number of different plant locations to have been considered and for a series of different sets of noise contours to be produced. There is no evidence of either of those and indeed the drawings provided of the plant positions appear to indicate that fixed positions were considered [REP9-030, Appendix 6.3].

4.6.66 I have no reason to doubt that the positions of surface plant indicated by the Applicant are not representative or that the models considered a worst case approach of all plant operating at one time. However, my view is that assessing surface plant at the closest approach to receptors would have established the 'worst case' effects, and therefore the conclusions presented in the ES are less conservative than the Applicant has suggested.

4.6.67 I have carefully considered the evidence and on balance my view is that although the Applicant's assessment is less conservative than they implied, having plant in representative positions and all operating at once makes it likely that it still represents a reasonable worst case scenario and that it is therefore likely to be appropriate at this stage and for the purposes of the recommended DCO.

4.6.68 Otherwise I am satisfied with the Applicant's responses.

4.6.69 Based on the above, and with the exception of the modelling of surface plant locations, sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential

noise impacts from surface plant or to doubt the effectiveness of the mitigation measures proposed by the Applicant.

- 4.6.70 I am satisfied that the assessment of surface plant noise is adequate for the purposes of section 5.11 of NPS EN-1, section 13.15 of PPW8 and GUDP Policy B33 and that the mitigation would be appropriately secured by the Outline CoCP [REP9-028] and Outline CNMP [REP10-006], as secured by Requirement 8 of the recommended DCO.
- 4.6.71 Appropriate mitigation measures that have been added to the Outline CoCP [REP9-028] and to the Outline CNMP [REP10-006] during the Examination, as secured by Requirement 8 of the recommended DCO.
- 4.6.72 The processes of finalising noise limits, monitoring, auditing and incident response are considered later in this section. Subject to those being satisfactory and noting GC's comments and the duration of the proposed works, I consider it likely that the mitigation measures would ensure that the effects would be no more adverse than identified in the ES.
- 4.6.73 Based on the above, I consider it likely that there would be temporary and intermittent major adverse effects at 8 representative residential properties and moderate adverse effects at 3 other representative residential properties due to surface plant noise over a period of around 18 months during construction. It is likely that there would be major or moderate adverse effects at a greater number of locations.

Other construction noise, vibration and air overpressure

- 4.6.74 Potential vibration impacts of surface plant were assessed with reference to British Steel and the Australian NSW Construction Authority guidance [APP-080]. With the mitigation in the CNMP and CoCP to control the management of plant and machinery, it was considered that the minimum distances to receptors of 200m from Q6 and 50m from the spillway were greater than recommended minimum distances for cosmetic damage or human response and therefore the effects would be localised, temporary and minor adverse [APP-080].
- 4.6.75 Potential noise, vibration and air overpressure impacts from blasting proposed for the stabilisation and re-profiling of Q1 and Q6 was assessed with reference to MTAN 2 and BS5228 [APP-080]. The detail of blasting was unknown and it was considered "*very difficult to provide a quantitative prediction of absolute levels of air overpressure from blasting works*" based on distances to receptors of approximately 1000m from Q1 and 200m from Q6. Following mitigation through the use of BPM and design by suitably qualified blasting contractors, potential effects due to blasting were assessed as localised, temporary and minor adverse [APP-080].
- 4.6.76 Penstock tunnelling would either use a tunnel boring machine or be by drilling and blasting. Airborne noise would be screened from receptors due to it being underground [APP-080]. Potential effects due to ground

4.6.77

- there had been insufficient assessment of noise and vibration impacts during drill and blast tunnelling;
- penstock tunnelling had been assessed from Q6 but not from Q1;
- no assessment criteria were provided for ground borne noise;
- there were no predictions of blasting vibration or air overpressure;
- the effects on receptors could not be stated as the construction methods had not been decided;
- blasting and drilling could cause vibration damage to properties and landslips to surrounding waste heaps;
- it was unlikely that structural issues would arise from vibrations, however the effects on lives were potentially very serious;
- advance warning of blasting should be given;
- blasting should be limited to a regular time and day of the week;
- residents should be consulted on times for blasting; and that
- it was not believed that impacts would be made acceptable.

- it disagreed with suggestions that the assessment was inadequate and noted that GC were satisfied with it;
- appropriate best practice had been considered in relation to vibration and cosmetic damage to structures was unlikely;
- the ES [APP-080] assumed that penstock tunnelling would be from Q6, however the start point of the penstock tunnel excavation would be confirmed through the detailed design;
- it was not currently envisaged that the tunnel would be constructed from the Q1 end;
- the contractor would consider and manage ground borne noise following the detailed construction vibration assessment;
- ground-borne noise and vibration limits had been added to the Outline CNMP [REP10-006];
- the Outline CNMP [REP10-006] had been updated to restrict blasting to set periods during normal construction hours;
- specific mitigation measures had been identified for [REDACTED] [REDACTED] [REP4-014, Appendix 12.1];
- a detailed construction noise assessment would be undertaken by the contractor, who would then be able to confirm actual construction methods, and appropriate mitigation would then be identified to help minimise impacts and meet the limits that would be set out in the CNMP; and that

- the CoCP and CNMP would provide effective mitigation.

4.6.79 Further clarifications provided by the Applicant [REP2-011, REP4-014, REP5-005, REP7-004 and REP9-029] in response to my questions [PD-009, EV-016 and PD-025] included that:

- it was very difficult to predict air overpressure levels;
- trial blasts could reduce the uncertainty of blasting predictions;
- quantification of GBVN from tunnel boring at the upper distance of 100m considered by BS5228 (half of the distance of 200m for the Proposed Development) identified negligible impact;
- vibration from surface plant, blasting, and tunnel drill and blast had not been quantified but were considered unlikely to result in cosmetic damage to structures;
- quarry stabilisation works in Q1 and Q6 would require infrequent and intermittent blasting over approximately 6 months;
- blasting in the shafts would continue for approximately 6 months at a frequency unlikely to exceed once per day;
- blasting in the tunnels would continue for approximately 16 months at a frequency of approximately twice per day;
- blasting locations had been secured in the draft DCO; and that
- initial limits for noise, vibration and air overpressure were set in the Outline CNMP [REP10-006] and would be finalised in agreement with GC following the contractor's detailed assessment and consideration of preferred construction methods.

4.6.80 GC [REP2-041] commented that:

- well-designed blasting operations would be likely to avoid damage to windows or buildings;
- air overpressure plays an important part in annoyance due to potential rattling of doors, windows and ornaments;
- air overpressure was very difficult to predict and guidance within BS 6472-2 should be followed;
- audible noise from blasting was also difficult to predict;
- good blasting design and management and BPM would reduce noise, vibration and air overpressure;
- good education and communication of blasting activities to communities were very important; and that
- limits derived from MPG 11/MTAN 1 and BS6472-2 should be set for blasting noise, vibration and air overpressure, and monitored.

4.6.81 GC also stated that it was not unduly concerned about low frequency noise, ground borne vibration or ground borne vibration noise from construction of the scheme at this stage [REP7-044].

Conclusions

4.6.82 The assessment was based on penstock tunnelling from Q6 [REP9-029 page 2-5]. The Applicant seeks to retain the flexibility to also be able to tunnel from Q1, although it also stated that it did not envisage that

it would be constructed from the Q1 end [REP9-029 page 9-13]. The Applicant responded to a number of IP submissions on this matter.

- 4.6.83 My view is that it is likely that starting the tunnelling at Q1 would involve a number of construction activities being carried out in that area that have not been considered in the ES, in respect of noise, vibration, air overpressure or other types of impact on other receptors. I note that tunnelling would be carried out at night time.
- 4.6.84 It could be argued that starting the tunnelling at Q1 instead of Q6 would simply involve transferring activities that have already been assessed at Q6 to Q1 and that given the closer proximity of receptors to Q6 than to Q1 the potential effects of tunnelling at Q1 would be no greater than have been assessed at Q6. However my view is that sufficient information has not been provided for me to establish whether that would be the case, what the potential effects of tunnelling from Q1 would be, or whether they would fall within the "Rochdale envelope" of the assessment of potential impacts.
- 4.6.85 The fact that the option of tunnelling from Q1 was not considered in the ES and that the Applicant stated that it did not envisage that tunnelling would start from Q1 suggests it is likely that the flexibility provided by having this as an option would not be essential for the construction of the Proposed Development.
- 4.6.86 I note that the application and Examination were based on tunnelling from Q6 and that there has been no opportunity for consultation on or examination of the potential additional effects of mitigation measures that would be required should tunnelling commence from Q1.
- 4.6.87 Following careful consideration of the evidence I find that tunnelling of the penstock should be required to progress in the direction from Q6 towards Q1 for me to be satisfied and have confidence that the potential impacts as assessed, consulted on and examined are not exceeded. I have therefore included such a provision in Requirement 6(5) of the recommended DCO. The SoS's attention is drawn to the fact that this has not been agreed with the Applicant and that the Applicant is likely to disagree that it is necessary.
- 4.6.88 Otherwise I am satisfied with the Applicant's responses.
- 4.6.89 I consider it reasonable and appropriate that certain matters, including potential impacts from blasting and ground borne vibration, are not capable of detailed assessment at this stage and that this detailed assessment should follow the appointment of the contractor. On these matters, and with the exception of the starting point for tunnelling considered above, I do not find compelling evidence that the Applicant has not sufficiently assessed these potential effects in the ES in a manner that appropriately reflects the level of information available at this stage and for the ES. My view is that the mechanism for the detailed assessment, for approval by GC, is appropriate as secured through the Outline CNMP [REP10-006].

- 4.6.90 With the exception of the starting point for tunnelling considered above, sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential vibration impacts from surface plant; potential noise, vibration or air overpressure impacts from blasting; or potential noise or vibration impacts from tunnelling. The mitigation measures would address the potential impacts raised by IPs.
- 4.6.91 Appropriate mitigation measures have been added to the Outline CNMP [REP10-006] during the Examination, as secured by Requirement 8 of the recommended DCO.
- 4.6.92 The processes of finalising noise limits, monitoring, auditing and incident response are considered later in this section. Subject to those being satisfactory and noting GC's comments, I consider it likely that the mitigation measures secured by the recommended DCO and the measures secured in the CoCP and CNMP would ensure that there would be no significant effects. On that basis, and with the exception of the starting point for penstock tunnelling, I am satisfied that the assessment of other construction noise, vibration and air overpressure is adequate for the purposes of section 5.11 of NPS EN-1, section 13.15 of PPW8 and GUDP Policy B33.

Construction working hours

- 4.6.93 The proposed hours for construction would be Monday to Friday from 7.00am to 7.00pm and 7.00am to 7.00pm on Saturday, although excavation of the penstock and tailrace would be likely to be a continuous 24 hour operation [APP-080]. The ES said that working hours would be subject to agreement with GC and NRW and that blasting would be from 7.00am to 7.00pm on Monday to Friday.
- 4.6.94 The timing of blasting was address earlier in this section and the timing of HGV movements was addressed in Section 4.5.
- 4.6.95 [REDACTED] [REDACTED] [REDACTED]
[REDACTED] Michael Vitkovitch [REP7-053], Dr Jane Huuse [REP8-004] and Dr Mads Huuse [REP7-050 and REP10-008] included that:
- the DCO should lock in working hours;
 - it was not clear what would take place outside normal working hours, apart from tunnelling of the penstock and work should not be allowed on Saturday afternoons, Sundays or Bank Holidays;
 - no noise maps have been provided for night time tunnelling;
 - slate tipping or other surface works, including in the confines of the existing quarries, that could be associated with tunnelling should not be permitted outside normal working hours;
 - the suggestion that tunnel support operations within the existing quarries can operate at times when other identical operations such as concrete batching and the movement of excavated material are prohibited leaves scope for confusion;

- it should be clarified that works in the existing quarries would be surface works rather than below ground works; and that
- all operations should be clearly described and individually named where they are being limited to normal working hours.

4.6.96 The Applicant [REP5-006, REP6-002, REP9-029 and REP10-001] said:

- the only works currently proposed outside normal construction hours are underground excavation works;
- activities required outside normal construction hours due to special circumstances would require consent under s61 of the CoPA, which would include necessary mitigation measures;
- there would be no slate tipping at Q1 outside agreed times;
- surface construction works would be restricted to normal construction hours; and that
- working hours would be restricted by the draft DCO [REP9-035].

4.6.97 Further clarifications provided by the Applicant [REP2-011, REP5-005, REP7-004] in response to my questions [PD-009, PD-015 and PD-025] included that:

- the ES included an assessment of 24 hour penstock construction and predicted that night time noise limits would be exceeded by up to 5 dB at two representative receptors [APP-080];
- the extent of works outside normal construction hours would be confirmed once the construction methods and programme had been finalised by the contractor;
- the working hours provisions of the draft DCO were amended to allow a specific exemption for underground excavation works;
- it may be necessary or advantageous to allow some deviation from standard hours, including where this would lessen impacts;
- extensions to working hours may allow road closures to avoid peak traffic flows or avoid busy periods at Llyn Padarn; and that
- it was reluctant to specify every occasion where an extension would be required due to unforeseen circumstances.

4.6.98 GC [REP2-041 and REP5-044] commented that:

- it understood that all works outside normal working hours would be limited to works underground;
- it anticipated receiving applications for s61 CoPA consent for work outside normal working hours once more information became available during the detailed design phase; and that
- it was not aware of any assessment of work that may be carried out during extended working hours.

4.6.99 Requirement 13 of the recommended DCO secures:

- construction hours from 7.00am to 7.00pm on Monday to Friday and 7.00am to 1.00pm on Saturdays;
- works outside those hours for underground excavation works or urgent disposal of ordnance; and

- the approval of works outside those hours under s61 of the CoPA would be subject to the LPA being satisfied that the impacts would be unlikely to give rise to any materially new or materially different significant effects to those assessed in the ES.

4.6.100 The Outline CNMP [REP10-006] states that no tunnelling works would be permitted between 1.00pm on any Saturday to 7.00am the following Monday or on any public holidays, unless the Applicant could demonstrate the noise generated by tunnelling during these times would not unduly affect residents [REP10-006].

Conclusions

4.6.101 I am satisfied that the 24 hour tunnelling works would also require some activities within the quarries and at the surface and do not find sufficient evidence for me to conclude that these would lead to impacts that have not been considered appropriately in the ES. I am also content that it is appropriate for the detailed consideration of the scope of underground works to be undertaken by GC during detailed design when the detail of construction methods would be more defined and that the suitable provisions for this are secured in the Outline CNMP [REP10-006]. I find it likely that these measures would address the potential effects related to the concerns expressed by IPs.

4.6.102 Appropriate measures have been added to the draft DCO [REP9-035], and to the Outline CNMP [REP10-006], as secured by Requirement 8 of the recommended DCO, during the Examination.

4.6.103 The processes of finalising noise limits, monitoring, auditing and incident response are considered later in this section. Subject to those being satisfactory and noting GC's comments, I am satisfied that the mitigation measures for construction working hours secured by the recommended DCO would ensure that there would be unlikely to be any significant effects.

Operational noise and vibration

4.6.104 The assessment of potential operational noise effects arising from sources including turbines, generators, transformers, switchgear and the workshop at the power station site and the pumping station at Llyn Padarn was undertaken for eight representative noise sensitive receptors in accordance with BS4142 [APP-080].

4.6.105 For the turbines and generators, located about 80m below ground level, and following mitigation including the detailed design of noise control measures in the ventilation shaft, the potential effects were considered to be of localised minor adverse significance [APP-080].

4.6.106 Low Frequency Noise (LFN) was considered to be difficult to predict with a high level of certainty, due to detailed information not being available on system components and the geometry of the site and buildings, and was proposed to be best considered during detailed

design. Potential impacts would be mitigated by careful selection of equipment and the use of vibration isolators, mufflers and attenuators [APP-080]. It was proposed that the assessment of any valid complaints of LFN received by GC would use the NANR45 methodology referred to by BS4142 [APP-080].

- 4.6.107 Switchgear would be placed in an annex to the power station main hall and was considered to produce very low noise levels during operation that would be mitigated by the design of the building fabric and ventilation system, resulting in localised minor adverse potential effects [APP-080].
- 4.6.108 Transformers would be located externally alongside the power station main hall and, based on an assumed sound power level and corrections for the character of the sound, the potential effects at representative receptors were considered to be minor adverse.
- 4.6.109 Noise levels at the workshop would be mitigated by the design of the building fabric and ventilation system, resulting in localised minor adverse potential effects [APP-080].
- 4.6.110 Noise from the pumping station alongside Llyn Padarn would be mitigated by the design of the underground chamber containing the equipment and the 200m distance from representative receptors, resulting in negligible potential effect [APP-080].
- 4.6.111 Representations on operational noise and vibration were received from IPs, including Peter Frost [RR-039], Jeff Taylor [RR-048], Ray Wood [RR-049], Dr Rebecca Williams [REP2-026], Emily Wood [REP2-032], Tony Grant [REP3-033], [REDACTED] and Michael Vitkovitch [RR-051, REP2-044, REP4-033, REP4-034, REP5-045 and REP7-053].
- 4.6.112 IPs comments and Applicant's responses [REP2-012, REP3-026, REP4-011, REP5-006, REP6-002 and REP9-029] fall under headings of 'LFN', 'ground borne vibration and noise (GBVN)', 'common LFN and GBVN matters' and the 'Llyn Padarn pumping station', as summarised below.
- 4.6.113 LFN:

IPs' comments:

- LFN had not been adequately addressed;
- the existing Dinorwig pumped storage scheme showed that LFN could be audible over a long distance and could cause harm;
- it should have been possible to obtain sufficient equipment and climate data to allow LFN to be assessed;
- NANR45 guidance, including that LFN "*only slightly above threshold of audibility can cause considerable disturbance*", did not appear to have been adhered to;
- LFN resonance could occur in caravans;
- transformers should be located underground to mitigate LFN; and

- acoustic decoupling was required to eliminate LFN.

Applicant's responses:

- the ES addressed LFN by outlining how component interactions have been recognised and can be mitigated and providing information on procedures for noise complaints [APP-080];
- if there were complaints after commissioning then further mitigation measures would be provided to address identified LFN;
- technology has improved and LFN regulation has been implemented since Dinorwig was built;
- LFN would need to be assessed for each item of plant, however details of the plant to be installed are not finalised and so further assessment would be carried out during detailed design;
- it was standard practice to assess LFN during detailed design;
- it would be better to address LFN through detailed design rather than retrofit attenuation measures to operational plant;
- the lightweight structure of caravans meant that there would be very little reflection off the walls;
- one set of transformers would be in open air for cooling purposes, LFN from transformers would be considered at detailed design and mitigation could include micro siting or bunding; and
- information on LFN limits and the assessment of LFN during detailed design had been added to the Outline ONMP [REP9-008].

4.6.114 GBVN:

IPs' comments:

- there may be vibration from the turbines when running;
- no assessment criteria were identified for ground borne noise;
- GBVN had not been assessed;
- insufficient consideration had been given to vibration during the pumping of water to the upper reservoir at night;
- BS4142 was not appropriate for the assessment; and
- it should have been possible to obtain sufficient equipment and ground condition data for GBVN to be assessed.

Applicant's responses:

- the nearest receivers to the turbine house were over 400m away and it was not anticipated that ground-borne vibration from the turbines would be detectable by occupants or cause annoyance;
- predictions over such distances were not normally required due to the attenuation of vibration with distance;
- it was unlikely that the ground borne noise would be audible due to the low levels generated and masking by other local noise;
- BS4142 had not been used to assess GBVN; and
- information on ground borne vibration and noise assessments to be undertaken during the detailed design and limits to be agreed with GC had been added to the Outline ONMP [REP9-008].

4.6.115 Common LFN and GBVN matters:

IPs' comments:

- LFN and vibration from Dinorwig was experienced within Dinorwig village and particularly at night due to the area being very quiet;
- evidence was provided of problems acknowledged by and compensated for in respect to Dinorwig;
- the effectiveness of the proposed mitigation was not proven;
- mitigation by detailed design could be impractical due to radical re-design and/or excessively high costs being required;
- LFN and GBVN cannot be mitigated after construction.
- the ES failed to quantify the magnitude of effects and relied on a future design process to achieve appropriate criteria or limits;
- it is not possible for the decision maker to know from the ES what LSE would be due to GBVN or LFN; and
- the NPS EN-1 requirement to include a prediction of how the noise environment will change with the Proposed Development and employed in mitigating noise were not fulfilled with regard to ground borne noise and low frequency noise.

Applicant's responses:

- since Dinorwig was constructed there had been significant advances in turbines to reduce cavitation effects at the impellers and the vibration generated in the turbine casing;
- predictions were not carried out as specific details of turbines, generators and structures were not available for the ES;
- a risk based procedure had been established in the Outline ONMP [REP9-008] and agreed with GC;
- the Outline ONMP fully documents the calculation of LFN and GBVN and operational noise and vibration limits [REP9-008];
- the operational noise assessment during detailed design would consider potential impacts during worst case operating scenarios;
- plant would be selected, designed and mitigated to meet the limits during detailed design and before plant installation;
- the approach was robust and allowed for the early identification of potential effects to influence the design;
- it was easier to mitigate LFN or GBVN prior to construction but it did not accept that there were no means of mitigating later; and
- it did not accept that the ES was deficient.

4.6.116 Llyn Padarn pumping station:

- Emily Wood stated that the noise assessment for the pumping station did not consider recreational users, who could be directly adjacent to it [REP2-032].
- The Applicant responded to this concern stating that the pumping station would only be used to initially charge the system and then infrequently during operation [REP3-026].

4.6.117 Further clarifications provided by the Applicant [REP5-005, REP7-004 and REP9-030] in response to my questions [PD-015, PD-025 and PD-026] included that:

- operational vibration was not addressed in ES Chapter 13 [APP-080] as it was not considered a potential issue for the development due to distances and appropriate design;
- it was in the interests of designers to minimise vibration of the turbines to avoid maintenance and length of life issues;
- if LFN limits were not met the plant would not be allowed to operate and LFN would be addressed during detailed design to avoid more difficult and costly retro-fit of mitigation; and that
- any noise from the pumping station would be effectively attenuated by the underground chamber, which together with noise effects only being anticipated for short periods meant that effects on nearby recreational uses of Llyn Padarn were unlikely.

4.6.118 GC stated that it did not have reason to believe that operational vibration would result in adverse impacts and was satisfied that appropriate mitigation measures, including further investigation and assessment during detailed design, had been secured [REP7-044].

Conclusions

4.6.119 I consider it reasonable that certain matters, including low frequency noise, ground borne vibration, and ground borne vibration noise are not capable of detailed assessment at this stage and that this detailed assessment should follow during detailed design. My view is that the mechanism for the detailed assessment, for approval by GC, is appropriately set out in the Outline ONMP [REP10-006], as secured by Requirement 8 of the recommended DCO.

4.6.120 In my view there is not compelling evidence that the Applicant has not sufficiently considered the potential effects regarding low frequency noise, ground borne vibration, and ground borne vibration noise in a manner that is appropriate to this stage. Although the Applicant provided environmental information during the Examination that was not in the ES, my view is that sufficient opportunity was provided to review and comment on it and no parties have been disadvantaged.

4.6.121 I am satisfied with the Applicant's responses to matters raised by IPs and to my questions. Sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential noise or vibration impacts during operation. I also consider it likely that the secured mitigation measures would address the potential effects that have concerned IPs.

4.6.122 Appropriate measures have been added to the Outline ONMP [REP9-008], as secured by Requirement 8 of the Recommended DCO.

4.6.123 The processes of finalising noise and vibration limits, monitoring, auditing and incident response are considered later in this section.

Subject to those being satisfactory and noting GC's comments, I find it likely that the mitigation measures secured by the recommended DCO and the measures that secures in the ONMP would ensure that there would be no significant effects from operational noise or vibration. I am therefore satisfied that the assessment of operational noise and vibration is adequate for the purposes of section 5.11 of NPS EN-1, section 13.15 of PPW8 and GUDP Policy B33.

Noise, vibration and air overpressure limits and monitoring

- 4.6.124 Detailed quantitative assessments of construction noise, vibration and air overpressure and finalisation of mitigation would be carried out following the appointment of the contractor, to allow account to be taken of their preferred construction methods [APP-080]. Similarly, detailed assessment of operational noise and vibration and finalisation of mitigation would be undertaken during detailed design when detail was available on plant and associated structures [APP-080].
- 4.6.125 The Applicant sought the flexibility to undertake further baseline surveys and then define limits and monitoring post-consent (if given) on the basis that the information available at that time would lead to the most appropriate mitigation design and control and reduce the potential for significant adverse effects. Under this scenario the detailed assessments, limits and monitoring arrangements would be agreed later with GC rather than secured in the DCO.
- 4.6.126 Recognising the inherent risks in such an evolutionary process, I sought clarification of, and to secure, the mechanisms for finalising and approving the limits and on proposals for monitoring and addressing any complaints; and suggested that limits should be secured directly in the DCO [PD-009 and EV-016].
- 4.6.127 Responding to this the Applicant submitted a joint position statement with GC [REP4-012], accepted by GC in an SoCG [REP4-006], which stated their agreement that the appropriate mechanism for the control of noise, vibration and air overpressure was through a CNMP and a ONMP, which would be approved by GC before the commencement of development following updated baseline survey work and input from the appointed contractor. "*Draft*" (subsequently termed "*outline*") versions of these plans were to be submitted to the Examination to allow comments to be made and incorporated.
- 4.6.128 Following updates during the Examination, the Outline CNMP now includes indicative limits, and the framework for finalising them, for general construction noise and vibration, tunnelling ground borne noise, blasting ground vibration, blasting air overpressure and piling noise and vibration [REP10-006]. Similarly, the Outline ONMP addresses limits for operational noise, LFN, ground-borne noise and ground-borne vibration [REP9-008]. Both plans also set out arrangements for community consultation or liaison, monitoring, nuisance management, non-compliance and corrective actions.

- 4.6.129 The suitability of the proposed limits and mechanisms, their relationship to the ES [APP-080] and the potential for limits to be exceeded is considered below.
- 4.6.130 Submissions from IPs including [REDACTED] [REDACTED] Michael Vitkovitch [REP4-033 and REP4-034] and Tony Grant [REP5-053] included that:
- it was disturbing that noise and vibration limits would be set by the Applicant and GC and unclear whether GC had this expertise or would do more than simply accept the Applicant's suggestions;
 - the priority for limits appeared to be to avoid undue restrictions for the operator rather than consideration for residents;
 - residents should have a say in deciding noise limits and should be able to contest them if they were proven to be causing problems;
 - it was disturbing that limits could be exceeded for 8 weeks;
 - LFN limits should be at the threshold of hearing - around 30dB;
 - meaningful limits had not been set for ground borne noise or ground borne vibration;
 - noise limits for operational equipment should not be based on BS4142 without recognising that background noise levels were not relevant;
 - BS4142 could not be used to set limits inside properties;
 - there were concerns about who residents would turn to if there were issues and if they would be treated fairly;
 - commitments to address complaints weren't clear; and that
 - further detail was required of monitoring and how compliance would be enforced by GC.
- 4.6.131 The Applicant [REP3-026, REP5-006 and REP6-002] responded that:
- limits would be set in the CNMP and in the ONMP;
 - limits would be based on relevant British Standards and recognised industry standards and guidance documents and would be agreed with GC;
 - mitigation measures identified during detailed construction and operation assessments would ensure that the limits were met;
 - mitigation measures such as bunds and barriers would be developed to achieve operational noise limits;
 - the potential for normal limits to be exceeded for up to 8 weeks per year was in line with MPG guidance, which acknowledged that at times there would be periods when noisier activities were required as part of the development/process;
 - a 30dB limit for LFN was not suitable as a single figure across all octave bands would not match with human response which varied across octave bands;
 - LFN limits would be set using specific LFN guidance, not BS4142;
 - LFN limits would be absolute and not background dependant;
 - ground borne noise limits were not based on BS4142; and that
 - the Outline CNMP [REP10-006] and Outline ONMP [REP9-008] included details of monitoring, commitments to investigate complaints and set out the procedures to be followed.

4.6.132 Further clarifications provided by the Applicant in response [REP2-011, REP4-014, REP5-005, REP7-004, and REP9-030] to my questions on the limits and the potential effects due to noise, vibration and air overpressure at those limits [PD-009, EV-016, EV-021, PD-015, PD-025 and PD-026] included that:

- relevant guidance for establishing limits included MPG 11 for construction noise, MTAN 1, BS5228-2, BS6472-1 and BS7385 for vibration, BS6472-2 for blasting, NANR45 for LFN and BS4142 for operational noise;
- based on MPG 11, daytime free field noise limits should not be higher than LAeq,1h 55dB and LAeq,1h 42dB for night time, at which levels the impacts would be negligible;
- MPG 11 allowed increases in daytime limits up to LAeq, 1h 70dB for up to 8 weeks per year, which would lead to major impacts;
- based on BS6472-1, daytime and night time vibration limits for construction, including tunnelling but not blasting, were at a level where there would be a low probability of adverse comment;
- BS6472-2 recommended an air overpressure limit of 120-150 dB(lin), lower than required to crack a poorly mounted window;
- limits for blasting would be set for human impacts, which would be significantly less than for structural damage;
- trial blasts were not proposed for setting limits, but initial blasts would be monitored and subsequent blasts adjusted accordingly;
- there was negligible potential for LFN during construction; and
- limits for any out-of-hours' work that may later be required would be agreed with GC as part of the s61 application, but were anticipated to be at the day and night time limits for other days.

4.6.133 In response to my questions on monitoring and the potential for limits to be exceeded, the Applicant [REP2-011, REP4-014, REP5-005, REP7-004, and REP9-030] stated that:

- the smallest change perceivable to the human ear was 3dB and so the average person would not tell the difference between noise at the limit and noise at minor exceedances of the limit;
- the ES predicted that construction noise limits would be exceeded at eleven representative receptors during daytime and two at night time, and potentially more receptors in total [APP-080];
- although the ES predicted that worst case construction noise levels would exceed limits without mitigation, they could be achieved with mitigation [APP-080];
- the detailed construction noise and vibration assessment to be undertaken following the appointment of the contractor would identify where mitigation was required to meet the limits;
- well-designed blasting rarely produced air overpressure at levels greater than 125dB(lin), ground borne vibration limits could be achieved by appropriate blast design and blasting impacts would be very short terms and temporary with up to 2 blasts per day;
- in relation to the 8 week period per year allowed by MPG 11, precise durations of exceedances of limits could not be provided

as the construction programme would only be available when the contractor was appointed;

- predicted noise levels did not exceed the LAeq, 1h 70dB limit permitted for up to 8 weeks per year;
- the Outline CNMP [REP10-006] was updated to include a process for identifying activities that had the potential to result in noise, vibration or air overpressure limits being exceeded and to require 2 weeks notification prior to commencement of increased noise limits for up to 8 weeks per year;
- plant would be designed to meet operational noise requirements;
- the CNMP and ONMP would set the maximum limits to be complied with and measures demonstrating compliance would be submitted to and approved by GC prior to construction/operation;
- monitoring to demonstrate compliance with construction noise and vibration limits and operational noise limits would be agreed with GC and set out in the CNMP and ONMP; and that
- the draft DCO did not provide for any exceedances of the limits that would be agreed with GC for the CNMP or ONMP.

4.6.134 GC [REP2-041] stated that:

- noise, vibration and air overpressure from blasting should be mitigated by good blasting design and monitoring;
- noise and vibration limits would be secured;
- it was not aware that any limits for noise, vibration or air overpressure would be greater than those which informed the assessments in the ES [APP-080];
- it was not unduly concerned about potential exceedances of construction noise and vibration limits at this stage;
- it was reasonable to expect that potential breach incidents would be identified and mitigated at detailed design; and that
- the noise and vibration limits would provide a good level of protection to sensitive receptors.

4.6.135 Towards the end of the Examination the Outline CNMP [REP10-006] was updated to incorporate comments from GC [REP9-042] regarding night time construction noise limits. Although GC did not have an opportunity to comments on the changes, my view is that by clarifying that the night time limits related to tunnelling or other activities permitted by a s61 consent, the Applicant did address GC's concerns.

Conclusions

4.6.136 I am satisfied with the Applicant's responses.

4.6.137 I consider it reasonable and appropriate that certain matters are not capable of detailed assessment at this stage, that this detailed assessment should follow the appointment of a contractor and that the limits should therefore be finalised during the detailed design.

4.6.138 With the information provided during the Examination, I conclude that the Applicant has sufficiently considered the setting of construction

and operational limits in a manner that is appropriate to this stage and as necessary for a decision to be made on the Proposed Development.

- 4.6.139 I do not find sufficient evidence to agree with suggestions made by IPs that GC would either not act independently or do not have the capability to ensure that limits would set and enforced appropriately. Indeed, GC's contributions on this matter during the Examination have been most professional and the guidance and expertise they have provided has been instrumental in establishing the way forward and has been consistent with their statutory duties. I have no reason to doubt that they would fulfil the roles expected of them in the Outline CNMP [REP10-006] and Outline ONMP [REP9-008].
- 4.6.140 I note that GC are content with the indicative limits, the mechanisms to establish limits and to avoid them being exceeded.
- 4.6.141 Sufficient information has been provided on the indicative limits and on the mechanism by which they would be established for me to consider it likely that the impacts arising with such limits would be consistent with the conclusions of the impact assessment [APP-090].
- 4.6.142 My view is that the mechanisms for the detailed assessments and finalisation of limits, for approval by GC, are appropriately set out in the Outline CNMP [REP10-006] and Outline ONMP [REP9-008], as secured by Requirement 8 of the recommended DCO.
- 4.6.143 Based on the above, noting the measures that have been added to the Outline CNMP [REP10-006] and Outline ONMP [REP9-008] and GC's comments, I consider it likely that the appropriate noise, vibration and air overpressure limits and monitoring would be secured by the recommended DCO in the CoCP, CNMP and ONMP.
- 4.6.144 My view is that it is likely that limits would be secured that would support the conclusions made earlier in this section in respect to surface plant noise, other construction noise, vibration and air overpressure, working hours and operational noise and vibration.

Conclusions on policy and factual issues

- 4.6.145 I have had particular regard to the policies set out in NPS EN-1, PPW and GUDP and the guidance contained in TAN 11 and MPG 11 in my consideration of noise and vibration impacts.
- 4.6.146 Following baseline surveys, the Applicant's assessment has included consideration of a wide range of potential noise and vibration impacts. These have included those potentially arising from traffic, general construction activities, drilling, blasting and tunnelling, and the operation of the turbines, transformers and other equipment. The assessment is supported by material provided during the Examination, on which there were sufficient consultation opportunities for me to be satisfied that this did not disadvantage any parties.

- 4.6.147 The assessment included consideration of matters raised in NPS EN-1 and PPW, including those related to health, well-being, potential annoyance, sleep deprivation and damage to buildings. Consideration has been given to potential effects on people in a range of settings, including in residential properties and during recreation.
- 4.6.148 NPS EN-1's requirement for effective noise and vibration management has been addressed by the recommended DCO and by measures set out in the Outline CoCP [REP9-028], Outline CNMP [REP10-006], Outline CTMP [REP9-012], Outline Ordnance Management Strategy [REP9-024] and Outline ONMP [REP9-024], all as secured by Requirement 8 of the recommended DCO. These have all been subject to Examination and updated in response to the matters raised. I consider it likely that these would address the concerns raised by IPs.
- 4.6.149 Those plans include consideration of the mitigation measures suggested by TAN 11, including opportunities to reduce the sound generated at source, containment and providing screening.
- 4.6.150 In addition to the comments provided in their LIR and in an SoCG during the Examination, GC have confirmed [REP2-041, REP5-044, REP7-044 and REP9-042] that they are satisfied:
- with the receptor and magnitude of effect criteria and with the assessment of construction noise and vibration;
 - with the application of professional judgement in the assessment;
 - with the mitigation measures identified in the outline plans and the process for these to be developed post-consent, if granted;
 - that both residential properties and recreational users would be protected by mitigation measures within the CNMP;
 - with the contents on the Outline CNMP and Outline ONMP; and
 - that noting the further assessment would be carried out during detailed design, it did not consider the overall residual impact from noise and vibration to be significant.
- 4.6.151 The Applicant stated that the avoidance and mitigation measures proposed would avoid airborne construction noise effects on the majority of receptors and communities.
- 4.6.152 In order for me to be satisfied and have confidence that the potential impacts as assessed, consulted on and examined are not exceeded, my view, as noted earlier in this section, is that:
- tunnelling of the penstock should be required to progress in the direction from Q6 towards Q1; and
 - a limit on the movements of HGV vehicles during construction should be set to the levels assessed in the ES.
- 4.6.153 I have included relevant provisions for the starting point for penstock tunnelling and for restrictions in the total number of HGV movements in Requirement 6 of the recommended DCO. The SoS's attention is

drawn to the fact that these have not been agreed with the Applicant and that the Applicant is likely to disagree that they are necessary.

- 4.6.154 With the exception of those matters, I find that the assessment of traffic noise and vibration is adequate for the purposes of section 5.11 of NPS EN-1; paragraph 13.13.1 and section 13.15 of PPW8; paragraph 8.1.9 of PPW9 and GUDP Policy B33.
- 4.6.155 I accept that there would be potential for noise related effects in different locations during the construction of the Proposed Development as identified in the ES. However, taking into account the measures secured by Requirement 8 of the recommended DCO in the Outline CoCP [REP9-028], Outline CNMP [REP10-006], Outline Ordnance Management Strategy [REP9-024] and Outline ONMP [REP9-024], I consider it likely that the noise impacts would be limited to certain locations only and their effects managed. I also accept that these have been mitigated to the extent reasonably possible and that mitigation is secured.
- 4.6.156 I consider it likely that there would be temporary and intermittent major adverse effects at 8 representative residential properties and moderate adverse effects at 3 other representative residential properties due to surface plant noise over a period of around 18 months during construction, and that it is likely that there would be major or moderate adverse effects at more residential properties.
- 4.6.157 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for noise and vibration, in addition to those specifically identified in this section. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided by the Applicant during the Examination and the mitigation measures secured by the recommended DCO.
- 4.6.158 Based on the above, I therefore conclude that the Proposed Development complies with relevant policy and that there would be unlikely to be any significant effects arising from noise or vibration, with the exception of those from surface plant noise.
- 4.6.159 I conclude that temporary and intermittent major adverse effects at 8 representative residential properties, moderate adverse effects at 3 other representative residential properties due to surface plant noise over a period of around 18 months during construction and the likelihood of major or moderate adverse effects at a greater number of residential properties should weigh against the Order being made.

4.7 AIR QUALITY

- 4.7.1 This section considers air quality impacts during construction and operation. Effects on biodiversity and ecology are considered in Section 4.4, traffic and transportation in Section 4.5 and nuisance in Section 4.9. Decommissioning is addressed in Section 4.13.

Policy context

- 4.7.2 NPS EN-1 identifies that infrastructure development can have adverse effects on air quality (section 5.2). It recognises that construction and operation can involve emissions to air which could lead to adverse effects on health and protected species and habitats and that many such activities are subject to other mechanisms of pollution control.
- 4.7.3 Where a project is likely to have adverse effects on air quality, NPS EN-1 (paragraph 5.2.7) advocates that an assessment considers:
- *"any significant air emissions, their mitigation and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;*
 - *the predicted absolute emission levels of the proposed project after mitigation methods have been applied;*
 - *existing air quality levels and the relative change in air quality from existing levels; and*
 - *any potential eutrophication impact."*
- 4.7.4 Part IV of the Environment Act 1995 establishes a national network for air quality management, which requires all local authorities in Wales to conduct local air quality reviews. The Act requires these reviews to include an assessment of current and future air quality in the area. Should the reviews indicate that the objectives prescribed in the UK Air Quality Strategy for Wales will not be met, the local authority is required to designate an Air Quality Management Area (AQMA).
- 4.7.5 The Welsh Government's objectives with regard to air quality include maximising environmental protection for people, natural and cultural resources, property and infrastructure; preventing or managing pollution; and promoting good environmental practice.
- 4.7.6 PPW8 highlights that pollution may result from traffic vehicle emissions and that this should be a material consideration in deciding whether to grant planning permission (paragraph 13.12.1).
- 4.7.7 TAN 8 recognises that transport emissions contribute significantly to poor air quality. When considering a planning application it advocates that a planning authority should take account of statutory air quality objectives together with results of air quality reviews and assessments and any AQMA action plans that may have been prepared.
- 4.7.8 MTAN 1 sets out measures to reduce the impacts of aggregate production, including dust and blasting.
- 4.7.9 GUDP Policy B33 states that proposals that cause significant harm as a result of higher levels of air pollution will be refused unless adequate controls can be attained and arrangements made for monitoring.

The Application

- 4.7.10 ES Chapter 14 Air Quality sets out the baseline conditions including an assessment of local air quality, background pollution concentrations and meteorology [APP-081].
- 4.7.11 Potential nuisance, health, discolouration and ecological effects on receptors including residential and holiday properties, the Snowdonia National Park and designated ecological sites were assessed in respect to deposited dust, increased concentrations of fine atmospheric particulates and vehicle emissions [APP-081]. Mitigation included relevant site management measures for earthworks, general construction and the tracking of dust and dirt [APP-081].
- 4.7.12 It was considered unlikely that there would be any significant adverse effects resulting from emissions to air during operation [APP-081].
- 4.7.13 No significant cumulative air quality effects were identified [APP-084].
- 4.7.14 The Applicant considered the overall residual effect on air quality to be minor adverse and not significant [REP2-011, FWQ Appendix 2.7].

SoCGs and the LIR

- 4.7.15 In their SoCG [REP4-006] the Applicant and GC agreed that:
- impacts of dust generating activities on local communities and other receptors had been assessed in the ES [APP-084];
 - air quality monitoring was required prior to commencement of the works to gather baseline data, and during the works to ensure that the effects would not exceed acceptable thresholds;
 - specific monitoring methods were to be agreed with GC as part of the Pollution Control Management Plan in the CoCP;
 - it was inappropriate for dust deposition limits to be set within an DCO Requirement; and that
 - the appropriate mechanism for the control of dust deposition was through a CoCP, Air Quality Baseline Monitoring Plan and Dust Management Plan, which would be approved by GC before commencement, following input from the appointed contractor.
- 4.7.16 In their SoCG the Applicant and NRW agreed that the air quality assessment approach was suitable with respect to potential impacts on protected species and that any residual impact could be mitigated within the CoCP and the Breeding Bird Method Statement [REP3-010].
- 4.7.17 In their SoCG [REP3-009] the Applicant and Snowdonia National Park Authority agreed that impacts of dust generating activities on local communities and other receptors had been assessed in the ES [APP-084] and that the Dust Management Plan was an appropriate means of mitigating and reducing impacts of all dust generating activities.
- 4.7.18 Matters raised in GC 's LIR [REP2-037 to REP2-40] include:

- the Proposed Development has the potential to have a significant effect on local businesses and dwellings;
- the conditions imposed by the T&CPA approval were believed to be an acceptable way to control air quality [APP-086];
- suitable control measures were identified in the ES;
- together with GC's statutory powers, such as through the EPA, these measures would ensure acceptable management, although there would occasionally be impacts during construction; and that
- with consistent and effective monitoring and management it was believed that the impacts could be acceptable and not lead to significant long-term unacceptable effect on local residents.

4.7.19 GC did not identify any Air Quality Management Areas (AQMAs) that might be affected by the Proposed Development.

Outline management and mitigation plans

4.7.20 Relevant outline plans were developed during the Examination.

4.7.21 The Outline CoCP [REP9-028] includes an Outline Pollution Prevention Plan and consideration of general measures to control dust deposition and the transportation of dust and dirt onto the public road network.

4.7.22 The Outline Baseline Air Quality Monitoring Plan (BAQMP) [REP9-016] provides for air quality monitoring to identify existing conditions prior to construction work and allow the later identification of any changes in the rate of dust deposition or in concentrations of nitrogen dioxide.

4.7.23 The Outline Dust Control and Air Quality Management Plan (DCAQMP) [REP9-014] incorporates the Outline Dust Management Plan and, as well as repeating measures included in the Outline Baseline Air Quality Monitoring Plan, sets out mitigation measures related to dust and fine atmospheric particulates, monitoring criteria and measures during construction, and a framework for particulate action trigger levels.

4.7.24 The DCAQMP was given different names during the Examination, including "*Dust Management Plan*" and "*Dust and Air Quality Management Plan*". The alternative names are given below as quoted during the Examination and shown "*in italics*".

4.7.25 These outline plans would be certified by Article 36 of the recommended DCO. They contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).

4.7.26 GC noted [REP9-042] that it was in agreement with previous versions of the Outline CoCP [REP7-012], Outline BAQMP [REP7-024] and Outline DCAQMP [REP7-026]. I have not been given any reason to believe that GC would have a different view on the latest versions submitted at D9.

- 4.7.27 NRW noted [REP10-011] that it had no further comments on the CoCP [REP9-028] and was satisfied [REP7-042] that air quality impacts would be managed by the CoCP or relevant EPs. NRW stated [REP10-011] that its comments were without prejudice to any decisions that it might make on any applications for EPs and that the CoCP was subject to on-going discussion through the Environmental Permitting regime.

Other factual issues considered during the Examination

- 4.7.28 Air quality issues considered during the Examination include:

- general comments from Public Health Wales, GC and NRW;
- dust deposition during construction;
- emissions from construction vehicles and plant; and
- monitoring and action trigger levels.

General comments from Public Health Wales, GC and NRW

- 4.7.29 Public Health Wales noted the potential for health impacts from construction and material handling [RR-033]. They recommended that the Applicant liaise with the local authority for matters relating to dust nuisance, local air quality and mechanisms to respond to complaints from the community for inclusion in a management plan.
- 4.7.30 The Applicant responded to Public Health Wales by referring to the measures to be agreed with GC for inclusion in the CoCP and "*Dust Management Plan*", including limits on particulates, baseline and ongoing monitoring programmes, and mechanisms for community communications and complaints [REP2-012].
- 4.7.31 GC [REP2-041] considered that
- it was satisfied with the assessment of impacts on humans, including from traffic, blasting, use of conveyors and construction of slate dams, soil heaps, temporary storage mounds, roads and road construction summarised in the ES [APP-081];
 - it was satisfied with the proposed mitigation measures; and that
 - it had no concerns about air quality impacts on health providing a suitable Air Pollution Management Plan, such as that for the 2012 T&CPA planning application [APP-086], was adhered to.
- 4.7.32 NRW commented that with regard to potential effects on protected species it was satisfied that adequate mitigation measures would be secured through the DCO, CoCP and associated plans [REP2-047].

Conclusions

- 4.7.33 In my view GC's requirement for an Air Pollution Management Plan would be likely to be satisfied by the BAQMP and DCAQMP, that would be subject to approval by GC, as secured by Requirement 6 of the recommended DCO, and which would be to the minimum standards set out in the Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014], as secured by Requirement 8 of the recommended DCO.

Dust deposition during construction

- 4.7.34 A qualitative assessment of potential dust effects from earthworks, rock crushing, blasting, general construction and transportation of dust and dirt onto the public road network during the construction was carried out to guidance including MTAN 1 and Institute of Air Quality Management (IAQM) methodology [APP-081].
- 4.7.35 Following mitigation, including locating dust emission sources away from sensitive receptors; protecting of loading/unloading activities and material storage areas; controlling soil handling and overburden stripping; wheel wash facilities; and road cleaning, speed restrictions; sheeting of vehicles and monitoring, the residual effects were considered likely to be minor adverse and not significant [APP-081].
- 4.7.36 Submissions from IPs including [REDACTED] [REDACTED] [REDACTED] Michael Vitkovitch [REP5-047] and Cherry Bartlett [REP7-046] included that:
- blasting, crushing, machinery passing close to the site boundary and dust created by HGVs and concrete mixers on public roads would result in dust at and entering nearby houses;
 - it was unclear whether GC had the expertise, would make the right decisions in respect to mitigation or whether it would be an advocate that local people could turn to;
 - dust deposition limits should be agreed before construction;
 - there were concerns about health implications of high dust levels;
 - the Applicant's proposed working methods were not achievable and therefore dust impacts during the penstock tunnelling appear to have been significantly underestimated; and that
 - it was not clear where dust laden water from washing vehicles etc. down would go to.
- 4.7.37 The Applicant responded to these concerns [REP3-026, REP6-002, REP9-029 and REP10-001], stating that:
- suitable mitigation was provided by the "*Dust Management Plan*";
 - the community were encouraged to communicate any concerns to GC's Environmental Health Officer during construction;
 - requirements for dust deposition limits to be agreed prior to construction commencing were secured through the "*Dust and Air Quality Management Plan*";
 - monitoring criteria were secured for airborne particulate matter (PM10) that had been set in line with the national air quality objective value for the protection of human health;
 - it was satisfied that the development was deliverable; and that
 - wheel washing would only be undertaken at construction compounds, where surface water run-off mitigation measures would be implemented.

4.7.38 Further clarifications provided by the Applicant [REP2-011, REP4-014, REP5-005, REP7-004 and REP9-030] in response to my questions [PD-009, EV-016, EV-021, PD-015, PD-025 and PD-026] included that:

- the assessment considered the proximity of receptors to the site and that dust generating activities could be at any location permitted within a relevant Works Area;
- the hierarchy was to avoid emissions if possible and then minimise the potential to generate emissions at source;
- the activities that would occur on the site and the measures capable of minimising the risk of airborne particulate matter emissions were standard to mineral extraction and construction;
- concrete batching was addressed using the IAQM methodology;
- crushing would be regulated by the Environmental Permitting Regulations 2010;
- the blasting assessment included consideration of the likelihood of creating fine dust fractions dispersed over a large area as well as the potential to generate larger dust fractions and rock fly;
- blasting would be confined to the quarries and tunnelling and would only be used above ground where it was proved to be safer than alternatives, where it would avoid excessive environmental impacts, or where it was the only practicable option;
- there were several activities with greater potential to generate dust than blasting, including use of haul roads and stockpiling of unconsolidated dusty materials;
- the general measures set out to date had a demonstrable track record in the UK of successful use for minimising emissions from crushing, conveyors, stockpiling and construction activities;
- the DCAQMP would detail specific mitigation measures for specific plant and working methods and a number of example measures had been added to the Outline DCAQMP [REP9-014];
- the mitigation measure would ensure no materially new or different significant effects from those assessed [APP-081];
- dust deposition limits would be agreed with GC, based on best-practice guidance of IAQM; and that
- dust deposition rates at receptor locations were unlikely to increase perceptibly above baseline rates and were not predicted to exceed the action trigger level of 200mg/m²/day.

4.7.39 GC considered that while the Proposed Development would not be operated as a quarry, the activities were similar and so MTAN 1 and the Guidance on Assessing Environmental Impacts from Mineral Extraction were both relevant [REP2-041].

Conclusions

4.7.40 I am satisfied with the Applicant's responses to matters raised by IPs and to my questions. Sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential dust deposition impacts during construction. I find it likely that mitigation measures would address the potential effects that have concerned IPs.

- 4.7.41 Monitoring and action trigger levels are considered later in this section. Subject to those being satisfactory; based on the above; noting the measures that have been added to the Outline CoCP [REP9-028], Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014], as secured by Requirement 8 of the recommended DCO; and GC's and NRW's comments, I consider it likely that the mitigation measures secured by the recommended DCO, would ensure that there would be no significant effects from dust deposition during construction.
- 4.7.42 On that basis I am satisfied that the assessment of dust deposition during construction is adequate for the purposes of section 5.2 of NPS EN-1, paragraph 13.12.1 of PPW8 and GUDP Policy B33.

Emissions from construction vehicles and plant

- 4.7.43 Potential effects due to road vehicle emissions during construction were assessed following guidance in the DMRB. The residual effects were considered to be minor adverse and not significant [APP-081].
- 4.7.44 Submissions from IPs including Cherry Bartlett [REP4-020, REP7-046 and REP10-007], Dr Jane Huuse [REP4-021] and Mads Huuse [REP10-008] included that:
- no consideration had been given to pollution caused by large numbers of diesel engine vehicles passing up and down the construction routes every day;
 - the International Agency for Research on Cancer had classified diesel engine exhaust as carcinogenic to humans and in the same category as smoking in that respect;
 - there was documented evidence of diesel exhaust fumes causing eye itchiness, coughing, a stress response in the brain, lung disease, heart attacks and other respiratory problems;
 - effects of traffic pollution on residents had not been addressed;
 - additional traffic on Ffordd Cefn Du would result in environmental issues due to pollution;
 - residents along Ffordd Cefn Du were concerned about potential air pollution and ill health caused to pedestrians due to traffic being stationary with engines running and when diesel lorries strained their engine on adverse gradients; and that
 - construction traffic on Ffordd Cefn Du should be required to switch off their engines "*when waiting for upcoming convoys*".
- 4.7.45 The Applicant responded to these concerns [REP5-006, REP9-029 and REP10-001], stating that:
- it was common knowledge that diesel engine exhaust contained polycyclic aromatic hydrocarbons (PAHs) and benzene for which there was sufficient evidence of carcinogenicity;
 - the National Air Quality Strategy included objectives for PAH and for benzene, which were considered at the very start of the assessment process, but were not quantified given the extremely low risk of the objective values being exceeded at any location;

- information on health risks provided by IPs refer to part of the evidence that underpins the National Air Quality Objectives; and
- the proposed highway improvements to Ffordd Cefn Du would mean that there would be no need for construction vehicles to idle next to residential properties for any significant periods;

4.7.46 I note that the Outline DCAQMP includes various measures relevant to emissions from construction vehicles and plant [REP9-014]:

- recognition of the potential health impacts of vehicle emissions and that these would need to be monitored and controlled under the national Air Quality Strategy;
- identification of representative receptors in the vicinity of construction routes for monitoring and detailed assessment;
- that, as far as practicable, routes should be located away from residential and commercial properties;
- where possible Non-Road Mobile Machinery should achieve exhaust emission standards equal or better than Euro IV;
- vehicle movements should be kept to a minimum; and
- emission controls in relation to visible exhaust smoke, maintenance, servicing, operating time and exhaust direction for static and mobile plant.

Conclusions

4.7.47 I am satisfied with the Applicant's responses to matters raised by IPs. Sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential impacts due to emissions from construction vehicles or plant.

4.7.48 Appropriate measures have been added to the Outline CoCP [REP9-028], Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014], as secured by Requirement 8 of the recommended DCO. It is likely that these mitigation measures would address the effects concerning IPs.

4.7.49 Monitoring and action trigger levels are considered later in this section. Subject to those being satisfactory and noting GC's comments, I consider it likely that the mitigation measures secured by the recommended DCO would ensure that there would be no significant effects due to emissions from construction vehicles or plant.

4.7.50 I am satisfied that the assessment of emissions from construction vehicles and plant is adequate for the purposes of section 5.2 of NPS EN-1, paragraph 13.12.1 of PPW8 and GUDP Policy B33.

Monitoring and action trigger levels

4.7.51 The ES stated that GC required monitoring of baseline conditions, demonstration of compliance with PM₁₀, PM_{2.5} and NO₂ air quality targets during construction and for dust deposition not to exceed 200mg/m²/day average per month during construction [APP-081]. Automatic dust monitoring, passive dust deposition gauges and

passive diffusion tubes to measure were given [APP-081] as examples of monitoring methods to be finalised in the management plan.

4.7.52 Submissions from IPs including Dr Jane Huuse [REP4-021], [REDACTED] [REDACTED] [REDACTED] [REP5-042] and Mads Huuse [REP10-008] included that:

- air quality monitoring should be initiated for construction traffic on Ffordd Cefn Du;
- it was not clear what actions would be taken if dust levels were shown to be an issue and what further mitigation was possible if existing limits were not appropriate or that levels were kept within the agreed limits; and that
- air quality limits should be locked into the DCO.

4.7.53 The Applicant responded to these concerns by stating [REP5-006 and REP6-002] that details of actions and measures to control emissions were set out in the "*Dust and Air Quality Management Plan*".

4.7.54 Further clarifications and updates provided by the Applicant [REP2-011, REP5-005, REP7-004 and REP9-030] in response to my questions [PD-009, PD-015, PD-025 and PD-026] included that:

- the Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014] included details of the baseline air quality survey, monitoring that would be undertaken during construction and trigger levels at there would be additional mitigation action;
- the baseline air quality survey monitoring would use methods that accorded with NRW Technical Guidance;
- monitoring protocols were to be agreed and could include complaint logging, use of automatic particulate monitors, maintenance of a daily dust log, a responsible on-site trained person and mechanisms to notify GC;
- sampling would depend on practical constraints relating to site security, safe access and reliable power supplies;
- dust deposition and air pollutant trigger levels were based on generic best practice guidance and would account for local baseline rates rather than generic national values;
- the trigger levels would be set low enough to trigger additional mitigation action when source contributions were likely to be detectable and at levels that equate to effects no greater than minor, consistent with the ES conclusions [APP-081];
- particle matter size fraction PM_{2.5} was not suitable for use as a trigger criteria as it was an annual mean value;
- GC would receive an automated alert of any episodes of PM₁₀ concentrations above the upper action trigger level;
- a summary report of the baseline monitoring and annual reports during construction would be submitted to GC;
- the Outline DCAQMP had been updated to include actions to be implemented in the event of equipment or control failures, or other abnormal or unintended situations [REP9-014]; and that

- the Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014] had been updated with detail on monitoring and trigger levels.

4.7.55 GC [REP2-041, REP5-044, REP7-044 and REP9-042] considered that:

- regular air quality updates should be provided;
- automatic particulate monitoring equipment would help to ensure that blasting air quality issues would be appropriately covered;
- monitoring and measures to be taken in case of a failure of dust controls were all within the management plans and there was no need to add further detail on this to a draft DCO Requirement;
- as the Air Quality Objective for PM_{2.5} did not come into legislation until 2020, it was content with the monitoring of PM₁₀; and that
- it was satisfied with the monitoring proposed.

4.7.56 I note that GC is content with the measures secured for monitoring and action trigger levels.

Conclusions

4.7.57 My view is that the mechanisms for finalising monitoring and trigger action levels, for approval by GC, are appropriately secured in the Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014]. I consider it likely that these would address the concerns raised by IPs.

4.7.58 Appropriate measures have been added to the Outline CNMP [REP10-006] and Outline ONMP [REP9-008] during the Examination, as secured by Requirement 8 of the recommended DCO.

4.7.59 Based on the above and noting GC's comments, I consider it likely that the appropriate monitoring and trigger action levels would be secured by the recommended DCO in the BAQMP and DCAQMP.

4.7.60 Therefore my view is that it is likely that monitoring and trigger action levels would be secured that would support the conclusions made earlier in this section for dust deposition and vehicle emissions.

Conclusions on policy and factual issues

4.7.61 I have had particular regard to the policies set out in NPS EN-1, PPW and the guidance contained in TAN 8 and MTAN 1 in my consideration of the potential air quality impacts of the Proposed Development.

4.7.62 The Applicant's assessment has included consideration of potential nuisance, health, discolouration and ecological harm effects on receptors including residential and holiday properties, the Snowdonia National Park and designated ecological sites due to deposited dust, increased concentrations of fine atmospheric particulates and vehicle emissions. Mitigation included relevant site management measures for earthworks, general construction and the tracking of dust and dirt.

4.7.63 It was considered unlikely that there would be any significant effects on air quality during construction or operation.

- 4.7.64 I am satisfied that the assessment has considered existing air quality levels, how they would be changed by the Proposed Development and whether there were likely to be any adverse effects on air quality on health, protected species and habitats during the different phases of the Proposed Development in accordance with NPS EN-1.
- 4.7.65 In accordance with NPS EN-1, as no adverse effects were considered likely the Applicant was not required to describe absolute emission levels, relative changes in air quality levels or eutrophication impacts.
- 4.7.66 The assessment also included consideration of pollution from traffic generated by the Proposed Development, the UK Air Quality Strategy, AQMA, matters relevant to the Welsh Government's air quality objectives and assessment against MTAN 1, all as required by policy.
- 4.7.67 I am satisfied that the assessment of air quality is adequate for the purposes of section 5.2 of NPS EN-1, paragraph 13.12.1 of PPW8 and GUDP Policy B33.
- 4.7.68 I note that GC was content with the assessment methodology and with the mitigation proposals and that NRW was satisfied that potential impacts on protected species would be mitigated. GC was satisfied with the exclusion of PM_{2.5} from the assessment criteria and I have no reason to disagree with this view.
- 4.7.69 Mitigation measures have been secured by the recommended DCO and, particularly, by measures set out in the Outline CoCP [REP9-028], Outline BAQMP [REP9-016] and Outline DCAQMP [REP9-014], as secured by Requirement 8 of the recommended DCO. These have all been subject to Examination and updated in response to the matters raised. They include consideration of MTAN 1 and IAQM guidance for airborne particulates and of the DMRB for vehicle emissions.
- 4.7.70 Those plans identify that consultation with regards to baseline air quality monitoring; setting trigger levels; finalising mitigation measures; monitoring during construction; and corrective measures would be carried out following the appointment of the contractor. My view is that this is appropriate given the need for detailed information of construction methods for these matters to be finalised. However, I am satisfied that with the minimum measures secured in the Outline plans, the residual effects resulting from the finalisation of the plans would be likely to be consistent with those identified in the ES.
- 4.7.71 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for air quality, in addition to those specifically identified in this section. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided by the Applicant during the Examination, the agreements reached with statutory bodies, the mitigation measures and the recommended DCO.

- 4.7.72 I am satisfied that the Proposed Development complies with relevant policy and that with the secured mitigation measures there would be unlikely to be any significant effects related to air quality, and that these matters should not weigh against the Order being made.

4.8 OTHER HEALTH IMPACTS, SAFETY AND SECURITY

- 4.8.1 This section considers potential health impacts, safety and security. Health and safety are also covered in other sections, including:

- water quality, contaminated land, private water supply, ordnance and potential reservoir breach in Section 4.3;
- traffic and transportation in Section 4.5;
- noise, vibration and air overpressure in Section 4.6;
- air quality in Section 4.7; and
- recreation and public rights of way (PRoW) in Section 4.10.

Policy context

- 4.8.2 NPS EN-1 notes that energy production has the potential to impact the health and well-being of the population (paragraph 4.13.1). Where there are potential effects on human beings, the ES should assess these effects for every element of the project, identifying any adverse health impacts, and identifying measures to avoid, reduce or compensate for those impacts as appropriate (paragraph 4.13.2).
- 4.8.3 NPS EN-1 explains that aspects of energy infrastructure most likely to have significantly detrimental effects on health are subject to separate regulation, which will constitute effective mitigation, so that it is unlikely that health concerns will constitute a reason to refuse consent (paragraph 4.13.5). It explains that health concerns should be taken into account when setting requirements relating to a range of impacts.
- 4.8.4 NPS EN-1 explains that the HSE is responsible for enforcing a range of occupational health and safety legislation and directs Applicants to consult with the HSE on safety matters (paragraph 4.11.1).
- 4.8.5 NPS EN-1 notes that overall responsibility for security of the energy sector lies with DECC (now BEIS), who would ensure that security has been adequately considered in the design process and that adequate consideration has been given to the management of security risks (section 4.15). It states that the Applicant should include sufficient information so as to enable the Examination of the development consent issues and to enable a properly informed decision.
- 4.8.6 PPW8 notes that decisions should contribute to the protection and, where possible, improvement of people's health (paragraph 4.4.3).
- 4.8.7 GUDP Policy B33 states that proposals that cause significant harm to the quality of public health, safety or amenities will be refused unless adequate controls can be attained and arrangements made for monitoring.

The Application and the consideration of issues

- 4.8.8 With reference to section 4.15 of NPS EN-1, I am not aware of any national security issues relevant to decision making for the Proposed Development and therefore do not give further consideration to security matters in this report.
- 4.8.9 Health and safety matters are addressed in the topic-specific ES Chapters relating to Water Resources [APP-076], Flood Risk [APP-077], Traffic & Transportation [APP-079], Noise & Vibration [APP-080], Air Quality [APP-081] and Socio-Economics [APP-082] and, where relevant, considered together with the relevant management plans in Sections 4.3, 4.5, 4.6, 4.7 and 4.10. Matters addressed include:
- water discharges and health and safety matters in relation to recreational users in Llyn Padarn;
 - the contamination of private water supplies;
 - the safe disposal of ordnance;
 - dam stability and the risks of a breach;
 - road user safety;
 - health matters related to dust and vehicle emissions;
 - health matters related to noise and vibration; and
 - safe public access, including for events and PRoW.
- In each case I considered the ES; matters raised by IPs, the Applicant and GC; mitigation measures; residual effects; compliance with policy; and identified matters that weigh against the Order being made.
- 4.8.10 The main non-topic specific sections of the application relevant to health and safety, other than those considered in Sections 4.3, 4.5, 4.6, 4.7 and 4.10, are:
- the Design and Access Statement [APP-060];
 - EIA Approach & Consultation [APP-069];
 - Design Evolution and Alternatives [APP-070];
 - Project Description [APP-071]; and
 - Environmental Management [APP-083].
- 4.8.11 In addition, an Outline Health and Safety Plan was submitted by the Applicant during the Examination, setting out the minimum measures to be included in the contractor's Health and Safety Plan for construction [REP9-006]. This outline plan would be certified by Article 36 of the recommended DCO. It contains matters that must be addressed and minimum standards to be complied with in subsequent versions of the plan (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirement 7). GC agreed [REP7-044] with a previous version [REP5-017] of the plan and I have not been given any reason to believe that it would have a different view on the latest version submitted at D9.
- 4.8.12 The non-topic specific sections of the application mentioned above [APP-60, APP-069, APP-070, APP-071 and APP-083] and the Outline

Health and Safety Plan [REP9-006] have demonstrated consideration of health and safety legislation and guidance, made references to how health and safety measures have influenced the design and set out relevant mitigations measures.

4.8.13 Specific examples of consideration of legislation and guidance that the Applicant has considered include:

- Construction (Design and Management) Regulations 2015 (CDM) [REP9-006];
- EPA [APP-083]
- Reservoirs Act 1975 [APP-071];
- HSE guidance HSG38 Lighting at Work [APP-071]; and
- the Quarries Regulations 1999 [APP-069].

4.8.14 References demonstrating how health and safety concerns have influenced the proposed design include:

- construction safety as a key indicator for the original site selection [APP-070];
- the incorporation of critical reservoir safety features including overflow and scour arrangements, the ability to lower reservoir water levels and maintain valves [APP-071];
- locating the power house to a platform in the industrial estate rather than in an existing quarry [APP-070]; and
- choosing safer options for PRoW diversions [APP-070].

4.8.15 Relevant mitigation measures applicable to Health and Safety include:

- implementation of a construction Health and Safety Plan and method statements for the main construction works and the training of staff in health and safety [APP-083];
- temporary diversions of PRoW during construction [APP-071];
- temporary closures of PRoW and Ffordd Clegir during drilling and blasting [APP-071];
- there would be no public access to the construction site and fencing and 24 hour security would be in place around Q1 and Q6 during construction [APP-071];
- health and safety management during the construction of the spillway infrastructure into Llyn Padarn, in the vicinity of recreation users [APP-071];
- implementation of a health, safety and environmental integrated management system during operation [APP-083];
- opportunities for crime would be "*designed out*" [APP-060];
- lighting and CCTV during construction and operation [APP-071];
- fencing around the reservoirs during operation [APP-071]; and
- maintenance and inspection during operation [APP-071].

4.8.16 Public Health Wales referred to potential impacts due to electric and magnetic fields around substations and the connecting lines [RR-033]. They noted that UK Government policy was for guidelines published by the International Commission on Non-ionizing Radiation Protection

(ICNIRP) to be implemented to limit exposure by the general public and quoted references raising concerns about possible effects of long term exposure at lower levels than given in the ICNIRP guidelines.

- 4.8.17 Responding to Public Health Wales' concerns, the Applicant said that electromagnetic fields underneath power lines were considerably lower than ICNIRP guidelines [REP2-012]. It anticipated that the above ground structures would be installed at least 400m from any residential area and that therefore the electromagnetic fields at those locations would be significantly lower than underneath the power lines and quoted references that suggesting that no adverse health effects would be caused by exposure below the guideline levels [REP2-012].
- 4.8.18 The Applicant confirmed that ICNIRP guidelines would be adhered to [REP2-011]. Given that compliance would be voluntary and that GC advised that this did not fall within its remit [REP7-044], I sought to secure compliance with the guidelines. The Applicant then included a provision in Requirement 5 of the draft DCO for an explanation to be provided of how the design would take account of industry good practice and guidance effects of non-ionising radiation [REP9-035].
- 4.8.19 Responding to my questions [EV-016, EV-021 and PD-015] the Applicant clarified [REP4-014 and REP5-005] that potential effects on human health had been intrinsically assessed in the ES Chapters on Water Resources [APP-076], Flood Risk [APP-077], Traffic & Transportation [APP-089], Noise and Vibration [APP-080] and Air Quality [APP-081] and that given the nature of the operation it did not anticipate that odour effects or an increased risk of pests would occur.

Conclusions on policy and factual issues

- 4.8.20 I have had particular regard to the policies set out in NPS EN-1, PPW and GUDP in my consideration of health, safety and security.
- 4.8.21 My view is that with the separation distance to residential areas significant effects of long term exposure to electromagnetic fields would be unlikely and implementation of the ICNIRP guidelines would be likely to provide suitable protection to the public, including those in closer proximity to the substation and connecting lines when using PRoW or areas of public access. Exposure in relation to the grid connection cables is not a matter for the Proposed Development.
- 4.8.22 I am satisfied that non-ionising radiation includes electromagnetic fields; that the detailed design would address ICNIRP guidelines, that would be likely to be met; and that there would be unlikely to be any adverse effects on health from electromagnetic fields from the substation or connecting lines of the Proposed Development.
- 4.8.23 With respect to electromagnetic fields I am therefore satisfied that the Applicant has addressed NPS EN-1 paragraph 4.13.1, which recognises that energy distribution may have negative effects on some people's

health and that appropriate mitigation has been secured by Requirement 5 of the recommended DCO.

- 4.8.24 Based on the above, and noting my conclusions elsewhere in this Chapter, I am satisfied that the Applicant has considered the potential health impacts identified in paragraph 4.13.3 of NPS EN-1.
- 4.8.25 NPS EN-1 refers to the need to consult with the HSE on matters related to safety (paragraph 4.11.1). The Applicant has confirmed that it undertook early consultation with the HSE [APP-057].
- 4.8.26 With reference to Section 4.15 of NPS EN-1, I am not aware of any national security issues relevant to decision making.
- 4.8.27 The approach taken by the Applicant to other health and safety issues that might arise from the construction and operation of the infrastructure and the manner in which it is proposed to mitigate and minimise such impacts are covered in relevant Chapters of the ES. On that basis I am satisfied that appropriate assessment has been carried out for the purposes of PPW and GUDP Policy B33.
- 4.8.28 I have no reason to believe that other consents or licences related to health, safety or security, including as required under the Health and Safety at Works Act 1974, CoPA and Environmental Permitting Regulations 2012 [REP9-002], would not be granted.
- 4.8.29 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for health, safety and security, in addition to those specifically identified in this section and elsewhere in this Chapter. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided by the Applicant during the Examination, the mitigation measures, compliance with separate legislation and regulations and the recommended DCO.
- 4.8.30 I am satisfied that the Proposed Development complies with relevant health, safety and security policy for the purposes of the DCO and that these matters should not weigh against the Order being made.

4.9 COMMON LAW NUISANCE AND STATUTORY NUISANCE

- 4.9.1 This section addresses common law nuisance, statutory nuisance and blight. Dust is considered in Section 4.7, noise in Section 4.6 and light in Section 4.12. Decommissioning is addressed in Section 4.13.

Common law nuisance and statutory nuisance

Policy context

- 4.9.2 Section 158 of PA2008 provides a defence of statutory authority against claims in civil and criminal proceedings for nuisance, unless the DCO provides otherwise.

- 4.9.3 Section 79(1) of the EPA 1990 establishes the matters that are "*statutory nuisances*". The term covers matters such as noise, smoke, or gas emitted from premises, if they either constitute a (common law) nuisance or are "*prejudicial to health*".
- 4.9.4 NPS EN-1, in paragraph 4.14.1, notes that:
- the defence of statutory authority would include a defence for proceedings for statutory nuisances but only to the extent that the nuisance is the inevitable consequence of what is authorised;
 - the defence does not extinguish the local authority's duties to investigate complaints of statutory nuisance and to serve an abatement notice where appropriate; and that
 - the defence is not intended to extend to proceedings where the matter is "*prejudicial to health*" and not a nuisance.
- 4.9.5 NPS-EN-1 directs the decision maker to consider possible sources of statutory nuisance, and how they may be mitigated or limited so that appropriate requirements can be included in any subsequent order granting development consent (paragraph 4.14.2). It then identifies that the decision maker can dis-apply the defence of statutory authority, in whole or part, in any particular case, but in so doing should have regard to whether any particular nuisance is an inevitable consequence of the development (paragraph 4.14.3).
- 4.9.6 NPS EN-1 states that there is a potential for the release of a range of emissions such as odour, dust, steam, smoke, artificial light and infestations of insects, which could cause a common law nuisance, or a statutory nuisance under Part III of the EPA 1990 (paragraph 5.6.1). It states that the potential for these impacts needs to be considered and should be kept to a minimum and at a level that is acceptable (paragraphs 5.6.2 and 5.6.3).
- 4.9.7 NPS EN-1 adds that the decision maker should consider whether there is a justification for the entire authorised project being covered by a defence of statutory authority against nuisance claims (paragraph 5.6.8). If it cannot conclude that this is justified, it should disapply in whole or in part the defence through a provision in the DCO.
- 4.9.8 PPW8 sets out matters to be considered with respect to emissions to air and water; and to noise and lighting (sections 13.12 and 13.15).
- 4.9.9 GUDP Policy B33 states that proposals that cause significant harm to the quality of public health or amenities as a result of higher levels of air, water, noise or soil pollution will be refused unless adequate controls can be attained and arrangements made for monitoring.

The Application and the consideration of issues

- 4.9.10 Section 158 of PA2008 provides a defence of statutory authority against claims in civil and criminal proceedings for nuisance, unless the DCO provides otherwise.

- 4.9.11 Article 9 of the Applicant's final draft DCO [REP9-035] would provide specific defences where proceedings are brought in the magistrates court under s82(1) EPA 1990 in relation to certain categories of nuisance within s79(1). These are the categories described in the EPA 1990 s79(1) (c) (fumes or gases from premises), (d) (dust, steam, smell or other effluvia arising on industrial, trade or business premises), (e) (any accumulation or deposit), (g) (noise emitted from premises) and (ga) (noise emitted from or caused by a vehicle, machinery or equipment in a street). It relates to cases brought by individuals or other legal persons (such as companies).
- 4.9.12 It would remain open to the undertaker to raise the general s158 defence of statutory authority against proceedings for nuisance taken by the local authority under s80, or by individuals in relation to any of the other categories of nuisance under s82.
- 4.9.13 The Applicant points out that s158 and Article 9 only apply to nuisance, and not to prejudice to health, which is a separate limb within the statutory nuisance regime [REP4-013].
- 4.9.14 Matters relevant to common law nuisance and the potential for interference with the use and enjoyment of a person's property are addressed in ES Chapters, including Water Resources [APP-076], Flood Risk [APP-077], Traffic & Transportation [APP-079], Noise & Vibration [APP-080], Air Quality [APP-081] and Landscape Character and Visual Amenity [APP-073] and are considered in Sections 4.3, 4.5, 4.6, and 4.7 of this report. Matters addressed include flooding, private water supplies, construction traffic, air emissions including dust and vehicle emissions and noise and vibration during construction and operation.
- 4.9.15 The Applicant submitted a Statement in Respect of Statutory Nuisance with the application [APP-053]. This considered that the following matters in s79(1) of EPA 1990 could potentially be engaged:
- air quality impacts could engage s79(1)(c) (fumes or gases emitted from premises), (d) (dust, steam, smell or other effluvia arising on industrial, trade or business premises) and (e) (any accumulation or deposit);
 - noise impacts could engage s79(1)(g) (noise emitted from premises) and (ga) (noise emitted from or caused by a vehicle, machinery or equipment in a street); and
 - impacts from artificial light could engage s79(1)(fb) (artificial light emitted from premises).
- 4.9.16 I note that Article 9 of the Applicant's final draft DCO [REP9-035] refers to each of these subsections of s79(1) except (fb).
- 4.9.17 The ES [APP-053] stated that:
- air quality impacts were not predicted to cause a nuisance or be prejudicial to health;

- temporary noise impacts during combined construction activities were predicted to potentially cause a nuisance at 11 of the 30 representative residential dwellings that were assessed;
- noise impacts due to construction or operational traffic would not constitute a statutory nuisance for the purposes of EPA 1990;
- noise impacts during the operational phase would not cause a nuisance or be prejudicial to health;
- artificial lighting would not cause a nuisance or be prejudicial to health; and that
- it did not expect that any other statutory nuisance would result from the construction or operation of the Proposed Development.

4.9.18 GC confirmed [REP2-037, REP4-006 and REP4-027] that:

- it would implement measures to manage nuisance and its power to manage the situation is reiterated by statutory powers such as British Standards, Regulation in Work and the EPA 1990;
- except for the 11 properties identified as affected during part of the construction period, it was not anticipated that a statutory nuisance would result from the development; and that
- it had no further comments on Article 9 (defence to proceedings in respect of statutory nuisance) of the recommended DCO.

4.9.19 The ES concluded [APP-080] that the worst case magnitudes of impact in respect to noise and vibration would be:

- major adverse magnitude of noise during construction;
- negligible magnitude of vibration during construction;
- minor magnitude of noise or vibration due to construction traffic; and
- negligible magnitude of noise or vibration during operation.

4.9.20 With respect to air quality, the assessments concluded that the potential residual effects due to deposited dust, vehicle emissions or fine particulates would not be significant [APP-081].

4.9.21 Submissions, in addition to those addressed elsewhere in this Chapter, were received from IPs including Ray Wood [RR-049], [REDACTED] [REP4-023]; Mike Vitkovitch [REP2-044, REP4-033, REP4-034 and REP5-045] and included that:

- with reference to low frequency noise during operation, operators should not be allowed the powers of avoiding nuisance claims if they themselves cannot show that they have made assessments and advised of the effects beforehand;
- the Applicant should not be able to set the limits themselves and also declare an indemnity to any noise claim;
- there should be no indemnity from compensation claims;
- protection against claims from nuisance should not be required if the ES and the noise limits would be acceptable;
- the Applicant seeks to absolve himself of any claim of nuisance from low frequency noise and ground borne noise and vibration

- while there has been insufficient consideration of their potential effects and of any mitigation; and that
 - if the Applicant considers that no nuisance would be created from noise and vibration during operation, then it should not take issue if defence against nuisance was withheld.
- 4.9.22 The Applicant responded to these concerns [REP2-012, REP3-026, REP5-006 and REP6-002], stating that:
- there was potential for nuisance due to noise during construction;
 - low frequency noise had been assessed and mitigation measures would be finalised following the detailed noise assessment that would be carried out at detailed design;
 - it didn't accept that nuisance would be created during operation;
 - nuisance caused by factors such as noise and vibration were covered by EPA 1990 and could be dealt with under that regime;
 - it was inaccurate to state that the developer would be indemnified or excluded from liability for nuisance;
 - Article 9 is in accordance with the model provisions and provided a defence to statutory nuisance in very specific circumstances related to s82 of EPA 1990; and that
 - the statutory nuisance defence was the standard legal position.
- 4.9.23 Neither the draft DCO submitted with the Application [APP-043], nor any subsequent version [REP1-007, REP2-006, REP2-008, REP3-016, REP4-009, REP5-002, REP5-029, REP6-012, REP7-001 and REP9-035] contained any provisions disapplying s158 of PA2008.
- 4.9.24 I questioned [EV-007, EV-017, PD-009 and EV-025] if protection from statutory nuisance was appropriate; the purpose of Article 9; its scope; and whether it could be omitted. The Applicant [EV-004, REP1-003, REP2-011, REP2-015, REP4-013 and REP7-007] replied that:
- it would strongly object to the deletion of Article 9;
 - the Proposed Development should be allowed to cause a nuisance after reasonable measures had been taken to prevent them;
 - Article 9 of the draft DCO put the interaction of s82 of EPA 1990 (Abatement Order sought by an aggrieved person) on the same footing as s80 (Abatement Notice by a local authority);
 - Article 9 was required to create a general defence in actions of statutory nuisance raised by individuals as otherwise the only defence would be under to s82(9) of EPA 1990;
 - the undertaker would have to prove that best practicable means had been used to prevent, or counteract the effects of, nuisance;
 - similar provisions had routinely been included in DCOs to date;
 - s82 procedures were very rarely used and statutory nuisances were normally dealt with by the local authority under s80;
 - EPA 1990 s79(1)(c), (d) and (e) were included in relation to air quality, including due to vehicle emissions during construction, dust from construction operations and raised by vehicle movements, blasting of the penstock and from the exposure of re-profiled slate mounds to the elements;

- EPA 1990 s79(1)(g) and (ga) were included in relation to noise, including that arising from vehicle movements;
- it did not consider that any of the elements went beyond what was considered in the ES; and that
- Part 1 of the Land Compensation Act 1973 provided a compensation regime for the depreciation of land value caused by certain public works arising from certain physical factors during operation, including noise and vibration.

Conclusions on policy and factual issues

- 4.9.25 I have had particular regard to NPS EN-1, PPW and GUDP Policy B33 in my consideration of possible common law nuisance and statutory nuisance impacts of the project.
- 4.9.26 In accordance with sections 4.14 and 5.6 of NPS EN-1, I have considered possible sources of nuisance, how they may be mitigated or limited and, as referenced elsewhere in this Chapter, I have included appropriate requirements in the recommended DCO, as noted in the previous sections of this Chapter.
- 4.9.27 In Section 4.6 I found that it was likely that there would be temporary and intermittent major adverse effects at 8 representative residential properties and moderate adverse effects at 3 other representative residential properties due to surface plant noise over a period of around 18 months during construction and that major or moderate adverse effects were likely at more residential properties.
- 4.9.28 I have considered paragraphs 4.14.3 and 5.6.8 of NPS EN-1 and whether the defence of statutory authority should be conferred in light of the concerns raised by IPs, the Applicant's responses, my conclusions elsewhere in this Chapter and that the Proposed Development is an NSIP. I find that nuisance due to noise during construction is likely to be an inevitable consequence of the Proposed Development. However, I find that appropriate controls and mitigation measures for potential nuisance would be secured by the recommended DCO for me to be satisfied that it is not necessary to further disapply the defence provided by s158(1) of PA2008.
- 4.9.29 I have no reason not to accept the Applicant's clarification that Article 9 puts the interaction of s82 of EPA 1990 (Summary proceedings by persons aggrieved by statutory nuisances) on the same footing as s80 (Summary proceedings for statutory nuisances).
- 4.9.30 I note that Article 9 is based on the model provisions and there is substantial precedence for the use of similar Articles on other national infrastructure projects. I note that GC has not objected to its inclusion.
- 4.9.31 Based on the above, I do not find that there is a sufficiently strong case for me to justify the removal of Article 9 and am content that it should be retained in the recommended DCO.

- 4.9.32 The Applicant's justification for Article 9 to include EPA 1990 s79 categories relates to potential construction noise and air quality risks.
- 4.9.33 The Applicant considered in the Statement in Respect of Statutory Nuisance [APP-053] that it did not expect that any other statutory nuisance would result during construction or operation, with the exception of noise impacts during construction.
- 4.9.34 The ES concluded that there would be mostly no significant residual effects to noise and vibration during construction or operation, with the exception of construction surface plant noise during which would result in localised and temporary major or moderate adverse impacts.
- 4.9.35 Section 79(4) of EPA 1990 states that s79(1)(c) only applies to fumes and gases from private dwellings. As noted above, the Applicant justified the inclusion of 79(1)(c) in relation to vehicle emissions. I therefore consider that this reference is unnecessary and should be removed from Article 9.
- 4.9.36 Noting the protection conferred by s158 of PA2008, I find that the Applicant has not demonstrated that risks during construction justify the inclusion in Article 9 of s79(1) (c) (fumes or gases), (d) (dust, steam, smell or other effluvia) or (e) (any accumulation or deposit). I consider that the inclusion of s79(1) (g) (noise emitted from premises) should be limited to noise during construction and should not include vibration during construction or noise or vibration during operation.
- 4.9.37 I reflect my conclusions on references to EPA 1990 s79(1) categories in Article 9 of the recommended DCO. The SoS's attention is drawn to the fact that these changes have not been agreed with the Applicant and that the Applicant may disagree that they are appropriate.
- 4.9.38 I believe that nuisance issues have been assessed adequately and that the mechanisms for the management of potential impacts are robust and sufficient and meet the requirements of NPS EN-1, and that appropriate consideration has been given to GUDP Policy B33.
- 4.9.39 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for common law nuisance and statutory nuisance, in addition to those specifically identified in this report. I am satisfied that with the provisions of the recommended DCO, the Proposed Development complies with relevant common law nuisance and statutory nuisance policy and that the matter of compliance with those policies should not weigh against the Order being made.

Blight

- 4.9.40 Submissions regarding blight to properties along Ffordd Cefn Du from IPs including Waunfawr Community Council [REP2-057], Mads Huuse [REP2-031, REP8-004 and REP10-008] and Dr Jane Huuse [REP4-021 and REP8-004] included that:

- blight would be caused by heavy construction traffic through narrow roads in peaceful residential areas;
- the Proposed Development would cause significant depreciation to the value of properties along the access route to Q1 by changing the character of the road from a quiet country lane to an industrial service road;
- blight had been dismissed without regard for resident's considerable concerns about the depreciation of properties;
- there should be a requirement to set aside funds to cover blight;
- the correct procedure for assessing and compensating for blight and paying for blight surveys was not known; and that
- local estate agents had suggested permanent devaluation to properties if a permanent industrial grade road replaced the lane.

4.9.41 The Applicant [REP3-026, REP5-006 and REP9-029] responded that:

"Planning blight is the depressing effect on the value of existing property of proposals which imply public acquisition of that property. It is therefore related to the need to acquire land by compulsory purchase only, it does not apply to the effects of development on adjoining or other land. "Blighted land" is defined in Schedule 13 of the Town and Country Planning Act 1990 which in reference to highways includes land required for a highway itself or other land to be compulsory acquired under Highways powers. Neither category applies to the residents along Ffordd Cefn Du and blight in its legal sense is therefore not applicable. The Applicant has engaged with affected landowners where blight may apply separately. Consultation with residents of Waunfawr was undertaken as part of the general consultation on the DCO application which includes the impacts of the development as a whole and therefore access as an aspect of that, blight is not applicable as a topic and would not have been separately referenced."

Conclusions

4.9.42 I have no reason to disagree with the Applicant's response.

4.9.43 Although I have no view on whether the highway improvement works to Ffordd Cefn Du that would be undertaken under the proposed s278 agreement would qualify for blight, I am satisfied that planning blight in relation to properties along Ffordd Cefn Du is not a matter for my consideration of the Proposed Development or for the SoS's decision. Other factors that residents have described as causing "*blight*" have been dealt with elsewhere in this Chapter.

4.10 SOCIO-ECONOMICS, LAND USE AND ACCESSIBILITY

Introduction

4.10.1 This section considers local and regional socio-economics, tourism, recreation, open space, PRow and land use. Related matters are also considered in Section 4.2 (national socio-economic benefits), Section

4.3 (water environment), Section 4.5 (traffic and transportation), Section 4.6 (noise and vibration), Section 4.7 (air quality) and Section 4.13 (decommissioning).

Policy context

Socio-economic and tourism policy

- 4.10.2 NPS EN-1 emphasises that there is an urgent need for infrastructure development and that the decision maker should take environmental, social and economic benefits into account, as well as adverse impacts at national, regional and local levels and measures to avoid, reduce or compensate for any adverse impacts (paragraphs 4.1.2 to 4.1.4).
- 4.10.3 NPS EN-1 explains that the construction and operation of energy infrastructure may have socio-economic impacts at a local and regional level (section 5.12). It directs the Applicant, when the project is likely to have an effect on socio-economic impacts at local or regional levels, to assess these impacts as part of the ES.
- 4.10.4 Regional and local socio-economic impacts are specifically dealt with in section 5.12 of NPS EN-1. Paragraph 5.12.3 identifies a number of considerations as relevant socio-economic impacts, including:
- the creation of jobs and training opportunities;
 - the provision of additional local services and improvements to local infrastructure, including educational and visitor facilities;
 - the effects on tourism;
 - the impacts of a changing influx of workers; and
 - cumulative effects.
- 4.10.5 In view of the need for energy infrastructure, NPS EN-1 notes that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence (paragraph 5.12.7).
- 4.10.6 NPS EN-1 emphasises that account should be taken of any relevant provisions the developer has made or is proposing to make to mitigate impacts, such as through planning obligations (paragraph 5.12.8). It also says that consideration should be given to whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development (paragraph 5.12.9).
- 4.10.7 Chapter 7 of PPW8 considers economic development and states that the planning system should support economic and employment growth alongside social and environmental matters (paragraph 7.1.3). It says that local planning authorities should support the low carbon economy and be favourable for low carbon energy generation (section 7.4).
- 4.10.8 Chapter 11 of PPW8 addresses tourism, sport and recreation. It recognises the importance of tourism and notes that facilities provided in rural areas should be sensitive to the needs of users, attractive, well maintained, safe and accessible (paragraphs 11.1.4 and 11.1.8).

- 4.10.9 TAN 23 recognises that economic benefits may be geographically spread out far beyond the area where the development is located. It states that the availability of alternatives, jobs created and any special contribution to policy objectives should be considered when balancing economic, social and environmental issues.
- 4.10.10 TAN 13 recognises that tourism makes a major contribution to the Welsh economy, provides employment in a wide variety of occupations and can bring benefits to local rural economies. It considers that the tourism issues should be addressed in development control decisions.
- 4.10.11 Relevant policies in the GUDP include:
- Strategic Policy 16 - employment;
 - Policy A2 - protecting the social, linguistic and cultural fabric of communities;
 - Policy C27 - renewable and sustainable energy schemes;
 - Policy CH19 - provision of new infrastructure or services; and
 - sustainable economy Policies D1-D4.

Recreation, open space and public rights of way policy

- 4.10.12 NPS EN-1 states that consent should not be granted for development on existing open space or recreational land unless an assessment has shown the open space or land to be surplus to requirements or that the decision-maker determines that the benefits of the project (including need), outweigh the potential loss of facilities, taking into account proposals to provide compensatory land (paragraph 5.10.14).
- 4.10.13 NPS EN-1 states that rights of way, National Trails and other rights of access to land are important recreational facilities for walkers, cyclists and horse riders and further requires Applicants to take appropriate mitigation measures to address adverse effects on coastal access, National Trails and other rights of way (paragraph 5.10.24).
- 4.10.14 PPW8 notes the importance of long distance routes and rights of way as important tourism and recreation facilities and should be protected (paragraphs 11.1.8). It also states that open green spaces should be protected, particularly where it has significant amenity or recreational value to communities (paragraphs 11.1.11).
- 4.10.15 TAN 16 recognises that the natural environment is a valuable resource for recreation that needs to be managed to ensure that it can be used sustainably and that it is safe and attractive. It recognises the importance of protecting PRoW.

Land use policy

- 4.10.16 NPS EN-1 notes that although the re-use of previously developed land for new development can make a major contribution to sustainable development by reducing the amount of countryside and undeveloped

greenfield land that needs to be used, it may not be possible for many forms of energy infrastructure (paragraph 5.10.3).

- 4.10.17 NPS EN-1 says that the LPA should identify any concerns about impacts on land use, with regard to the development plan and relevant applications (paragraph 5.10.7). It directs the safeguarding of any mineral resources as far as possible (paragraph 5.10.9).
- 4.10.18 GUDP sets out local land use policies. GC commented on the principle of the development in relation to local policy that "*Policy C6 states that 'proposals for the Glyn Rhonwy redevelopment site that create employment opportunities for the benefit of Gwynedd's communities will be permitted provided that the development conforms to a series of criteria..' which policy D5 states that 'in exceptional cases, proposals to locate an industrial or business development on sites that have not been designated...will be permitted provided the Proposed Development has genuine special location needs which cannot be met on an industrial site' (clearly relevant to areas of the Proposed Development which are not located within the Glyn Rhonwy re-development site)*" [REP2-037 to REP2-40].

The Application

- 4.10.19 The main relevant parts of the ES are Chapter 15 Socio-economics [APP-082] and Appendices 15.1 [APP-140] and 15.2 [APP-141].
- 4.10.20 The Common, Access and Public Rights of Way Strategy [APP-049], Planning Statement [APP-057] and the Design and Access Statement [APP-060] are also relevant. The Common, Access and Public Rights of Way Strategy was updated during the Examination [REP3-005].
- 4.10.21 The Socio-Economics Chapter of the ES [APP-082] considers potential effects on the local economy, tourism, recreation, recreational facilities, events, Llanberis Touring Park, land use, public access and common land.
- 4.10.22 Potential impacts during construction include:
- employment opportunities;
 - requirements for temporary accommodation;
 - local expenditure in the area;
 - increased traffic;
 - temporary closures of rights of way and accessible land;
 - construction activities in the vicinity of Llyn Padarn;
 - diversions of event routes;
 - construction noise;
 - temporary closure of a small car park next to Q1; and
 - fencing off access land and common land
- 4.10.23 Mitigation measures during construction [APP-082] include:

- working with local communities and businesses to phase the construction works to minimise disruption;
 - measures secured in the CoCP and CTMP;
 - agreeing all closures and diversions with GC in advance and providing information on them to users;
 - measures to mitigate potential adverse noise and dust impacts;
 - working hours limits on weekends and bank holidays; and
 - providing permanent exchange land and temporary replacement land for common land.
- 4.10.24 With those measures in place the residual significance of effects during construction were assessed by the Applicant [APP-082] as ranging from minor adverse to minor beneficial and therefore not significant.
- 4.10.25 Potential impacts during operation [APP-082] include:
- employment opportunities;
 - diverted PRoW;
 - diversions of event routes;
 - operational noise;
 - perimeter fencing around Q1 and Q6; and
 - fencing off access land and common land.
- 4.10.26 Mitigation measures during operation [APP-082] include:
- the maintenance of all PRoW;
 - measures secured in the ONMP;
 - site design sympathetic with the wider landscape; and
 - providing exchange land for common land and mitigation land for access land.
- 4.10.27 With those measures in place the residual significance of effects during operation were assessed by the Applicant as ranging from negligible to minor beneficial and not significant [APP-082].
- 4.10.28 Moderate beneficial impacts associated with the increased viability of the Proposed Development were identified with respect to the increased capacity of the Proposed Development compared to the 2012 T&CPA planning application [APP-082], but are not considered further here as I do not consider that comparison with the capacity of previous options is material to the decision in this respect.
- 4.10.29 The Planning Statement stated that the Proposed Development would create approximately 250 full time jobs at the peak of construction, with a further 200 being created indirectly, and provide approximately 20-35 jobs during its 125 year operational lifespan [APP-057].
- 4.10.30 The Common, Access and Public Rights of Way Strategy sets out how public interest would be protected as the Proposed Development extended across registered Common land and designated Access Land and as a public highway and rights of way were diverted [REP3-005].

4.10.31 The Applicant assessed the overall residual effects on socio-economics as negligible, with the exception of the effect on the local and regional economy and on land use and public access that were considered to be minor beneficial [REP2-011, FWQ Appendix 2.7]. The overall potential residual effects were considered to be not significant.

SoCG and the LIR

4.10.32 In their SoCG [REP4-006] the Applicant and GC agreed that:

- the likely social and economic benefits included a commitment from the Applicant to source employment locally where possible;
- the Applicant would create a Community Benefits Fund;
- there was adequate assessment of impacts and mitigation appropriate to tourism and recreation receptors, including businesses, organisations, tourists, recreation and event participants and other receptors;
- impacts to open access land would be mitigated through closures of roads and PRow identified in the Common, Access Land and Public Rights of Way Strategy [REP3-005] and secured in the draft DCO, and associated mitigation plans;
- the Proposed Development site fell partly within the "*Glyn Rhonwy Redevelopment Site*" allocation, with the remainder allocated as "white land" in the UDP; and that
- the Proposed Development was an appropriate use of the land.

4.10.33 Matters raised in GC's LIR [REP2-037 to REP2-40] include:

- the Glyn Rhonwy site had been formally designated as a redevelopment site within the GUDP;
- the site was economically important for local communities;
- several other proposals have previously been discussed for the Glyn Rhonwy site, but none have yet been realised
- the Applicant's socio-economic research findings were considered relevant, acceptable and in line with relevant requirements;
- there would be opportunities for local employment and for the local economy to benefit by providing services, including accommodation, restaurants, shops, garages, etc.;
- employment opportunities for local area's native population would strengthen the Welsh language;
- there would be disturbance to local residents and tourism industry due to traffic flow impacts and footpath diversions;
- although existing footpaths were to be diverted, access along vast parts of Cefn Du would be maintained by new footpaths and it was not believed that there would be an actual impact;
- it was not believed that there would be a long term harmful impact on leisure activities; and that
- it was not believed that the visual impact of the Proposed Development would cause a long term impact on tourism.

Other factual issues considered during the Examination

4.10.34 Socio-economic, land use and accessibility issues considered during the Examination include:

- employment and local expenditure;
- recreation and tourism;
- other tourism businesses and other economic impacts;
- access land and common land; and
- land use.

Employment and local expenditure

4.10.35 The engineering cost of constructing the Proposed Development was estimated to be £160m. 100 people would typically be directly employed during the construction phase, although this would increase up to 250 at the peak [APP-082].

4.10.36 Although not all employment would be of local people, the Applicant stated that one of the criteria for the selection of the contractor would be their approach to local employment, training and apprenticeship schemes and that the use of local employment would help to address one of the local community's main socio-economic issues [APP-082]. Regional employment during construction was considered to have a temporary minor beneficial effect.

4.10.37 Requirements for temporary accommodation in local guest houses, hotels and B&Bs for construction workers outsourced from the local area and other indirect economic benefits arising from expenditure on food, drink and petrol were both considered likely to be temporary minor beneficial effects on the local economy [APP-082].

4.10.38 20-35 full time staff would be employed during operation. The Applicant indicated that local people would be employed where possible, that there would be indirect benefits to local companies servicing the operation and maintenance activities and that these would be likely to have local minor beneficial effects on the local economy [APP-082].

4.10.39 Submissions from Cherry Bartlett [RR-035 and REP2-024], Haf [RR-046], Dr Rebecca Williams [RR-040], Dr Jane Huuse [REP2-028] and [REDACTED] included that:

- the job figures quoted were lower than circulated previously;
- few long terms jobs would be delivered;
- it was not clear how many jobs would be created locally;
- more local jobs would not be created as it was specialised work and the manpower would be imported; and that
- more information should be provided on the community funding.

4.10.40 The Applicant responded to these comments [REP2-012, REP3-026 and REP9-029], stating that:

- job figures from the 2012 T&CPA planning application had been updated in the ES [APP-082];
- it would promote the employment of local people;
- the extensive local hydro power and slate mining knowledge would lead to opportunities for local contractors; and that
- the community fund was not mitigation for any potential adverse effects and was not a relevant consideration for the DCO.

4.10.41 In response to my questions [PD-009 and PD-015], GC [REP2-041 and REP5-044] advised that:

- it welcomed the approach taken by the Applicant to maximise the local benefit from the proposed investment;
- it anticipated considerable local involvement in both direct employment and in the supply chains;
- it would be interested in discussing the proposed procurement strategy, providing assistance in promoting opportunities to local businesses and coordinating activities of various agencies in the development of the local labour market;
- the draft DCO appropriately secured social and economic benefits of the Proposed Development [APP-043]; and that
- the Community Trust Fund arrangement was being made outside of any planning procedure.

4.10.42 The Outline CoCP sets out the Applicant's intentions regarding local recruitment, providing opportunities for local contractors and sourcing materials from local suppliers [REP9-028].

Conclusions

4.10.43 I am satisfied with the Applicant's responses to matters raised by IPs. Sufficient evidence has not been provided for me to doubt the Applicant's assessment methodology. I therefore consider that the Applicant has sufficiently identified job and training opportunities for the purposes of paragraph 5.12.3 of NPS EN-1.

4.10.44 Noting the Applicant's and GC's comments regarding the Community Trust Fund, it does not pass the NPS EN-1 paragraph 4.1.8 tests as it is not relevant to planning and so I have not taken it into account.

4.10.45 Based on the above, noting the measures that have been added to the Outline CoCP [REP9-028], as secured by Requirement 8 of the recommended DCO, and comments by the Applicant and GC, I consider it likely that the beneficial effects on employment and local expenditure identified by the Applicant [APP-082] would be realised by the Proposed Development.

Recreation and tourism

4.10.46 Traffic disruption during construction would be mitigated by the CTMP and CoCP but was considered to be likely to result in a temporary local minor adverse effect on visitor numbers [APP-082].

- 4.10.47 Construction workers using local accommodation was considered to result in a temporary local negligible impact on tourist accommodation due to the relatively high volume of accommodation available within 15km of the Proposed Development [APP-082].
- 4.10.48 There were likely to be impacts on amenity related to tourism and recreation during construction, including on users of PRoW and areas open to public access in the immediate vicinity of the Proposed Development, such as the lagoon area of Llyn Padarn. Following mitigation, including that set out in the CoCP and CNMP, a temporary minor adverse effect was considered likely [APP-082].
- 4.10.49 During construction, PRoW, permissive routes and cycle routes in the area of the Proposed Development would be diverted, others would be temporarily closed for safety reasons during activities such as blasting and a small car park near Q1 would be replaced. Following mitigation through diversions and communication of temporary closures and diversions to users, the residual effects on amenity were considered to be temporary local minor adverse [APP-082].
- 4.10.50 Wildlife tours in the quarry area would be impacted during construction by some temporary closures and disturbances to wildlife including loss of habitats. Following advanced notification of closures, the events would still be able to go ahead and the potential effects were considered to be negligible [APP-082].
- 4.10.51 Organised and informal tourism and recreational facilities at Llyn Padarn and the lagoons would be likely to experience disruption and loss of amenity during construction during the construction of the spillway infrastructure, although access to car parks would be allowed at all times and users would not be prevented from using the resource. Following mitigation identified in the CoCP, residual effects on users were considered to be temporary minor adverse [APP-082].
- 4.10.52 Events including the Snowdonia Marathon and Man v Mountain races would potentially be disrupted during construction by road network disruption, diversions to routes and loss of amenity both visually and from construction noise when in the proximity of the Proposed Development site. The potential effects following consultation and notifications of closures, restrictions in working hours and temporary diversions were considered to be negligible adverse [APP-082].
- 4.10.53 During operation and following the reinstatement of PRoW and permissive routes and the implementation of a Landscape and Reinstatement Plan the residual permanent effects on tourism and recreation were considered to be negligible [APP-082]. Better security and upgrades to PRoW and paths were anticipated to result in minor beneficial effects on users of public access during operation [APP-082].
- 4.10.54 A large number of representations were received from IPs, including Lledr Hall Outdoor Education Centre [RR-001], Blue Peris Mountain Centre [RR-001], Plas Gwynant OEC [RR-003], Arfon Swimming Club

[RR-009 and REP2-020]; Ramblers Association [RR-010]; Tom Hutton [RR-012], Chloe Rafferty [RR-013], the Snowdonia Society [RR-014, REP2-051 and REP4-038], Lynne Pugh [RR-015]; Kent County Council [RR-018], Dean Lawton [RR-021], Emily Wood [RR-022 and REP2-032], Stephanie Duits [RR-028], Haf [RR-046], British Mountaineering Council [RR-050], British Horse Society (BHS) [RR-052 and REP2-044], Kate Lawrence [RR-060], Dr Rebecca Williams [RR-040 and REP2-026], the Association of Heads of Outdoor Education Centres [REP2-053], Dr Jane Huuse [REP2-028, REP3-031, REP4-021 and REP8-004], Lledr Hall Outdoor Education Centre [REP2-042], [REDACTED] [REDACTED] The Towers Outdoor Education Centre [REP2-054] and Christine Jordan [REP7-047] Cherry Bartlett [REP7-046] and Dr Mads Huuse [REP7-050].

4.10.55 The IPs comments and Applicant's responses [REP2-012, REP3-026, REP4-011, REP5-006 and REP9-029] broadly fall under the headings of 'PRoW', and 'Facilities and events', as summarised below.

4.10.56 PRoW:

IPs' comments:

- PRoW should be protected in accordance with all legal requirements, including closure orders and notices;
- many tracks and trails on Cefn Du but would be put out of bounds during construction and less accessible afterwards;
- the Proposed Development would sever popular paths used by walkers and horse riders around Cefn Du;
- fences, gates and works to bridleways and unclassified roads should be safe and suitable for horses and to BHS standards;
- closure of open access land and well used PRoW in such a popular upland location were unacceptable; and that
- construction traffic would impact recreational users.

Applicant's responses:

- provision was included in the draft DCO for both temporary and permanent closures and diversions of PRoW;
- the construction area on Cefn Du would be limited to ensure access was still possible and would not incorporate the peak;
- footpaths around Cefn Du would be diverted;
- IPs, event organisers and recreational bodies would be kept informed of any closures; and
- construction traffic impacts would be mitigated by the proposed road improvements and by the CTMP.

4.10.57 Facilities and events:

IPs' comments:

- outdoor centres and adventure races needed more consideration;

- there was potential for negative impact on the long established educational, recreational and leisure use of Llyn Padarn, including the use of canoeing to teach life skills to school pupils;
- local schools and education centres used Llyn Padarn year round;
- degradation of water quality in Llyn Padarn would adversely affect swimming and fishing;
- with lake level variations an outfall depth of 5m may not be safe and there was a possibility of entrapment or snagging;
- the discharge pipe should be moved to a less popular area;
- the pumping station should be moved out of the recreation area alongside Llyn Padarn;
- there would be loss of access for running alongside Llyn Padarn;
- there would be impacts from noise, traffic and light pollution; and
- the quarries were of historical and active interest to climbers.

Applicant's responses:

- outdoor centres had been consulted;
- the works in Llyn Padarn were of a relatively small magnitude;
- no construction works at Llyn Padarn would be undertaken during school summer holidays and access would not be prohibited;
- swimming would be subjected to limited disturbance during the laying of spillway infrastructure in Llyn Padarn, when there would be a temporary exclusion zone for the safety of recreation users;
- the outfall pipe in Llyn Padarn would be at a depth of 5m to avoid impacts to recreational activities and the water discharges to Llyn Padarn would be regulated by the drainage consent;
- alternative locations for the spillway infrastructure had been considered, but would have led to longer construction disruption;
- the majority of the pumping station would be below ground level;
- noise, traffic and light pollution had been considered in the ES and mitigation provided in relevant management plans;
- the quarries were in private ownership and it could not comment on climbing on private land through unauthorised access.

4.10.58 Further clarifications and updates provided by the Applicant [REP2-011, REP4-014, REP5-005, REP7-004 and REP9-030] in response to my questions [PD-009, EV-016, EV-021, PD-015, PD-025 and PD-026] included that:

- the North Pilgrim's Way follows the same path as the mountain road from Llanberis, which would be diverted;
- diversions of PRoW were secured by the draft DCO;
- commitment regarding PRoW standards for walkers and horse riders had been added to the Outline CoCP [REP9-028];
- an Environmental Liaison Officer would consult with residents and businesses regarding notice for abnormal loads, temporary road closures and temporary closures of PRoW and diversions, as secured through the Outline CoCP [REP9-028];
- measures to enhance accessibility included the highway improvements to Ffordd Cefn Du, an upgraded car park near Q1, and increases in the area of access land;

- access for users of open access land near Cefn Du would be maintained by public right of way diversions;
- there would be no detriment to the bathing water status of Llyn Padarn [APP-126];
- commitment address potential entrapment or snagging on Llyn Padarn infrastructure was added to draft DCO Requirement 5;
- commitment to maintain access in the vicinity of Llyn Padarn was added to the Outline CoCP [REP9-028];
- commitment to avoid school holidays during works near and in Llyn Padarn was added to the Outline CoCP [REP9-028];
- works in the vicinity of Llyn Padarn would last around 12 weeks;
- the final position of the pumping station near Llyn Padarn was subject to detailed design approval by GC;
- commitment to maintain access at Llyn Padarn was added to the Outline CoCP [REP9-028]; and that
- commitment to avoid weekend events using permissive routes and Llyn Padarn was added to the Outline CoCP [REP9-028].

4.10.59 GC [REP2-041, REP4-026, REP5-044, REP7-044 and REP9-042] considered that:

- the baseline information was thorough and robust and the assessment methodology and criteria were adequate;
- there were no concerns with the assessment of impacts on tourists, recreation users, local businesses or other relevant organisations and it was in full agreement with the professional judgement used in the assessment;
- the assessment of impact on the availability of tourism accommodation appeared to be thorough and the conclusions accepted as the market did not operate at full capacity all year;
- no adverse effects were anticipated on the status or quality of the Bathing Water or Bathing Water site of Llyn Padarn;
- given that netting and trawling are not permitted and diving activities were not known to take place in the vicinity, there appeared to be minimal risk of entrapment or snagging on infrastructure in Llyn Padarn; and that
- the mitigation measures appear on the whole to have been adequately dealt with and it was content with the mitigation measures secured through the draft DCO.

Conclusions

- 4.10.60 I have not been given sufficient evidence to doubt the Applicant's methodology or assessment of potential effects on PRoW, facilities or events during construction or operation. I am satisfied with the Applicant's responses to matters raised by IPs or to my questions.
- 4.10.61 The Applicant has considered mitigation for socio-economic impacts sufficiently for paragraph 5.12.9 of NPS EN-1; and for PRoW to paragraph 5.10.24 of NPS EN-1 and Chapters 7 and 11 of PPW8.

- 4.10.62 I note the explanations of PRow diversions provided in the Common, Access and PRow Strategy [REP3-005] and find that appropriate measures have been added to the Outline CoCP [REP9-028] and Outline CTMP [REP9-012], as secured by Requirement 8 of the recommended DCO; together with PRow diversions secured by Articles 10 and 11 of the recommended DCO. I consider it likely that those measures would address the potential effects that have concerned IPs.
- 4.10.63 Based on the above, and GC's comments, I consider it likely that the secured mitigation measures would ensure no significant effects on PRow, facilities or events during construction or operation.

Other tourism businesses and other economic impacts

- 4.10.64 There would be potential for increased traffic flows during construction and delays during the upgrading of Ffordd Cefn Du to impact local communities by creating severance, increasing journey times and deterring visitors. Following mitigation in the CoCP and CTMP, including a commitment to work with local businesses and communities along the route to ensure that works are phased to minimise disruption, the impact was considered to be a temporary, local minor adverse effect on villages in the vicinity of Ffordd Cefn Du, including Waunfawr [APP-082]. Mitigation of working with local businesses along the A4086 was also proposed.
- 4.10.65 The ES suggested that there may be a loss of amenity for visitors to the Llanberis Touring Park, which is close to the junction of the A4086 with the access road to Q6, due to noise during construction and that following mitigation by the CTMP and CNMP the effects would be temporary, local and minor adverse [APP-082].
- 4.10.66 Submissions from [REDACTED] [REDACTED] [REDACTED] Dr Rebecca Williams [REP2-026], Dr Jane Huuse [REP2-028 and REP4-021], Cherry Bartlett [REP4-020 and REP7-046], Dr David Bellamy [RR-034], the Association of Heads of Outdoor Education Centres [REP2-053], Michael Vitkovitch [REP2-044, REP4-033, REP4-034 and REP7-053] and Christine Jordan [REP7-047] included that:

- businesses affected by the development should be adequately compensated for disruption during construction and operation;
- no adequate compensation package had been offered to Gallt y Glyn Hotel, [REDACTED] Llanberis Caravan Park, or businesses at the Glyn Rhonwy end of Llanberis village;
- [REDACTED]
[REDACTED] [REDACTED] [REDACTED]
[REDACTED]
- given the proximity, it appeared that there would not viable for mitigation to prevent [REDACTED] local businesses suffering the economic effects of the construction, and potentially the operation, of the Proposed Development;

- 4.10.69 GC considered that the mitigation measures appear to have been adequately dealt with and was content with the proposed mitigation measures secured by the draft DCO [REP2-041 and REP5-044].

Conclusions

- 4.10.70 Sufficient evidence has not been provided for me to doubt the Applicant's methodology or assessment of potential effects on the tourism businesses or other potential economic impacts during construction or operation. I am satisfied with the Applicant's responses to matters raised by IPs and to my questions.
- 4.10.71 I note the conclusions that I have reached elsewhere in this Chapter regarding noise, vibration, dust and traffic; the Applicant's assessment of potential adverse noise effects on 11 representative receptors during construction; and the process for detailed assessments and later finalisation of mitigation measures addressed in Section 4.6 of this report.
- 4.10.72 [REDACTED]
[REDACTED] The Property Specific Management Plan prepared by the Applicant sets out mitigation measures that I am satisfied would be likely to be addressed during the detailed assessment and finalisation of mitigation measures that would be approved by GC.
- 4.10.73 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- 4.10.74 NPS EN-1 paragraph 5.12.7 states that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence. Although IPs have suggested that other businesses would suffering adverse impacts, I do not consider that sufficient evidence has been provided for me to conclude that they would be significant.
- 4.10.75 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- 4.10.76 Based on the above, GC's comments, and with the secured mitigation measures, I do not find sufficient evidence to conclude that there would be significant impacts on tourism businesses or other significant economic impacts during construction. I therefore consider it likely that the secured mitigation measures would ensure that there were no

significant impacts on tourism businesses or that there would be other significant economic impacts during operation.

Access land and common land

- 4.10.77 A Common, Access Land and Public Rights of Way Strategy was provided with the application [APP-049] and later updated [REP3-005] following the conclusion of voluntary agreements for land and right acquisition. This document explains the Applicant's strategy in relation to common land, access land and PRoW and includes plans of common and access land post construction. Figure 4 illustrates the alterations that are proposed in relation to commons and access land [REP3-005].
- 4.10.78 The Proposed Development includes 40 acres of land currently designated as access land under the Countryside and Rights of Way Act 2000, shown hatched orange on Figure 4 [REP3-005]. 64.8 acres of forestry land, shown hatched purple, would be provided to compensate for this. The Applicant considered that this would provide a greater area and variety of access land, resulting in a permanent local minor beneficial effect on recreation [APP-082].
- 4.10.79 The Proposed Development includes common land around Cefn Du in the vicinity of Q1 that would be temporarily fenced off during construction; the area affected would be 62 acres. 32 acres of this, shown hatched dark green on Figure 4, would continue to be required during operation. 18 acres of the 32 are currently fenced off and unusable, as outlined in black on Figure 4. The remaining 14 acres of grazing land would be lost.
- 4.10.80 The Applicant proposes that 25 acres of temporary replacement land of an equivalent grazing standard would be provided during construction, as shown hatched light green on Figure 4. Permanent replacement land of 40 acres would also be provided, as hatched orange on Figure 4. The permanent area of common land in the vicinity of the proposed development would therefore increase by 8 acres and the ES considers this to be a minor beneficial effect [APP-082]. These proposals would be the subject of a separate application for common land consent.
- 4.10.81 Submissions from IPs including the Snowdonia Society [RR-014, REP2-051 and REP4-038], Dr Rebecca Williams [RR-040 and REP2-026], the British Mountaineering Council [RR-050] Dr Jane Huuse [REP2-028, REP3-031, REP4-021 and REP8-004] and Louise Tully [REP2-043] included that:
- the felled conifer land partly sited on old slate waste heaps being offered in exchange for the high quality open moorland access land with excellent views was a very poor substitute;
 - the proposed land swap was not of equal amenity value for walkers, mountain bikers or horse riders;
 - the land proposed in mitigation of access land was already open to access and was therefore not mitigation;

- closure of open access land in such a popular upland location was unacceptable;
- the forestry land being offered for open access should have gates or stiles and circular cross woodland walks provided;
- a commitment to manage and maintain the forestry area should be secured with GC through s39 of the Wildlife and Countryside Act 1981 or a s106 agreement; and that
- CRoW Act 2000 restrictions on horse riding and cycling should be removed.

4.10.82 The Applicant responded to these concerns [REP2-012, REP3-026, REP5-006, REP9-029 and REP10-001], stating that:

- there seemed to be some misunderstandings of the proposals with respect to common land and access land;
- a Common Land Application would be submitted to the Welsh Ministers and was not material to the determination of the DCO;
- exchange land being offered for the common land to be deregistered was open moorland and pasture land, not forestry, and would remain open to the public;
- the open moorland and pasture land being offered in exchange for the common land was of equivalent character and utility to the common land that would be deregistered;
- the open moorland and pasture land being offered in exchange for the common land was already open access land;
- forestry land was offered to be designated as open access land in mitigation of the open access land that would be permanently occupied by the Proposed Development;
- the forestry land being offered in mitigation of open access land would offer more variety of open access land and create a link between Cefn Du and Moel Eilio;
- the definitive maps obtained from NRW did not show the forestry land being offered in mitigation of open access land as already being access land and site visits have confirmed that it is currently fenced private land;
- the forestry land being offered in mitigation of open access land was not a land exchange or replacement land and no equivalence test was relevant;
- there would be a permanent increase in the areas of registered common land and designated open access land; and that
- access and management arrangements for the common land exchange land and forestry land would be concluded through and following the commons consent process, not the DCO.

4.10.83 Further clarifications and updates provided by the Applicant [REP9-030] in response to my questions [PD-026] included that:

- the common land exchange must go ahead for the Proposed Development to be realised;
- the exchange land being offered for the common land would be secured through the commons consenting process and dedicated under s16 of the CRoW Act 2000; and that

- the proposed method of securing the designation of the forestry land as access land in the commons application was by way of a condition imposed on the s38 consent under the Commons Act 2006, requiring such designation before works could commence on the common land.

Conclusions

- 4.10.84 There does appear to have been some misunderstanding by some IPs on matters related to access land and common land during the Examination, perhaps reflecting the relatively complex nature of the relevant legislation. I am satisfied that the Applicant has made reasonable attempts to set out the issues and their mitigation proposals clearly. I am satisfied with the Applicant's responses to matters raised by IPs and to my questions, other than as noted below.
- 4.10.85 The Applicant set out the proposed mitigation measures of providing permanent exchange land and temporary replacement land for common land, and mitigation land for access land that would be fenced off during construction and operation. Its proposals for common land would be secured through a Common Land Application under the Commons Act 2006. I have not been given any reason to believe that this consent would not be granted.
- 4.10.86 Towards the end of the Examination the Applicant advised that its proposed method of providing mitigation land for access land was by securing the designation of the forestry land as access land by way of a condition imposed on the s38 consent under the Commons Act 2006, requiring such designation before works could commence on the common land [REP9-030].
- 4.10.87 However, the Applicant also stated that *"it does not consider that this matter forms part of the DCO decision making balance and has not requested that weight is given to the commons replacement land mitigation land"*. I assume that the reference to *"commons replacement mitigation land"* is the forested mitigation access land identified as 'CROW Mitigation Land (64.8 Acres)' in Figure 4 of the Common, Access Land and Public Rights of Way Strategy [REP3-005].
- 4.10.88 The Applicant advised that common land applications were to have been made to the Welsh Ministers before the close of the Examination [REP9-002], although no details were provided before its close. I have seen no evidence that the applications addressed the mitigation access land or that it would necessarily be addressed under the Commons Act 2006. I do not accept the Applicant's view that no weight should be given to the mitigation access land, and I consider that it is important to ensure that its provision is secured to mitigate the loss of access land. My conclusions are therefore subject to the Applicant demonstrating that the designation under section 16 of the CROW Act of the mitigation access land before works commence on the common land, has been secured.

- 4.10.89 I note the location and nature of the permanent exchange land and temporary replacement land offered for the existing common land.
- 4.10.90 With respect to access land, there would be a temporary loss of area during construction. During operation there would be an increase in the total area of access land. Although I do acknowledge that the character of the mitigation land would be different to that which would be lost in the vicinity of Q1, I accept that this would be likely to provide more variety in available access land. I also accept that the mitigation access land options available to the Applicant for in the vicinity of Q1 are limited. I note that GC is satisfied that access along vast parts of Cefn Du would be maintained by new footpaths.
- 4.10.91 Based on the above and having considered the various submissions made during the Examination, and subject to the Applicant demonstrating that the mitigation access land has been secured appropriately, I consider it unlikely that there would be any significant adverse effects regarding access land or common land and am satisfied that the issues have been considered in accordance with the requirements on NPS EN-1.

Land use

- 4.10.92 The Proposed Development is partially located within the Glyn Rhonwy Redevelopment Site and entirely in accordance with the strategic objectives stated in the Glyn Rhonwy Development Plan and Implementation Strategy regarding the exploitation of the site for its natural assets and for sustainable energy generation [APP-057].
- 4.10.93 The Applicant stated [APP-057] that the proposed land use has been considered acceptable in this location by virtue of the permission granted for the 2012 T&CPA planning application [APP-086].
- 4.10.94 A large area of the Proposed Development is Common land providing the public with a "*right to roam*" and the Applicant has stated that an application to secure this land as required to accommodate the Proposed Development would be made alongside the DCO application [APP-057 and REP3-005].
- 4.10.95 GC's comments in its LIR [REP2-037 to REP2-40] and in its SoCG with the Applicant [REP4-006] regarding land designations and the use of the land by the Proposed Development are noted above.
- 4.10.96 Noting that the area of the Proposed Development is greater than in the 2012 T&CPA planning application that had been approved by GC, I sought clarification from GC as to whether it was content that the proposed land uses in the additional areas were appropriate and justified [PD-009]. GC confirmed that it was content [REP2-041].

Conclusions

- 4.10.97 Based on the above and noting GC's responses, I am content that the requirement of paragraph 5.10.3 of NPS EN-1 is satisfied and that land uses have been considered in accordance with relevant policy.

Conclusions on policy and factual issues

- 4.10.98 I have had particular regard to the policies set out in NPS EN-1, PPW and local policies and the guidance contained in TAN 13, 16 and 23 in my consideration of the potential impacts of the Proposed Development on socio-economics, land use and accessibility.
- 4.10.99 I am satisfied that the potential social and economic, rights of way and land use benefits, adverse impacts and mitigation measures have been considered and in that respect I am satisfied that the requirements of NPS EN-1 paragraphs 4.1.2 to 4.1.4 and section 5.12; PPW8 Chapters 7 and 11; TAN 13, TAN 16 and TAN 23; and local policy in respect to scope and methodology have been met. I find that the information provided, and its assessment, is proportionate.
- 4.10.100 Mitigation measures have been identified in accordance with NPS EN-1 paragraph 5.12.9 and largely relate to those required for noise, vibration, dust and traffic as considered in other sections of this report. Some specific socio-economic measures have been identified relating to local employment and procurement; PRoW, access land and common land; potential disruption in the vicinity of Llyn Padarn; the [REDACTED]
- 4.10.101 The Applicant has identified job and training opportunities and potential impacts on local services and tourism and in that respect has satisfied the purposes of paragraph 5.12.3 of NPS EN-1.
- 4.10.102 Regarding NPS EN-1 paragraph 5.12.8, I find that there are no planning obligations that would satisfy the tests and could be taken into account. However, I do find that there would be some legacy benefits in terms of employment, local expenditure, improvements to PRoW, the safety of recreational users in the vicinity of Q1 and Q6 and increases in the area and variety of access land. However, those benefits are not considered to be significant.
- 4.10.103 The Applicant has set out the proposed mitigation measures of providing permanent exchange land and temporary replacement land for common land that would be secured through a Common Land Application under the Commons Act 2006. I have not been given any reason to believe that this consent would not be granted.
- 4.10.104 The Applicant advised that its proposed method of providing mitigation land for access land was by securing the designation of forestry land as access land by way of a condition imposed on a s38 consent under the Commons Act 2006, but I have seen insufficient evidence that this would necessarily occur. As noted above, my conclusions are therefore subject to the Applicant demonstrating that the designation of the

mitigation access land under section 16 of the CROW Act before works commence on the common land has been secured.

- 4.10.105 Otherwise I consider that the measures proposed by the Applicant to mitigate impacts on access land are appropriate and proportionate and that the mitigation measures have been identified in respect to rights of way and access for walkers, cyclists and horse riders are sufficient for the purposes of NPS EN-1 paragraph 5.10.24 and PPW8 paragraphs 11.1.8 and 11.1.11.
- 4.10.106 Based on the above my view is that relevant and proportionate mitigation measures have been identified and secured for businesses and potential socio-economic impacts for which sufficient evidence has been provided as required by NPS EN-1 paragraph 5.12.7. Therefore my view is that the Applicant has therefore considered mitigation sufficiently for the purposes of paragraph 5.12.9 of NPS EN-1.
- 4.10.107 In terms of land use and noting the previous 2012 T&CPA approval and that GC was content that the proposed land uses in the additional areas were appropriate and justified, my view is that the requirement of paragraphs 5.10.3 and 5.10.7 of NPS EN-1 is satisfied.
- 4.10.108 Evidence has not been provided during the Examination to lead me to have concerns regarding compliance with paragraph 5.10.9 of NPS EN-1 with respect to the safeguarding of minerals.
- 4.10.109 I have considered all of the submissions made in relation to factual issues and how relevant policy has been addressed for socio-economics, land use and accessibility, in addition to those specifically identified in this section. I am satisfied that they have been addressed in terms of the Application, clarifications provided by the Applicant during the Examination, the agreements reached with statutory bodies, the mitigation measures and the recommended DCO.
- 4.10.110 Based on the above I am therefore satisfied that the Proposed Development complies with relevant policy.
- 4.10.111 Following my consideration of the evidence I find there would be unlikely to be significant effects on land use or accessibility.
- 4.10.112 With respect to local and regional socio-economics, including recreation and tourism, and with the secured mitigation measures in place, I do not find sufficient evidence to conclude that there would be significant effects during construction and consider it likely that there would be no significant effects during operation.
- 4.10.113 The national socio-economic benefit from the electricity generated by the Proposed Development is considered in Section 4.2 and Chapter 6.
- 4.10.114 On balance, and having considered all evidence, I therefore find that, subject to the Applicant demonstrating that mitigation access land has been secured appropriately, matters relating to land use, accessibility

and local and regional socio-economics, including recreation and tourism, should not weigh either for or against the Order being made.

4.11 HISTORIC ENVIRONMENT

- 4.11.1 This section considers the historic environment and archaeology including the Assessment of the Significant Impact of Development on Historic Landscapes (ASIDOHL) for the Dinorwig historic landscape. Visual and landscape impacts are considered in Section 4.12 and decommissioning in Section 4.13.

Policy context

- 4.11.2 NPS EN-1 states that Applicants should provide a description of the significance of the heritage assets affected and the contribution of their setting to that significance (paragraph 5.8.8).
- 4.11.3 Paragraphs 5.8.3 of NPS EN-1 refers to officially designated heritage assets, while paragraphs 5.8.4 and 5.8.5 state that other heritage assets that are demonstrably of equivalent significance should be subject to the same policy considerations.
- 4.11.4 NPS EN-1 explains that the decision-maker should consider the effects on other non-designated heritage assets on the basis of clear evidence that the assets have a heritage significance that merits consideration in its decisions, even though those assets are of lesser value than designated heritage assets (paragraph 5.8.6).
- 4.11.5 In relation to decision making, paragraph 5.8.11 of NPS EN-1 directs that identification and assessment should take account of:
- evidence provided with the application and designation records;
 - the Historic Environment Record and other similar sources;
 - the heritage assets themselves;
 - the outcomes of consultations with third parties; and
 - expert advice, where appropriate.
- 4.11.6 NPS EN-1 explains that significance can be harmed or lost through alteration or destruction of a heritage asset or development within its setting and that substantial harm to, or loss of, the highest significance designated assets should be wholly exceptional (paragraph 5.8.14). It goes on to explain that any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of the development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification will be needed for any loss (paragraph 5.8.15).
- 4.11.7 With respect to the recording of heritage assets, NPS-EN-1 states that when the loss of the whole or a material part of a heritage asset's significance is lost then the developer should be required to record the significance in a manner proportionate to the level of significance and that these records should be published (paragraph 5.8.20).

- 4.11.8 NPS EN-1 directs that requirements should be imposed to ensure that works are carried out in a timely manner in accordance with a Written Scheme of Investigation (WSI) that has been agreed in writing with the relevant local authority (paragraph 5.8.21).
- 4.11.9 The Infrastructure Planning (Decisions) Regulations 2010 state that "*[w]hen deciding an application for development consent which affects or is likely to affect a scheduled monument or its setting, the decision-maker must have regard to the desirability of preserving the scheduled monument or its setting*" (duty 3(3)).
- 4.11.10 Chapter 6 of PPW8 and PPW9 address the Historic Environment and was fully revised in PPW9. As PPW9 came into force after the close of the Examination there was no opportunity for comments on any policy changes in PPW9. I have therefore highlighted the changes that I consider to be of particular relevance, for the SoS's consideration.
- 4.11.11 PPW8 (paragraph 6.5.1) and Welsh Office Circular 60-96 (paragraph 17) state that when a development affects archaeological remains of national importance or their settings, whether or not they are scheduled, then there should be a presumption in favour of preserving them in situ. Office Circular 60-96 also has a presumption against proposals which would involve significant alteration or cause damage.
- 4.11.12 PPW9 goes on to say that it will only be in exceptional circumstances that permission will be granted if development would result in an adverse impact on an archaeological site shown to be of national importance, or has a significantly damaging effect upon its setting (paragraph 6.5.5). This provision was not in PPW8.
- 4.11.13 Welsh Office Circular 60-96 then states that there will be occasions, particularly when remains of lesser importance are involved, when it may be decided that the significance of the archaeological remains is not sufficient when weighed against all other material considerations, including the need for development, to justify their physical preservation in situ (paragraph 18).
- 4.11.14 Paragraph 6.5.3 of PPW8 adds that when it is decided that the physical preservation in situ of archaeological remains is not justified then appropriate and satisfactory provisions would be required for the archaeological investigation and subsequent recording of the remains to be carried out before development commences. PPW9 (paragraph 6.5.7) extends the provisions of PPW8 to require:
- the analysis and archiving of the results; and
 - organisation and deposition of the archive into an approved repository.
- 4.11.15 PPW8 says that the brief for archaeological investigations should be prepared by the planning authority (paragraph 6.5.3). PPW9 extends the provisions of PPW8 by referring to the need for archaeological investigations to be in accordance with a WSI that is approved by the

LPA and should consider how to react to the discovery of unforeseen archaeological remains, e.g. through a watching brief (paragraphs 6.5.7 and 6.5.8). PPW8 did not specifically refer to a WSI.

- 4.11.16 PPW8 requires consultation with the Welsh Ministers if the development is likely to affect the site of a scheduled monument (paragraph 6.5.6). PPW9 adds that the Welsh Ministers should be consulted where development is likely to be visible from a scheduled monument (paragraph 6.5.9). PPW9 also notes that the Welsh Ministers' duties are exercised through Cadw (paragraph 6.3.1).
- 4.11.17 PPW9 then requires Cadw to be consulted on development within a registered historic landscape area that requires an EIA (paragraph 6.5.7). It goes on to state that ASIDOHL2 methodology should be used to assess effects on an area of historic landscapes (paragraph 6.5.28). These provisions were not in PPW8.
- 4.11.18 GUDP Policy B7 (Sites of Archaeological Importance) states that:
- proposals that will damage or destroy archaeological remains of national importance, whether scheduled or not, or their setting will be refused;
 - a development which effects other archaeological remains will be permitted only if the need for the development overrides the significance of the archaeological remains;
 - an archaeological assessment is required where there are likely to be archaeological remains;
 - if a development would affect nationally important remains, then the developer should prepare sympathetic plans which retain the remains in situ; and that
 - where preservation in situ is not feasible then agreement would be required to ensure that the work of excavating and recording the remains takes place prior to commencement.

The Application

- 4.11.19 The main sections of the ES relevant to the historic environment are:
- Chapter 11 Archaeology and Cultural Heritage [APP-078]
 - Appendix 6.1 ASIDOHL [APP-098]
 - Appendices 11.1 to 11.4 [APP-132 to APP-135]
- 4.11.20 The ES assessed the potential effects of the Proposed Development on known and unrecorded archaeological and built heritage sites, including those caused by impacts on their settings, sets out mitigation, residual effects and their significance [APP-078].
- 4.11.21 101 heritage assets were recorded within or immediately adjacent to the Order Limits and were mostly associated with the slate mining heritage of the area. They include structures linked to the quarries, inclines, tramways and winders used for the movement of material, barracks, shelters, a smithy and many of the spoil heaps [APP-078].

- 4.11.22 Other assets within or immediately adjacent to the Order Limits include sheepfolds, possible agricultural terraces, a series of wall and field boundaries, a Calvinistic Methodist chapel, a number of possible structural remains from archaeological or mining activities, the Second World War site of RAF Llanberis and post-war sites for munitions storage and disposal [APP-078].
- 4.11.23 No evidence was found for activity or settlements within the Proposed Development area before the post-medieval period although some were found in the surrounding area. Following consideration of those and of the heavy disturbance caused by quarrying, it was predicted that there was a low potential for future discoveries dating to the prehistoric, roman or medieval periods [APP-078].
- 4.11.24 Potential effects would arise from physical impacts on assets during construction, including from ground works, re-profiling of the quarry sides, creation of the construction compounds and new spoil heaps and related infrastructure [APP-078]. There would also be potential impacts on the setting of heritage assets during operation.
- 4.11.25 Key mitigation would include surveying, recording and evaluation of features, evaluation excavations, monitoring of topsoil removal and micro-siting [APP-078].
- 4.11.26 With the mitigation measures in place the residual effects during construction were considered [APP-078] to mostly range from no change to minor adverse and not significant, except for moderate adverse and significant effects on 11 groups of heritage assets:
- Bryn-Mawr Trial Mine I and II (2 assets);
 - Chwarel Cefn Du, slate quarry II (6 assets);
 - Chwarel Cefn Du and Pen-y-Bwlch Farmsteads (2 assets);
 - Chwarel Cefn Du Trial Mine III (1 asset);
 - Chwarel Fawr Quarry and associated features (48 assets);
 - Cook and Ddol Quarry and associated features (6 assets);
 - Ffridd-Glyn Quarry and associated features (5 assets);
 - Glyn Rhonwy Quarry (Lower) and associated features (5 assets);
 - Glyn Rhonwy Lower Slate Quarry and munitions store (1 asset);
 - Glyn Rhonwy Quarry and associated feature (4 assets); and
 - trial mine and complex of inclines and winding houses (2 assets).
- 4.11.27 Effects on the setting of assets during construction were considered to be temporary and not significant and no effects were anticipated during operation [APP-078].
- 4.11.28 An ASIDOHL was prepared to assess the potential impact on the Dinorwig historic landscape and was undertaken in accordance with ASIDOHL Version 2 methodology [APP-098]. In the Applicant's view [APP-078], the ASIDOHL [APP-098] showed that, although visible from Historic Landscape Character Areas (HLCA), that included heritage assets beyond the immediate vicinity, the Proposed Development

would have a localised effect and that only Glynrhonwy Quarry HLCA would be subject to a significant visual effect.

- 4.11.29 The ASIDOHL assessment for the Dinorwig historic landscape concluded that direct physical effects would principally be confined to the Glynrhonwy Quarry HLCA, that those effects would be permanent and of considerable magnitude [APP-098]. There would also be minor loss of land from the Gallt Celyn and Cefn Du / Garreg Lefain HLCAs for which the methodology imposed a considerable impact score, which was considered to be an overstatement of the true level of effect [APP-098]. The Glynrhonwy Quarry HLCA was the only HLCA considered to be subject to a significant visual impact.
- 4.11.30 In conclusion, the ASIDOHL was considered to demonstrate that the Proposed Development would have a localised effect, that the impact on the whole Dinorwig historic landscape would be low, the reduction in historical landscape value would be low and the overall significance of impact would be slight [APP-098].
- 4.11.31 The ES stated that the Proposed Development area had been included as part of the Slate Industry of North Wales on the UK's tentative list for World Heritage Site (WHS) nomination [APP-078].

SoCGs and the LIR

- 4.11.32 In their SoCG [REP5-026] the Applicant and Cadw agreed that:
- an adequate ASIDOHL assessment had been undertaken;
 - the assessment methodology for archaeology and cultural heritage was appropriate;
 - an adequate assessment of archaeology and cultural heritage impacts had been undertaken, including impacts on Historic Landscape Character;
 - the tentative WHS would be addressed within the Archaeological Compensation and Enhancement Strategy; and that
 - an Archaeological Compensation and Enhance Strategy and WSI, as secured by Requirements 7 and 15 of the draft DCO, was an appropriate mechanism for mitigation.
- 4.11.33 In their SoCG [REP4-006] the Applicant and GC agreed that:
- the assessment methodology for archaeology and cultural heritage was appropriate;
 - an adequate assessment of archaeology and cultural heritage impacts had been undertaken, including on Historic Landscape Character and the tentative World Heritage Site status; and that
 - an Archaeological Compensation and Enhance Strategy and WSI, as secured by Requirements 7 and 15 of the draft DCO, was an appropriate mitigation mechanism.
- 4.11.34 The Applicant and NRW agreed that an adequate assessment of the ASIDOHL had been undertaken [REP3-010].

4.11.35 Matters raised in GC 's LIR [REP2-037 to REP2-40] include:

- the Dinorwig Landscape of Outstanding Historical Interest;
- appropriate research has been undertaken;
- there would be impact on some archaeological remains;
- it is possible to ensure that the impacts are mitigated by conducting further surveys and detailed recording; and
- the information submitted in the application was acceptable subject to a series of further agreements.

Significantly affected assets and other factual issues considered during the Examination

4.11.36 Key issues raised during the Examination include:

- general matters;
- the Archaeological Compensation and Enhancement Strategy and the WSI;
- significantly affected heritage assets;
- the setting of heritage assets; and
- the tentative World Heritage Site.

4.11.37 Few heritage or archaeology concerns were raised by IPs.

4.11.38 Cadw did not respond to my questions regarding the Dolbadarn Castle Scheduled Ancient Monument, the tentative WHS, or the impact assessment and mitigation measures [PD-009, PD-015 and PD-025].

General matters

4.11.39 A number of general matters relating to the impact assessment and significance of effect were raised in the SoCG and LIR, as noted above, and others were raised during the Examination.

4.11.40 Further clarifications and updates provided by the Applicant [REP2-011] in response to my questions [PD-009] included that:

- 318 heritage assets were found within the 1km study area of which 101 fell within the Proposed Development area [APP-132];
- the assessment had been informed by a walkover survey that had been carried out of all areas within the site of the Proposed Development, with the exception of Q5 that could not be accessed for health and safety reasons;
- there was considered to be a low potential for peat deposits to exist within the Proposed Development area;
- micro-siting would mitigate potential impacts from future site investigations and other pre-commencement activities; and that
- the assessment assumed that micro-siting would provide mitigation where possible during construction, although the full extent could not yet be confirmed and would be considered as part of the approval of detailed design secured by Requirement 5 of the draft DCO.

4.11.41 GC [REP2-041] stated that:

- GAPS provided archaeological services to assist GC, as GC had no in-house archaeological expertise;
- it was satisfied with the assessment scope, methodology, baseline conditions and impacts had been assessed adequately;
- mitigation was appropriate, but a WSI would be required;
- a draft Archaeological Compensation and Enhancement Strategy would be useful; and that
- the impacts on both individual assets and the wider historic landscape were not significant enough to recommend refusal.

Conclusions

4.11.42 I note GC's comments and those set out in their SoCG and LIR and in Cadw's SoCG expressing satisfaction with the overall adequacy of the assessment and mitigation measures. Based on the above I am satisfied with the Applicant's responses regarding general matters.

4.11.43 An Outline Archaeological Compensation and Enhancement Strategy [REP9-003] was produced by The Applicant during the Examination and is considered below with the WSI and other relevant matters.

Significantly affected heritage assets

4.11.44 2 of the 11 groups of heritage assets for which significant adverse effects were identified due to physical impacts during construction were considered to be of high sensitivity; Chwarel Cefn Du slate quarry and Glyn Rhonwy Lower Slate Quarry and munitions store [APP-078]. Examples of high sensitivity assets include undesignated sites/features of schedulable quality and importance, undesignated structures of clear national importance and historic landscapes of outstanding interest [APP-078].

4.11.45 Chwarel Cefn Du slate quarry is undesignated but considered to be of high sensitivity by GAPS [APP-078]. Slate waste excavated during construction would impact on assets in and around the spoil heaps associated with Chwarel Cefn Quarry. The impact was considered to have a medium magnitude, equating to changes to many key elements or setting such that the significance was clearly modified.

4.11.46 Glyn Rhonwy Lower Slate Quarry and munitions store was considered by GAPS to be of national significance and of high sensitivity due to the rarity of the bomb store and the later reuse of the quarry as a munitions store [APP-078]. The impact was considered to be of high magnitude, equating to changes to most or all key elements or setting, such that the significance was totally altered.

4.11.47 The other assets where significant effects were found were considered to be of medium sensitivity as typically their study would aid further understanding of the site and of slate exploitation in the area as well as, in some cases, having architectural significance. Examples of

medium sensitivity assets include undesignated sites/features that contribute to regional research objectives and historic landscapes of regional sensitivity [APP-078].

4.11.48 Clarifications provided by the Applicant [REP3-026, REP7-004 and REP9-030] in response to my questions [PD-009, PD-025 and PD-026] or other parties' responses to them included that:

- the Proposed Development would not affect the bomb store and any open cut works in the area would be subject to a watching brief to ensure that underground features were not disturbed;
- no direct physical impacts on the bomb store were envisaged from the Q6 dam or other associated works; and that
- a survey of the bomb store was not considered necessary from an archaeological perspective.

4.11.49 GC [REP2-041, REP4-025, REP5-044 and REP7-044] considered that:

- the Proposed Development would lead to the loss of numerous structures, monuments and features of historical significance and this should weigh in the determination of the DCO;
- the impacts were not at a level that would lead to an objection to the Proposed Development;
- the bomb store is a nationally significant structure that needs to be protected from any impact by the development;
- the bomb store appeared to fall outside the development area and although some underground elements may fall within it;
- it was unclear which parts of the bomb store may be affected or to what extent;
- it was possible that the spillway would impact on extramural features associated with the bomb store, such as the former railway infrastructure adjacent to Llyn Peris;
- there was public interest in the bomb store and public engagement could form part of the mitigation and enhancement strategy if a detailed survey were completed; and that
- a pre-commencement survey should be undertaken of the bomb store and any associated features, although a watching brief would be appropriate mitigation if mechanisms were in place to ensure no impacts on the bomb store.

4.11.50 Dr Jane Huuse considered that the Proposed Development has an exceptionally large environmental footprint in an area of outstanding natural beauty and industrial heritage and suggested that the Applicant considered that loss of a significant number of archaeological monuments seem to be considered "*a sacrifice worth paying for increased profit margin*" [REP2-028 and REP4-021].

4.11.51 The Applicant responded to these concerns, stating that GAPS had not objected to the Proposed Development [REP5-006].

4.11.52 Glyn Rhonwy Lower Slate Quarry and munitions store is referenced as asset reference 239 [APP-078]. Based on the description and the

position shown on the Applicant's plan of heritage assets [APP-209] my understanding is that asset reference 239 refers to Q8 and the existing bomb store in Q8. Although the plan [APP-209] indicates that these would fall outside the Proposed Development area, the description states that "*part of the Order Limits falls within the Lower Quarry which was used as an underground munitions store (239)*" [APP-078]. I consider that the Applicant's identification [APP-0209] of a high magnitude of impact on this heritage asset to be precautionary.

- 4.11.53 With respect to the bomb store, based on the above, noting its national significance and GC's comments and for the avoidance of doubt, I have added a new Requirement 22(2) to the recommended DCO to require:
- a watching brief during any works in the vicinity of the bomb store to an approved WSI; and
 - a pre-commencement survey and consideration of associated opportunities for interpretation and public engagement.
- 4.11.54 Otherwise I am satisfied with the Applicant's responses to matters raised by IPs, GC or to my questions.
- 4.11.55 I am satisfied that the Applicant has identified the heritage assets that could be affected, and their significance, in accordance with section 5.8 of NPS EN-1 and Chapter 6 of PPW8 and PPW9.
- 4.11.56 GAPS considered that Glyn Rhonwy Lower Slate Quarry and munitions store (asset reference 239) should be considered to be of high sensitivity and national significance and this is the basis of the Applicant's assessment [APP-078].
- 4.11.57 GAPS considered that Chwarel Cefn Du slate quarry (6 assets) should be considered to be of high sensitivity and this is the basis of the Applicant's assessment [APP-078]. Based on the Applicant's assessment methodology and examples of high sensitivity, I consider that these heritage assets should also be considered to be of national significance. I am satisfied that this is a precautionary approach.

Conclusions

- 4.11.58 I have no reason to doubt that the Applicant's methodology and assessment of potential impacts on heritage assets during construction would be likely to represent a precautionary approach. The securing of mitigation measures in the Outline Archaeological Compensation and Enhancement Strategy [REP9-003] is considered below.
- 4.11.59 Based on the above, I find that the harmful impact on heritage assets has been identified sufficiently for it to be weighed against the public benefit of the Proposed Development in accordance with paragraph 5.8.15 of NPS EN-1. I also find that the potential impacts have been assessed appropriately for the purposes of PPW8, PPW9, Welsh Office Circular 60-96 and GUDP Policy B7.

The setting of heritage assets

- 4.11.60 The ES noted that there would be background views of construction activity and glimpsed views of the lower dam and/or turbine house from Dolbadarn Castle, but considered that there would not be any significant effects on the setting [APP-078]. I sought clarification on this matter with respect to Dolbadarn Castle, which is outside the 1km study area, and potential cumulative impact with the grid connection.
- 4.11.61 During a site inspection I noted that a portion of the Proposed Development site was visible from Dolbadarn Castle [EV-026].
- 4.11.62 The Applicant's responses [REP2-011, REP4-014 and REP5-005] to my questions [PD-009, EV-016 and PD-015] included that:
- Dolbadarn Castle is a Scheduled Monument and Grade I listed building outside the 1km study area;
 - there would be no views of the power house or pumping station, from Dolbadarn Castle due to intervening topography and vegetation screening [APP-073];
 - there was no change to the setting of Dolbadarn Castle; and that
 - potential cumulative impacts with the grid connection were discounted due to the firm commitment that the grid connection would be underground.
- 4.11.63 The question of whether an overhead grid connection should be assessed is considered in Section 4.12.
- 4.11.64 GC considered that the views from Dolbadarn Castle towards the Proposed Development would not be substantially altered and the impact was therefore considered to be very slight [REP5-044]. Cadw did not respond to my questions on this [PD-015 and PD-025].

Conclusions

- 4.11.65 PPW9 introduced a new policy that requires Cadw to be consulted as the Proposed Development is visible from Dolbadarn Castle (paragraph 6.5.9). In the SoCG with Cadw it was agreed that an adequate assessment had been undertaken [REP5-026], and I note that no concerns regarding the views have been expressed by Cadw. I therefore consider it unlikely that Cadw would have any issues with this matter and have concluded on that basis.
- 4.11.66 I am satisfied with the Applicant's responses to my questions and with the adequacy of the assessment of effects on the setting of Dolbadarn Castle and due to cumulative impacts with the grid connection. I am satisfied those potential effects have been considered sufficiently for the purposes of section 5.8 of NPS EN-1 2010 and that with the mitigation measures there would be unlikely to be any significant effects on the settings of Dolbadarn Castle, or arising from cumulative impacts with the grid connection. I have therefore complied with duty 3(3) of Infrastructure Planning (Decisions) Regulations 2010.

***The Archaeological Compensation and Enhancement Strategy
and the Written Scheme of Investigation***

4.11.67 This Outline Archaeological Compensation and Enhancement Strategy [REP9-003] would be certified by Article 36 of the recommended DCO. It contains matters that must be addressed and minimum standards to be complied with in subsequent versions of the strategy (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).

4.11.68 Measures secured in it [REP9-003] include:

- a full programme of recording of surviving remains that it would not be reasonably practicable to avoid and leave in situ;
- an archaeologically monitored topsoil strip to ensure that any previously unrecorded features would be recorded;
- publishing of all fieldwork results;
- possible installation of information panels and improved access;
- that no development would be undertaken without a WSI that was approved by GC and met the Chartered Institute for Archaeologists' Archaeological Standard and Guidance; and that
- prior to any work commencing the Applicant would submit to and receive written approval from GC for any archaeological compensation and enhancement measures.

4.11.69 Clarifications provided by the Applicant [REP7-004 and REP9-030] in response to my questions [PD-025 and PD-026] included that:

- no specific archaeological standards exist for Wales, therefore all contractors would be expected to follow standards and guidance provided by the Chartered Institute for Archaeologists;
- the requirement for a watching brief when excavating the spillway infrastructure in the vicinity of the bomb store had been added to Section 2.2.1 of the Outline Archaeological Compensation and Enhancement Strategy; and that
- it had attempted to contact GC's Archaeological Planning Service to provide evidence that GC were content with the Outline Archaeological Compensation and Enhancement Strategy with respect to the bomb store, but no contact was possible.

4.11.70 GC [REP2-041, REP5-044, REP7-044 and REP9-042] provided comments on matters of principle and on specific matters.

Matters of principle:

- a detailed site-wide WSI would need to be agreed in advance of any activity on site;
- mitigation must comprise either preservation in situ or by record and given that the archaeological resource was finite there were no other suitable or appropriate mitigation measures;
- measures such as monitoring, avoidance of surviving remains, recording removed features, publishing results, improving access

to surviving sites, providing interpretation boards and consulting with GC would normally be secured;

- GAPS would normally agree, monitor and ensure compliance with mitigation and enhancement measures on behalf of GC and assist GC on discharging conditions;
- monitoring during top soil stripping would be undertaken as a partial watching brief and included within a detailed WSI; and
- Cadw did not need to agree the mitigation and enhancement strategy as they were not normally involved at this level.

Specific matters:

- the wording of the (Outline) Archaeological Compensation and Enhancement Strategy in the Schedule of Required Plans and Strategies [REP3-024] was agreed, although a paragraph should be added to ensure the involvement of GC's archaeological advisor in monitoring all works agreed within the WSI and of approval of the archaeological programme;
- paragraph 1.1.4 of the updated (Outline) Archaeological Compensation and Enhancement Strategy [REP7-036] addressed concerns regarding approval and would allow GC to ensure that monitoring and sign off were agreed in advance;
- the Archaeological Compensation and Enhancement Strategy should provide details of the mitigation (archaeological recording, reporting, publication, dissemination, archiving), the enhancement measures (access, interpretation, conservation, management, public engagement, etc.) proposed and set out what would be done, where, when and by whom; and
- the Outline Archaeological Compensation and Enhancement Strategy [REP7-036] did not make specific reference to the bomb store, which GC would prefer it to.

4.11.71 The application version of the Draft DCO set out provisions relating to an Archaeological Compensation and Enhancement Strategy [APP-043, Requirement 15]. This was later updated to include reference to a site wide WSI [REP4-009, Requirement 18]. The Requirement was deleted at D5 [REP5-002] and omitted from all subsequent versions. The Applicant's explanation [REP5-013] for this was that it had become unnecessary as it repeated in less detail the information that would be provided in the Outline Archaeological Compensation and Enhancement Strategy [REP9-003] that would be certified by the DCO.

4.11.72 GC considered that [REP5-044] Requirement 18 of the draft DCO [REP4-009] should refer to a programme of archaeological work agreed through a WSI rather than referring to a watching brief, which was a specific type of archaeological mitigation.

Conclusions

4.11.73 Although the Applicant had indicated that bomb store mitigation measures had been added to the Outline Archaeological Compensation and Enhancement Strategy, this was not included in the final version

submitted to the Examination [REP9-003]. Although GC suggested that this could be addressed later, I note that this relates to a heritage asset of national significance and therefore consider that for the avoidance of doubt relevant measures should be included, as outlined under the heading of 'Significantly affected heritage assets', above.

- 4.11.74 The provisions of the Archaeological Compensation and Enhancement Strategy Requirement deleted from the draft DCO [REP4-009] have generally been incorporated into the Outline Archaeological Compensation and Enhancement Strategy [REP9-003], although the identification of areas where a watching brief is required and measures for potential peat deposits have not been included.
- 4.11.75 The mitigation measures agreed as satisfactory by GC [REP4-006] and Cadw [REP5-026] in their SoCGs included reference to the deleted archaeological compensation and enhancement strategy Requirement.
- 4.11.76 I have therefore covered the matters regarding the bomb store, areas where a watching brief is required and the measures for potential peat deposits in new Requirement 22 of the recommended DCO.
- 4.11.77 Although the Outline Archaeological Compensation and Enhancement Strategy [REP9-003] includes for archaeological investigation, recording of remains, archiving and publication of results, it does not explicitly address the new stipulations in paragraph 6.5.7 of PPW9 for the analysis of results or the organisation and deposition of the archive into an approved repository. I have therefore added these matters to Requirement 22 of the recommended DCO.
- 4.11.78 Otherwise, I am satisfied with the Applicant's responses to matters raised by GC and to my questions.
- 4.11.79 Based on the above, I consider that the mitigation measures would be appropriately secured by the recommended DCO, including as secured by Requirement 8 in the Outline Archaeological Compensation and Enhancement Strategy [REP9-003], and would satisfy NPS EN-1 paragraphs 5.8.20-21 in respect to recording asset losses and works being undertaken in accordance with a WSI.

Conclusions on policy and factual issues

- 4.11.80 I have had particular regard to the policies set out in NPS EN-1, Welsh Office Circulars 60/96, 61/96 and 1/98, PPW8, PPW9 and GUDP Policy B7 in my consideration of the potential impacts of the Proposed Development on the historic environment.
- 4.11.81 Archaeological sites have been identified within the mainline study area. Direct impacts have been identified for those assets located within the Proposed Development area and assessed as a major adverse effect resulting in the total loss or substantial removal of these remains, and that following mitigation the residual effect would be moderate adverse. Lesser effects are assessed where construction

would result in only partial removal of the asset. Significant effects were identified on 11 groups of heritage assets.

- 4.11.82 Effects on the settings of heritage assets were considered within a 1km study area within the ES and consideration given to the more distant Dolbadarn Castle Scheduled Ancient Monument and to cumulative effects arising from the grid connection during the Examination. No significant effects were identified.
- 4.11.83 Although the Proposed Development is visible from Dolbadarn Castle, no concerns regarding the views have been expressed by Cadw and Cadw agreed in the SoCG that an adequate assessment has been undertaken [REP5-026]. I therefore consider it unlikely that Cadw have any issues on this matter and have concluded on that basis.
- 4.11.84 I am satisfied that the Applicant has identified the heritage assets that could be affected by the Proposed Development, and their significance, in accordance with section 5.8 of NPS EN-1.
- 4.11.85 As noted earlier in this section, I have concluded that Glyn Rhonwy Lower Slate Quarry and munitions store and Chwarel Cefn Du slate quarry should be considered to be of national significance. Therefore, in accordance with paragraphs 5.8.4 and 5.8.5 of NPS EN-1, paragraph 6.5.1 of PPW8 and PPW9 and paragraph 17 of Welsh Office Circular 60-96, I find that they should be subject to the same policy considerations as nationally designated assets.
- 4.11.86 As noted above, I am satisfied that the Applicant's approach of identifying a high magnitude of impact on Glyn Rhonwy Lower Slate Quarry and munitions store [APP-0209] would be precautionary.
- 4.11.87 Otherwise, I have no reason to doubt the Applicant's methodology applied to their assessment of potential effects on heritage assets or their setting during construction and operation and I am satisfied that these matters have been considered sufficiently for the purposes of section 5.8 of NPS EN-1.
- 4.11.88 Measures secured by the recommended DCO in the Outline Archaeological Compensation and Enhancement Strategy include a WSI for archaeological works, preservation by record and potential enhancement through information boards and improved access.
- 4.11.89 I have added Requirement 22 to the recommended DCO to secure necessary mitigation that has not been otherwise secured:
- matters regarding identification of areas where a watching brief is required and measures in relation to potential peat deposits that were deleted from the earlier versions of the draft DCO;
 - a watching brief during any works in the vicinity of the bomb store in accordance with an approved WSI;
 - a pre-commencement survey of the bomb store, consideration of opportunities for interpretation and public engagement; and

- analysis of the results of investigations and the organisation and deposition of the archive to an approved repository.
- 4.11.90 The requirements for analysis of the results of investigations and the organisation and deposition of the archive to an approved repository have been added to cover PPW9 policy that was not in PPW8.
- 4.11.91 Requirement 22 has not been agreed with the Applicant.
- 4.11.92 Appropriate safeguards are included in Requirement 5 of the recommended DCO to ensure that GC would be consulted in relation to detailed design matters. The recommended DCO and the Outline Archaeological Compensation and Enhancement Strategy would ensure that archaeology would be investigated and recorded in line with a WSI agreed in writing with the relevant local authority.
- 4.11.93 Based on the above, I consider that the mitigation measures would be appropriately secured and would be likely to satisfy NPS EN-1, PPW8 and PPW9, as relevant, in respect to recording asset losses and works being undertaken in accordance with a WSI.
- 4.11.94 I find that there would be likely to be no significant effects on the settings of heritage assets. In this respect I find that there are no matters to be weighed against the public benefit of the Proposed Development in accordance with paragraph 5.8.15 of NPS EN-1. I have therefore complied with duty 3(3) of Infrastructure Planning (Decisions) Regulations 2010.
- 4.11.95 My view is that it has been established that harmful effects on 11 groups of heritage assets, 2 of which are of national importance and 9 of regional significance, are likely. I conclude that these harms have been identified sufficiently for them to be weighed against the public benefit of the Proposed Development in accordance with paragraph 5.8.15 of NPS EN-1.
- 4.11.96 The ASIDOHL assessment for the Dinorwig historic landscape concluded that the overall significance of effects would be slight and, noting that Cadw agreed [REP5-026] that an adequate ASIDOHL assessment had been undertaken and that ASIDOHL Version 2 methodology has been used, I have no reason to disagree with that conclusion and am satisfied that the ASIDOHL is adequate for the purposes of NPS EN-1 and paragraph 6.5.9 of PPW9.
- 4.11.97 With respect to heritage assets considered to be of national importance I note that:
- both national and local policy are 'important and relevant';
 - NPS EN-1 states that any harmful impact should be weighed against the public benefit of the development;
 - PPW8, PPW9 and Welsh Office Circular 60-96 state a presumption in favour of preserving assets of national importance in situ;

- Welsh Office Circular 60-96 states that there will be occasions when it may be decided that preservation in situ may not be justified when weighed against other material considerations;
- neither PPW8, PPW9 or Welsh Office Circular 60-96 state that their removal should result in refusal;
- NPS EN-1 considers that substantial harm to, or loss of, the highest significance designated assets should be wholly exceptional;
- PPW9 states that it will only be in exceptional circumstances that permission will be granted if development would result in an adverse impact on an archaeological site of national importance;
- GUDP Policy B7 would not be complied with as heritage assets of national importance would be damaged or destroyed, on which basis it would require refusal; and that
- GC stated that the potential effects were not significant enough for it to recommend refusal [REP2-041 and REP4-025].

4.11.98 Noting GC's comments [REP4-006] I am satisfied with the Applicant's commitment [REP5-026] to address the tentative WHS within the Archaeological Compensation and Enhancement Strategy.

4.11.99 With respect to the adequacy of consultation on the new policies launched in PPW9 after the end of the Examination and the SoS's consideration, my view is that:

- the "*exceptional circumstances*" requirements of paragraph 6.5.5 are similar to those of NPS EN-1 paragraph 5.8.14 and have therefore been consulted on adequately;
- the paragraph 6.5.7 stipulations for the analysis of the results of any archaeological investigation and the organisation and deposition of the archive into an approved repository have not been consulted on, although I have introduced such a stipulation into Requirement 22 of the recommended DCO;
- the paragraph 6.5.7 and 6.5.8 requirements for a WSI are similar to those of EN-1 paragraph 5.8.21 and have therefore been consulted on adequately; and
- Cadw have not been consulted on the visibility of the Proposed Development from Dolbadarn Castle in accordance with paragraph 6.5.27, although I had asked Cadw for their views on the potential impacts on Dolbadarn Castle.

4.11.100 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for the historic environment, in addition to those specifically identified in this section. On that basis, and noting the opportunities for any residual concerns to be addressed during the finalisation of the Archaeological Compensation and Enhancement Strategy, I am satisfied that factual and policy issues have been addressed in terms of the Application, clarifications provided by the Applicant during the Examination, and the mitigation measures that would be secured through the recommended DCO, including those provided in the Outline Archaeological Compensation and Enhancement Strategy.

- 4.11.101 The SoS may wish to consider further Requirement 22 and/or on the new policies in PPW9 that were not included in the Examination.
- 4.11.102 I conclude that the significant adverse effects on 11 groups of historic assets should weigh against the Order being made.
- 4.11.103 The loss of historic assets of national importance conflicts with the PPW8, PPW9 and Welsh Office Circular 60-96 presumptions of preservation in situ. GUDP Policy B7 would not be complied with as heritage assets of national importance would be damaged or destroyed and, on that basis, it would require refusal. These matters should weigh against the Order being made, noting that NPS EN-1 and PPW9 consider that permission should only be granted in exceptional circumstances.
- 4.11.104 Otherwise I am satisfied that the Proposed Development would be unlikely to have an unacceptable effect on the historic environment.

4.12 GOOD DESIGN; LANDSCAPE AND VISUAL IMPACTS

- 4.12.1 This section covers good design, landscape and visual impacts. The historic environment, including the ASIDOHL, is covered in Section 4.11 and decommissioning in Section 4.13. Good design in the sense of mitigating effects other than landscape or visual is considered in the other topic-specific sections of this Chapter.

Policy context

Good design policy

- 4.12.2 NPS EN-1 advocates that applying 'good design' to energy projects should produce sustainable infrastructure sensitive to place; efficient in the use of natural resources and energy used in their construction and operation; and matched by an appearance that demonstrates good aesthetics as far as possible. It then states that, having regard to regulatory constraints and taking functionality in to account, energy infrastructure developments should be as attractive, durable and adaptable as they can be and contribute to the quality of the area in which it would be located as far as possible (paragraph 4.5.1).
- 4.12.3 PPW8 defines design as *"the relationship between all elements of the natural and built environment. To create sustainable development, design must go beyond aesthetics and include the social, environmental and economic aspects of the development, including its construction, operation and management, and its relationship to its surroundings"* (paragraph 4.11.1). It then goes on to say that *"[m]eeting the objectives of good design should be the aim of all those involved in the development process"* (paragraph 4.11.2).
- 4.12.4 TAN 12 highlights strongly commitments to achieving the delivery of good design in the built and natural environment which is fit for

purpose and delivers environmental sustainability, economic development and social inclusion, at every scale throughout Wales.

Landscape and visual impact policy

- 4.12.5 NPS EN-1 advises Applicants to undertake a landscape and visual assessment which is to include *"the effects during construction of the project, effects of the completed development and its operation on landscape components and landscape character"* (paragraph 5.9.6).
- 4.12.6 While accepting that NSIPs will affect the landscape, NPS EN-1 says that *"having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate"* (paragraph 5.9.8).
- 4.12.7 NPS EN-1 states that the fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent (paragraph 5.9.13).
- 4.12.8 NPS EN-1 explains that outside nationally designated areas, there are local landscapes that may be protected by local designation (paragraphs 5.9.14-5.9.17). However, local landscape designations should not be used in themselves to refuse consent. It explains that the decision maker should consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse effect on the landscape is capable of being reversed in a reasonable timescale. The decision maker should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other constraints, to minimise harm to the landscape by including reasonable mitigation.
- 4.12.9 Chapter 5 of PPW8 considers conserving and improving natural heritage and explains that the natural heritage of Wales embraces the relationships between land form and landscape, habitat and wildlife, and their capacity to provide enjoyment and inspiration (section 5.1).
- 4.12.10 PPW8 requires landscape considerations to be taken into account at an early stage (paragraph 5.1.4) and explains that non-statutory landscape designations, such as Special Landscape Areas (SLAs), should not unduly restrict development (paragraph 5.3.11).
- 4.12.11 Relevant GUDP local policies include:
- Strategic Policy 2 - protection of landscape character, including views to/from Snowdonia National Park;
 - Strategic Policy 3 - protection of built and historic environment;
 - Strategic Policy 4 - good design;
 - Policy B3 - setting of listed buildings and views to/from them;
 - Policy B10 - Landscape Conservation Areas;
 - Policy B11 - Open Spaces;
 - Policy B12 - historic landscapes, parks and gardens;

- Policy B14 - landscape character of Snowdonia National Park;
- Policy B22 - building design;
- Policy B25 - building materials, including use of Welsh slates;
- Policy B27 - landscape schemes;
- Policy B34 - lighting and light pollution;
- Policy C27 - renewable and sustainable energy schemes, including criteria of no harmful impacts on setting of AONB or Snowdonia National Park and alleviation of visual impact.

4.12.12 The Eryri LDP recognises that development outside Snowdonia National Park may also have an adverse effect on landscape character and affect views from and into the area.

The Application

4.12.13 The main sections of the Application relevant to good design, landscape and visual impacts are:

- Design & Access Statement [APP-060]
- ES Chapter 6 Landscape Character and Visual Amenity [APP-073]

4.12.14 The Design and Access Statement describes how the design evolved and responded to consultation and sets out the design principles, including in relation to access, character, use, layout, appearance, scale, landscaping and sustainability [APP-060], including that:

- local concerns had been responded to including for the location of the pumping station and the routes of PRow diversions;
- reuse of site won materials in the dams would help to minimise impact on a highly sensitive landscape;
- much of the development would be below ground and visually unobtrusive;
- above ground buildings would have natural slate roofs and natural slate stonework walls; and that
- all appropriate environmental assessments had been undertaken.

4.12.15 The Landscape Character & Visual Amenity Chapter of the ES identifies, assesses and sets out mitigation measures for potential landscape effects including changes to the fabric, character and quality of landscape and how it is experienced; and potential visual effects including changes in "*the overall pleasantness of the views that people enjoy of their surroundings*" [APP-073].

4.12.16 The study area was defined as land within 10km of the Proposed Development. The assessment methodology reflected the Guidelines for Landscape and Visual Impacts Assessment (GLVIA3) [APP-073].

4.12.17 The ES considers potential landscape effects on receptors including Landscape Character Areas (LCAs), landscape designations including Snowdonia National Park and Landscape Conservation Areas and other resources and cultural heritage interests [APP-073].

- 4.12.18 Visual effects were considered at 12 viewpoints agreed with GC and SNPA and considered representative for receptors including occupiers of residential properties, recreation visitors, walkers and road users [APP-073]. Summer-time photomontages represent current and proposed views at each viewpoint at year 15 of operation.
- 4.12.19 Mitigation identified in the ES during construction include restrictions on working areas, siting of construction compounds to minimise disruption to vegetation, retention of trees, and siting of temporary installations to avoid views from sensitive receptors [APP-073].
- 4.12.20 With those measures in place the temporary residual landscape effects during construction were assessed by the Applicant as moderate-minor adverse and not significant on the Proposed Development area; and neutral or minor adverse and not significant on LCAs and landscape designations [APP-073].
- 4.12.21 Temporary residual visual effects during construction were assessed as negligible or minor adverse and not significant, with the exception of moderate or major-moderate at viewpoints 2 (Moel Eilio), 4 (Llanberis Lake Railway), 7 (Cefn Du) and 8 (Dinorwig) [APP-073].
- 4.12.22 Mitigation measures identified in the ES during operation include tunnelling of the penstock, locating the power house on an existing development platform benefitting from screening, slate cladding to the power house, sympathetic design and use of excavated slate materials for the dams, sympathetic location and design of spoil heaps, rebuilding and repair of stone walls and tree replacement [APP-073].
- 4.12.23 With those measures in place the long term residual landscape effects 15 years into operation were assessed by the Applicant as moderate-minor adverse and not significant on the Proposed Development area; and neutral or minor adverse and not significant on LCAs and landscape designations [APP-073].
- 4.12.24 Long term residual visual effects 15 years into operation were assessed as neutral or minor adverse and not significant, except for moderate adverse and significant at viewpoint 7 [APP-073].
- 4.12.25 The Cumulative Effects Chapter of the ES considered the potential for cumulative impacts with the grid connection and concluded that the effects would be negligible as the grid connection would be underground; it was unlikely that the grid connection would require tree removal and the construction of the grid connection would not be seen from the wider landscape [APP-084].
- 4.12.26 The Applicant clarified its assessment that the overall residual landscape and visual effects were considered to be not significant, with the exception of residual visual effects at viewpoint 7, which were considered to be significant [REP2-011, FWQ Appendix 2.7].

SoCGs and the LIR

4.12.27 In their SoCG [REP4-006] the Applicant and GC agreed that:

- an adequate assessment of landscape and visual impacts, including on the setting of Snowdonia National Park and cumulatively with the grid connection, had been undertaken;
- the size, location, design and materials proposed for structures and lighting would be appropriate controlled by the draft DCO;
- the Applicant committed to underground cables for the grid connection; and that
- a Landscape and Reinstatement Plan was an appropriate mechanism to agree landscape restoration proposals.

4.12.28 In their SoCG [REP3-010] the Applicant and NRW agreed that:

- an adequate assessment of landscape and visual impacts had been undertaken; and that
- a Landscape and Reinstatement Plan was an appropriate mechanism to agree landscape restoration proposals.

4.12.29 In their SoCG [REP3-009] the Applicant and SNPA agreed that:

- an adequate assessment of landscape and visual impacts, including on the setting of Snowdonia National Park and cumulatively with the grid connection, had been undertaken;
- the size, location, design and materials proposed for structures and lighting would be appropriate controlled by the draft DCO;
- the Applicant would seek to minimise light spill to protect the National Park's Dark Skies status;
- the Applicant committed to an underground grid connection;
- a Landscape and Reinstatement Plan was an appropriate mechanism to agree landscape restoration proposals;
- the Proposed Development would be seen from the National Park in the context of the existing man-modified post-industrial landscape characteristics of the Llanberis area; and that
- there would be no significant landscape or visual impacts on the National Park and its setting.

4.12.30 Matters raised in GC 's LIR [REP2-037 to REP2-40] include:

- reference to the proximity of Snowdonia National Park and LCAs;
- a detailed description of the characteristics of the landscape and of the prominence of the Proposed Development site;
- that it was believed that the Proposed Development would blend into its post-industrial location;
- it was not believed that there was a concern in terms of impact on the amenities of Snowdonia National Park, that there would be an excessive impact on the visual amenities of dwellings, that it would be prominently visible to an acceptable degree from surrounding mountains or that there would be an effect in terms of visual impact from Dolbadarn Castle;

- the Proposed Development would not be so significant as to lead to changing the LANDMAP assessment of the local area;
- it was not believed that the structures, on completion to an agreed standard, would impact the visual amenities of the local landscape to a long-term unacceptable degree; and that
- it was likely that further agreement could be reached to ensure that the design would be of an acceptable standard.

Outline management and mitigation plan

- 4.12.31 The Outline CoCP [REP9-028] includes an Outline Landscape & Reinstatement Plan, which would ensure that, as far as reasonably practicable, disturbance to visual receptors would be minimised during construction and that suitable landscape reinstatement works would be carried out to GC's approval.
- 4.12.32 The CoCP would be certified by Article 36 of the recommended DCO. It contains matters that must be addressed and minimum standards to be complied with in subsequent versions of the plan (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirement 6).
- 4.12.33 GC was in agreement [REP9-042] with previous version of the Outline CoCP [REP7-012]. I have not been given any reason to believe that GC would have a different view on the latest version [REP9-028].
- 4.12.34 NRW noted [REP10-011] that it had no further comments on the CoCP [REP9-028] or Ordnance Management Strategy [REP9-024] and that its comments were without prejudice to any decisions that it might make on any applications for EPs and that the plans would be subject to on-going discussion through the Environmental Permitting regime.

Other factual issues considered during the Examination

- 4.12.35 During the Examination I carried out unaccompanied site inspections [EV-001 and EV-026], some of which were to the representative viewpoints considered in the ES [APP-073].
- 4.12.36 Representations were received from IPs including Plas Gwynant Outdoor Education Centre [RR-003], Daniel Jackson [RR-004], Tom Hutton [RR-012]; the Snowdonia Society [RR-014, REP2-051 and REP4-038], Emily Wood [RR-022 and REP2-032], Dr Mads Huuse [RR-025 and REP7-050], Dr David Bellamy [RR-034], Alessa Jaendling [RR-041]; Ray Wood [RR-049]; the British Mountaineering Council [RR-050], Dr Rebecca Walker [REP2-026], [REDACTED] [REDACTED] [REDACTED] The Towers Outdoor Education Centre [REP2-054], Dr Jane Huuse [REP2-028, REP2-030 and REP4-021], Michael Vitkovitch [REP5-047] and Christine Jordan [REP7-047].
- 4.12.37 The IPs' comments and Applicant's responses [REP2-012, REP3-026, REP5-006, REP6-002 and REP9-029] are summarised below.

4.12.38 Snowdonia National Park:

IPs' comments:

- the visual impact from Moel Eilio and Snowdonia National Park had been underestimated and would be considerable and negatively detract from a landscape of national significance;
- the works would adversely affect the enjoyment of people climbing nearby Moel Eilio, which was widely thought of as one of the best views in Wales;
- visual amenity would be altered from vantage points in Snowdonia National Park, impacting significantly on walkers;
- light pollution may demerit Snowdonia and surrounding hills; and
- the National Park's dark sky status would be affected by lighting.

Applicant's responses:

- the development would not encroach on the National Park;
- three viewpoints within the National Park had been assessed, including Moel Eilio;
- to minimise lighting impacts on Environmental Zones in the area the requirements for Obtrusive Light Limitations for Exterior Lighting Installations would be adhered to; and
- the draft DCO requires lighting details to be approved by GC and would have due consideration of the Dark Sky reserve.

4.12.39 Grid connection:

IPs' comments:

- there was no definitive assurance that the grid connection would be underground and SP Manweb may later decide to make it above ground, with associated visual impact to the area; and
- the worst case cumulative visual impact would be with an above ground connection and this would lead to a major adverse significant impact on the visual amenity of the area.

Applicant's responses:

- it had accepted a Connection Offer from SP Manweb on a Point of Connection basis and would appoint an Independent Connection Provider to design and undertake the grid connection works;
- it has made a firm commitment to ensure that the grid connection would be underground;
- an overhead grid connection of 132kV or more would be an NSIP and would require extra cost and time to obtain consent;
- any serious developer would avoid an overhead grid connection;
- an underground grid connection was the only credible option;
- the ES had reasonably assumed an underground connection; and
- the grid connection would be subject to its own planning permission, an application for which would be made to GC.

4.12.40 Other matters:

IPs' comments:

- the Proposed Development would spoil the landscape;
- the location of the pumping station within the lagoons area of Llyn Padarn would damage the visual amenity of the area;
- it was not clear what the visual impacts of the ordnance disposal facility or noise barrier would be;
- volumes of spoil has been underestimated;
- compacted, crushed and graded slate is not the same material that makes up the existing slate tips and so the appearance of the surface of the dam would be significantly different; and
- the highway improvements to Ffordd Cefn Du would result in it losing its country lane character and a loss of visual amenities to residents and road users.

Applicant's responses:

- the majority of the pumping station would be below ground level and the only above ground structure would be the control box and entry manhole;
- the dams would be faced in slate and contoured to mimic the existing slate mounds;
- the location and construction of the ordnance disposal facility would be such that it was not anticipated to have any visual impact on the surrounding environment;
- it was satisfied with the calculations of volumes of spoil;
- it did not agree that the dams would significantly differ in appearance from the existing spoil heaps and noted that their detailed design would need to be approved by GC;
- GC, NRW, Cadw and SNPA had no objections to the conclusions of the landscape and visual impact assessment; and
- Ffordd Cefn Du highway improvements related mostly to local widening, passing places and improved surface and any walls required to be temporarily moved would be replaced.

4.12.41 Further clarifications and updates provided by the Applicant [REP2-011 and REP5-005] in response to my questions [PD-009 and PD-015] included that:

- all drawings submitted with the application were indicative and subject to detailed design approval by the LPA, as secured by Requirement 5 of the draft DCO;
- key project parameters were also secured by Requirement 5 of the draft DCO;
- photomontages for the visual impact assessment represent the worst case scenario for project parameters in the draft DCO;
- the use of summer time photomontages had been agreed with consultees and the assessment made assumptions about visual effects in winter when deciduous vegetation was not in leaf;

- likely effects on the physical landscape were considered through the assessment of landscape effects in accordance with GLVIA3;
- the application for the Proposed Development was submitted prior to the designation of the Snowdonia National Park Dark Skies Reserve and therefore an assessment of the potential effects on it were not considered in the ES;
- the draft DCO secured that external lighting during construction and operation was subject to approval by GC;
- the majority of the 8km grid connection would be within the verges of the A4022 and it was likely that it could be micro-sited around any mature trees or root systems; and that
- the ordnance disposal facility would be the size of two shipping containers side by side.

4.12.42 The Outline CoCP [REP9-028] was updated during the Examination to restrict materials that could be used in the spoil heaps and to include measures to promote natural growth.

4.12.43 GC [REP2-041] stated that:

- draft DCO provisions for design and materials of the proposed buildings, structures, fencing and lighting were sufficient;
- it was satisfied with the use of summer only photomontages;
- providing a cable route overhead was not acceptable in any form within the development area or within the local vicinity; and that
- a worst case scenario of an overhead grid connection was not an option due to the sensitivity to that type of grid connection.

4.12.44 NRW [REP2-047 and REP5-049] considered that:

- the assessment approach adhered to GLVIA3;
- it was satisfied with the use of summer only photomontages;
- it had only considered effects to statutorily protected landscapes;
- there were no concerns regarding impacts on the setting of Llyn and Anglesey AONB, which was some distance beyond the visual influence of the Proposed Development;
- due to the localised nature of adverse visual effects, which just reach the threshold of significant, the Proposed Development would be acceptable to NRW in landscape terms, subject to the details of the landscape reinstatement plan; and that
- an option to place the underground grid connection within the public highway would be likely to avoid significant cumulative adverse effects.

4.12.45 SNPA [REP5-050] were of the view that the mitigation secured by the draft DCO and set out in the ES [APP-073] regarding directional security lighting, conformity with the Obtrusive Light Limitations for Exterior Lighting Installations would ensure that the effects on Snowdonia's Dark Skies Reserve status would be minimised.

Conclusions on policy and factual issues

- 4.12.46 I have had particular regard to the policies set out in NPS EN-1, PPW, GUDP, Eryri LDP and the guidance set out in TAN 12 in my consideration of good design, landscape and visual impacts.
- 4.12.47 The design has taken into account the potential effects upon the landscape and visual amenity having regard to siting, lighting, and operational and other relevant constraints. In my view, detailed design and the use of local slate would be key to ensuring that the Proposed Development, and particularly the dams and larger buildings, are successfully assimilated into the landscape. In this respect I am satisfied that appropriate measures are in place to ensure good design is embedded into the Proposed Development as it develops through the detailed design stage and that other reasonable mitigation has been provided where possible. I am therefore satisfied that the good design policies of NPS EN-1, PPW and TAN 12 are complied with.
- 4.12.48 I have not been given any reason to question the landscape baseline information. The Applicant has considered potential landscape impacts on designated landscapes and on other landscapes, including within the area of the Proposed Development itself. Potential visual impacts have been considered at 12 locations and, noting the comments from GC, NRW and SNPA, I am satisfied that these are representative and that the use of summer only photomontages and the use of judgement for potential effects at other times of year are appropriate. I therefore consider that the Applicant's baseline and assessment methodology are satisfactory for the purposes of paragraph 5.9.6 of NPS EN-1, for local policy and for the purposes of my recommendation.
- 4.12.49 GC, NRW and SNPA have each stated that they accept the Applicant's assessment, although a number of IPs have suggested that the Applicant's assessment of the magnitude of impact on landscape and visual receptors in the Snowdonia National Park has understated the effects. However, I find that sufficient evidence has not been provided by IP's to substantiate that view and am therefore content that the Applicant's assessment of landscape and visual effects with respect to Snowdonia National Park is satisfactory and that with the mitigation in place the impacts be likely to be not significant.
- 4.12.50 With respect to the potential cumulative impacts with the grid connection, I concur with IPs that cumulative impacts with an overhead connection has not been assessed by the Applicant. The question I then have to consider is whether such a grid connection would represent a reasonable worst case. The Applicant has said that it is committed to an underground connection and has provided evidence that it has progressed on that basis and would continue to do so. GC have stated that they would not find an overhead route acceptable and I see no reason why they would not maintain that view when considering any application for the grid connection.

- 4.12.51 Following from this, and noting GC's comments and NRW, my view is that an overhead grid connection would be unlikely, that the Applicant's assessment of an underground grid connection is appropriate and that significant cumulative effects with respect to the grid connection would therefore be unlikely.
- 4.12.52 I am satisfied with the Applicant's responses to matters raised by IPs and to my questions.
- 4.12.53 Regarding mitigation, the Applicant has set out a number of siting and design principles, while the recommended DCO defines the authorised development in Schedule 1 Part 1 and includes provisions in:
- Requirement 5 for the key parameters and detailed design;
 - Requirements 6 and 8 for a Landscape and Reinstatement Plan and other relevant management plans;
 - Requirement 14 for the approval of temporary construction compounds, buildings and structures;
 - Requirement 16 for the approval of external operational lighting;
 - Requirement 18 for the approval of fencing and means of enclosure; and
 - Requirement 19 regarding the approval of maintenance plans.
- 4.12.54 Noting my earlier conclusions with respect to good design and comments from GC, NRW and SNPA, including in their SoCG and in the LIR, I am satisfied that secured measures provide reasonable and appropriate mitigation that has regard to landscape designations, temporary effects during construction and effects during operation. On this basis I am satisfied that these matters have been addressed sufficiently for the purposes of NPS EN-1 paragraphs 5.9.14 and 5.9.17; Chapter 5 of PPW8, GUDP and Eryri LDP.
- 4.12.55 I have considered all of the written and oral submissions made in relation to factual issues and how relevant policy has been addressed for landscape impacts, visual impacts and good design, in addition to those specifically identified in this section. I am satisfied that they have been appropriately addressed in terms of the Application, clarifications provided by the Applicant during the Examination, the mitigation measures and the recommended DCO.
- 4.12.56 Following the mitigation, and based on the above, I consider that:
- the Proposed Development would be likely to have no significant effects on landscape;
 - although major-moderate visual effects are considered likely at 4 viewpoints during construction, I note that these would mostly be temporary and am satisfied that the Applicant has not identified that they would be significant; and that
 - although there would be significant adverse long term visual effects at one representative viewpoint in the vicinity of Q1, these effects would be localised.

- 4.12.57 Based on the above I am satisfied that the Proposed Development complies with relevant policy with respect to good design, landscape and visual impacts, that appropriate mitigation has been secured and that while there would be some temporary and/or localised adverse effects these matters should not weigh against the Order being made.

4.13 DECOMMISSIONING

- 4.13.1 This section considers potential effects during decommissioning and should be read together with the previous topic-specific sections that deal with potential effects during construction and operation.

Policy context

- 4.13.2 NPS EN-1 states that the ES should cover effects on the environment and the measures envisaged for avoiding or mitigating significant adverse effects at all stages of the project (paragraph 4.2.1). It states that the ES should cover the environmental, social and economic effects arising from decommissioning (paragraph 4.2.3), including consideration of climate change (paragraph 4.8.5).
- 4.13.3 NPS EN-1 refers to the potential for emissions during decommissioning to have adverse impacts and paragraph states that the decision maker should consider the mitigation needed to reduce any loss to amenity during decommissioning (paragraphs 5.2.1, 5.6.10 and 5.6.1).
- 4.13.4 NPS EN-1 identifies the potential for adverse impacts in respect to the historic environment (paragraph 5.8.1); socio-economics (paragraphs 5.12.1 and 5.12.3); waste management (paragraph 5.14.7); and the water environment (paragraph 5.15.1).
- 4.13.5 PPW8 states that consideration should be given to securing the decommissioning of developments and site remediation as soon as use ceases and that impacts of climate change during decommissioning should be considered (paragraphs 12.1.4 and 12.10.6).

The Application and the consideration of issues

- 4.13.6 The Proposed Development would be decommissioned at the end of the 125 year operational life, and this would include [APP-071]:
- removal of all above ground structures and the pumping station;
 - draining of water from Q1 and Q6;
 - dams, access tracks and security fences would remain in situ;
 - access through the dam structures would be secured; and
 - overflow and penstock pipework would remain in situ and sealed.
- 4.13.7 The ES addresses decommissioning as summarised below.
- 4.13.8 Landscape Character & Visual Amenity [APP-073]:
- effects were not considered in detail as they were of a similar nature to construction issues, but of a smaller scale and duration;

- the landscape will have evolved during the 125 years of operation and an appropriate restoration strategy would need to reflect character and amenity of the landscape at that time;
- landscape and visual effects would be no greater than assessed during operation for summer year 15; and
- consequently no further assessment had been undertaken.

4.13.9 Ecology [APP-074]:

- potential impacts from changes in water quality, levels and temperature from draining the quarry system and disturbance of protected species would be similar to construction impacts;
- it was difficult to determine the exact magnitude and significance as the baseline status may have altered;
- with monitoring and designing an appropriate de-watering scheme, the dewatering impacts would likely not be significant;
- protected species would be surveyed before decommissioning and necessary mitigation measures then determined;
- mitigation would be secured in the decommissioning plan; and
- residual effects were likely to be similar to those for construction.

4.13.10 Geology & Ground Conditions [APP-075]:

- there would be no potential for effects on geology, contaminated land or ground conditions during decommissioning.

4.13.11 Water Resources [APP-076]:

- discharge of water during dewatering would be mitigated by Environmental Permitting and as agreed with the appropriate regulators at that time and significant effects were unlikely.

4.13.12 Flood Risk [APP-077];

- the detailed assessment of flood risk during decommissioning was scoped out as the quarries would be drained into Llyn Padarn at a rate agreed under the appropriate licensing regime.

4.13.13 Archaeology and Cultural Heritage [APP-078]:

- no physical effects on historic assets were anticipated; and
- effects on their setting would be temporary and not significant.

4.13.14 Traffic and Transportation [APP-079]:

- negligible effects were anticipated given the minimal traffic and lack of abnormal loads required.

4.13.15 Noise & Vibration [APP-080]:

- negligible effects as there would be no blasting or crushing.

4.13.16 Air Quality [APP-081]:

- there would be negligible emissions to air.

4.13.17 Socio-Economics [APP-082]:

- effects would be similar to construction, although the scale would be smaller and shorter and the magnitude of effect less;
- there would be beneficial effects through local employment and expenditure, but the loss of 20-35 full time operational staff;
- overall it was considered that there would be a localised temporary minor beneficial impact on the local economy;
- there was potential for adverse impacts through increased traffic and amenity issues and effects on public access and recreation resulting in local minor adverse impact; and
- no significant effects were anticipated.

4.13.18 Cumulative Effects [APP-084]:

- there were unlikely to be any intra-project cumulative effects.

4.13.19 In the SoCG between the Applicant and GC it was agreed that the ES sufficiently considered impacts and mitigation during decommissioning as far as reasonably practicable [REP4-006].

4.13.20 Decommissioning wasn't mentioned in the LIR [REP2-037 to REP2-40].

4.13.21 Requirement 20 of the recommended DCO secures that a decommissioning plan would be submitted to the relevant planning authority together with any environmental information required or reasonably requested by the LPA. The plan would be produced no later than 124 years from commencement of generation or 2 months following permanent cessation of the use of the development and would include a timetable for decommissioning.

4.13.22 The requirement relating to the decommissioning plan was updated in response to my request to clarify how the LPA would judge "*the life of the development consent*" or whether electricity generation had "*permanently ceased*" so as to calculate when the decommissioning plan would be due [EV-007].

4.13.23 The Welsh Government noted that the draft DCO did not require a bond or surety to ensure that suitable decommissioning could be undertaken should the Applicant, or its successor, stop trading and be unable to carry out decommissioning; and considered it unacceptable for public money would be used for this [REP2-056].

4.13.24 The Applicant responded [REP3-026] that:

- there was no expectation that public money would be used, as for any other electricity development;
- the Reservoirs Act 1975 prevented discontinuation of any large raised reservoir without measures being taken to make it safe;

- the lifespan of the development was substantial enough that it should be treated for restoration purposes as permanent and not subjected to bonding, which would be a disproportionate cost;
 - while the 125 years is technically temporary it is of such a long duration that it is impractical, unviable and disproportionately costly to secure restoration costs at this time; and that
 - the appropriate time to determine the precise restoration was when the then current standards and requirements were known.
- 4.13.25 Christine Jordan was concerned that pumped storage would soon be made obsolete by new battery storage technology; it was not clear what the safeguards would be to the local community if the operating company went into liquidation; and that it was not clear whether the tax payer would need to foot the bill [REP7-047].
- 4.13.26 The Applicant responded by stating that a decommissioning plan would be secured by the DCO; the Reservoirs Act 1975 requires reservoirs to be made safe and not simply abandoned; and both regimes would control any discontinuance [REP9-029].
- 4.13.27 Responding to my questions [PD-009] the Applicant [REP2-011] said that waste generated would be subject to the decommissioning plan and the principles of the waste hierarchy would be followed.
- 4.13.28 GC considered that there would be direct employment and local expenditure benefits during decommissioning and that it was satisfied with the 124 years specified in the draft DCO for the production of the decommissioning plan [REP2-041 and REP5-044].
- 4.13.29 NRW said that it was satisfied with the approach to the assessment of potential impacts during decommissioning; and that the 124 years specified in the draft DCO for the production of the decommissioning plan appeared reasonable [REP2-047 and REP5-049].

Conclusions on policy and factual issues

- 4.13.30 I have had particular regard to the policies set out in NPS EN-1 and PPW in my consideration of potential effects during decommissioning.
- 4.13.31 The Applicant has considered the potential environmental, social and economic effects and mitigation measures during decommissioning across all topic-specific areas considered in the ES and in that respect I am satisfied that it has complied with NPS EN-1 and with PPW.
- 4.13.32 Although the impacts of climate change during decommissioning are not specifically addressed, I consider it likely that appropriate measures would be difficult to identify at this moment and consider that these would be appropriately considered and mitigated through the decommissioning plan. I am therefore satisfied that this matter has been considered appropriately for the purposes of NPS EN-1 paragraph 4.8.5 and PPW.

- 4.13.33 With respect to the matters raised by the Welsh Government and by Christine Jordan regarding who would pay for decommissioning and whether this could fall to the tax payer, I note that the Applicant has no expectation of public funding being provided for decommissioning but consider it appropriate that further provisions are made to help to mitigate the risks of funding not being available for decommissioning.
- 4.13.34 I have therefore added Requirements 20(7), (8) and (9) to the recommended DCO to provide for an Outline Decommissioning Plan to be submitted before commencement of generation of the authorised development, and updated every 5 years thereafter until the final Decommissioning Plan is submitted. The Outline Decommissioning Plan and all updates are to be approved by the relevant planning authority and are to include the anticipated timetable and demonstrate how funding is secured. The final Decommissioning Plan must be substantially in accordance with the Outline Decommissioning Plan.
- 4.13.35 I am satisfied with the Applicant's responses to matters raised by IPs and to my questions. I have no reason to doubt the appropriateness of the Applicant's methodology or assessment of potential impacts during decommissioning.
- 4.13.36 Based on the above and noting the provisions relating to the decommissioning plan that would be secured by Requirement 20 of the recommended DCO, I consider it likely that there would be no significant effects during decommissioning. I am satisfied that the decommissioning plan and other regulatory regimes would be likely to secure the measures required to reduce any loss due to amenity and the remediation of the site and that in those respects NPS EN-1 paragraph 5.6.10 and PPW have been addressed appropriately.
- 4.13.37 I have considered all of the submissions made in relation to factual issues and how policy has been addressed for decommissioning, in addition to those specifically identified in this section. I am satisfied that they have been adequately addressed in terms of the Application, clarifications provided by the Applicant during the Examination, the agreements reached with statutory bodies, the mitigation measures, other regulatory regimes and the recommended DCO.
- 4.13.38 I am therefore satisfied that the Proposed Development complies with relevant policy and that with the secured mitigation measures there would be unlikely to be significant effects during decommissioning and that these matters should not weigh against the Order being made.

5 THE HABITATS REGULATIONS AND THE WATER FRAMEWORK DIRECTIVE

5.1 HABITATS REGULATIONS

POLICY AND LEGISLATIVE BACKGROUND

5.1.1 This Chapter sets out the analysis and conclusions relevant to Habitats Regulations Assessment (HRA). The competent authority has certain duties under the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (as codified) (the Habitats Directive) and the Council Directive 79/409/EEC on the conservation of wild birds (2009/147/EC), as transposed in the UK through the Habitats Regulations.

5.1.2 I have been mindful throughout the Examination of the need to ensure that the SoS has such information as may reasonably be required to carry out their duties as the competent authority. Consent for the Proposed Development may only be granted if, having assessed the potential adverse effects the Proposed Development could have on European sites, the competent authority considers it meets the requirements stipulated in the Habitats Regulations.

5.1.3 The SoS for BEIS is the competent authority for the purposes of the Habitats Regulations for energy applications submitted under the PA2008. NRW is the statutory nature conservation body (SNCB).

The Applicant's assessment

5.1.4 The Applicant provided a No Significant Effects Report (NSER) [APP-054] with their DCO application. The Applicant concluded within their NSER that there would be no LSE on the European sites screened into the assessment. The Applicant subsequently provided an updated NSER which included revised screening matrices that were used to inform the Report on the Implications for European Sites (RIES) [REP1-001]. The updated NSER superseded the version provided with the DCO application and was resubmitted at D5 [REP5-033] alongside revised screening matrices [REP5-043]. This version of the NSER is identical to the updated NSER submitted at D1 [REP1-001].

5.1.5 Clarity on the scope of the assessment and the mitigation measures relied on in the updated NSER was sought in my FWQs [PD-009], SWQs [PD-015] and Rule 17 requests [PD-025 and PD-026]. The Applicant responded to these questions and requests during the Examination [REP2-011, REP5-005, REP7-004 and REP9-030].

The Report on the Implications for European Sites (RIES)

5.1.6 I prepared a RIES, with support from the Inspectorate's Environmental Services Team. The purpose of the RIES [PD-024] is to compile, document and signpost information provided in the DCO application,

and the information submitted throughout the Examination by both the Applicant and Interested Parties (IPs).

- 5.1.7 The RIES [PD-024] was published on the Glyn Rhonwy Pumped Storage project page of the Inspectorate's National Infrastructure Planning webpage and a link was circulated to IPs, including to the relevant SNCB (NRW), on 21 July 2016. Consultation on the RIES was undertaken between 21 July 2016 and 10 August 2016.

PROJECT LOCATION IN RELATION TO RELEVANT EUROPEAN SITES

- 5.1.8 The Applicant identified thirteen European sites for inclusion within the HRA, based on the following buffers:

- all European sites within 2km;
- all European sites within 10km designated for bats; and
- all European sites within 30km with possible hydrological links to the Proposed Development.

- 5.1.9 These European sites are:

- Afon Gwyrfai a Llyn Cwellyn SAC;
- Eryri/ Snowdonia SAC;
- Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC;
- Traeth Lafan/ Lavan Sands, Conway Bay Special Protection Area (SPA);
- Glynllifon SAC;
- Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC;
- Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC;
- Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC;
- Liverpool Bay / Bae Lerpwl SPA;
- Corsydd Môn a Llyn / Anglesey and Llyn Fens Ramsar;
- Corsydd Môn / Anglesey Fens SAC;
- Pen Llyn a'r Sarnau / Llyn Peninsula and the Sarnau SAC; and
- Ynys Seiriol / Puffin Island SPA.

- 5.1.10 The Applicant has not identified any potential impacts on European sites in another European Economic Area State within their NSER [REP5-033].

- 5.1.11 NRW confirmed that the Applicant has considered all of the European sites relevant to this application within their assessment [REP3-010 and REP5-049].

- 5.1.12 I am satisfied that the Applicant has correctly identified all of the relevant European sites for consideration within the HRA.

ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS RESULTING FROM THE PROJECT ALONE AND IN-COMBINATION

- 5.1.13 The Applicant concluded that there would be no LSE on any of the thirteen European sites screened into the HRA as a result of the Proposed Development either alone or in-combination with other plans and projects [REP5-033].
- 5.1.14 NRW repeatedly provided confirmation during the Examination that it agrees with the Applicant's conclusion [RR-053, REP2-047, REP3-010 and REP5-049].
- 5.1.15 As a result of the conclusion that there are no LSE on any European sites, the Applicant did not undertake an assessment of adverse effects on the integrity of the European sites. The Applicant has, however, provided the conservation objectives for the European sites in Appendix A of the updated NSER [REP5-033], should these be required by the SoS.

In-combination assessment

- 5.1.16 The approach taken to considering in-combination effects is described in Chapter 5 of the NSER [REP5-033]. An in-combination assessment was not conducted by the Applicant on the basis that there are a lack of shared receptors between the Proposed Development and other plans or projects [REP5-033, paragraph 5.1.3].
- 5.1.17 FWQ 3.10 [PD-009] sought to establish whether NRW agreed with the Applicant's reasoning why an in-combination assessment was not required; in particular whether the Dinorwig Hydroelectric Scheme and the grid connection works for the Proposed Development should have been taken into account within the HRA. NRW confirmed that the Dinorwig Hydroelectric Scheme, which featured within the cumulative assessment in the ES, did not need to be included in an in-combination assessment as it is an operational development and is therefore already accounted for in the project baseline assessment [REP2-047]. NRW also confirmed in its response to FWQ 3.10 that it was satisfied that the grid connection works would not result in any likely significant in-combination effects [REP2-047].
- 5.1.18 I am satisfied that the Applicant has appropriately justified that there are no plans or projects with which likely significant in-combination effects may arise.

Matters considered in the Examination

- 5.1.19 The main focus of the Examination in respect to the HRA related to the nature of the mitigation measures relied on to reach the conclusion of no LSE, and the means of securing these mitigation measures in the DCO or through other regulatory regimes.

Environmental Permits

- 5.1.20 The Applicant proposes to discharge excess water from quarry Q1 (Q1) into the Nant-y-Betws surface water body, which is hydrologically connected to the Afon Gwyrfai a Llyn Cwellyn SAC [REP5-033]. The Applicant has confirmed that separate EPs for discharges to Q1 and quarry Q6 under the Environmental Permitting (England and Wales) Regulations 2010 would be required to manage discharges into surrounding watercourses [REP5-005]. Suitable conditions to discharge permits for Q1 would be applied to avoid the potential for LSE on the Afon Gwyrfai a Llyn Cwellyn SAC (Applicant's response to FWQ 3.8) [REP2-011]. NRW is the body responsible for issuing these EPs.
- 5.1.21 The Applicant has applied for the EPs. As described in Section 4.3, NRW did not grant EPs before the close of the Examination. I have considered this in light of paragraph 4.10.8 of NPS EN-1.
- 5.1.22 NRW did, however, confirm in their response to SWQ 3.12 [REP5-049] that whilst the Applicant places some reliance on the permitting system within their HRA to ensure no LSE on the Afon Gwyrfai a Llyn Cwellyn SAC, NRW's permitting function would have to undertake its own HRA and if necessary would impose appropriate conditions to ensure no LSE on this European site. NRW reiterated in its comments on the RIES that any applications made to it under the Environmental Permitting Regulations would also be subject to NRW's own assessment on European sites [REP7-042].
- 5.1.23 At no stage during the Examination has NRW suggested that the EPs cannot be subsequently granted. Therefore, based on the information provided by the Applicant and NRW, I am satisfied that subject to the necessary HRA procedures the Environmental Permitting process will ensure that LSE on the European sites with the potential to be affected by the Proposed Development can be excluded.

Water Pollution

- 5.1.24 The Applicant is proposing to adopt a number of measures to avoid and manage water pollution risks. The measures are necessary as there is potential for the Proposed Development to affect European sites which are hydrologically connected to the Proposed Development [REP2-011]. The measures include a duty to carry out water quality monitoring in respect to the abstraction process from Llyn Padarn, ensuring that risks to water quality with the potential to affect qualifying features/ interests of European sites screened into the assessment would be appropriately monitored and managed. These measures would be delivered through the following plans:
- Code of Construction Practice (CoCP) incorporating a Pollution Prevention Plan (PPP) (recommended DCO Requirement 6);
 - Water Management Plan (WMP) (recommended DCO Requirement 6, and 9); and

- Excess Water Management Strategy (EWMS) (recommended DCO Requirement 17).
- 5.1.25 Outline versions of these plans have been provided and updated during the Examination [REP9-028, REP9-026 and REP9-020] and would be certified under Article 36 of the recommended DCO. They contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7).
- 5.1.26 NRW and the Applicant have confirmed that the final versions of these plans will be required to take into account mitigation measures which would be secured through the Environmental Permitting process [REP7-007 and REP9-043]. I sought [PD-026] clarity on whether NRW was content with the latest versions of the outline plans submitted by the Applicant. NRW confirmed that it had reviewed and commented on the outline plans as far as it is able to do so in respect to the DCO remit, and raised no concerns with the exception of the outline Excess Water Management Strategy [REP6-009], which it did not consider incorporated their comments set out in [REP5-048]. The Applicant confirmed that the updated version of the Outline Excess Water Management Strategy [REP9-020] has captured these amendments [REP9-030 and REP10-001]. I have not been given any reason to believe that NRW would not be satisfied with the updated version.
- 5.1.27 The length of the post construction water quality monitoring period specified in Requirement 9 of the draft DCO and delivered via the Water Management Plan, was the subject of discussion between the Applicant and NRW during the Examination [REP3-032, OD-007, REP5-048, REP7-004, REP7-042, REP8-002, REP9-030 and REP10-011]. NRW requested that both pre and post construction water quality monitoring is undertaken for a minimum of 12 months. This 12 month duration was reflected in the wording of Requirement 9(5) in the draft DCO [REP6-012] in respect to the pre-construction monitoring, but not for the post construction monitoring. This matter was raised in the ExA's draft DCO [PD-024]. In their response to the ExA's draft DCO, NRW reiterated that the Applicant must undertake adequate monitoring to ensure confidence in the baseline data and this must take seasonality into consideration [REP7-042]. Whilst NRW does not consider that a specified timescale for the duration of the post construction monitoring is necessarily required, it considers that the adoption of a 12 month post construction monitoring period would eliminate any doubts concerning the seasonality of sampling.
- 5.1.28 The Applicant responded to the ExA's draft DCO to confirm that as the Water Management Plan is a construction phase plan, the need to agree and undertake post construction water quality monitoring (i.e. operational monitoring) should therefore be set out in a new Requirement 10 [REP7-001 and REP7-007]. NRW responded to confirm that it did not consider Requirement 10 necessary, in the absence of any specified limits against which water quality monitoring

would be carried out, and the potential duplication of control as the EPs would also specify the need for and outline the scope of operational monitoring [REP8-002]. In addition to the removal of Requirement 10 from the draft DCO, NRW reiterated that Requirement 9(5)(iii) of the draft DCO [REP7-001] should be amended to specify 12 months of post construction monitoring.

- 5.1.29 The Applicant reiterated their view in their D9 response [Q1.18 REP9-030] that post construction water monitoring has been appropriately provided for in Requirements 9 and 10 of the draft DCO [REP9-035]. NRW confirmed [REP10-011] that its previous view on this matter [REP8-002] remains.
- 5.1.30 I am of the view that Requirement 9(5)(iii) should specify that 12 months of post construction monitoring must be undertaken to ensure that sufficient monitoring results are available to demonstrate that there are no LSE, or should adverse effects be identified, measures can then be implemented to ensure there are no LSE. I have therefore amended Requirement 9(5)(iii) in the recommended DCO accordingly.
- 5.1.31 Notwithstanding NRW's comments, I am also of the view that the Applicant's suggested Requirement 10 (Operational Water Quality Monitoring) should be retained as this provides an important mechanism to ensure that effects on water quality during the operational period and the effectiveness of the mitigation measures relied on to reach the conclusion of no LSE can be monitored. I do not consider that this Requirement would conflict with the Environmental Permitting process because it would not prevent NRW from imposing any monitoring conditions it considers necessary.
- 5.1.32 I am satisfied that the Applicant has proposed appropriate measures to ensure that water pollution effects during the construction and operation of the development would not result in any LSE on European sites. I have considered the views of the Applicant and NRW in respect to the most appropriate means of securing the required mitigation measures as described above, and my conclusions are reflected in the recommended DCO.

Lesser horseshoe bat mitigation

- 5.1.33 The updated NSER confirms that there is potential for the population of lesser horseshoe bats at Glynllifon SAC to be affected by the loss of tunnel hibernation and summer roosts within the development site (NSER Table 3.3) [REP5-033]. The Applicant concluded in their NSER [REP5-033] that effects on lesser horseshoe bats (using the tunnels to be maintained as roosts) would not be significant due to the low numbers of bats in the Proposed Development site and the intention to enhance the tunnel roosts in the Proposed Development site.
- 5.1.34 The Applicant's assessment of potential indirect effects on lesser horseshoe bats, including noise and air overpressure was explored during the Examination.

- 5.1.35 The Applicant provided more information on the potential effects of air overpressure on bats during the Examination in response to NRW's comments that it did not have any information regarding this matter [REP5-049 and REP6-001]. The Applicant concluded that air overpressure impacts are not anticipated to result in a LSE on lesser horseshoe bats due to the distances between the tunnels with the potential to be used by bats and the blasting locations in Q1 and Q6, and the anticipated limits on air overpressure which would be agreed through the DCO. I sought comments from NRW on the information provided by the Applicant in respect to air overpressure effects on lesser horseshoe bats in Q3.1 of my Rule 17 request [PD-025], to which NRW reiterated that it did not have any information relating to air overpressure effects to provide comments on the Applicant's assessment, but it had no other concerns regarding effects on lesser horseshoe bats [REP7-042]. NRW also confirmed that it agreed with the Applicant's assessment that effects from noise and blasting would not result in a LSE [REP2-047 and REP5-049].
- 5.1.36 NRW confirmed that it is content with the level of detail provided on the mitigation/ enhancement measures for lesser horseshoe bats and that these are appropriately covered in both the HMP secured by Requirement 6(2)(i) (Code of Construction Practice) of the recommended DCO and within the European Protected Species (EPS) Licence. NRW also confirmed that these measures do not need to be relied on to reach the conclusion of no LSE on the Glynllifon SAC [REP2-047 and REP5-049]. The Applicant and NRW have provided confirmation that the necessary EPS licence for bats [REP9-030] has been approved by NRW [REP7-003 and REP7-042].
- 5.1.37 I consider that the Applicant has appropriately assessed the potential LSE of the Proposed Development on lesser horseshoe bats associated with the Glynllifon SAC, and that whilst the Applicant has secured mitigation measures to avoid and reduce effects on lesser horseshoe bats in the draft DCO and through the EPS Licence, these are not relied on to support the conclusion of no LSE on this European site.

CONCLUSIONS

- 5.1.38 I consider that sufficient information has been provided by the Applicant in its NSER and during the Examination, together with the views expressed by NRW, to allow the SoS to conclude that LSE on European sites during the construction, operation and decommissioning of the Proposed Development can be excluded, having regard to the mitigation and monitoring measures secured in the recommended DCO, and any future consideration that would be given to HRA matters by NRW under the Environmental Permitting process.

5.2 WATER FRAMEWORK DIRECTIVE

POLICY CONTEXT

- 5.2.1 NPS EN-1 states that the ES should describe any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive (WFD) and Source Protection Zones around potable groundwater abstractions (paragraph 5.15.3).
- 5.2.2 PPW8 notes that the WFD imposes requirements for the integrated planning and management of water (paragraph 12.2.2).
- 5.2.3 The WFD, which amongst other things aims to protect the water environment from deterioration, is implemented in Wales through the Water Environment Regulations 2003. The WFD requires an assessment to be made of all permanent developments that may impact the water environment. The WFD establishes a strategic approach to water management and a common means of protecting and setting environmental objectives for all groundwater and surface water, integrating the various preceding directives into a new framework.

THE APPLICATION AND THE CONSIDERATION OF ISSUES

- 5.2.4 The main sections of the ES relevant to the WFD are:
- Chapter 9 Water Resources [APP-076]
 - Chapter 17 Cumulative Effects [APP-084]
 - Appendix 9.1 Water Frameworks Directive Assessment [APP-126]
- 5.2.5 The Proposed Development is within the Western Wales River Basin Management Plan. The identification of WFD designated water bodies that might be effected by the Proposed Development were based on classification data provided by NRW and following consideration of anticipated water extraction and discharge activities, resulting in the identification of potential effects on Llyn Padarn, the Afon Gwyrfa, the Afon Seiont and the Llyn and Eryri groundwater body [APP-126].
- 5.2.6 Assessment of the Proposed Development against WFD objectives for the relevant water bodies of Llyn Padarn, the Afon Gwyrfa, the Afon Seiont and the Llyn and Eryri groundwater body included consideration of the potential effects of water abstraction, dewatering of the quarries, site run-off, routine and emergency discharges during operation, physical impacts from new structures and alien species [APP-076 and APP-126]. The cumulative effects on water quality of the development together with the Dinorwig pumped storage scheme or the grid connection were considered not to be significant.
- 5.2.7 Key mitigation measures required to ensure that the Proposed Development would not result in any deterioration in quality or quantity or affect the ability to achieve good ecological or chemical

status of a water body included compliance with the conditions of EPs for water abstraction and discharge [APP-076].

- 5.2.8 The assessment suggested that the Proposed Development would not result in any deterioration in quality or quantity or failure to improve of any relevant water body and that it was therefore compliant with the objectives of the WFD [APP-076 and APP-126].
- 5.2.9 NRW [REP2-047] and GC [REP4-006] considered that, subject to compliance with all required mitigation measures, the Proposed Development would be compliant with the WFD. NRW later clarified [REP5-049] that the relevant mitigation measures required to reach this conclusion included those secured in the Outline Water Management Plan [REP9-026], the Pollution Prevention Plan and Habitat Management Plan sections of the Outline CoCP [REP9-028] and the Outline Silt Management Plan [REP9-022], NRW were satisfied that the DCO and those plans would ensure no deterioration in the WFD status of the relevant water bodies [REP5-049].
- 5.2.10 Responding to my query [PD-009], NRW advised that there was no reason to designate the proposed new upper or lower reservoirs as WFD water bodies [REP2-047].

CONCLUSIONS

- 5.2.11 As a result of the mitigation measures, the ES anticipates that there would be no deterioration in the status of any WFD water bodies resulting from the Proposed Development. I can see no reason to dispute the findings of the ES in relation to the WFD, as set out above.
- 5.2.12 I do not find sufficient evidence to suggest that the Proposed Development would result in surface waters or groundwater failing to meet environmental objectives established under the WFD or experience deterioration in status.
- 5.2.13 It is therefore my view that, in the light of the duty under regulation 17 of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003, Article 4.7 of the WFD is not engaged and that the Proposed Development would be acceptable in the context of the WFD.

6 RECOMMENDATION ON THE CASE FOR DEVELOPMENT

6.1 INTRODUCTION

6.1.1 My recommendations are based on my assessment of the evidence presented to the Examination including the application documents, the Environmental Statement (ES), the Habitats Regulation Assessment (HRA), the Local Impact Report (LIR), Statements of Common Ground (SoCG), Relevant and Written Representations, submissions at the hearings, answers to questions, responses to requests for information and my unaccompanied site inspections.

6.1.2 The evidence is reviewed in detail in Chapters 4 and 5, where it is considered in the context of the relevant policy identified in Chapter 3.

6.1.3 Following this introduction this Chapter considers:

- matters to be taken into account and the assessment principles required by the Planning Act 2008 (PA2008) and Planning Policy Wales (PPW);
- the need case and whether an alternative could be preferred;
- the likely impacts of the Proposed Development by topic;
- the HRA; and
- my conclusions on the case for development.

6.1.4 Matters in relation to the Compulsory Acquisition of rights and imposition of restrictions will be discussed in Chapter 7 and the drafting of the Development Consent Order in Chapter 8.

6.2 MATTERS TO BE TAKEN INTO ACCOUNT

6.2.1 In Chapter 1 I set out the basis for the Proposed Development being considered a Nationally Significant Infrastructure Project (NSIP).

6.2.2 In Chapter 3 and with reference to the PA2008 I concluded that there was not a National Policy Statement (NPS) with which this kind of development would be expected to be 'in accordance' under s104 of PA2008 and that therefore s105 should apply to the decision.

6.2.3 Section 105 of PA2008 sets out the matters to which the Secretary of State (SoS) must have regard, including the LIR, matters prescribed in relation to the development and any other matters which the SoS thinks are both important and relevant.

6.2.4 In Chapter 3 I identified matters, apart from legislation, that I consider to be 'important and relevant' for s105(2)(c) of PA2008:

- NPS EN-1;
- PPW;
- Wales Spatial Plan 2008;
- Energy Wales: A Low Carbon Transition (2012);

- Climate Change Strategy for Wales (2010); and
- GUDP.

6.2.5 NPS EN-1 addresses assessment principles in Part 4, stating at paragraph 4.1.2 that "[g]iven the level and urgency of need for infrastructure of the types covered by the energy NPSs set out in Part 3 of this NPS, the [decision maker] should start with a presumption in favour of granting consent to applications for energy NSIPs." However, as I concluded in Section 3.3, there is no designated NPS for the Proposed Development and therefore my view is that the NPS EN-1 presumption in favour of granting consent does not apply here.

6.2.6 In considering any Proposed Development, and in particular when weighing its adverse impacts against its benefits, paragraph 4.1.3 of NPS EN-1 expects account to be taken of:

- *"its potential benefits including contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
- *its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts."*

6.2.7 PPW8 (paragraphs 3.1.2 and 3.1.3) and PPW9 (paragraphs 3.1.3 and 3.1.4) address assessment principles stating that applications *"should be determined in accordance with the approved or adopted development plan for the area, unless material considerations indicate otherwise"* and that *"[f]actors to be taken into account in making planning decisions (material considerations) must be planning matters; that is, they must be relevant to the regulation of the development and use of land in the public interest, towards the goal of sustainability"*.

6.3 THE NEED CASE AND CONSIDERATION OF ALTERNATIVES

6.3.1 I considered the need case in Section 4.2 and found it compelling.

6.3.2 The Proposed Development would use off-peak surplus electricity to pump water to a high reservoir and use that to generate hydroelectric power when peaks in electricity demand need to be satisfied. It would therefore support UK and Welsh Policy, principally by:

- helping to meet the urgent need for new electricity power generation, particularly at times of peak demand; and
- being an important part of a low carbon energy system that compensates for the intermittency of renewable generation and facilitates renewable energy development.

6.3.3 The Proposed Development would also support Gwynedd Council's (GC's) objectives to redevelop the previously developed Glyn Rhonwy Strategic Development Site, including for the creation of employment opportunities for the benefit of Gwynedd's communities.

- 6.3.4 Section 4.2 considers alternatives such as do nothing, alternative use of the site, alternative locations for the development and project optimisation. Alternatives raised by IPs are also considered, including other technology options for energy storage, interconnector links to other countries and alternative construction routes to Q6.
- 6.3.5 Alternative locations were considered through a mapping exercise that identified sites with suitable characteristics for pumped storage, including consideration of environmental sensitivity and the feasibility of mitigating environmental impacts [APP-057]. The Applicant concluded that there "*are not considered to be any alternative sites within the local area*". NPS EN-1 notes a lack of appropriate locations in the UK for pumped storage facilities (paragraph 3.3.31).
- 6.3.6 In each case, and having heard all the evidence, I am satisfied that the adverse and beneficial aspects of each alternative has been addressed sufficiently and that there is no compelling case for an alternative to be favoured.
- 6.3.7 Therefore, I conclude that there is a clearly demonstrated need for the Proposed Development and that there are no policy or legal matters that would lead me to recommend that consent for it be refused in favour of another alternative.

6.4 THE LIKELY IMPACTS OF THE PROPOSED DEVELOPMENT

- 6.4.1 Chapter 4 provides a detailed analysis of the potential impacts of the Proposed Development by topic. This section concludes on the key impacts and identifies any matters that weigh for or against the Order that are specifically taken into the planning balance in Section 6.6.

Water environment, contaminated land and waste

- 6.4.2 Potential effects on water quality include those arising from construction run-off, crossings of the Nant-y-Betws stream, works in the Llyn Padarn lake, dewatering of the existing quarries, discharges into the Nant-y-Betws and Llyn Padarn and water abstraction from Llyn Padarn. These, including any potential effects on private water supplies, are appropriately mitigated through requirements in the recommended DCO, including the measures that it secures in the Outline Code of Construction Practice (CoCP), Outline Water Management Plan, Outline Silt Management Plan and Outline Excess Water Management Strategy; and the proper enforcement of the Environmental Permitting Regulations 2012.
- 6.4.3 The risks associated with existing ordnance, particularly below the base of the quarry where the lower reservoir (Q6) would be constructed, were key concerns of Interested Parties (IPs) and of mine. I am satisfied that appropriate measures would be secured through requirements in the recommended DCO, including the measures it secures in the Outline Ordnance Strategy and the Outline Discovery Strategy to investigate and deal with the likely

contamination. These, together with the application of the water quality mitigation measures described above to any contamination caused by ordnance to water in Q6, would appropriately address concerns regarding public health, safety and the environment.

6.4.4 A Flood Consequences Assessment has been accepted by Natural Resources Wales and satisfactory drainage measures would be secured by the recommended DCO. The risks of dam breach would be appropriately addressed by the requirement for detailed design approval secured in the recommended DCO and by the provisions of the Reservoirs Act 1975.

6.4.5 In my view there would be unlikely to be significant effects related to water quality, flood risk or land contamination; climate change and waste management have been addressed appropriately; and these matters should not weigh for or against the Order being made.

Biodiversity, ecology and geological conservation

6.4.6 I am satisfied that the Applicant has sufficiently identified, assessed and reported on the potential effects on habitats (including designated habitats) and species (including protected species).

6.4.7 I have added Requirement 6(7) to the recommended DCO to require pre-commencement surveys for floating water-plantain in the vicinity of the spillway infrastructure in Llyn Padarn and for tree roosting bats.

6.4.8 Appropriate mitigation is provided through the requirements of the DCO, including the measures it secures in the Outline CoCP (which contains outline versions of the Pollution Prevention Plan, Breeding Bird Method Statement, Habitat Management Plan and Landscape and Reinstatement Plan) and the Outline Biosecurity Plan; the proper enforcement of the Conservation of Habitats and Species Regulations 2010; the Environmental Permitting Regulations 2012; and through the provisions of the Protection of Badgers Act 1992.

6.4.9 There are not likely to be significant adverse effects on international designated sites, on the notified special interest features of Sites of Special Scientific Interest (SSSI), including the Llyn Padarn SSSI or the Afon Gwyrfai a Llyn Cwellyn SSSI, on other national, regional or local designated sites.

6.4.10 Some trees would be lost during construction, but appropriate mitigation through surveys and replacement trees and opportunities for enhancement is provided by the recommended DCO and the measures that secures in the Habitat Management Plan section of the Outline CoCP.

6.4.11 A European Protected Species (EPS) licence has been granted for bats, although I have seen no evidence to suggest that this would cover any bats that may later be found roosting in the suitable trees that have been identified. Following pre-commencement surveys and detailed

design, further EPS licences may be required for floating water-plantain and tree-roosting bats. Following consideration of the three tests for EPS licences outlined in Section 4.4 I am not aware of any reason why those tests would not be passed and why the EPS licences would not be granted, if required.

- 6.4.12 I have not been given any reason to believe that any other necessary permits or licences, including a badger sett closure licence under the Protection of Badgers Act 1992, would not be granted, should they be required.
- 6.4.13 It is likely that the loss of tree roosts and fragmentation and isolation due to the loss of foraging and commuting habitats would result in significant adverse effects on the local population of bat species. It is unlikely that there would be any other significant effects on bats or other protected species.
- 6.4.14 Significant adverse effects are not anticipated to occur to geological conservation interests.
- 6.4.15 With the exception of significant adverse effects on the local bat population, there would be unlikely to be any significant effects on biodiversity, ecology or geological conservation.
- 6.4.16 I therefore conclude that significant adverse effects on the local population of bat species due to the loss of tree roosts and fragmentation and isolation should weigh against the making of the Order. Otherwise I find that biodiversity, ecology and geological conservation matters should not weigh for or against the Order.

Traffic and transportation

- 6.4.17 Sufficient consideration has been given to the transport of materials, goods and personnel at all stages of the Proposed Development, and the potential impacts relating to congestion, social matters, disruption, health and safety.
- 6.4.18 Potential adverse effects on other road users (including pedestrians, walkers, cyclists and horse riders) due to construction traffic on Ffordd Cefn Du, the minor road to the upper reservoir (Q1), were a key concern of IPs and of mine. The existing road is 2.5m wide in places and would be subject to highway improvement works through a proposed s278 agreement. I am not aware of any reasons why the s278 agreement would not be agreed.
- 6.4.19 Alternative construction routes to Q1 have been considered that would reduce the construction traffic on Ffordd Clegir, but would not be preferable to the proposed route due to the likely overall impacts, which GC considered to be substantial in terms of visual amenities, loss of habitat and loss of archaeological features.

- 6.4.20 The Applicant sought to minimise the impact by designing the proposal in consultation with the local highways authority and communities.
- 6.4.21 I have added a requirement to the recommended DCO to limit the movements of HGV vehicles on access routes during construction in line with the levels assessed in the ES. This is necessary for me to have confidence that the potential impacts as assessed, consulted on and examined are not exceeded. The SoS's attention is drawn to the fact that such a provision has not been agreed with the Applicant and that the Applicant is not likely to agree that it is necessary.
- 6.4.22 I am content that appropriate mitigation for adverse effects on other road users and other potential adverse effects is provided by the recommended DCO, and the measures that secures in the Outline CoCP, Outline Construction Traffic Management Plan; and the proposed s278 agreement.
- 6.4.23 Based on the above, I am satisfied that there would be unlikely to be any significant effects related to traffic or transportation and that these matters should not weigh for or against the Order being made.

Noise and vibration

- 6.4.24 Adequate consideration has been given to the potential effects related to health, well-being, potential annoyance, sleep deprivation and damage to buildings arising from noise and vibration, including due to traffic, surface plant, blasting and tunnelling during construction; as well as from turbines, generators, transformers, switch gear, the workshop and the pumping station during operation.
- 6.4.25 I have added requirements to the recommended DCO for the underground excavation of the penstock (Works 2) to progress in the direction from the lower reservoir (Q6) (Works 3A) towards the upper reservoir (Q1) (Works 1A) and to limit the movements of HGV vehicles on access routes during construction in line with the levels assessed in the ES. These are necessary for me to be satisfied and have confidence that the potential impacts as assessed, consulted on and examined are not exceeded. The SoS's attention is drawn to the fact that these provisions have not been agreed with the Applicant and that the Applicant is not likely to agree that they are necessary.
- 6.4.26 Appropriate mitigation is provided by the recommended DCO, including the measures that it secures in the Outline CoCP, Outline Construction Noise Management Plan, Outline Ordnance Management Strategy and Outline Operational Noise Management Plan; and the proper enforcement of the Environmental Protection Act 1990 and of the Control of Pollution Act 1974.
- 6.4.27 The Outline Construction Noise Management Plan and Outline Operational Noise Management Plan include acceptable mechanisms, developed by the Applicant in consultation with Gwynedd Council, to

finalise proposals during detailed design for detailed assessments, noise and vibration limits, monitoring and addressing concerns.

- 6.4.28 Over a period of around 18 months, significant adverse effects due to intermittent construction noise from surface plant would be likely at 11 representative residential properties and at a greater total number of residential properties and other sensitive receptors. The precise number likely to be affected is not known.
- 6.4.29 Significant adverse effects would be unlikely to occur due to traffic, blasting or tunnelling, or during operation.
- 6.4.30 I find that significant adverse effects due to intermittent construction noise should weigh against the making of the Order; otherwise noise and vibration matters should not weigh for or against the Order being made.

Air quality

- 6.4.31 Potential effects on air quality include those arising from dust deposition during construction, emissions from construction vehicles and plant, and emissions during operation.
- 6.4.32 These are appropriately mitigated through requirements in the recommended DCO, including the measures it secures in the Outline CoCP, Outline Baseline Air Quality Monitoring Plan and Outline Dust Control and Air Quality Management Plan; and the proper enforcement of the Environmental Protection Act 1990 and of the Control of Pollution Act 1974.
- 6.4.33 The Outline Dust Control and Air Quality Management Plan includes an acceptable mechanism that has been developed by the Applicant, in consultation with the LPA, to finalise proposals during detailed design and after the main contractor has been appointed for detailed assessments, air quality limits, monitoring, and addressing concerns.
- 6.4.34 I am satisfied that significant air quality effects would be unlikely and that this matter should not weigh for or against the Order being made.

Other health impacts, safety and security

- 6.4.35 Potential health and safety impacts include contamination of water; disposal of ordnance, dam breach, flooding, air emissions, noise and vibration, safe access and electric and magnetic fields.
- 6.4.36 The Applicant has demonstrated, to my satisfaction, how health and safety legislation and guidance has been considered and shown how health and safety measures have influenced the design.
- 6.4.37 I have not been given any reason to believe that any consents or licences related to health and safety, including those required under the Health and Safety at Works Act 1974, Control of Pollution Act 1974, and Environmental Permitting Regulations 2012, would not be

granted. Potential health and safety impacts are appropriately mitigated through the proper enforcement of this legislation and through the requirements in the recommended DCO, including the measures it secures in the Outline Health and Safety Plan.

- 6.4.38 I am not aware of any national security issues relevant to decision making for the Proposed Development.
- 6.4.39 I find that the Applicant has complied with relevant health, safety and security policy sufficiently for the purposes of the Order and consider that these matters should not weigh against the Order being made.

Common law nuisance and statutory nuisance

- 6.4.40 Adequate consideration has been given to potential nuisance effects include those related to dust deposition, vehicle emissions, noise, vibration and artificial light. These are appropriately mitigated by the measures described under the relevant topics headings.
- 6.4.41 Over a period of around 18 months, nuisance due to intermittent construction noise from surface plant would be likely at 11 representative residential properties and at a greater total number of residential properties and other sensitive receptors. The precise number likely to experience nuisance is not known. Otherwise my view is that there is unlikely to be nuisance.
- 6.4.42 Is not necessary to disapply any of the defence provided by s158(1) of PA2008 as appropriate controls and mitigation measures for potential nuisance would be secured by the recommended DCO.
- 6.4.43 I have amended Article 9 of the recommended DCO as my view is that the Applicant has not demonstrated that the risks would justify the inclusion of s79(1)(c), (d) or (e) of EPA 1990. Similarly I have limited the inclusion of s79(1) (g) to noise during construction and excluded vibration during construction and noise or vibration during operation. The SoS's attention is drawn to the fact that these changes have not been agreed with the Applicant and that the Applicant may disagree that they are appropriate.
- 6.4.44 No planning blight matters are likely to be relevant to the Order.
- 6.4.45 With the provisions of the recommended DCO, the Proposed Development complies with relevant common law nuisance and statutory nuisance policy. I therefore consider that compliance with this policy should not weigh for or against the Order.

Socio-economics, land use and accessibility

- 6.4.46 Sufficient consideration has been given to potential effects in relation to social, economic, rights of way and land use matters, including with respect to employment and local expenditure, tourism, recreation, access land and common land.

- 6.4.47 The Proposed Development would create approximately 250 full time jobs at the peak of the construction phase, with a further 200 being created indirectly, and provide approximately 20-35 jobs during its 125 year operational lifespan. The Applicant considered that the potential benefits of employment opportunities and local expenditure would not be significant, which I agree with.
- 6.4.48 Other potential benefits due to improvements to PRow, safety of recreational users in the vicinity of Q1 and Q6 and increases in the area and variety of access land are not considered to be significant.
- 6.4.49 Appropriate mitigation for temporary and permanent diversions and closures of public rights of way and highways is provided by the recommended DCO, including the measures it secures in the Outline CoCP and Construction Traffic Management Plan. Other relevant measures for noise, vibration, dust and traffic are described under the relevant topic headings.
- 6.4.50 Permanent exchange land and temporary replacement land would be provided for common land that would be fenced off during construction and operation. This is appropriate mitigation that would be secured through a successful application under the Commons Act 2006 and I have no reason to conclude that consent for this would not be granted.
- 6.4.51 However, I have seen insufficient evidence that the provision of mitigation access land would necessarily occur. As noted above, my conclusions are subject to the Applicant demonstrating that the designation of the mitigation access land under section 16 of the CROW Act before works commence on the common land has been secured.
- 6.4.52 The land provided to mitigate permanent impacts on access land is appropriate and proportionate and the temporary loss of access land during construction would not be significant.
- 6.4.53 Subject to the Applicant demonstrating that mitigation access land has been secured appropriately, significant effects relating to local and regional socio-economics, land use and accessibility would be unlikely to occur and on that basis my view is that these matters should not weigh for or against the Order being made.
- 6.4.54 National benefits arising from the electricity generated by the Proposed Development are considered in Section 6.6 of this report.

Historic environment

- 6.4.55 Potential effects on heritage assets and their settings have been assessed adequately.
- 6.4.56 I have added Requirement 22 to the recommended DCO to secure necessary mitigation that has not been otherwise secured regarding:

- the identification of areas where a watching brief is required and measures in relation to potential peat deposits that were deleted from the earlier versions of the draft DCO;
 - a watching brief during any works in the vicinity of the bomb store in accordance with an approved written scheme of investigation;
 - a pre-commencement survey of the bomb store, consideration of associated opportunities for interpretation and public engagement; and
 - analysis of the results of archaeological investigations and the organisation and deposition of the archive into an approved repository.
- 6.4.57 The requirement for the analysis of the results of investigations and the organisation and deposition of the archive to an approved repository has been added to cover PPW9 policy that was not in PPW8.
- 6.4.58 Requirement 22 has not been discussed with the Applicant.
- 6.4.59 Although the Proposed Development is visible from Dolbadarn Castle, no concerns regarding the views have been expressed by Cadw and Cadw agreed in the SoCG [REP5-026] that an adequate assessment has been undertaken. I therefore consider it unlikely that Cadw have any issues on this matter and have concluded on that basis.
- 6.4.60 PPW9 was issued after the end of the Examination. My view is that the following paragraphs of PPW9 relating to the historic environment are relevant to the Proposed Development, but the issues they raise were not specifically addressed during the Examination:
- 6.5.7, which advises that satisfactory provision should be made for archaeological matters (including investigation, analysis and archiving), normally by a written scheme of investigation secured by conditions or obligations, and
 - 6.5.27, which advises that Cadw must be consulted on EIA development within a registered historic landscape area.
- 6.4.61 However, Requirement 22 of the recommended DCO contains provisions that do address the archaeological matters with which paragraph 6.5.7 of PPW9 is concerned. Also, as noted in Section 4.11 of this Report, the views of Cadw were sought, and, although Cadw did not engage with any of my questions [PD-009 and PD-025], Cadw agreed in the SoCG [REP5-026] that an adequate assessment has been undertaken.
- 6.4.62 Based on the above, and noting the opportunities for any detailed residual concerns to be addressed during the finalisation of the Archaeological Compensation and Enhancement Strategy, I consider that appropriate mitigation would be provided through the recommended DCO, including the measures it secures in Outline Archaeological Compensation and Enhancement Strategy.

- 6.4.63 The SoS may wish to further consider Requirement 22 and/or on the new policies in PPW9 that were not included in the Examination.
- 6.4.64 There would be likely significant adverse effects due to the total loss or substantial removal of 11 groups of heritage assets, 2 of which are of national significance and 9 of regional significance. Significant effects on other heritage assets would be unlikely.
- 6.4.65 I note GC's view that the potential effects were not significant enough for it to recommend refusal [REP2-041 and REP4-025].
- 6.4.66 There would be unlikely to be significant adverse effects on the setting of heritage assets or on the Dinorwig historic landscape.
- 6.4.67 I find that the significant adverse effects on 11 groups of heritage assets, 2 of which are of national significance and 9 of regional significance, should weigh against the making of the Order.
- 6.4.68 The loss of historic assets of national importance conflicts with the PPW8, PPW9 and Welsh Office Circular 60-96 presumptions of preserving them in situ. GUDP Policy B7 would not be complied with as heritage assets of national importance would be damaged or destroyed and, on that basis, Policy B7 would require refusal. In my view these matters should also weigh against the Order being made, noting that NPS EN-1 and PPW9 consider that permission should only be granted in exceptional circumstances.
- 6.4.69 Otherwise I conclude that historic environment matters should not weigh for or against the Order.

Good design, landscape and visual impacts

- 6.4.70 I am satisfied with the Applicant's description of how the design evolved, its responses to consultation and how it has set out the design principles for the Proposed Development, including in relation to access, character, use, layout, appearance, scale, landscaping and sustainability. I am also content that appropriate measures are secured to ensure that good design is embedded into the Proposed Development as it develops through the detailed design stage.
- 6.4.71 Adequate consideration has been given to potential landscape impacts on nationally and locally designated landscapes and on other landscapes, including on Snowdonia National Park, and within the area of the Proposed Development itself.
- 6.4.72 I am satisfied with the 12 representative locations for the visual impact assessment that were agreed with relevant parties and find that the potential visual impacts have been assessed satisfactorily.
- 6.4.73 Appropriate mitigation is secured by the recommended DCO for approval of the detailed design, temporary structures, external lighting, fencing, maintenance plans; and measures secured in the Outline CoCP, including the Outline Landscape & Reinstatement Plan.

- 6.4.74 While there would be some temporary and/or localised adverse effects, my view is that good design, landscape and visual matters should not weigh for or against the Order being made.

Decommissioning

- 6.4.75 Adequate consideration has been given to potential environmental, social and economic effects during decommissioning across all topic-specific areas.
- 6.4.76 I have added Requirements 20(7), (8) and (9) to the recommended DCO to address concerns expressed by the Welsh Government [REP2-056] and others regarding funding for decommissioning. This provides for an Outline Decommissioning Plan to be submitted before commencement of generation, and updated every 5 years thereafter until the final Decommissioning Plan is submitted. The Outline Decommissioning Plans are to be approved by the relevant planning authority and are to include the anticipated timetable and demonstrate how funding is secured. The final Decommissioning Plan must be substantially in accordance with the Outline Decommissioning Plan.
- 6.4.77 My view is that Requirement 20 of the recommended DCO provides appropriate mitigation for decommissioning.
- 6.4.78 On that basis I conclude that there would be unlikely to be any significant effects during decommissioning and that therefore these matters should not weigh for or against the Order being made.

6.5 HABITATS REGULATION ASSESSMENT

- 6.5.1 Habitats Regulations Assessment (HRA) is a matter for the Secretary of State to address as the decision maker and Competent Authority.
- 6.5.2 The Examination has considered likely significant effects (LSE) on the following European sites that would potentially be affected:
- Afon Gwyrfai a Llyn Cwellyn SAC;
 - Eryri/ Snowdonia SAC;
 - Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC;
 - Traeth Lafan/ Lavan Sands, Conway Bay Special Protection Area (SPA);
 - Glynllifon SAC;
 - Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC;
 - Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC;
 - Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC;
 - Liverpool Bay / Bae Lerpwl SPA;
 - Corsydd Môn a Llyn / Anglesey and Llyn Fens Ramsar;
 - Corsydd Môn / Anglesey Fens SAC;
 - Pen Llyn a'r Sarnau / Llyn Peninsula and the Sarnau SAC; and
 - Ynys Seiriol / Puffin Island SPA.

- 6.5.3 I am satisfied that the Applicant correctly identified relevant European sites and qualifying features for consideration within the HRA and that the Secretary of State can rely on the screening matrices included in the Applicant's No Significant Effects Report (NSER).
- 6.5.4 I have had regard to all relevant representations made in respect of the HRA, the mitigation and monitoring measures secured in the recommended DCO, and any future consideration that would be given to HRA matters by NRW under the Environmental Permitting process. On this basis I consider that sufficient information has been provided by the Applicant in its NSER and during the Examination, together with the views expressed by the statutory nature conservation body, to allow the SoS to conclude that LSE on European sites during the construction, operation and decommissioning of the Proposed Development can be excluded.
- 6.5.5 I find that the Proposed Development would not be likely to have significant effects on any European site, either alone or in combination with other plans and projects, and that there are no HRA matters which would prevent the SoS from making the Order.

6.6 CONCLUSIONS ON THE CASE FOR DEVELOPMENT

- 6.6.1 I consider that the environmental information submitted by the Applicant, including the ES, other environmental information obtained during the Examination and information relevant to the HRA, is adequate in terms of statutory and policy requirements. I have taken it into account in reaching my recommendation and in my view the SoS can rely on it in determining the application.
- 6.6.2 I have considered the following matters and, for the reasons given above, I have concluded that they should not attract significant weight in the decision as to whether or not to make the Order:
- water environment, contaminated land and waste;
 - traffic and transportation;
 - air quality;
 - other health impacts, safety and security;
 - common law nuisance and statutory nuisance;
 - socio-economics, land use and accessibility;
 - good design, landscape and visual impacts; and
 - decommissioning.
- 6.6.3 I comment next on the matters weighing significantly in favour of making the Order and matters weighing significantly against, before considering the balance of issues and concluding on the case for development.

Matters weighing significantly in favour of making the Order

- 6.6.4 The Proposed Development would deliver a Nationally Significant Infrastructure Project, the need for which has been demonstrated as a

matter of UK Government policy. The need case for the Proposed Development is addressed in Section 4.2 of this report.

- 6.6.5 NPS EN-1 expects substantial weight to be given to the contribution which projects make towards satisfying the urgent need for new energy infrastructure projects and recognises the importance of energy storage. The Proposed Development provides new energy infrastructure of the type identified by NPS EN-1, delivering of up to 99 MW when needed at times of peak demand. I consider that this is a considerable benefit adding substantial weight to the case for making the Order.
- 6.6.6 The support provided by the Proposed Development to renewable energy development by providing storage for intermittent generation, and therefore implicitly to combating climate change, supports the policy objectives of NPS EN-1, PPW, Wales Spatial Plan 2008, Energy Wales: A Low Carbon Transition (2012) and Climate Change Strategy for Wales (2010) and is also, in my view, a considerable benefit that adds substantial weight to the case for making the Order.
- 6.6.7 The proposed development of the previously developed Glyn Rhonwy Strategic Development Site to provide employment opportunities for the benefit of local communities supports the objectives of the Gwynedd Unitary Development Plan and in my view is a benefit that adds some weight to the case for making the Order.

Matters weighing significantly against making the Order

- 6.6.8 Temporary adverse effects over a period of around 18 months due to intermittent construction noise from surface plant at 11 representative residential properties and at a greater total number (the precise number not being known) of residential properties and other sensitive receptors add to the case against making the Order. The temporary and intermittent nature of the adverse effects mean that they attract less weight than if they would be long term and permanent, however I also note the uncertainty about the numbers of residential properties and other sensitive receptors that could be affected. I attribute construction noise from surface plant with moderate weight against the case for making the Order.
- 6.6.9 There would be permanent adverse effects due to the total loss or substantial removal of 11 groups of heritage assets that would be significant. Of those, the loss of 2 groups of historic assets of national importance conflicts with the EN-1, PPW8, PPW9 and Welsh Office Circular 60-96 presumptions of preserving them in situ and GUDP Policy B7 would require refusal due to their loss. I appreciate that the Applicant has taken a precautionary approach; that secured mitigation would minimise the potential effects; and that GC considered that the potential effects were not significant enough for it to recommend refusal. Nonetheless, I attribute the loss or substantial removal of heritage assets with substantial weight against the making of the Order.

- 6.6.10 The potential permanent adverse effects on the local population of bat species due to the loss of tree roosts and fragmentation and isolation due to the loss of foraging and commuting habitats add to the case against making the Order. The localised nature of the effects and the controls provided by EPS licences with respect to the maintenance of the population reduce the weight against. I give effects on bats and their habitats some weight against the making of the Order.

The balance of issues and conclusions

- 6.6.11 I make my conclusions on the basis of the framework set out in Chapters 3 and 4 of this report, and the matters to be taken into account set out in Section 6.2. These include the balance of potential benefits and potential adverse impacts; and, subject to material considerations, whether the application is in accordance with the development plan for the area.
- 6.6.12 The national need for this infrastructure both in terms of providing much needed electricity generation capacity and in supporting renewable energy development by providing storage for intermittent generation are powerful factors that dominate the case in favour of making the DCO. On the other side of the balance is the considerable harm to heritage assets and, to a lesser extent, adverse effects due to noise and on bats that respectively bring moderate and some weight against making the DCO. On this basis my view is that the national benefits clearly outweigh the adverse effects on heritage assets and bats, and due to noise.
- 6.6.13 Other matters bring both benefits and adverse effects, but none of those, either individually or cumulatively, lead to a different conclusion in terms of the overall balance of benefits and impacts.
- 6.6.14 I see no reason for HRA or WFD matters to prevent the making of the Order.
- 6.6.15 I conclude that the benefits of the Proposed Development provide the exceptional circumstance required by NPS EN-1 and PPW9, and is a material consideration for GUDP Policy B7, that overcomes the potential harm to heritage assets. The material considerations for matters that are not in accordance with the local development plan, including the national benefits set out above, lead me to be satisfied that the matter of compliance with the local development plan should not prevent the Order from being made.
- 6.6.16 I therefore find that the case for the development of the Proposed Development has been made, subject to the provisions of the recommended DCO, and recommend accordingly.

7 COMPULSORY ACQUISITION AND RELATED MATTERS

7.1 INTRODUCTION

- 7.1.1 The application draft Development Consent Order (DCO) and all subsequent versions submitted by the Applicant included provisions intended to authorise Compulsory Acquisition (CA) of both land and new rights [APP-076]. By the end of the Examination, as a result of negotiations with landowners and others, the only CA sought by the Applicant related to two plots referred to in the Book of Reference (BoR) as Plots 4 and 7 [REP5-032].
- 7.1.2 This Chapter discusses whether the evidence before the Examination justifies the grant of CA in relation to those plots, having regard to statutory and other requirements.
- 7.1.3 Land over which CA powers are sought is referred to in this Chapter as the Order land.

7.2 REQUIREMENTS OF THE PLANNING ACT 2008

- 7.2.1 CA powers can only be granted if the conditions set out in s122 and 123 of PA2008 are met.
- 7.2.2 Section 122 (2) requires that the land must be required for the development to which the development consent relates or is required to facilitate or is incidental to the development. In respect of land required for the development, the land to be taken must be no more than is reasonably required and be proportionate.⁵
- 7.2.3 Section 122(3) requires that there must be a compelling case in the public interest which means that the public benefit derived from the CA must outweigh the private loss that would be suffered by those whose land is affected. In balancing public interest against private loss, CA must be justified in its own right. But this does not mean that the CA proposal can be considered in isolation from the wide consideration of the merits of the project. There must be a need for the project to be carried out and there must be consistency and coherency in the decision-making process.
- 7.2.4 Section 123 requires that one of three conditions is met by the proposal⁶. I am satisfied that the condition in s123 (2) is met because

⁵ Guidance related to procedures for compulsory acquisition DCLG February 2010

⁶ (1) An order granting development consent may include provision authorising the compulsory acquisition of land only if the Secretary of State is satisfied that one of the conditions in subsections (2) to (4) is met.

(2) The condition is that the application for the order included a request for compulsory acquisition of the land to be authorised.

(3) The condition is that all persons with an interest in the land consent to the inclusion of the provision.

(4) The condition is that the prescribed procedure has been followed in relation to the land.

the application for the DCO included a request for CA of the land to be authorised.

7.2.5 A number of general considerations also have to be addressed either as a result of following applicable guidance or in accordance with legal duties on decision-makers:

- all reasonable alternatives to CA must be explored;
- the Applicant must have a clear idea of how it intends to use the land and to demonstrate funds are available; and
- the decision-maker must be satisfied that the purposes stated for the acquisition are legitimate and sufficiently justify the inevitable interference with the human rights of those affected.

7.3 CASE FOR DEVELOPMENT

7.3.1 I considered the case for development in the preceding Chapters of this report and in Chapter 6 concluded that the case has been made, subject to the provisions of the recommended DCO.

7.4 REQUEST FOR COMPULSORY ACQUISITION POWERS

7.4.1 CA powers are sought in respect of two plots of land within the Proposed Development site. All the land is shown on the Land Plans [REP9-03, REP9-038 and REP9-039] and the works for which the land is required are shown on the Works Plans [REP7-038]. Crown Land Plans were also provided with the application [APP-040 to APP-042].

7.4.2 A Book of Reference [APP-048], Land Plans [APP-007, APP-008 and APP-007], Statement of Reasons [APP-045] and Funding Statement [APP-046] were submitted with the application.

7.4.3 Updates were provided at various stages during the Examination up to the submission of the final versions of the Book of Reference (BoR) [REP5-032], Land Plans [REP9-037, REP9-038 and REP9-039] and Statement of Reasons [REP6-010]. The Funding Statement [APP-046] was not updated.

7.4.4 The Proposed Development is described in Chapter 2. The Proposed Development, the Proposed Development site and Order land are described in paragraphs 5.1 to 5.4 and 9.1 to 9.9 of the Statement of Reasons (SoR) [REP6-010].

7.5 PURPOSES FOR WHICH THE LAND RIGHTS ARE REQUIRED

7.5.1 The purposes for which the land rights are required are set out in the BoR [REP5-032] and SoR [REP6-010].

7.5.2 Plots 4 and 7 comprise part of the A4086 public highway and cycle path that run along the western edge of Llyn Padarn. There is uncertainty about the ownership of the subsoil beneath these two plots. The Applicant only seeks to acquire any unknown ownership interests in the subsoil to permit the installation, operation and

maintenance of underground pipes for overflow spillway and abstraction infrastructure.

- 7.5.3 The Applicant has included these two plots in Part 4 of the BoR (Crown interests). The Secretary of State for Defence is stated to have the *"benefit of the following reserved rights, within a conveyance dated 23rd October 1959: neither the property or any part of it shall be used for any noisy, noxious or offensive trade of business which may be or become a nuisance or annoyance to the owners of the occupiers of the adjoining lands"*.
- 7.5.4 Statutory Undertakers' rights and apparatus have been identified in Plots 4 and 7, but no powers are sought to extinguish the rights of Statutory Undertakers.
- 7.5.5 Category 3 parties within s57 of PA2008 were identified in the application BoR, but as a result of the Applicant's negotiations outside the Examination, none are identified in the final BoR [REP5-032].
- 7.5.6 No rights are sought in relation to Special Category Land under regulation 7(1)(e) of the APFP Regulations. The Applicant has set out effects in relation to Common Land and Access Land [REP6-010]. These are considered in Section 4.10 of this report.

7.6 HOW THE CASE FOR COMPULSORY ACQUISITION WAS EXAMINED

- 7.6.1 I asked the Applicant a number of questions [EV-007, EV-015, EV-017, EV-025, PD-009 and PD-023] relating to CA, including:
- drafting queries on relevant Articles in the draft DCO;
 - power to override easements and other rights;
 - provisions to secure exchange, replacement and mitigation land;
 - omission of references to the Mineral Code;
 - the need for temporary possession rights;
 - guarantees in respect of payment of compensation, etc.;
 - The Crown Estates' acceptance of provisions in the draft DCO;
 - Human Rights tests;
 - the compelling case in the public interest;
 - progress on negotiations with affected landowners;
 - the need to acquire rights and consideration of alternatives;
 - the BoR;
 - identification of Category 3 persons;
 - special category land;
 - protective provisions in relation to Statutory Undertakers;
 - land and rights acquisitions required outside the DCO; and
 - total funding required and funding for CA.
- 7.6.2 These were responded to by the Applicant [EV-004, REP1-003, REP2-011, REP2-015, REP4-013 and REP7-007].
- 7.6.3 More detail on the drafting of DCO Articles is provided in Chapter 8.

7.6.4 I also invited [PD-009]:

- Affected Persons to comment on the process of negotiations and whether they had concerns with respect to the rights sought;
- Statutory Undertakers to comment on rights sought and on the provisions in the draft DCO; and
- Interested Parties and GC to raise any concerns with respect to the rights sought, exchange, replacement and mitigation land and potential impediments to the Proposed Development.

7.6.5 GC responded to my questions [REP2-041].

7.6.6 No objections were received to the request for the grant of CA powers.

7.6.7 No Affected Parties made a request for a CA hearing to be held and none was held.

7.6.8 The Applicant made two separate requests to amend the draft DCO to reduce the extent of CA following its conclusion of voluntary agreements for the acquisition of interests [REP2-016 and REP5-028]. In each case I made a procedural decision that these were not material changes and invited anyone potentially affected to make their views known. No objections were received [PD-012 and PD-017].

7.7 CONSIDERATION OF THE COMPULSORY ACQUISITION ISSUES

Introduction

7.7.1 This section sets out the Applicant's case and my consideration of it. No objections were received from Affected Persons.

7.7.2 The Applicant's case is mainly set out in the Statement of Reasons [REP6-010] and Funding Statement [APP-046]. Detailed supporting information is provided in the ES [APP-063 to APP-234] and alternatives are considered in the ES [APP-070], the Planning Statement [APP-057] and the Statement of Reasons [REP6-010].

7.7.3 As referred to above, during the Examination the Applicant also provided information in response to my questions and IP submissions and updates following its conclusion of voluntary agreements.

The need for Compulsory Acquisition

7.7.4 The Applicant's case in the Statement of Reasons and as summarised in Section 7.4, has demonstrated to my satisfaction that the land and rights sought are necessary for the construction and operation of the Proposed Development.

7.7.5 I do not consider that the extent of the land over which powers are sought would be more than is reasonably required and therefore find that it is proportionate to the needs of the Proposed Development.

- 7.7.6 I am satisfied that the Applicant took all reasonable steps to try to identify the owners of the subsoil under Plots 4 and 7, but was unsuccessful.

Alternatives to Compulsory Acquisition

- 7.7.7 DCLG Guidance requires that the "*promoter should be able to demonstrate to the satisfaction of the decision-maker that all reasonable alternatives to Compulsory Acquisition (including modifications to the scheme) have been explored*".
- 7.7.8 Alternatives are addressed in Section 4.2 of this report. The Applicant concluded that there "*are not considered to be any alternative sites within the local area*" [APP-057]. The Applicant has quoted [APP-057] GC's Glyn Rhonwy Development Plan and Implementation Strategy (2008) as confirming that "*pumped storage is a suitable use for the quarries and that no alternative uses for them are worthy of further investigation*".
- 7.7.9 The Applicant clarified that it was unavoidable for the underground pipes for spillway and abstraction to cross the cycle track and highway to reach Llyn Padarn [REP6-010]. The acquisition of subsoil rights to plot 4 would allow the pipes to cross the cycle track and the rights for plot 7 would allow them to cross the highway.
- 7.7.10 I am satisfied that the powers sought are necessary to enable the Proposed Development to proceed within a commercially reasonable timescale and that DCLG Guidance has been addressed.
- 7.7.11 I conclude that the applicant has explored all reasonable alternatives to CA and no other credible alternative could be identified.

Category 3 parties

- 7.7.12 No Category 3 parties to s57 of PA2008 are identified in the Book of Reference. I questioned this during the Examination and received no objections to this. I have no reason to doubt that the Applicant has been diligent in identifying Category 3 persons.

Crown interests

- 7.7.13 Section 135(1) of PA2008 precludes the CA of interests in Crown land unless the land is held "*otherwise than by or on behalf of the Crown*", and the appropriate Crown authority consents to the acquisition.
- 7.7.14 Section 135(2) precludes a DCO from including any provision applying to Crown land or Crown rights without consent from the appropriate Crown authority. This is not limited to CA provisions in a DCO.
- 7.7.15 The BoR identifies Plots 4 and 7 as subject to Crown interests, held by the Secretary of State for Defence. These plots are subject to CA. The Crown right referred to is the benefit of a restrictive covenant.

- 7.7.16 The SoR notes that the majority of the western end of the site, including much of Work 1, is owned by The Crown Estate and that the Applicant has an option agreement for a 125 year lease from The Crown Estate to enable it to carry out the development [REP6-010, paragraph 9.7]. The extent of the land said to be owned by The Crown Estate, or in which there is a Crown interest, is shown on the Crown Land Plans [APP-040 to APP-042].
- 7.7.17 The Crown Estate agreed that the Applicant "*will have the necessary consents for the area required for the works in due course and that there is accordingly no need for the Order to grant any rights over Crown Land*" [REP4-007, paragraph 3.1.1]. It also agreed that article 40 (Crown rights) acted to protect the interests of the Crown, and that it consented to the inclusion of Article 40. The terms of Article 40 are discussed in the next Chapter.
- 7.7.18 The Secretary of State for Defence is identified as having an interest in Plots 4 and 7. It appears that in relation to those plots, The Crown Estate may not be the appropriate Crown authority for the purposes of s135(1) of PA2008.
- 7.7.19 I have not received evidence of consent from the Ministry of Defence.
- 7.7.20 For the avoidance of doubt, I recommend that the powers sought should not be granted until either the Crown (or its appropriate representatives) has confirmed that the necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008.

Statutory Undertakers

- 7.7.21 No powers are sought to extinguish the rights of Statutory Undertakers. Subject to protective provisions, the Applicant's final draft DCO [REP9-035] provides powers to remove, reposition or cross underneath or over apparatus belonging to Statutory Undertakers.
- 7.7.22 The Applicant advised that Dwr Cymru (Welsh Water) and Wales and West Utilities agreed to the protective provisions [REP10-002].
- 7.7.23 The Applicant agreed with SP Manweb that no impediment had been identified with respect to the protective provisions [REP5-027]. Towards the end of the Examination the Applicant advised that minor comments were still being discussed with SP Manweb [REP10-002].
- 7.7.24 Section 127 of PA2008 would not be engaged as there would be no CA of Statutory Undertakers' land.
- 7.7.25 Section 138 of PA2008 would be engaged as powers would be granted to remove apparatus.
- 7.7.26 I anticipate a successful conclusion to the agreement of SP Manweb to the protective provisions. I was not informed by SP Manweb of situations arising that might affect the exercise of their duties or

powers as a Statutory Undertaker. The SoS may need to be satisfied of the final position with regard to SP Manweb before issuing a decision.

Special Category Land

- 7.7.27 No Compulsory Acquisition of land or rights is sought in relation to Special Category Land; sections 131 and 132 PA 2008 are not engaged. The Applicant's proposals in relation to common land and access land are discussed in paragraphs 4.10.77-91 of this report.

Availability and adequacy of funds

- 7.7.28 DCLG Guidance⁷ with respect to CA funding being likely to be available when required and the resource implications of a possible acquisition resulting from a blight notice have been taken account of.
- 7.7.29 The Applicant's case is set out in the Funding Statement [APP-046]. Article 23 of the Applicant's final draft DCO [REP9-035] makes provisions for guarantees in respect of payments of compensation.
- 7.7.30 The Applicant provided audited accounts for itself and for its majority shareholder, Quarry Battery Company Limited [REP2-011].
- 7.7.31 The estimated £160m capital construction cost would be met through a mix of commercial debt and additional equity and the Applicant provided evidence of its confidence that this would be secured.
- 7.7.32 The amount of security provided for compensation was reduced from £190,000 to £2,650 during the Examination following the conclusion of voluntary agreements. The Applicant provided an explanation of the security provided for CA and their consideration of why compensation would not be payable for blight [REP4-013, Appendix 12.1].
- 7.7.33 There was no indication from the Applicant or other parties that there were financial impediments to the powers being exercised within the five years statutory timeframe.
- 7.7.34 Based on the above, I am satisfied that the DCLG Guidance has been considered appropriately.

Potential impediments

- 7.7.35 The Applicant provided updates [REP9-002] throughout the Examination on progress in securing other consents and licences required to construct and operate the development, as summarise in Section 1.8. It considered that none of those represent an impediment to the delivery of the Proposed Development [REP6-010].

⁷ Planning Act 2008, Guidance related to procedures for compulsory acquisition (CLG, 2013)

- 7.7.36 Responding to my question, GC raised no concerns with respect to potential impediments [REP2-041]. Although NRW has not been willing to commit stating whether or not any outstanding Environmental Permits or any European Protected Species licences that may be required in the future would be granted [REP7-042, REP9-043], it has stated that it is satisfied with the ES and has not raised any particular concerns that they would not be granted.
- 7.7.37 I am not aware of any reasons why the necessary consents and licences should not be obtained and I am not aware of any impediments that would be likely to prevent the construction and operation of the Proposed Development.

Human rights and the compelling case in the public interest

- 7.7.38 For Plots 4 and 7 where CA is being sought the Applicant's case is that the Proposed Development would meet the tests in s122(3) and that a compelling case in the public interest for the land to be acquired compulsorily is made in the Statement of Reasons [REP6-010]. That benefit would only be realised if the Order included powers of acquisition. A summary of the compelling case and human rights issues was presented in response to my questions [REP2-011].
- 7.7.39 The Applicant confirmed that the Order has the potential to infringe the rights of the Affected Persons. It stated that the rights subject to CA in the Order represent the minimum level of interference reasonably required to facilitate the Proposed Development, was no more than is reasonably necessary for that purpose and was therefore proportionate. The Applicant considers that the purpose of the powers of CA justify interfering with the rights of those persons with an interest in the land proposed to be acquired.
- 7.7.40 The Applicant's case is that Articles 1 and 8 of the Human Rights Act 1998 are addressed by minimising interference with rights and by that interference not being disproportionate due to it being outweighed by the significant public benefits of the Proposed Development.
- 7.7.41 In relation to Article 6, the DCO process provides for all persons affected by the exercise of the compulsory powers to be consulted; the right to make representations at hearings to be held and challenge in the courts. The Applicant stated that it remains committed to pursuing active engagement with landowners with regard to CA.
- 7.7.42 In my view the Applicant has demonstrated sufficiently and conclusively that the rights sought are necessary for the construction and operation of the Proposed Development. The purposes for each plot in the BoR have been clearly defined in the SoR and the need for the development in each plot has been demonstrated [REP6-010].
- 7.7.43 I am therefore satisfied that the Applicant has established a compelling case in the public interest and that there has been appropriate consideration of the Human Rights Act 1998.

7.8 THE RECOMMENDATION ON THE GRANTING OF COMPULSORY ACQUISITION POWERS

- 7.8.1 My approach to the question whether and what CA powers I should recommend to the SoS to grant has been to seek to apply the relevant sections of PA2008, notably s122 and s123, the DCLG Guidance⁸, the Human Rights Act 1998; and, in the light of the representations received and the evidence submitted, to consider whether a compelling case has been made in the public interest, balancing the public interest against private loss.
- 7.8.2 I understand, however, that the Applicant's final draft DCO [REP9-035] deals with both the development itself and CA powers. The case for CA powers could not properly be considered unless and until I had formed a view on the case for the development overall, and the consideration of the CA issues must be consistent with that view.
- 7.8.3 I considered the case for development in the preceding Chapters of this report and in Chapter 6 concluded that the case has been made, subject to the provisions of the recommended DCO.
- 7.8.4 The question that I address here is the extent to which, in the light of the factors set out above, the case is made for CA powers necessary to enable the Proposed Development to proceed.
- 7.8.5 In this Chapter I have considered:
- the need for CA;
 - alternatives to CA;
 - Category 3 parties;
 - Crown interests;
 - Statutory Undertakers;
 - special category land;
 - availability and adequacy of funds;
 - potential impediments; and
 - human rights and the compelling case in the public interest.
- 7.8.6 In relation to the application for CA within the Order, based on the above and subject to it being demonstrated that the necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008, I conclude that:
- the Applicant has shown that all reasonable alternatives to CA have been explored and that there are no alternatives which ought to be preferred;
 - the Applicant has demonstrated that the extent of land over which powers are sought would be no more than is reasonably

⁸ Planning Act 2008, Guidance related to procedures for compulsory acquisition (CLG, 2013)

required and it is proportionate to the needs of the Proposed Development;

- the private loss to those affected would be mitigated to a large degree by limiting the use of compulsory powers to land essential to deliver the project and by the use of temporary possession powers wherever possible to minimise both land-take and the extent of rights and interests to be acquired;
- adequate and secure funding would be available for CA within the statutory period following the Order being made; and that
- the proposed interference with the human rights of individuals would be for a legitimate purpose that would justify such interference in the public interest and to a proportionate extent.

7.8.7 Taking these factors together, and subject to the Order being made in the form recommended in Appendix D and subject to it being demonstrated that the necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008, the SoS can be satisfied that there is a compelling case in the public interest for the CA and other powers sought in respect of Plots 4 and 7.

7.8.8 In respect of CA, I conclude that, subject to it being demonstrated that the necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008, the proposal would comply with s122(3) of PA2008.

7.8.9 In respect of Special Category Land, my view is that the Applicant should demonstrate that mitigation access land has been secured appropriately. This is considered further in Chapter 9 of this report.

8 DRAFT DEVELOPMENT CONSENT ORDER (DCO)

8.1 INTRODUCTION

- 8.1.1 The application draft DCO [APP-043] along with an Explanatory Memorandum [APP-044] was submitted as part of the application for development consent. The Explanatory Memorandum describes the purpose of the DCO and each of its articles and schedules.
- 8.1.2 The application draft DCO was based on the model provisions (general and railway) of the now relapsed Infrastructure Planning (Model Provisions) (England and Wales) Order 2009. The Applicant also drafted some bespoke provisions.
- 8.1.3 This Chapter provides an overview of the changes made between the application draft and my recommended DCO. It then considers changes made to the preamble, articles and schedules of the application draft DCO [APP-043] in depth before considering other legal agreements and consents.

Iterations and amendments

- 8.1.4 The draft DCO was updated several times during the Examination, responding to issues raised by IPs and myself. At each revision the Applicant submitted a clean copy and a copy which showed tracked changes from the previous clean copy version. The clean copy versions of the draft DCO submitted by the Applicant during the Examination were:
- revision 1 [EV-008];
 - revision 2 [REP1-007];
 - revision 3A [REP2-006];
 - revision 4 [REP3-016];
 - revision 5 [REP4-009];
 - revision 6A [REP5-002];
 - revision 7 [REP6-012];
 - revision 8 [REP7-001]; and
 - revision 9 [REP9-035].
- 8.1.5 Tracked-changes only copies of revisions 3B [REP2-008] and 6B [REP5-029] were submitted to accompany the Applicant's requests to remove plots from Compulsory Acquisition [REP2-016 and REP5-028].
- 8.1.6 Each revision was helpfully accompanied by a Table of DCO Amendments [EV-003, REP1-004, REP2-005, REP3-015, REP4-016, REP5-013, REP6-014, REP7-008 and REP9-032] that set out the reasons for the changes since the previous revision.
- 8.1.7 The Applicant updated the Explanatory Memorandum during the Examination [REP2-004, REP3-019, REP5-030 and REP6-015] as required for the corresponding revisions to the draft DCO.

- 8.1.8 I issued an ExA draft DCO [PD-023] and invited IPs to comment on it for Deadline 7. It was commented on by the Applicant [REP7-007], NRW [REP7-042], GC [REP7-045] and Michael Vitkovitch [REP7-053].
- 8.1.9 The Applicant's final draft DCO [REP9-035] was accompanied by a copy [REP9-034] that showed tracked changes from the application draft DCO [APP-043].
- 8.1.10 The main changes made by the Applicant to the draft DCO during the Examination, apart from minor drafting changes, were:
- clarification and addition of various definitions to address potential ambiguities;
 - clarification of dispute arrangements in relation to the temporary prohibition and restriction of use of streets;
 - the addition of a provision to remove various items and restore land following access to survey and investigate land;
 - the removal of provisions for replacement land for open space land and exchange land for access land following the Applicant's conclusion of voluntary agreements to acquire rights;
 - extensive changes and deletions to Part 3 (powers of acquisition) following removal of plots from compulsory purchase;
 - updates to the description of the authorised development, design parameters and matters for approval, and powers of deviation to provide more precision and consistency with the ES;
 - additions for the certification of outline plans to be complied with in later versions of the plans to be submitted for approval;
 - removal of requirements subsequently covered by the outline plans that would be certified by Article 36 of the DCO;
 - additional requirements for water management, operational water monitoring, drainage and a travel plan;
 - clarification of construction hours for consistency with the ES;
 - clarification of the approval, removal and reinstatement of construction compounds and temporary structures;
 - addition of a requirement for annual maintenance plans to ensure that activities during operation are consistent with the ES;
 - clarification of requirements for a decommissioning plan to ensure timely decommissioning following the end of operation;
 - clarification of provisions for streets to be substituted, temporarily prohibited or restricted;
 - the addition of bespoke protective provisions for Dwr Cymru Cyfyngedig (Welsh Water); and
 - clarification of provisions for further information, provision of information by Consultees and fees.
- 8.1.11 In the event that the Secretary of State decides to make the Order my recommended DCO is provided in Appendix D of this report.
- 8.1.12 The main changes made by my recommended DCO to the Applicant's final draft DCO [REP9-035] are:

- the deletion of "*and any other development authorised by the Order*" from the definition of "*Authorised Development*" following assurance from the Applicant that it was fully described in Schedule 1 and, noting the position on 'Associated Development' in Wales, to seek to avoid any ambiguity or unintended authorisation of development;
- amendments to Article 9(1) as the Applicant has not demonstrated that the risks would justify the inclusion of s79(1)(c), (d) or (e) or that s79(1) (g) should include vibration during construction or noise or vibration during operation;
- the addition of the "*outline code of construction practice*" to the list of documents that would be certified under Article 36;
- the addition of qualifying wording to Schedule 1 Part 1 to ensure that any further development that may be authorised is not Associated Development;
- the addition of a detailed design parameter to define the maximum operational volume of the reservoirs for the avoidance of doubt and to ensure consistency with the ES;
- the addition of a requirement to limit the movements of heavy goods vehicles on access routes during construction in line with the levels assessed in the ES, in order for me to be satisfied that potential effects, including from traffic and noise, have been adequately assessed, consulted on and examined;
- the addition of a requirement for tunnelling of the penstock (Work 2) to progress in the direction from the lower reservoir (Work 3A) towards the upper reservoir (Work 1A), in order for me to be satisfied that potential effects, including from noise, have been adequately assessed, consulted on and examined;
- the addition of a requirement for pre-commencement surveys for floating water-plantain and tree roosting bats that have not been secured elsewhere;
- the addition at requirements for an outline decommissioning plan to address concerns regarding the securing of funding for decommissioning;
- the addition of a new requirement for 'Archaeological compensation and enhancement strategy' to secure provisions that have not been secured elsewhere; and
- various drafting corrections.

Structure of the draft DCOs

- 8.1.13 The various iterations of the Applicant's draft DCOs contain articles and schedules including requirements and protective provisions. The articles are contained in seven parts, which are briefly described here and in more detail in the Explanatory Memorandum [REP6-015]. The structure of the draft DCOs remain the same in my recommended DCO attached as Appendix D of this report.
- 8.1.14 Part 1 contains the preliminary provisions providing for commencement, citation and interpretation and includes definitions from the model provisions with additions to add certainty.

- 8.1.15 Part 2 sets out the principal powers in relation to the development consent proposed to be granted by the draft DCO, including authorisation of the development described in Part 1 of Schedule 1 subject to the requirements in Part 2 of Schedule 1. It includes provisions in relation to approvals, maintenance, power to deviate, operation, benefit of order, statutory nuisance, streets, access, discharge of water and authority to survey and investigate the land.
- 8.1.16 Part 3 contains powers in relation to acquisition of land and rights specified in the BoR [REP5-032] and as may be required, subject to restrictions, for the authorised development or to facilitate, or be incidental to, it. It includes provisions for CA of land, rights, and subsoil only; time limits; guarantees of compensation; the Compulsory Purchase (Vesting Declarations) Act 1981; and power to override easements and other rights.
- 8.1.17 Part 4 contains a number of miscellaneous and general provisions in relation to landlord and tenant law, operational land, trees, Statutory Undertakers, new connections, protection of interests, human remains, notices, certification, crown rights and arbitration.
- 8.1.18 The schedules attached to the various iterations of the draft DCOs contain information referred to in the articles to the Order including the authorised development, requirements, street works, substituted streets, temporarily prohibited or restricted streets, access to works, modification of compensation and compulsory purchase enactments, protective provisions and discharge of requirements.

How the draft DCOs were examined

- 8.1.19 I examined the draft DCOs through written questions and issue specific hearings, including the following (in each case showing the reference for my questions followed by the reference to the Applicant's response):
- drafting queries on DCO as submitted [EV-007] addressed at an issue specific hearing [EV-015] - response [REP1-003] [REP2-015];
 - first written questions [PD-009] - response [REP2-011];
 - issue specific hearing [EV-017] [EV-025] - response [REP4-013];
 - the ExA's draft DCO [PD-023] - response [REP7-007]; and
 - request for further information [PD-026] - response [REP9-030].
- 8.1.20 Other parties also commented on the draft DCOs, including:
- the Welsh Government [REP2-056];
 - Gwynedd Council [REP1-021, REP2-041, REP4-027, REP7-045, and REP9-042];
 - Natural Resources Wales [RR-053, REP1-026, REP2-047, REP3-032, REP4-036, REP4-037, REP5-049, REP6-017, REP7-042, REP8-002, REP9-043 and REP10-011]; and
 - Michael Vitkovitch [REP7-053].

- 8.1.21 The Applicant addressed matters raised by other parties in responses to written representations [REP2-012, REP3-026, REP4-011, REP5-006, REP6-002, REP7-005, REP9-029 and REP10-001] and, where appropriate, the Tables of DCO amendments [EV-003, REP1-004, REP2-005, REP3-015 and REP5-013]. These were either addressed in my questions or are considered below, as necessary and appropriate.

Other Orders

- 8.1.22 As this is the first NSIP DCO application for a pumped storage development, there are no directly similar DCOs.
- 8.1.23 DCOs have however been made relating to various projects in Wales, these include The Brechfa Forest West Wind Farm Order 2013, The South Hook Combined Heat and Power Plant Order 2014, The Clocaenog Forest Wind Farm Order 2014, The Swansea Bay Tidal Generating Station Order 2015, The Hirwaun Generating Station Order 2015 and North Wales Wind Farms Connection Order 2016.

8.2 PREAMBLE

- 8.2.1 A reference to s131 of PA2008 (relating to replacement land for open space) was deleted following the Applicant's conclusion of voluntary agreements to acquire rights and the removal of plots from CA [REP3-015 and REP6-014].

8.3 ARTICLES

- 8.3.1 This section considers changes made to articles of the recommended DCO in depth, with the exception of routine amendments and other changes that I feel are not controversial. Unless noted, numbering is as the recommended DCO in Appendix D. This section is followed by a similar consideration of the Schedules of the recommended DCO.

General matters

Compensation in case of dispute

- 8.3.2 The Applicant added the text "*by the Tribunal as if the compensation were due*" to address my concern [EV-007] that Part 1 of the 1961 Act only relates to compensation for CA but was being applied on other matters. I am satisfied that appropriate updates have been made to Articles 11(3), 13(6), 18(5), 28(6) and 29(5).

Guillotine provisions

- 8.3.3 The Applicant introduced a guillotine for consent to be deemed if a consultee did not respond within 28 days. My view is the presence of such a guillotine should be made clear to a consultee at the time of any application for consent so that the consultee is aware of the need to act within the timescale. Responding to this concern the Applicant added suitable provisions to Articles 13(9), 14(3), 17(9) and 18(7) for the guillotine to be noted in the letter accompanying the application.

Removal of plots from compulsory purchase

8.3.4 The Applicant made a number of deletions following their conclusion of voluntary agreements to acquire rights and the removal of plots from compulsory purchase [REP3-015 and REP6-014]:

- Article 19(3) (Compulsory Acquisition of land);
- Articles 21(2) (Compulsory Acquisition of rights);
- Articles 22(2) and (4) (Acquisition of subsoil only); and
- application draft DCO [APP-043] Articles 21 (Incorporation of the mineral code), 23 (Private rights) and 25 (Acquisition of parts of certain properties).

8.3.5 In response to my question [PD-026], GC advised that they were content with the deletion of the Articles that I listed and no IPs objected.

8.3.6 I am satisfied that these Articles were relevant to plots that would no longer be the subject of CA and, noting they were deleted by Applicant, that they are no longer necessary.

Article 1 (Citation and Commencement)

8.3.7 "(*Generating Station*)" was added to the title of the Proposed Development and to the citation to recognise why it is a NSIP and for consistency with other made power generation DCOs such as the Hirwaun Generating Station Order 2015.

Article 2 (Interpretation)

8.3.8 Various changes and additions have been made to provide clarity of the meaning of certain expressions used within the DCO, including those noted below.

Authorised development

8.3.9 In my ExA draft DCO, I sought to remove reference to "*and any other development authorise by this Order*" from the definition of "*authorised development*" to ensure that this term was comprehensively described by Part 1 of Schedule 1 [PD-023].

8.3.10 The Applicant resisted this [REP4-013 and REP7-007]. It considered that powers in the main articles may be authorising development; it had been included in other DCOs; and it was necessary to ensure that all of the minor and ancillary operations required to construct the Proposed Development were clearly and unambiguously authorised.

8.3.11 The Applicant later confirmed that it was not aware of any specific matter authorised under the Articles which was not listed in Schedule 1, although it preferred not to delete the text from the definition in the interests of a "*belt and braces*" approach [REP9-030]. I note that Schedule 1 includes a catch-all of "*works as may be necessary or expedient for the purposes of the authorised development*". I also

seek to clarify that the Order is not seeking to evade the position on 'Associated Development'. I therefore find that the text "*and any other development authorised by this Order*" is uncertain and unnecessary and have deleted it from the recommended DCO.

Completion of the works

- 8.3.12 I suggested that a definition be added to clarify when the transition would be made from construction to operation, to provide clarity for the discharge of any requirements that applied to one of those stages but not the other [PD-023].
- 8.3.13 The Applicant considered that it was not necessary as Requirement 19 requires it to notify the relevant planning authority of the date of commencement of generation [REP7-007]. I accept the Applicant's reasoning and agree that the definition is not required.

Environmental Statement

- 8.3.14 The Applicant incorporated a request from NRW to clarify that the ES includes the Appendices and figures that were submitted with the application [REP1-026]. This is a helpful addition.

Maintain

- 8.3.15 The Applicant's original definition appeared to extend the normal definition and I was concerned that there was the potential for it to include major construction works that had not been assessed in the ES. The Applicant has amended the definition to provide examples of what would be included and has introduced a new Requirement 19 (Annual maintenance plans) to address those matters. On that basis, I am content with the definition.

Article 3 (Development consent etc. granted by the Order)

- 8.3.16 In response to my request [EV-007] and to avoid ambiguity the Applicant added clarification to paragraph (2) that each Work No may only be constructed within the corresponding numbered area shown on the Works Plans.
- 8.3.17 In Wales, PA2008 makes limited provision for consent to be given for works not ancillary to the Proposed Development that would comprise "*Associated Development*"⁹. In Chapter 2 I considered this matter with reference to the DCLG guidance¹⁰ and concluded that no Associated Development within the meaning of s115(2)(a) of PA2008 was included with the application.

⁹ PA2008 s115

¹⁰ DCLG Guidance - Planning Act 2008: associated development applications for major infrastructure projects, April 2013

8.3.18 I sought to add paragraph (3) to provide absolute certainty that the Order did not authorise Associated Development [PD-023]. The Applicant strongly objected to this stating that it had not knowingly included any Associated Development, that it should be made aware of any areas of vulnerability, that there was no precedent and that enforcement could be problematic [REP7-007].

8.3.19 My specific concerns are in relation to items of further development that are listed towards the end of Schedule 1 Part 1. Therefore I have addressed this matter there and am satisfied that paragraph (3) is not required if the relevant addition is made to Schedule 1 Part 1.

Article 4 (Procedure in relation to approvals etc. under requirements)

8.3.20 The Applicant incorporated a request from NRW [REP1-026] clarify that its approval may be required in respect to watercourses and that this should be given in writing and not unreasonably held or delayed. I am satisfied with this addition.

Article 6 (Power to deviate)

8.3.21 Article 6(1)(b) was updated by the Applicant in response to my request [EV-007] to limit the power to deviate vertically, particularly in respect to underground structures, to provide consistency with the ES and to consider concerns that it may impinge on mineral or underground rights. The change addresses my concerns and I am not aware of any underground or mineral rights that would be affected.

8.3.22 Changes proposed by NRW [REP1-026 and REP3-032] were not adopted by the Applicant. In each case I am satisfied with the Applicant's reasoning [REP2-005 and REP5-013] and consider that the powers to deviate are sufficiently controlled by Article 6 without the changes proposed by NRW.

Article 9 (Defence to proceedings in respect of statutory nuisance)

8.3.23 At my request [PD-020], the Applicant reworded Article 9 at (1)(a)(i) and (2) to address that s65 of the Control of Pollution Act 1974 was repealed by the Deregulation Act 2015. I am content with that update.

8.3.24 The Explanatory Memorandum [REP6-015] indicates that Article 9 is based on Model Provision 7, but extended to enable the undertaker to rely on it in respect of air quality and noise from streets which have been identified as a risk during construction as well as noise

8.3.25 The Model Provision provides specific defences where proceedings are brought in the magistrates court under s82(1) EPA 1990 in relation to noise nuisance within s79(1)(g) EPA 1990. As noted in section 4.9 of this Report, Article 9(1) of the Applicant's final draft DCO [REP9-035]

would extend the specific defences to other categories of nuisance within s79(1). These additional categories are:

- Fumes or gases emitted from premises (s79(1)(c))
- Dust, steam, smell or other effluvia from industrial, trade or business premises (s79(1)(d))
- Accumulations or deposits (s79(1)(e))
- Noise from a vehicle, machinery or equipment in a street (s79(1)(ga))

8.3.26 For the reasons given in section 4.9, I do not consider that the Applicant has demonstrated that the identified risks of nuisance would justify the inclusion of s79(1)(c), (d), (e) or (ga) in Article 9. Nor do I consider that the defences should be available in respect of vibration during construction, or noise or vibration during operation. I have amended Article 9 in the recommended DCO accordingly.

8.3.27 However, I do have reservations about my approach. Section 158 of PA2008 provides a general defence of statutory authority against civil or criminal proceedings for nuisance, subject to any contrary provision in the DCO. Assuming Article 9 to be a 'contrary provision', it is not clear whether it would supplant the s158 general defence entirely (which seems unlikely), or merely make a very limited exception to it.

8.3.28 If the latter, then limiting its scope still further (by excluding the categories of nuisance sought by the Applicant) would render those categories of nuisance subject to the unconstrained general s158 defence of statutory authority. If Article 9 were to apply to them, by contrast, the undertaker would have to show – at the least – that the nuisance could not reasonably have been avoided, in order for the defence to apply.

Article 13 (Temporary prohibition and restriction of use of streets)

8.3.29 The Applicant changed the title of this Article and made a series of changes to the text following a request from GC to adopt the wording "*prohibition and restriction*" rather than "*stopping up*" [REP1-021]. I am satisfied that this is more consistent with the Road Traffic Regulation Act 1984 and am content with the changes.

8.3.30 This Article removes the need to obtain temporary traffic regulation orders under section 14 of the Road Traffic Regulation Act 1984. This is a prescribed consent. GC as highway authority consented to the inclusion of this provision [REP4-006].

Article 17 (Discharge of water)

8.3.31 The Applicant incorporated a request from NRW for the use of watercourses, public sewers or drains in connection with maintenance in Article 17(1) to be subject to Requirement 17 (excess water management strategy) [REP1-026]. I am satisfied that this is

necessary as the excess water management strategy includes various provisions for discharges of water.

- 8.3.32 Appropriate changes have been made to Article 17(7) to address my concerns [EV-007] that it more clearly addresses how the relevant provisions are expressed in s85 of the Water Resources Act 1991 and the Environmental Permitting (England and Wales) Regulations 2010.
- 8.3.33 I am also satisfied that the specific reference to NRW been removed from Article 17(10) as it is unnecessarily limiting [EV-007].

Article 18 (Authority to survey and investigate the land)

- 8.3.34 Article 18(8) was added to address my request regarding reinstatement of the land following access for survey and investigation [EV-007] and updated following my later suggestion that any vehicles taken on to the land should be required to be removed [PD-023].

Article 21 (Compulsory Acquisition of rights)

- 8.3.35 At my request [EV-007] the Applicant added a restriction to Article 21(1) that only rights specified in the Book of Reference could be acquired.
- 8.3.36 The Applicant deleted Article 21(4) (22(4) at the time of deletion) as it considered [REP1-004] that the provisions were already provided in application draft DCO [APP-043] Article 23 (Private rights), which was itself later deleted [REP6-014] following the Applicant's conclusion of voluntary agreements to acquire rights and the removal of plots from compulsory purchase. I am satisfied that this Article is not necessary.
- 8.3.37 I comment on Article 37 (Crown rights), below, with respect to my concerns regarding (the potential lack of) appropriate Crown authority approval for the rights sought by the Applicant.

Article 23 (Guarantees in respect of payment of compensation etc.)

- 8.3.38 The amount of security provided by Article (1)(a) and referenced by Article (3) reduced progressively during the Examination in line with the Applicant's conclusion of voluntary agreements to acquire rights and the removal of plots from CA. I am satisfied with the figure of £2,650. More detail is provided in Chapter 7.

Article 24 (Application of the Compulsory Purchase (Vesting Declarations) Act 1981)

- 8.3.39 This Article seeks to incorporate the provisions of the Compulsory Purchase (Vesting Declarations) Act 1981 with modifications. None of these proposed modifications drew any objections during the Examination, and I consider that they are proportionate and justified.

- 8.3.40 Section 120(5)(a) of PA2008 provides that a DCO may apply, modify or exclude a statutory provision which relates to any matter for which provision may be made in the DCO. Section 117(4) provides that, if the DCO includes such provisions, it must be in the form of a statutory instrument. Because of these provisions relating to the 1981 Act, s120(5)(a) is therefore engaged and in consequence the DCO is in the form of a Statutory Instrument.

Article 25 Power to override easements and other rights

- 8.3.41 This Article seeks to incorporate the provisions set out in s158 of PA2008 relating to the statutory authority and protection given to override easements and other rights. Related s158 matters are considered in Section 4.9. Having considered the representations, I am satisfied that the Article is proportionate and justified.

Article 27 (Operational land for the purposes of the 1990 Act)

- 8.3.42 NRW sought [REP1-026] to exclude the Order for the purpose of s9(4)(d) of the Forestry Act 1967. The Applicant did not incorporate this on the basis that this was the normal legal position, NRW had provided no explanation of why it would be necessary and that the Order gave the power to remove trees that was directly counter to s9(4)(d).
- 8.3.43 My view is that the Order provides appropriate controls for the felling of trees through Articles 28 and 29 and that the requirement for a felling licence that would result from the change proposed by NRW is not necessary.

Article 28 (Felling or lopping of trees and removal of hedgerows)

- 8.3.44 The title of this Article was amended by the Applicant at my request [EV-007] to clarify that its scope includes hedgerows.
- 8.3.45 This Article removes the need to obtain hedgerows consent for the removal of any areas of hedgerows affected by the works. This is a prescribed consent. GC as planning authority consented to the inclusion of this provision [REP4-006].
- 8.3.46 The Applicant's addition of Article 28(5) excludes trees subject to a tree preservation order in line with my request [EV-017]. I am satisfied with this as Article 29 includes appropriate provisions for trees subject to a tree preservation order, including requirements for compensation and local authority approval, whereas Article 28 doesn't.

Article 29 (Trees subject to tree preservation orders)

- 8.3.47 The Applicant addressed a request from GC for felling, lopping or cutting back the roots of trees subject to a tree preservation order to be agreed in advance with the relevant planning authority [REP1-021]. I believe that it this is appropriate and am also satisfied with the

references added to single trees and the TPO plan. The need for tree preservation order consent is a prescribed consent in Wales; GC gave its consent in the SoCG [REP4-006].

- 8.3.48 I consider that the Outline Code of Construction Practice includes appropriate requirements for replacement trees [REP9-028].

Article 36 (Certification of plans)

- 8.3.49 Various amendments were made to this Article during the Examination in line with the production of additional outline management and mitigation plans and to address comments by me and others, including NRW's suggestion to add a requirement to certify the ES [REP1-026].
- 8.3.50 I have made some further routine corrections and additions in the recommended DCO, including the addition of the outline construction noise management plan and outline code of construction practice that are both referenced by Schedule 1 Part 2 (Requirements) but which had been omitted from this Article. I am satisfied that the additions and corrections are in line with the position agreed with the Applicant, GC and NRW and are appropriate for the purposes of the Order.
- 8.3.51 To put the identity and authenticity of the documents that would be certified beyond doubt I have added a revision number for those documents that are not defined in Article 2(1). When asked to comment on referencing the Applicant stated that it had no objections to referencing being added [REP9-030].
- 8.3.52 Section 4.3 of this report notes that the water management plan, silt management plan, biosecurity plan and excess water management plan may be updated during the process of the Environment Permit application. It is expected that this would occur in parallel with the production of this report. The Secretary of State may wish to establish whether the Environmental Permit has been granted and, if it has, to then establish whether the plans have been updated, whether GC and NRW are content with the changes and, in which case, then amend the references in the recommended DCO to reflect those changes.

Article 37 (Crown rights)

- 8.3.53 Section 135(1) of PA2008 precludes the CA of land held by or on behalf of the Crown in any circumstances, and only enables the CA of land held 'otherwise than by or on behalf of the Crown' if consent is given by the appropriate Crown authority to the acquisition.
- 8.3.54 Section 135(2) PA2008 precludes a DCO from including any provision affecting Crown land unless the appropriate Crown authority consents. The Crown Land Plans show that The Crown Estate has an interest in much of the application site [APP-040 to APP-042]. In the SoCG The Crown Estate agreed that the Applicant "*will have the necessary consents for the area required for the works in due course and that there is accordingly no need for the Order to grant any rights over*

Crown Land" [REP4-007]. The SoCG also states that The Crown Estate agree that Article 40 (now Article 37 in recommended DCO) protects the interests of the Crown.

- 8.3.55 However, in Section 7 of this report I established that the Applicant seeks the acquisition of Crown Interests in plots 4 and 7 with respect to reserved rights, within a conveyance. My view is that as the Ministry of Defence are mentioned as the specific party in respect to the conveyance, it appears that The Crown Estate may not be the appropriate Crown authority for the purposes of s135(1) of PA2008. As I have not received any consent from the Ministry of Defence and for the avoidance of doubt, I recommend that the powers sought should not be granted until the SoS has established that either the appropriate Crown authority has confirmed that the necessary consent for the rights sought for Plots 4 and 7 is obtained.
- 8.3.56 The Applicant's final draft DCO, Article 37(1) states that nothing in the Order is to prejudicially affect interests or rights in Crown land, subject to exceptions [REP9-035].

8.4 SCHEDULE 1 PART 1 (AUTHORISED DEVELOPMENT)

- 8.4.1 The Applicant has made a number of updates [REP1-004, REP4-016 and REP5-013] to the description of the authorised development during the Examination in response to my encouragement to provide more precision, particularly with regards to Works originally grouped together as "*further development*" and that were not allocated to specific Work Nos. I am satisfied that the descriptions of the various elements of "*further development*" are now appropriate and that they have been allocated to Work Nos as far as is reasonable.
- 8.4.2 Noting the requirements of PA2008 and the DCLG guidance¹¹ and my earlier comments with respect to Article 3, I have sought to avoid any potential for the description of "*further development*" to inadvertently authorise Associated Development. In particular my concern has been the potential for this for "*works as may be necessary or expedient for the purposes of the authorised development*", which is clearly less precisely defined than is typically the case under the Work Nos.
- 8.4.3 This matter has been subject to a number of exchanges with the Applicant, who suggested a form of words whereby it would be required to demonstrate, to the satisfaction of the LPA, that such works are within the ambit of a generating station within the meaning of section 14(1)(a) and section 15 of PA2008 [REP9-030]. I have included the Applicant's suggested wording in the recommended DCO and am satisfied that my concerns regarding Associated Development have been addressed appropriately.

¹¹ DCLG Guidance - Planning Act 2008: associated development applications for major infrastructure projects, April 2013

- 8.4.4 The final paragraph of Schedule 1 Part 1 was also developed [REP5-013 and REP7-008] to address my concerns that any "*further development*" should be clearly specified as being within the Order limits and that the resulting significance of effects should be consistent with the ES.

8.5 SCHEDULE 1 PART 2 (REQUIREMENTS)

- 8.5.1 EN-1, paragraph 4.1.7 advocates that the decision-maker should only impose requirements in relation to a development consent that are necessary, relevant to planning, relevant to the development consented, enforceable, precise and reasonable in all other respects. The decision-maker should take into account the guidance in Circular 11/95 (the use of conditions in planning permissions) or any successor to it. Circular 11/95 has now been cancelled and replaced by section 21a the 'Use of Planning Conditions' of the Planning Practice Guidance. The same six tests are referred to in paragraph 3.6.2 of Planning Policy Wales (Edition 8) and section 3 of Welsh Government circular 06/2014: The Use of Planning Conditions for Development Management.
- 8.5.2 Paragraph 19.4 of The Planning Inspectorate Advice Note 15: Drafting Development Consent Orders, states that a tailpiece should not allow a LPA to approve details which stray outside the parameters set for the development by the Examination process.

General matters

Replacement of requirements with outline plans

- 8.5.3 Significant restructuring of Schedule 1 Part 2 has been undertaken by the Applicant by way of replacing certain requirements with outline plans developed during the Examination, as would be certified by Article 36 [REP5-015]. These outline plans contain matters that must be addressed and minimum standards to be complied with in subsequent versions of the plans (Requirement 8), which must be submitted to and approved in writing by the relevant planning authority (Requirements 6 and 7). The matters addressed in the outline plans and Gwynedd Council's and NRW's approval are addressed in detail in Chapter 4 of this report.
- 8.5.4 The relevant requirements in the application draft DCO [APP-043] that have been removed in favour of the outline plans are:
- Requirement 9 (Construction traffic management plan);
 - Requirement 10 (Dust management plan);
 - Requirement 11 (Noise management plan);
 - Requirement 12 (Habitat management plan);
 - Requirement 13 (Land discovery strategy);
 - Requirement 14 (Air quality baseline monitoring plan); and
 - Requirement 15 (Archaeological compensation and enhancement strategy).

- 8.5.5 NRW considered that the Land Discovery Strategy requirement should be reinstated as it stipulated what would be required; it saw no benefit in its removal [REP6-017, REP8-002 and REP10-011]. The Applicant said that the Outline Land Discovery Strategy included the information and that duplication with the DCO was unnecessary and could create inconsistencies [REP7-005]. I am satisfied that the requirements, including for the Land Discovery Strategy, can be deleted as they have been appropriately addressed by the recommended DCO and by the outline plans that would be certified.

References to ES Appendix 16.1

- 8.5.6 The application draft DCO [APP-043] included a number of requirements referring to accordance with Appendix 16.1 of the ES, the Code of Construction Practice. The Applicant has confirmed [REP7-007] that this has now been superseded by the outline plans, including the Outline Code of Construction Practice [REP9-028], that have been developed during the Examination. References have been provided to those within the recommended DCO as appropriate. On that basis I am satisfied that references to Appendix 16.1 have been removed from Requirements 6, 7 and 17.

Requirement 4 (Phasing plan)

- 8.5.7 The Applicant's updates helpfully clarify that temporary building and structures require reinstatement. I am also satisfied with the removal of references to timescale in relation to restoration as this is adequately specified by Requirement 14(3).

Requirement 5 (Detailed design)

Key parameters

- 8.5.8 A number of updates [REP1-004, REP3-015 and REP4-016] have been made by the Applicant to Requirement 5(1) to provide more precision on the parameters for various elements of the Proposed Development, including the volumes and heights of slate mounds, heights of dams, areas of construction compounds, and building dimensions. My view is that this information is required to be secured for reasons of consistency with the ES and with the secured mitigation measures, for example with respect to visual and landscape impacts or impacts arising from the transportation of material.
- 8.5.9 The Applicant made further changes to the scour tower levels and pipe diameters following an engineering review [REP4-016], that I am content with.
- 8.5.10 In my view the volume of water contained in the reservoirs is also a key parameter as it has implications in terms of the quantities of material excavated and handled on the site, the volume of water abstracted from Llyn Padarn, the volumes of water discharged during a full draw down for maintenance and the consideration of a potential

breach. I therefore consider it necessary to secure this parameter for consistency with the ES and with the secured mitigation measures.

- 8.5.11 The Applicant initially resisted including the volume of the reservoirs, arguing that the volume would be adequately controlled by the dam parameters [REP7-007 and REP9-030]. However, I do not find this convincing for reasons including that neither the plan position of the dams nor the volumes of excavation in each quarry are fixed. Although the Applicant considered that such a parameter was not necessary, it did provide some suggested text that I have included in the recommended DCO for the avoidance of doubt.

Details to be submitted for approval

- 8.5.12 It has been necessary for requirements to be added for certain details to require approval by the LPA in consultation with NRW. These secure mitigation measures, including details of:

- quarry linings, slate facings, dams, slate mounds, roads, car parks, public rights of way and fences (to mitigate potential landscape, visual and accessibility impacts and address requirements for good design);
- non-ionising radiation (to mitigate potential health impacts); and
- entrapment or snagging on infrastructure in Llyn Padarn (to mitigate potential safety and recreation impacts).

- 8.5.13 I am satisfied that Requirement 5(5) is necessary as part of the mitigation against potential low frequency noise and ground-borne vibration and noise during operation, for which further investigation and assessment are required. More detail is provided in Section 4.6 of this report.

Requirement 6 (Code of construction practice)

- 8.5.14 I have added Requirement 6(5) to the recommended DCO to secure that underground excavation of the penstock (Works 2) is to progress in the direction from the lower reservoir (Works 3A) towards the upper reservoir (Works 1A).
- 8.5.15 I have added Requirement 6(6) to the recommended DCO to secure limits to the movements of heavy goods vehicles on access routes during construction.
- 8.5.16 I have added Requirement 6(7) to the recommended DCO to secure pre-commencement surveys for floating water-plantain in the vicinity of the spillway infrastructure in Llyn Padarn and for tree roosting bats.
- 8.5.17 The mitigation secured by Requirements 6(5), 6(6) and 6(7) are identified in Sections 4.5 or 4.6, but not specifically addressed by the Applicant's final draft DCO [REP9-035], by the Outline Code of Construction Practice [REP9-028] or by the Outline Construction Traffic Management Plan [REP9-012], as appropriate.

- 8.5.18 The Applicant did not incorporate a suggestion from NRW [REP1-026] that the Code of Construction Practice should be subject to consultation in writing with NRW as [REP2-005] the discharging authority could be relied upon to ensure this. It has been secured that consultation is required with NRW "*where appropriate*" and I am satisfied that the relevant planning authority can be relied on to judge the appropriateness or otherwise of consultation with NRW. I note that provisions for consultation with NRW are made within the plans themselves. I am therefore satisfied that adequate provision is made and it is not necessary to include NRW's suggestion. I have, however, made it clear that the appropriateness or otherwise of consultation with NRW is for the discretion of the relevant planning authority.

Requirement 7 (Other required plans and strategies) and Requirement 8 (Compliance with outline plans)

- 8.5.19 Requirement 8 was introduced to require compliance of plans with the outline plans. Both Requirements 7 and 8 were developed progressively [REP1-004, REP4-016, REP5-013 and REP9-032] during the Examination to reflect the ongoing completion of the outline plans. I have made some final small corrections to the recommended DCO, on which basis I am satisfied that these Requirements are in line with the position agreed with the Applicant, GC and NRW and are appropriate for the purposes of the Order.

Requirement 9 (Water management plan)

- 8.5.20 This Requirement was developed by the Applicant in consultation with NRW [REP3-015] and was later updated [REP5-013] to accommodate NRW's comments [REP4-037] regarding the sampling suite and monitoring. As detailed in Section 4.3 the potential impacts of the Proposed Development on the water regime are wide ranging and there was significant interest in these matters during the Examination. On that basis I am content that these measures should be secured directly in the DCO.
- 8.5.21 The Applicant did not incorporate NRW's suggestion [REP5-013] that private water supplies should be monitored for a minimum period of 12 months. However, I am convinced by NRW's advice [REP7-042 and REP8-002] that 12 months would be necessary to eliminate any doubts about seasonality and 12 months has been included in Requirements 9 (5)(i) and (iii) of the recommended DCO, replacing the 6 months suggested in the Applicant's final draft DCO [REP9-035].

Requirement 10 (Operational water quality monitoring)

- 8.5.22 This Requirement was introduced to address NRW's request for post construction monitoring [REP7-008] on the basis that it could not be included in the Outline Water Management Plan as that is specific to construction and does not cover the post-construction period.

- 8.5.23 NRW's view [REP8-002 and REP10-011] was that Requirement 10 should be removed to avoid potential conflict with enforcement responsibilities. The Applicant [REP7-007 and REP9-029] stated that it was necessary as monitoring during operation was for differing purposes and specifications than for monitoring during construction.
- 8.5.24 NRW have accepted some overlap between the DCO and Environmental Permitting regimes during construction. I have not been provided with sufficient evidence to conclude that any overlap or conflict between the DCO and Environmental Permitting regimes during operation would be unmanageable and there is no evidence that Requirement 10 would prevent NRW from including the conditions it considers necessary in an Environmental Permit.
- 8.5.25 My view is that water quality monitoring during operation is necessary mitigation that needs to be secured and that this Requirement is appropriate for that. I have therefore not deleted this Requirement.
- 8.5.26 I have amended the monitoring period for private water supplies from 6 months to 12 months to address potential seasonality issues as I have no evidence that these would differ from those mentioned by NRW [REP5-013] with respect to construction monitoring.

Requirement 11 (Drainage)

- 8.5.27 This was developed by the Applicant in consultation with NRW [REP3-015] and later updated to clarify that it related to permanent drainage systems and that Dwr Cymru (Welsh Water) should be consulted on the proposed drainage system [REP5-013]. Given the potential impacts on the water regime, as noted for Requirement 9 above, I am content for these measures to be secured in the DCO. Temporary drainage would be addressed by the plans secured by Requirement 6.

Requirement 13 (Construction hours)

- 8.5.28 Representations regarding construction working hours are considered in detail in Section 4.6 of this report.
- 8.5.29 During the Examination this Requirement was updated in response to my request [EV-015] to clarify public holiday working and to identify:
- the potential for 24 hour working during underground excavation works, which I am satisfied is consistent with the ES; and
 - for the potential disposal of ordnance outside normal construction hours if required for health and safety reasons, which is also reasonable in my view.
- 8.5.30 I also note that Outline Construction Noise Management Plan [REP10-006] states no tunnelling works would be permitted between 1.00pm on any Saturday to 7.00am the following Monday or on any public holidays, unless the Applicant could demonstrate to the local planning

authorities satisfaction that noise generated by tunnelling during these times would not unduly affect residents.

- 8.5.31 I am satisfied that working hours could later be extended by the LPA under s61 of the Control of Pollution Act 1974 as this may allow adverse impacts to be reduced, for example extensions may allow road closures to avoid peak traffic flows.
- 8.5.32 Noting the above, and the potential for amenity impacts due to noise, I am satisfied that Requirements (4) and (5) together with the Outline Construction Noise Management Plan [REP10-006] provide appropriate protection to those who would be potentially affected by works outside normal construction hours and ensure that the resulting significance of effects would be unlikely to be greater than considered in the ES.

Requirement 14 (Construction compounds and temporary structures)

- 8.5.33 This requirement was updated by the Applicant to include external lighting, to incorporate my suggestion [PD-023] to include construction compounds and to accommodate NRW's request [REP1-026] to be consulted on. These additions provide appropriate controls, with respect to potential impacts on ecology, landscape and amenity.

Requirement 16 (External lighting)

- 8.5.34 This requirement was updated [REP2-005] by the Applicant to accommodate NRW's request that it should be consulted on [REP1-026]. This is appropriate to provide appropriate controls, including with respect to potential impacts on ecology and landscape.

Requirement 17 (Excess water management strategy)

- 8.5.35 This requirement was updated by the Applicant to address NRW's request that it should be consulted on [REP1-026 and REP4-037]. I am satisfied that this is appropriate given the potential impacts arising from discharges, including on biodiversity, ecology and flood risk. I am satisfied that appropriate provisions are secured by the recommended DCO in the Outline Excess Water Management Strategy [REP9-020].

Requirement 19 (Annual maintenance plans)

- 8.5.36 I sought appropriate control of maintenance activities to be satisfied that they would be in line with the impacts considered in the ES [EV-0-17 and EV-025]. In particular I was concerned for the potential for maintenance to include major construction works [EV-017]. The definition of 'maintain' is considered earlier in this section.
- 8.5.37 In response the Applicant developed this Requirement in consultation with GC [REP4-016]. The Requirement secures that annual maintenance plans would be submitted to the relevant planning authority for approval with respect to whether they would result in any materially new or materially different effects to those considered in

the ES. On that basis I am satisfied that the Requirement is appropriate and addresses my concerns.

Requirement 20 (Decommissioning plan)

- 8.5.38 This Requirement was updated [REP1-004] during the Examination in response to my request to clarify how the LPA would judge "*the life of the development consent*" or whether electricity generation had "*permanently ceased*" so as to define when the decommissioning plan would be due [EV-007]. I am satisfied that those concerns have been addressed and that Requirement 20 would provide appropriate controls for decommissioning in that respect.
- 8.5.39 I have added Requirements 20(7), (8) and (9) to the recommended DCO to address concerns of the Welsh Government [REP2-056] and others regarding funding for decommissioning. This provides for an Outline Decommissioning Plan to be submitted before commencement of generation, and updated every 5 years until the Decommissioning Plan is submitted. The Outline Decommissioning Plan is to be approved by the relevant planning authority; is to include the anticipated timetable and demonstrate how funding is secured; and the Decommissioning Plan must be substantially in accordance with it.

Requirement 22 (Archaeological compensation and enhancement strategy)

- 8.5.40 I have added Requirement 22 to the recommended DCO to secure measures related to a watching brief, peat deposits, the bomb store and other measures. These include the analysis of the results of investigations and the organisation and deposition of the archive to an approved repository that are needed due to new policy in PPW9, which came into force after the Examination. This necessary mitigation is identified in Section 4.11 of this report, but not specifically addressed by the Applicant's final draft DCO [REP9-035] or the Outline Archaeological Compensation and Enhancement Strategy [REP9-003].

8.6 PROTECTIVE PROVISIONS

- 8.6.1 Schedule 7 contains two sets of protective provisions which were agreed or were close to being agreed at the end of the Examination. These include the addition of bespoke protective provisions for Dwr Cymru (Welsh Water) [REP5-013].
- 8.6.2 The Applicant advised [REP10-002] that Dwr Cymru and Wales and West Utilities agreed to the protective provisions and agreed [REP5-027] with SP Manweb that no impediment had been identified. The Applicant later advised that minor comments were being discussed with SP Manweb [REP10-002].
- 8.6.3 I anticipate a successful conclusion to SP Manweb's agreement of to the protective provisions. I was not informed by SP Manweb of situations arising that might affect the exercise of their duties or

powers as a Statutory Undertaker. The SoS may need to be satisfied of the final position with SP Manweb before deciding.

- 8.6.4 Section 127 of PA2008 would not be engaged as there would be no Compulsory Acquisition of Statutory Undertakers' land.
- 8.6.5 Section 138 of PA2008 is engaged as powers would be granted to remove apparatus. Subject to SP Manweb's subsequent agreement to Schedule 7 Part 1, this is addressed by relevant protective provisions.

8.7 OTHER SCHEDULES

Schedule 2 (Streets subject to street works)

Schedule 3 (Streets for which a substitute is to be provided)

Schedule 4 (Streets temporarily prohibited or restricted)

Schedule 5 (Access to works)

- 8.7.1 These Schedules are given effect by Articles 10, 11, 13, 14 and 30.
- 8.7.2 The Applicant addressed requests by GC, including correct names for Ffordd Cefn Du and Ffordd Clegir, the diversion of PRoW 3 and right of way closures [REP1-004, REP2-005 and REP3-015]. I am satisfied that these have been addressed appropriately.

Application draft DCO [APP-043] Schedule 6 (Land in which only new and existing rights etc. may be required)

- 8.7.3 This Schedule was deleted following the Applicant's conclusion of voluntary agreements to acquire rights and the removal of plots from compulsory purchase [REP3-015].

Schedule 6 (Modification of compensation and compulsory purchase enactments for creation of new rights)

- 8.7.4 This Schedule is given effect by Article 21 (Compulsory Acquisition of rights). Minor corrections were made to this Schedule during the Examination and no objections were made to its inclusion.

Schedule 8 (Discharge of requirements)

- 8.7.5 This Schedule is given effect by Article 4 (Procedure in relation to approvals etc. under requirements).
- 8.7.6 During the Examination the Applicant clarified provisions for further information, timescales for the provision of information by Consultees and fees in response [REP3-005] to comments from the Welsh Government [REP2-056] and to make the counting of days more consistent [REP7-008]. I have no reason not to consider that the Welsh Government's concerns have not been addressed appropriately and have included this Schedule in the recommended DCO.

8.8 OTHER LEGAL AGREEMENTS AND RELATED DOCUMENTS

- 8.8.1 At no stage during the Examination was it considered by the Applicant or GC that a planning obligation directly related to the Proposed Development was necessary. I am content with this approach.
- 8.8.2 A list of other the consents required to construct, operate and maintain the Proposed Development was set out by the Applicant in s23 of the Application Form [APP-003] and the details of Other Consents and Licences [REP9-002] as summarised in Section 1.8.
- 8.8.3 It is likely that the outstanding s278 agreement for highway improvement works to Ffordd Cefn Du and Environmental Permits for water discharges will be granted before the SoS makes a decision. The SoS may wish to be satisfied of the final position before deciding.
- 8.8.4 The Applicant [REP6-010] considered that none of those represent an impediment to the delivery of the Proposed Development while GC [REP2-041] raised no concerns.
- 8.8.5 Although NRW has not committed to stating whether or not any outstanding Environmental Permits or any European Protected Species licences that may be required in the future would be granted [REP7-042, REP9-043], it has stated that it is satisfied with the ES and has not raised particular concerns that they would not be granted.
- 8.8.6 Given the final positions of GC and NRW in relation to matters within their jurisdiction, I do not envisage that any particular issues would be likely to prevent the granting of licences and permits by the relevant bodies. If a DCO is made, there is a reasonable likelihood of outstanding necessary agreements being completed, and consents and licences being granted, after the DCO is made.

8.9 CONCLUSIONS ON THE DCO

- 8.9.1 I have had regard to all matters forming the application and put before me at the Examination. I have added requirements following the close of the Examination that the SoS may wish to consider. These include some of the provisions of Requirement 22 to cover new policy in PPW9, which came into force after the close of the Examination. The recommended DCO and my conclusions apply equally to PPW8 and PPW9.
- 8.9.2 I find the form of the recommended Order in Appendix D to be acceptable, subject to it being demonstrated that any necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008 and subject to it being demonstrated that the mitigation access land identified as 'CROW Mitigation Land (64.8 Acres)' in Figure 4 of the Common, Access Land and Public Rights of Way Strategy' [REP3-005] and its designation under section 16 of the CROW Act would be secured before works commence on the commons land.

9 SUMMARY OF CONCLUSIONS AND RECOMMENDATION

9.1 SUMMARY AND CONCLUSIONS

- 9.1.1 I have concluded that there is not a National Policy Statement with which the Proposed Development would be expected to be 'in accordance' under s104 of PA2008 and that therefore s105 applies to the decision.
- 9.1.2 In reaching my recommendation, I have had full regard to the Local Impact Report as required by s105(2)(a) of PA2008, matters prescribed in relation to the development and other matters that are both 'important and relevant' to the decision, as required by s105(2)(c) of PA2008, including the Overarching National Policy Statement for Energy EN-1, Planning Policy Wales, Energy Wales: A Low Carbon Transition (2012), Wales Spatial Plan 2008, Climate Change Strategy for Wales (2010) and Gwynedd Unitary Development Plan.
- 9.1.3 Planning Policy Wales was updated during and after the Examination. I have identified differences between the different editions but do not feel that they are so significant as to affect my conclusions.
- 9.1.4 I have had regard to relevant national primary and secondary legislation including the Equality Act 2010 and the Human Rights Act 1998 and, where relevant, European legislation and Directives. Throughout the Examination it was evident to me that there were no equality issues raised or arising in relation to persons who share a relevant protected characteristic and persons who do not.
- 9.1.5 I have had regard to the duties set out in The Infrastructure Planning (Decisions) Regulations 2010 and I am satisfied that they have been complied with.
- 9.1.6 I see no reason for Habitats Regulation Assessment or Water Framework Directive matters to prevent the making of the Order and I see no reason why the Proposed Development would lead to the UK being in breach of any of its international obligations.
- 9.1.7 I have taken all matters raised and representations made into account. In considering these matters I have found no relevant matters of such importance that they would individually or collectively lead to a different recommendation to that set out below.
- 9.1.8 I have added some requirements to the recommended Development Consent Order following the close of the Examination that the SoS may wish to consider. These include some of the provisions of Requirement 22 to cover new policy in Edition 9 of Planning Policy Wales, which came into force after the close of the Examination. The recommended DCO and my conclusions apply equally to Editions 8 and 9 of Planning Policy Wales.

- 9.1.9 I have considered the balance of potential benefits and potential adverse impacts and concluded that the national benefits clearly outweigh the adverse effects on heritage assets, in respect of bat species and due to noise, taking effects on nearby residential properties fully into account. I accept that these have been mitigated to the extent reasonably possible and that mitigation is secured.
- 9.1.10 I have concluded that the benefits of the Proposed Development provide exceptional circumstances that overcome some potential harm and that compliance with the local development plan would not prevent the Order from being made as any non-compliance would be outweighed by other material considerations.
- 9.1.11 I have found that the case for development has been made, subject to the provisions of the recommended Development Consent Order and subject to it being demonstrated that mitigation access land identified as 'Countryside Rights Of Way Mitigation Land (64.8 Acres)' in Figure 4 of the Common, Access Land and Public Rights of Way Strategy' [REP3-005] and its designation under section 16 of the Countryside Rights Of Way Act would be secured before works commence on the commons land.
- 9.1.12 I have concluded that there is a compelling case in the public interest for the Compulsory Acquisition and other powers sought in respect of Plots 4 and 7, subject to it being demonstrated that any necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008.
- 9.1.13 My recommendation is therefore subject to it being demonstrated that:
- any necessary consent from the appropriate Crown authority for the rights sought for Plots 4 and 7 is obtained in accordance with s135(1) of PA2008; and that
 - mitigation access land identified as 'Countryside Rights Of Way Mitigation Land (64.8 Acres)' in Figure 4 of the Common, Access Land and Public Rights of Way Strategy' [REP3-005] and its designation under section 16 of the CROW Act would be secured before works commence on the commons land.

9.2 RECOMMENDATION

- 9.2.1 For all of the above reasons and in the light of my findings and conclusions on important and relevant matters set out in this report, I, as Examining Authority under the Planning Act 2008, recommend that, subject to resolving the matters identified in paragraph 9.1.13 above, the Secretary of State for Business, Energy and Industrial Strategy grants the application for development consent and makes the Glyn Rhonwy Pumped Storage (Generating Station) Order as set out in Appendix D.