Environmental Statement

Addendum 2020

Volume 1: main text

CONSULTATION DRAFT – JUNE 2020



This document is an Environmental Statement addendum for proposals for a taller stack at the Enviroparks waste resource recovery and energy production park on Fifth Avenue, Hirwaun Industrial Estate, Hirwaun, South Wales.

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Environmental Statement Addendum 2020 CONTENTS

CONTEXT

- 1 Introduction
- 2 Site description
- 3 Proposed development and land uses
- 4 Site selection, alternatives and scheme evolution
- 5 Policy context
- 6 Scoping and consultation

THEMATIC ASSESSMENTS

- 7 Air Quality
- 8 Landscape and visual effects
- 9 Ecology
- 10 Other Environmental Topics

CONCLISION

11 Conclusion

FIGURES

Introduction

Figure 1.1 Site location and redline boundary plan

Proposed development and land uses

- Figure 3.1 Waste Reception Hall and Gasification Hall Site Plan
- Figure 3.2 Proposed stack elevations
- Figure 3.3 Proposed site sections
- Figure 3.4 Proposed site sections

Landscape and visual effects

Chapter 8 Figures:

Please see the stand alone Volume 3: Environmental Statement Addendum, Landscape and Visual Figures and Visualisations



APPENDICES

Air quality

Information on pollutants
Information on background concentrations of pollutants
OMS Dust Management Plan
OMS Odour Management Plan
Dispersion Modelling Report

Appendix 7.6 Dioxin Health Impact Assessment Report

Landscape and visual effects

Landscape and visual methodology
LANDMAP Baseline and Landscape Character Assessment
Viewpoint Assessment
Residential Visual Amenity Assessment

Ecology

Appendix 9.1 Habitats Regulations Assessment Stage 1 and 2 Report

Chapter One INTRODUCTION

BACKGROUND

1.1 In 2008 Enviroparks (Hirwaun) Limited submitted planning applications to Rhondda Cynon Taf County Borough Council (RCT) and Brecon Beacons National Park Authority (BBNPA) for planning permission for development of a sustainable waste resource recovery and energy production park including a 20MW_e net capacity combined heat and power plant with a 40m ventilation stack.

1.2 Planning applications were made to two planning authorities because the boundary between the two crosses the application site. Because the proposals constituted a development requiring an environmental impact assessment (EIA), the applications were accompanied by an Environmental Statement (ES). Planning permission was granted by both authorities on 21 December 2010 (RCT reference 08/1735/10 and BBNPA reference 08/02488/FUL) following the completion of a planning obligations agreement under section 106 of the Town and Country Planning Act 1990. As chapter four of this document explains, permission was granted subsequently for various amendments to the approved proposals. For the purposes of this Environmental Assessment Addendum this is termed the '2010 scheme'.

1.3 The 2010 scheme was implemented through the construction of the first phase of the development, comprising a Fuel Preparation Building and internal site access roads. In the meantime advances in waste recovery technologies and a much-changed policy and commercial landscape for waste recovery and renewable energy generation necessitated a review of the original master plan for the Enviroparks site. Revised planning applications were therefore prepared for the site in 2017. An Environmental Statement Addendum ('the ES Addendum') was submitted alongside these applications to provide an updated assessment of the likely significant environmental effects of the proposals.

The 2017 planning applications to RCT (reference 17/0249/10) and BBNPA (reference 17/14587/FUL) sought permission for the following development:

Amended phase II development and operation of a sustainable waste resource recovery and energy production park, comprising the consolidation of the approved gasification yard and pyrolysis building into a 6,270.43 m² gasification hall; an emissions stack measuring 45 m in height and 3.5 m in diameter; a 2,102.86 m² fuel storage hall and a 378 m² turbine hall for electricity generation; and a 4,824 m² open service yard containing ancillary structures including air-cooled condensers for the gasification plant, ancillary fire water tanks and a fire pumphouse, effluent pumps, gas boosters, transformers and a standby diesel generator and fuel tank, with boundary landscape and planting.

Planning permission was granted for this development in February 2019.

Since the 2019 approval, the proposals for phase 2 have been reviewed by the applicant in response further modelling of the anticipated emissions from the gasification process. In pursuit of a superior operational and environmental performance the applicant decided to seek planning permission to relocate the main stack with the Enviroparks site and to increase the height of the structure from 45 metres, as currently consented, to 90 metres.

The proposed development that forms the current planning application relates solely to the provision for an amended main stack. No other elements of the previously consented scheme are proposed to be altered. The stack will be relocated from its established central location on the site to a service yard to the east of the consented Gasification Hall. This will improve the emissions profile of the plant, particularly in respect of acid and nutrient nitrogen deposition on adjacent Special Areas of Conservation (SAC).

The revised stack, including its access from the public highway, is now located wholly within the jurisdiction of RCT and the current planning application is thus submitted to this planning authority alone, with BBNPA becoming a consultee to the application. A new Environmental Statement Addendum ('the ES Addendum 2020') is submitted alongside this application to provide an updated assessment of the likely significant environmental effects of the proposals. Figure 1.1 illustrates the redline boundary for this planning application.

THE APPLICANT: ENVIROPARKS (WALES) LIMITED

1.4 EWL is an energy company that developed a concept of co-locating waste recycling, energy recovery and associated commercial operations on the same site or 'park'. The company's approach is to recycle diverse waste streams using integrated advanced technologies to maximise recycling and energy generation with the minimum residual waste and environmental impact.

1.5 Based in Abergavenny, EWL was established with the aim of developing a chain of Enviroparks in the UK. EWL is funded by private investors and investing institutions, notably Zeus Renewables which specialises in investments in renewable energy infrastructure. The directors of EWL formerly developed a battery recycling facility in Ebbw Vale which is the most modern of its kind in Europe and one of only two in the UK.

THE CURRENT APPLICATION

1.8 This ES Addendum accompanies a planning application to RCT for the following development:

Construction and use of a stack with associated pipework and continuous emissions monitoring systems gantry with ladder access.

1.9 In accordance with the Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016, the current proposals were the subject of pre-application



consultations. A draft of this ES Addendum 2020 was made available in support of the consultation exercise.

- 1.10 The following standard terminology is used throughout the ES Addendum 2020.
- '2010 Scheme' The original Enviroparks development proposals that were submitted in 2008 and granted planning permission by RCT and BBNPA in 2010. This planning submission was accompanied by the original ES.
- '2019 Scheme' The amended proposals submitted to RCT and BBNPA in 2017 and granted planning permission in 2019. This application was accompanied by an ES addendum.
- 'Proposed development' The scheme forming the subject of the current planning application to RCT only, comprising the relocation of the stack, an increase in its height and ancillary pipework and access infrastructure. This application is accompanied by this ES addendum, which is referred to as 'the ES Addendum 2020'.
- 'The Enviroparks site' The total area of land under the ownership of EWL at Fifth Avenue on Hirwaun Industrial Estate, within which the previously consented schemes and the proposed development are located.
- 'The application site' This refers to the area contained within the red line boundary for the current planning application, namely the stack and ancillary pipework and access infrastructure and vehicular access.

ENVIRONMENTAL IMPACT ASSESSMENT

1.10 Environmental impact assessment (EIA) is a process that aims to improve the environmental design of a development proposal and to provide decision-makers with sufficient information about the environmental impacts of the project.

1.11 An environmental statement (ES) is a report that sets out the results of the EIA process. The ES is submitted with an application for planning permission and provides environmental information about the scheme, including a description of the development, its predicted environmental impacts and the measures proposed to ameliorate any adverse effects.

1.12 Under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, the original Enviroparks proposals for the Hirwaun site qualified as a development requiring EIA. An ES was thus submitted with the original planning applications.

1.13 As part of the 2019 scheme, it was confirmed that an EIA update was required. Those planning applications were thus accompanied by an ES Addendum. Because the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2016 recently consolidated the



1999 EIA Regulations and subsequent amending regulations, this ES Addendum complied with relevant provisions of the 2016 EIA Regulations.

1.14 The changes resulting from the revised planning application for this proposed development mean that a further update to the ES is required. This planning application is therefore accompanied by a further ES addendum. In 2017, the EIA Regulations were once again updated to become the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 ('the EIA Regulations 2017'). In accordance with best practice, this ES addendum complies with the relevant provisions of these Regulations.

THE PROJECT TEAM

1.6 EWL is advised by a team of experienced consultants. Companies working on the project design and EIA for the revised scheme, together with the tasks and specialist issues for which each is responsible, are as follows.

Savills – town and country planning consultant and the EIA coordinator for the project. Savills is a 'Quality Mark' member of the Institute of Environmental Management and Assessment.

Environmental Visage (Envisage) – an environmental consultancy service undertaking the technical assessment of environmental effects in relation to air quality.

Pleydell Smithyman – a specialist design and business consultancy undertaking the landscape and visual impact assessment.

Middlemarch Environmental – a national ecological consultancy undertaking the ecological work.

Part 5 section 17(4)(a and b) of the EIA Regulations 2017 state that an Environmental Statement must -

(a) be prepared by persons who in the opinion of the relevant planning authority or the Welsh Ministers, as appropriate, have sufficient expertise to ensure the completeness and quality of the statement;

(b) contain a statement by or on behalf of the applicant or appellant describing the expertise of the person who prepared the environmental statement . . .

Table 1.1 below identifies the main technical authors responsible for the production of the ES Addendum 2020 and their relevant professional qualifications.

Table 1.1: Technical competency of authors contributing to the ES Addendum 2020

Chapter	Author	Qualifications	Reviewer	Qualifications
EIA management	Erin Banks,	MEnvSci (Hons)	Karl Cradick,	BA (Hons), MSc,
and co-	Associate, Savills	MIEMA, CEnv	Director, Savills	MRTPI



Chapter	Author	Qualifications	Reviewer	Qualifications
ordination, including chapters 1-6, 10 and 11				
Air quality	Dr. Amanda Owen, Environmental Consultant, Environmental Visage Limited.	BSc (Hons), PhD., MIEMA, CEnv		
Landscape and visual impact	Neil Furber, Associate Director, Pleydell Smithyman Limited	BSc (Dual Hons), Dip LA, CMLI		
Ecology	Hannah Train, Senior Ecological Consultant, Middlemarch Environmental Ltd	MSc, GradCIEEM	Tom Docker, Managing Director, Middlemarch Environmental Ltd	MSc, CEcol, MCIEEM

1.7 EWL is also working in partnership with several specialist technology providers to deliver its aims. The combination of technologies brought together by EWL is designed to ensure high levels of efficiency with regard to fuel preparation and electricity production. These technologies are intended to represent Best Available Techniques for the functions they serve.

THIS DOCUMENT

1.14 The ES Addendum should be read alongside the information submitted in support of the 2010 scheme including the original ES for the Enviroparks development, and the further environmental information submitted in an ES Addendum to inform the determination of the 2019 scheme. All of this environmental information is resubmitted alongside the current planning application. The ES Addendum 2020 comprises a main report (this document), appendices and a non-technical summary (NTS). To assist cross-referencing, the ES Addendum 2020 follows the same general structure as the original ES, whilst focusing on the significant environmental effects arising from the amended stack design, as follows:

- 2. Site description
- 3. Proposed development and land uses
- 4. Site selection, alternatives and scheme evolution
- 5. Planning policy context
- 6. Scoping and consultation



- 7. Air quality
- 8. Landscape and visual effects
- 9. Ecology
- 10. Other Environmental Topics
- 11. Conclusion

1.15 This ES Addendum identifies relevant changes to the baseline environmental conditions prevalent in the locality, changes to the Enviroparks development as consented as a result of the amended stack and changes to policy and regulations that are relevant to the assessment of the proposals. Updates to the EIA work associated with the 2010 and 2019 schemes are provided only where necessary, and where no material changes of circumstance have been identified, the updated assessment relies on the original ES and ES addendum to avoid duplication. In contrast, where significant changes to baseline conditions, regulations and policy or to assessment methodologies or the environmental effects of the scheme itself are evident, replacement ES chapters are provided in this addendum. The updated 2017 EIA Regulations introduced a number of new topics to be considered, these are also covered as part of this addendum.

1.16 Chapter 2 provides an updated description of the existing site and land uses and considers how these are likely to change in future irrespective of the proposed scheme being developed. Chapter 3 describes the development that forms the basis of the current planning application and, with the planning application plans and drawings, defines the physical and operational parameters that have been assessed during the EIA.

1.17 Chapter 4 summarises the site selection and evaluation process and explains how the previous stack layout has evolved through a series of iterations - effectively alternative options.

1.18 Chapter 5 provides a summary of relevant planning and other policy as directly relevant to the EIA of the current proposals. The 'scope' of the EIA is then identified in chapter 6. This explains how the ES Addendum 2020 provides the environmental information identified by the local planning authorities and statutory consultees during the preliminary stages of the EIA process.

1.19 The main element of the EIA process is then reported in chapters 7 to 10. Chapter 11 of the ES Addendum provides a summary of the mitigation incorporated into the proposed development. This will assist in ensuring that these measures are translated into legal instruments and, where relevant, a construction and environmental management plan (CEMP) for the project. Chapter 11 also sets out the residual impacts of the proposal after the proposed mitigating measures have been taken into account. Where appropriate, technical reports have been included as appendices to the ES Addendum.

1.20 A non-technical summary provides, in plain language, a summary of the ES addendum 2020 and contains the essential illustrative material required to support the description of the proposal and its environmental effects.

THE APPROACH TO ASSESSMENT

1.21 The framework used to express the predicted significance of the environmental effects identified is explained in each ES addendum chapter. In summary, unless best practice guidance for technical assessment dictates otherwise, each predicted impact and residual effect will be ascribed one of the following levels of significance:

negligible; low; medium, or; high.

1.22 Where relevant, those elements of the proposed development that have been introduced to mitigate potential adverse effects are identified within each chapter. The mitigation included in the scheme can be categorised into two types - 'inherent' and 'additional' mitigation. Inherent mitigation is amelioration that is a fundamental part of the scheme and can generally be represented in the application plans. Additional mitigation is generally less capable of being shown in the planning application drawings, because it might involve controls on the construction or operation of the development, for example. The need for additional mitigation might be enforced through planning conditions or obligations associated with a grant of planning permission for the proposals.

1.23 The consented and partly-implemented Enviroparks development is subject to a comprehensive range of environmental mitigation and safeguards. These are either inherent in the design or enforced through planning conditions and planning obligations agreed under section 106 of the Town and Country Planning Act 1990, or through the an Environmental Permit from Natural Resources Wales (NRW), which regulates the site operations. Not least because various of these mitigation strategies are already partly implemented, the current proposals seek to work within them.



Chapter Two SITE DESCRIPTION

UPDATE

2.1 Chapter two of the ES for the 2010 scheme describes the site and its surroundings. The description remains current, save for the following changes.

- i). Construction of phase I of the Enviroparks development has been completed. This includes a large building, known as the Fuel Preparation Hall, in the south-east part of the site, with a gatehouse, temporary construction laydown and parking areas and foul and surface water drainage works.
- ii). Construction of internal site access roads, running from the site entrance on Ninth Avenue, westwards across the central area of the site and then southwards to Fifth Avenue at the south-western corner of the site.

2.2. Chapter two of the ES addendum for the 2019 scheme described recent developments that have taken place in the wider neighbourhood. At the time these included the following. All distances cited are minima.

- i). Pen y Cymoedd wind farm on an upland ridge 3.5 km to the south of the application site. This 76 turbine development is located on land managed by Natural Resources Wales in the county boroughs of Rhondda Cynon Taf and Neath Port Talbot.
- ii). An electricity sub-station required to connect Pen y Cymoedd wind farm to the electricity distribution network, located 475 metres to the west of the Application site on land at Fourteenth Avenue on Hirwaun Industrial Estate, on the southern side of the A465 Heads of the Valleys Road.
- iii). A diesel-powered generation station operated by Green Frog Connect Limited, providing short-term operating reserve power supply on land off Main Avenue on Hirwaun Industrial Estate, 400 metres to the south of the Enviroparks site (planning reference 11/1191/10).

2.3 Other new and proposed developments in the locality taken into account in this ES Addendum are as follows.

i). The Abergorki wind farm (7.4 km distant), for which planning permission has been granted for three wind turbines with overall tip height of 149.9m, is yet to be constructed (planning references 13/0663/10 and 18/0523/15).

- ii). The Hirwaun Generating Station Order 2015 (SI 2015 No. 1574), a Development Consent Order under the Planning Act 2008, was made on 23 July 2015 for an open cycle gas turbine power station to the north of Main Avenue on Hirwaun Industrial Estate, on the site of existing storage and distribution buildings. This consent was subject to monmaterial changes through the Hirwaun Generating Station (Amendment) Order 2017 (2017 No. 1009 (W.258)). The site is to be developed by Hirwaun Power Limited (HPL), a subsidiary business of Drax Group. Demolition of existing buildings is due to commence shortly and power station construction work is expected to take approximately 24 months to complete. The proposed power station would be 340 metres to the south of the Enviroparks site at its closest point, and when complete will feature up to four flue stacks up to 35 metres in height and up to ten metres in width.
- iii). Open-cast coal mining at Tower Colliery, 1.5 km to the south of the site, has ceased and the site is in the process of being restored. Planning permission was granted in 2019 for an Environmental Resources Centre on a part of the site (RCT planning application reference 19/0087/10). An EIA Scoping Report was submitted in December 2019 (planning reference 19/1318/35) for the proposed development of land south of Hirwaun (the area covered by the former Tower Colliery works) in accordance with RCT's Local Development Plan (LDP) allocation 'Northern Strategic Area 8 Land South of Hirwaun'. The proposed development will incorporate approximately 1.5 hectares (ha) of residential land, approximately 25 ha of employment land, approximately 5 ha of commercial land with associated open space, access, infrastructure and engineering works.
- iv). Planning permission has been granted for the erection of three zip wire courses and associated infrastructure on the former Tower Colliery site (RCT reference 19/1192/10).
- v). Planning permission was granted for the change of use of Unit 43-44 Seventeenth Avenue on Hirwaun Industrial estate to a wood pyrolysis unit (planning reference 13/0416/10). This has now been developed and is operational. This site is a minimum 580 metres to the south-west of the Enviroparks site.
- vi). Highway upgrade works have continued on the A465 Heads of the Valley Road, which provides strategic road access to Hirwaun Industrial Estate. Upgrades to sections of the A465 between Dowlais and Brynmawr to the east of Hirwaun are complete. Work on the section between Dowlais and Hirwaun have yet to commence, with the contracts due to be awarded and construction likely to commence later in 2020.

2.4 Where significant, these developments are taken into account in relevant chapters of the ES Addendum 2020.



Chapter Three THE PROPOSED DEVELOPMENT AND LAND USES

INTRODUCTION

3.1 This chapter provides a detailed description of EWL's proposals. It explains both the physical nature of what EWL proposes to build and the operations that will take place once construction is completed. The chapter replaces chapter three of the 2008 ES and chapter 3 of the ES Addendum for the 2019 scheme.

3.2 Although the current planning application is concerned solely with the relocation and raising in height of an already-consented stack, it would not make sense to assess the environmental effects of the proposals without explaining the wider operation of the consented gasification plant of which the stack forms a part. The chapter begins with an explanation of the processes that would take place on the Enviroparks site, including the individual buildings in which these processes would be accommodated, and describes the revised proposals relating to the stack in that context.

PROCESSES

3.3 Processes would be unchanged from the 2019 scheme. The central objective of the proposed development is to recover the energy from the non-hazardous residues that remain after recyclable materials have been removed from the waste stream and to supply low carbon electricity to customers on and off site. To this end, the consented development includes the following main processes and elements.

Waste management

- 3.4. Waste will be brought to the Enviroparks site by lorry in two forms for processing:
- **Refuse-derived fuel (RDF)** comprising pre-processed waste that has already been sorted, shredded and prepared off-site. The RDF would be brought to the site in sealed bales or loose-loaded in specialist vehicles.
- **Commercial and industrial waste (C&I)** sourced from other waste contractors and businesses in South Wales. This would also be brought to the site in sealed bales or loose-loaded in specialist vehicles.
- 3.5 No hazardous waste or untreated municipal solid waste will be processed on the site.



Waste reception

3.6 Waste delivery vehicles will enter the Enviroparks site from Ninth Avenue, and a waiting area is provided within the site boundary for lorries to park temporarily whilst undergoing the booking-in process. Having been weighed and booked in at the gatehouse, the imported waste will be delivered to the waste reception area in the existing Fuel Preparation Hall in the south-east part of the site. In an enclosed environment the waste will undergo a quality analysis to ensure it is of appropriate quality and consistency for further processing. The C&I will be shredded to a size no greater than 300 mm. As noted, RDF would arrive at the site already shredded. Both waste streams will be sorted to remove remaining recyclables such as metals or unacceptable materials such as gas bottles, which will be taken to appropriate facilities off-site for recycling or safe disposal.

3.7 The remaining waste will be further processed using mechanical means and tested to ensure it meets the fuel specification required by the gasifier. Quality control testing will be carried out 'inline' using computer-controlled optical and infra-red analysers to ensure that the fuel meets the standards required to be classed as a renewable fuel.

Fuel preparation

3.8 Fuel for gasification will finally be shredded to a sub 75mm particle size and conveyed to the Fuel Storage Hall on the Fifth Avenue frontage of the Enviroparks site. Any metals recovered from the waste stream would be separated and sent for recycling off-site, and any remaining inert waste such as grit will be extracted and disposed of at a suitably-licenced landfill site or as an aggregate for construction use. The remaining material is the fuel for the gasifiers and would be conveyed to fuel bunkers inside the consented **Fuel Storage Hall** on the Fifth Avenue frontage of the site. The bunkers provide a steady supply of fuel for the gasifiers with reserves available for times when fuel is not being prepared such as weekends and bank holidays.

Gasification

3.9 There will be multiple gasification units in the consented development, housed in a central **Gasification Hall**. These would use advanced conversion technology to convert refuse derived fuels into a combustible gas, known as 'syngas'.

- 3.10 The gasifiers will operate in the following manner.
- i). The fuel passes along a 'walking floor' system to ensure a consistent flow of fuel to the gasifier. It is then conveyed to a metered fuel feed hopper at the top of the gasifier, the rate of supply ensuring that the volume of fuel within the gasifier vessel remains constant.
- ii). The fuel enters the sealed gasifier vessel by means of a rotating auger. Once inside the gasification vessel it is heated to over 1,000 degrees centigrade, initiating the gasification process. As the fuel heats up it undergoes a sequence of changes involving drying, chemical change caused by heating known as 'pyrolysis', and finally gasification, in which the syngas is liberated and the fuel reduced to an inert, non-combustible ash. Ash produced during the process would be sent off-site to a specialist company that further processes the ash converting it into building products. As such, nothing is wasted.



- iii). The syngas is piped to a large sealed chamber and combusted. The heat created passes through a superheater and boiler system to boil water efficiently, and the resulting steam from all three gasifiers would drive a single steam turbine, located in the **Turbine Hall**, that generates electricity. The electricity generated will be fed via an on-site HV substation located towards the eastern end of the Fifth Avenue frontage to the local electricity distribution network operated by Western Power Distribution. The scheme would have a gross generation capacity of 15 megawatts (MW) and would generate electricity required to run the average demand from approximately 30,000 homes after electricity required to run the plant is consumed Having driven the turbine, the steam would be piped to air-cooled condensers in which the water is recovered for reuse, minimising the need for further inputs.
- iv). The exhaust gases from the superheater will be passed through a boiler and 'economiser' system that recovers heat for use around the process. The exhaust gases would then be cleaned by the following combination of methods before being discharged under constantly monitored conditions through the proposed stack.
 - On leaving the final secondary combustion chamber, the gases enter a reaction duct where chemical additions are made to the flue gases to abate pollutant emissions.
 - The addition of hydrated lime reduces concentrations of hydrogen chloride, hydrogen fluoride and sulphur dioxide from the flue gases, transforming them into calcium chloride, calcium sulphite, calcium sulphate and calcium fluoride. The resultant solid materials can then be captured by the bag filters.
 - Similarly, the application of powdered activated carbon (PAC) into the duct just before the bag filter adsorbs dioxins and 'dioxin-like' compounds, volatile organic compounds (VOCs) and heavy metals from the gas stream, for subsequent collection in the filter.
 - Urea is added to abate oxides of nitrogen (NO_x), reducing to nitrogen and water vapour.
 - the emissions are filtered to remove air pollution control residues and other particulates (small particles) and discharged under constantly-monitored conditions through the main stack that is the subject of the current planning application. Emissions would be controlled under an Environmental Permit issued by NRW.

3.11 Chapter XX of this ES addendum describes in detail the composition of the emission gases and the measures proposed to discharge them to an acceptable standard.

High energy user

3.12 As noted, the Enviroparks concept seeks to recover as much material and energy resources as possible from the waste stream. The renewable energy produced on site can be made available on suitable commercial terms to future users of the consented High Energy User B1/B2 industrial unit. It is envisaged that the availability of renewable energy will be particularly attractive to inward investors.

3.13 Estimates of the inputs, residues and emissions from the Enviroparks operation are set out in table 3.1. These estimates are unchanged from the proposals granted planning permission in 2019.

	Table 3.1: Enviro	parks Hirwaun ·	 estimated i 	nputs, out	puts and	emissions
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Inputs and outputs	Volume (annual unless specified)	
Waste inputs		
Refuse-derived fuel	150,000 tonnes	
Commercial and industrial waste	30,000 tonnes	
Materials to support the gasification		
process		
Lime	1,183 tonnes	
Urea	473 tonnes	
Activated carbon	47 tonnes	
Process Water	35,083 cubic metres	
Outputs		
Metals for recycling	6,346 tonnes	
Additional recyclates and other materials	61 6E4 toppor	
removed during fuel preparation	61,654 tonnes	
Effluent water	13,560 cubic metres	
Ash from gasification	20,341 tonnes	
Syngas from gasification	16.4 cubic metres per second	
Emissions to air	80.7 cubic metres per second	
Electricity	86,724 megawatt hours per year	

CONSENTED BUILDINGS

3.14 For completeness this section describes all of the buildings on the Enviroparks site to present a full picture of the development. The buildings and structures have yet to be constructed unless indicated below.

Fuel Preparation Hall

3.15 This building formed a part of the proposals approved in 2010 and has been built, occupying land in the south-eastern part of the site. It measures 14 metres to ridge in height and 132 x 36 metres in plan with a short return on the Fifth Avenue frontage, giving a gross internal floorspace of $4,752 \text{ m}^2$.

Fuel Storage Hall



3.16 The Fuel Storage Hall will occupy a part of the Fifth Avenue frontage and, under the proposals that secured planning permission in 2019, was increased by two metres in height to accommodate an internal crane system. The building will measure 16 metres to ridge in height and 99 x 36 metres in plan, giving a gross internal floorspace of 3,573 m². Having regard to internal subdivisions, the fuel storage element will account for 2,103 m² of this building, which will also accommodate the Turbine Hall and the southern part of the Gasification Hall (see below).

Gasification Hall

3.17 The Gasification Hall is the principal new element in the proposals that were granted planning permission in 2019. The Gasification Hall represent a consolidation of the consented Gasification Yard, Pyrolysis Building and Engine House in the 2010 scheme. It contains three gasification lines, each with a bag filter unit used to treat gaseous emissions prior to discharge via the stack, which would be continuously monitored and inspected periodically both by EWL and NRW in accordance with legislation.

3.18 The consented building is designed to occupy the central-southern area of the Enviroparks site and would measure 78 x 71 metres in plan, giving a gross internal floorspace of 5,538 m². The building will have a general ridge height of 18.65 metres with a higher clerestory roof element with a ridge height of 23.4 metres. As noted above, the Gasification Hall also includes some space in the Fuel Storage Hall Building, giving a total floor area of 6,271 m². The gasification hall will incorporate flush-fitted ventilation louvres in the walls and further vents on the roof, to allow a flow of air through the building.

Turbine Hall

3.19 The steam turbine will be accommodated at the western end of the proposed Fuel Storage Hall building on the Fifth Avenue frontage. It will measure 25.0×15.12 metres in plan, giving a gross internal floor area of 378 m². The electricity generated will be sent by underground cable to the proposed sub-station at the eastern end of the same building for onward transmission to Western Power Limited's local electricity distribution network.

Service yard

3.20 The service yard in the south-western corner of the Enviroparks site will contain the aircooled condensers for the steam turbine along with other ancillary structures including fire water tanks, process water storage tanks, a gas supply station, transformers and a standby generator. The yard measures 4,824 m² in area and is screened from views from Fifth Avenue by a belt of trees and shrubs.

On-site high energy user building

3.21 As explained earlier in this chapter, a use class B1 / B2 industrial unit is included to make use of some of the renewable energy generated on the site. The building will occupy the north-western area of the wider Enviroparks site and will measure 14.2 metres to ridge in height and 152.2 m x 61.7 m in plan, giving a total floor area of 10,240 m².



Biomax building

3.22 This building will occupy the north-east corner of the wider Enviroparks site and will be 10.95 m in height to the ridge 65.2×36.9 metres in plan with a floor area of 2,742 m².

Visitor centre and administration building

3.23 The Enviroparks development is intended to be a showcase development and a reference site to which waste authorities and contractors from the UK and beyond will be interested in visiting. Accordingly, the proposals that were granted planning permission in 2010 incorporate a combined administration building and visitor centre at the south-east corner of the Enviroparks site, visible from Fifth Avenue. The building would have a maximum height of 9.4 metres with an overall gross internal floorspace of 791 m² over two storeys, and is unaffected by the current proposals. It would accommodate the site's main reception, security, mess room and administration functions, along with an education and briefing area intended for use by commercial visitors and school and college parties of up to 40 in number. The adjacent car park thus includes space for a coach.

Access, circulation and parking

3.24 Vehicular access to the Enviroparks site would be from Fifth and Ninth Avenues. These entrances, along with a connecting internal access road across the centre of the Enviroparks site, have been constructed, along with areas of hardstanding to the north and west of the existing Fuel Preparation Building. Internally, the Enviroparks site has been arranged to facilitate the safe and efficient movement of commercial vehicles around the site, and to ensure safe separation of operational and visitor traffic. The principal car park will be adjacent to the visitor centre and administration building in the south-east corner of the site. This will incorporate appropriate manoeuvring and parking spaces for cars and a visiting coach.

3.25 The development will incorporate covered bicycle parking and shower / changing facilities for cyclists. EWL has already made a financial contribution to cover the cost of a new bus shelter in front of the development in Fifth Avenue, and proposals to retain a existing section 106 planning requiring the approval and implementation of a green travel plan.

3.26 The visitor centre and administration building would incorporate provision for disabled access. Parking provision complies with the guidance issued by Rhondda Cynon Taf CBC.

Layout, landscape and design

3.27 The buildings and structures described above would be laid out in a manner reflecting a range of planning and design considerations. These are considered in detail in the Design and Access Statement that accompanies EWL's planning application. Beyond operational efficiency, these considerations include a desire to present a coherent and attractive elevational appearance in external views of the Enviroparks site – particularly from Fifth and Ninth Avenues and from the Penderyn reservoir embankment on the northern boundary of the Enviroparks site. As far as possible, the design intention is to present a development that would not look out of place in a use class B1 business park.



3.28 The buildings have been designed to what is an unusually high specification for this type of use. Structures of a more industrial appearance, such as the gasifiers, would be contained in a building to conceal them in external views. Building materials and colours have been selected to integrate the development into the local landscape in elevated views from the reservoir embankment and the slopes of Moel Penderyn to the north and from the slopes of Llethr Las, Twyn Canwyllyr and Pistyll y Graig on Hirwaun Common to the south.

3.29 Extensive landscape and planting is proposed around the periphery of the Enviroparks site and within the car park as part of the consented scheme. Plant species would be selected to reflect the aims of integrating new planting with that which already exists on the site boundaries, providing a suitable visual foil for the buildings and some ecological benefit.

THE PROPOSED DEVELOPMENT

3.30 Emissions from the gasification plant would be expelled via a main stack. In its consented form the stack would be 45 metres high and 3.5 metres in diameter, and would occupy the verge between the northern side of the Gasification Hall and the internal spine road, which is already constructed. This is a confined space, close to the main thoroughfare along which lorries would pass. See Figure 3.1 for the Site Plan.

3.31 The current proposal is for a stack 90 metres high and 3.95 metres in diameter. The increase in stack height follows further studies on the emissions profile of the Enviroparks plant, particularly in relation to acid and nutrient nitrogen deposition on nearby Special Areas of Conservation (SAC), as later chapters of this ES Addendum will explain. To facilitate access for emissions monitoring in conjunction with Natural Resource Wales (NRW), a continuous emissions monitoring systems (CEMS) gantry is proposed around the stack at a deck height of 18.5 metres above local ground level. Access to the CEMS gantry would be by means of a permanent steel frame ladder. See Figure 3.2 for the proposed stack elevations.

3.32 The CEMS gantry would be a cantilevered platform 10.5 metres in diameter, meaning that it would overhang the existing access road if the stack were to remain in its current, consented, location. Given these space restrictions the applicant decided to relocate the stack to the service yard on the eastern side of the Gasification Hall. This location would provide more space in which to maintain the stack, and promotes the mutual safety of access road users and staff working on the stack.

3.33 The proposed stack would be finished in a smooth, flangeless external cladding in a graded colour scheme intended to give the stack a regressive appearance in the local landscape. If aviation warning lights are required, these would be of the infra-red type, invisible to the human eye. The adjacent Gasification hall would be connected to the stack my means of pipework, above head height and below the CEMS gantry. Figures 3.3 and 3.4 provide site sections for the proposed stack.

3.34 Vehicular access to the stack would be by means of the existing internal access road from Ninth Avenue and across the partly built service yard between the existing Fuel Preparation Building and the consented Gasification Hall.

Stack construction

3.35 The stack would stand on an impermeable reinforced concrete slab. Stack components would be brought to the Enviroparks site by lorry in modular sections fabricated off-site, and erected with the assistance of a crane. Final stack assembly is likely to be completed within a month.

Stack decommissioning

3.36 The stack is intended to be a permanent structure. However, as and when the stack needs to be removed, it will be disassembled with the assistance of a crane in a process that is effectively a reversal of the construction process described above. The stack will be manufactured from high quality materials that would be recycled.

THE ENVIROPARKS SCHEME IN OPERATION

Management

3.37 The effective operation of the Enviroparks site will require a highly competent workforce. It is anticipated that the skills can be found locally. Overall control by EWL will reside with a competent management team experienced in the relevant procedures including operations and maintenance, environmental permitting, health and safety, quality assurance, site security, weighbridge, grid connection, electricity production and transmission. As required, compliance with Environmental Permit conditions for the whole site will be the responsibility of an EWL-appointed site director.

Environmental mitigation and monitoring

3.38 The Enviroparks planning permissions are the subject of comprehensive planning conditions and section 106 planning obligations. These have been discharged insofar as they are relevant to or triggered by the commencement of phase I of the development – the Fuel Preparation Hall and internal access roads. To this end Enviroparks has already made financial contributions of £12,000 for construction monitoring and £205,031 to the conservation group Butterfly Conservation to enable the management of local grassland habitats.

3.39 The Applicant remains agreeable to all of the established planning conditions and section 106 obligations for the Enviroparks site, including those concerning the construction and operation of the plant and the safeguarding of Dŵr Cymru Welsh Water's Penderyn Reservoir. The 2010 and 2019 planning permissions thus provide an appropriate template for the consenting of the current application. EWL requests / proposes that relevant planning conditions and obligations are applied to the current proposals in the event that they are approved.

Community liaison

3.40 EWL established Enviroparks (Community Liaison) C.I.C Limited in 2010 to distribute the predicted £600,000 that EWL would contribute over a ten-year period, principally to the local



communities of Rhigos, Hirwaun and Penderyn. Working with the local communities and the Welsh Government it is hoped that this sum can be increased by attracting match-funding from other sources. The monies raised will be used to improve energy efficiency by paying for increased insulation in buildings, replacement windows, etc. but can also be used for any related purpose. Local residents have been invited to sit on the governing board to advise as to the best distribution of funds alongside two board members from EWL.

Chapter Four SITE SELECTION, ALTERNATIVES AND SCHEME DEFINITION

INTRODUCTION

4.1 Chapter four of the ES for the 2010 scheme summarised the process followed by EWL to identify a suitable site for an Enviroparks development and to define the content of the scheme. The chapter began with an explanation of the general operational requirements and the planning and environmental principles and criteria relevant to the locational decision, and then explained the various process and technical options considered by EWL.

4.2 Chapter four of the ES Addendum for the 2019 scheme supplemented the original ES by explaining how the development had progressed and evolved since the 2010 scheme was granted planning permission.

4.3 This chapter of the 2020 ES addendum provides a further update. The account includes an explanation of the changing circumstances that necessitated the revised scheme for which planning permission is now sought. For completeness it begins with a summary of the development as approved in 2010 and 2019, collectively termed the consented scheme.

SUMMARY OF THE CONSENTED SCHEME

4.4 The proposed site layout of the Enviroparks development approved by RCT and BBNPA in 2010 accommodated a series of advanced resource management processes in one place so that, together, they could recover as much material and energy as currently possible under closely-controlled environmental conditions. Whereas many waste processing technologies such as incineration combust a large proportion of recyclable material and leave a substantial volume of ash or other material that is typically disposed of to landfill, the Enviroparks concept employs a series of alternative technologies that extract the full recyclable value from the waste stream, and which are capable of leaving only 2.5% of the original material for final disposal to landfill.

- 4.5 The 2010 scheme would have achieved this by:
 - sorting the waste materials that arrive at the site efficiently to extract recyclable materials, and preparing the feedstock for further processing. This takes place in what is called a 'fuel preparation area';
 - using five technologies in an interlinked manner to process the residual wastes and recover energy resources.



- 4.6 The five processes with planning permission on the site are as follows:
 - i). a 'Biomax' separator that extracts oil akin to a biodiesel from organic materials such as waste food and other food industry products.
 - ii). anaerobic digestion, in which biomass waste is placed in sealed vessels and warmed and stirred in the absence of oxygen. This process removes most pathogens and odour from the waste and provides a useful energy source in the form of methane gas and a clean water effluent.
 - iii). pyrolysis, in which solid organic wastes are converted to a useful fuel gas under high temperatures and in the absence of oxygen.
 - iv). a similar gasification process in which any materials are converted to simple gases or an inert, glass-like solid material that can be used as an aggregate in construction.
 - v). the liquid and gas-based fuels produced through these processes would then be used to fuel a range of reciprocating engines located in a proposed engine house. Some of this recovered energy would then be used by a high energy user – a manufacturing employer with high energy needs, occupying an industrial unit on the northern part of the Enviroparks site.

IMPLEMENTATION AND EVOLUTION OF THE PROJECT

4.7 Paragraphs 4.9-4.17 of the ES Addendum for the 2019 scheme describe how the operational concept for the Enviroparks development evolved in the light of changing circumstances. For brevity it is not proposed to repeat this account but in summary the changing circumstances included:

- i). the opening of an anaerobic digestion plant at the Bryn Pica waste site north of Aberdare, 7km to the east of EWL's Hirwaun site, foe the processing of food waste;
- ii). changes in the composition of the waste stream as a result of the implementation of source segregation and kerbside recycling by local authorities and their contractors.
- iii). electricity market reform and the introduction of Contracts for Difference for the procurement of renewable energy;
- iv). evolving specifications for waste processing technologies.

4.8 In the light of these considerations EWL decided to focus on advanced waste gasification technologies and delete the anaerobic digestion and Biomax components of the overall scheme. The 2019 scheme was the outcome of this consolidation, with an enclosed gasification hall proposed at the heart of the site in preference to smaller process buildings and an open gasification yard, as featured in the 2010 scheme.



THE EVOLUTION OF THE STACK DESIGN

4.9 Following the grant of planning permission for the 2019 scheme, further analysis of the emissions profile of the Enviroparks plant was undertaken. In particular, there was focus on the acid and nutrient nitrogen deposition effects on nearby SACs.

4.10 The outcome of the modelling suggested that an increase in stack height would provide enhanced emissions dispersion and protect the designated SAC grasslands. Emissions monitoring confirmed that an increase in stack height from 45 metres to 90 metres would provide the desired outcome. The technical substantiation of this conclusion is presented in the air quality and ecology and biodiversity chapters of this ES Addendum.

4.11 As explained in chapter three of this ES Addendum, detailed consideration of the engineering design and operation of the stack highlighted a need for a continuous emissions monitoring system (CEMS) gantry. The gantry would comprise a cantilevered platform 10.5m in diameter. In the stack's current consented location, this gantry would overhang the existing access road. Consideration of alternative stack locations, once more informed by emissions modelling, led EWL to conclude it would be preferable to relocate the stack to the service yard on the eastern side of the Gasification Hall. This location provides enough space in which to maintain the stack and is considered to be safer for road users and staff working at the stack than the consented stack location close to the main internal spine road. The revised stack location is readily accessible from the consented site access off Ninth Avenue.

4.12 It was acknowledged that a taller stack has the propensity to give rise to landscape and visual effects over a larger area. This is of particular interest given the location of the Enviroparks site on the edge of the Brecon Beacons National Park. To understand the likely effects, EWP commissioned landscape architects Pleydell Smithyman to identify and compare the zone of theoretical visibility (ZTV) for a 45 metre and 90 metre high stack. The outcome of this assessment is shown in figure 8.1 of this ES Addendum. Because of factors including local topography, the ZTV for a 90 metre stack was found to be only incrementally different than the ZTV for a 45 metre stack.

4.13 Options for stack design and construction materials were also considered. The preferred approach was determined to be the use of a smooth flangeless external cladding in a graded colour scheme, intended to give the stack a regressive appearance in the local landscape.

4.14 Another visual consideration has been the specification of any aviation warning lights, should these be required. In order to reduce the visual effect the proposed development would use infrared warning lights, which are invisible to the human eye and will therefore have less visual impact than standard aviation warning lights. This is a relevant consideration in respect of the international dark sky reserve status enjoyed by the National Park.

Environmental protection

4.15 Enviroparks proposes that all of the environmental safeguards embodied in the planning conditions and section 106 planning obligations attaching to the 2010 and all subsequent planning permissions should be retained for the current proposals. These include amenity and environmental



protection requirements during the construction stage, safeguarding provisions for the Penderyn reservoir to the north of the site, and measures to deter HGV traffic from using local residential roads.

Chapter Five POLICY CONTEXT

INTRODUCTION

Purpose of this chapter

5.1 Chapter five of the ES for the 2010 scheme described the policy context for the original proposals. Following extensive policy changes that had occurred since then, chapter five of the 2019 scheme addendum replaced the original chapter five and described the planning, energy and waste policy context that prevailed at that time in respect of the environmental assessment and determination of Enviroparks' proposals. Since the submission of the 2019 scheme, further policy changes have occurred and this chapter updates the policy context in relation to the current proposed development, replaces chapter five of the ES Addendum for the 2019 scheme.

5.2 A wide range of policy is engaged for a development of this type. These include policies concerning sustainable waste management and the generation of renewable energy in addition to planning policies concerning the development and use of land and environmental protection. From a planning perspective the Planning (Wales) Act 2015 heralded fundamental reform in the operation of the planning system. Along with changes to secondary legislation, the 2015 Act introduced a strengthened plan-led approach and more effective development management procedures to promote the sustainable delivery of the homes, jobs and infrastructure that Wales requires.

5.3 Unaffected is the statutory duty under Section 38(6) of the Planning and Compulsory Purchase Act (2004) for planning applications to be determined in accordance with the development plan unless material considerations indicate otherwise. Whilst the primacy of development plan policy is acknowledged, a clearer policy narrative can be provided for the current proposals by considering first the waste and energy policy drivers that guide the content of the scheme. Having provided this context, this chapter then considers how the proposals engage with planning and environmental law and policy at the local level.

5.4 Some of the law and policy outlined in this chapter originates in European Directives transposed into UK and Welsh law. Notwithstanding the UK's formal departure from the European Union in January 2020, the cited law and policy continue to apply.

5.5 This chapter can provide only a concise policy summary and reference to the source documents is encouraged. To facilitate this, this chapter provides hyperlinks to all documents cited. Law and policy particular to individual environmental topics are considered in the corresponding chapters of this ES.

The global imperative

5.6 What chapter five of the ES and ES Addendum for the 2010 and 2019 schemes described as



the 'global imperative' underpinning the Enviroparks project has not changed. The consistent concern of many of the policies reviewed in this chapter is the need to contain global climate change by reducing the emission of greenhouses gases, particularly carbon dioxide (CO₂), that contribute to global warming. The extensive use of fossil fuels that accompanied the industrialisation of the world's economy has released large volumes of CO₂ back into the atmosphere. The accumulation of greenhouse gases in the upper atmosphere reduces the planet's ability to reflect solar radiation back into space, resulting in a gradual increase in mean global air temperature. Amongst other things, this is thought to be causing a retreat of polar icecaps and a trend towards more extreme weather, with hotter, drier summers and warmer, wetter and windier winters anticipated for Wales. Rising sea levels caused by the melting of the polar ice sheets could have profound adverse consequences for coastal communities and residents of other low-lying areas.

5.7 The obvious response to this challenge is to reduce fossil fuel use, partly by using energy more efficiently and partly by finding alternatives. Just as with both the 2010 and 2019 schemes, a recurrent concern of the policies summarised in this chapter is the need to develop renewable and low carbon sources of energy - forms of energy that occur naturally and repeatedly in the environment, including energy resources that would otherwise remain locked up in the waste stream.

INTERNATIONAL POLICY

5.8 The UK is a signatory to a sequence of international treaties and protocols seeking to reduce the risk of unconfined climate change. The latest and most significant of these is the Paris Agreement, which was negotiated by representatives of 195 countries at the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change in Paris, adopted by consensus on 12 December 2015 and entered into force on 4 November 2016.

Paris Agreement 2015

http://unfccc.int/files/essential background/convention/application/pdf/english paris agreement.pdf

- 5.9 Under the Paris Agreement, governments agreed:
- a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels;
- to aim to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change;
- the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries;
- to undertake rapid reductions thereafter in accordance with the best available science.
- 5.10 The Enviroparks operation would be consistent with the Paris Agreement in two respects.



First, the recovery of recyclable materials from the waste stream reduces the need to produce and refine new materials through mineral extraction, agriculture or forestry, which can be more energy intensive. Second, energy from waste is recognised as a low carbon energy source and an alternative to energy generated from carbon-rich fossil fuels.

UK LAW AND POLICY

5.11 UK national law and policy establish further targets and obligations of relevance in the current context, including the following.

Climate Change Act 2008

http://www.legislation.gov.uk/ukpga/2008/27/contents

5.12 This contains a UK target to reduce greenhouse gas emissions by 34% below 1990 levels by 2020 and by 80% by 2050. A series of five year carbon budgets are set to advance towards these targets, with the fourth now in law for the period 2023-2027.

UK Low Carbon Transition Plan (2009)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228752/9780108508394.pdf

5.13 This is a White Paper with policy to reduce greenhouse gas emissions by 18% on 2008 levels by 2020 and over 33% on 1990 levels. It also seeks to achieve 40% of electricity from low carbon sources and 30% from renewable sources by 2020. It confirms the UK's legally binding target to cut emissions by 80% by 2050; the world's first such target.

The Carbon Plan (2011)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbonplan-delivering-our-low-carbon-future.pdf

5.14 This plan arose from the Climate Change Act and reaffirms the risks to the UK from dangerous climate change and challenges to energy security. Paragraphs 2.223-4 addressed energy from waste specifically:

2.223 The Government's aim is to get the most energy out of waste, not to get the most waste into energy recovery. Through effective prevention, re-use and recycling, residual waste will eventually become a finite and diminishing resource. However, until this becomes a reality, efficient energy recovery from residual waste can deliver environmental benefits and provide economic opportunities.

2.224 Efficient energy recovery from waste prevents some of the negative greenhouse gas impacts of waste in landfill and helps to offset fossil fuel power generation . . .

Energy Act 2013 and Electricity Market Reform (EMR)

http://www.legislation.gov.uk/ukpga/2013/32/contents/enacted

5.15 The Act and EMR combine to incentivise investment in low carbon electricity generation, and the delivery of feed-in tariffs based on Contracts for Difference (CfD). Around a fifth of generation capacity available in 2011 is set to close over coming decade, whilst the demand for electricity is expected to double from its level in 2013 by 2050. The reformed electricity market aims to achieve security of energy supply and the decarbonisation of the electricity generation sector. Paragraphs 4.12 - 4.14 of this ES addendum summarise how CfDs work and explains that EWL's Enviroparks Hirwaun project was in the first and to date the only group of low carbon energy proposals to secure a CfD.

WELSH LAW AND POLICY

Planning (Wales) Act 2015

http://www.legislation.gov.uk/anaw/2015/4/contents/enacted

5.16 The 2015 Act introduced a wide range of reforms to improve the performance and effectiveness of the planning system. Section 17 introduced requirements for pre-application public consultation. This provision was brought into force by the Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 and took effect in August 2016.

5.17 EWL's planning application is accompanied by a Pre-Application Consultation Report that explains how the Applicant complied with these requirements. The documents that EWL made available for the pre-application consultation included the ES for the 2010 scheme, the additional environmental information submitted in 2009, the ES addendum for the 2019 scheme and a draft of the current ES addendum.

Environment (Wales) Act 2016 and

Natural Resources Policy (2017)

http://www.legislation.gov.uk/anaw/2016/3/contents/enacted https://gov.wales/sites/default/files/publications/2019-06/natural-resources-policy.pdf

5.18 This legislation seeds to position Wales as a low carbon, green economy, ready to adapt to the impacts of climate change. Part 1 of the Act promotes the sustainable management of natural resources. Part 2 concerns climate change it provides the Welsh Ministers with powers to put in place statutory emission reduction targets, including at least an 80% reduction in emissions by 2050, and carbon budgeting to support their delivery. The Act thus sets a clear pathway for decarbonisation. It also provides certainty and clarity for business and investment.

5.19 Part 4 of the Act concerns the collection and disposal of waste. It aims to improve waste management processes by promoting higher levels of business waste recycling, better food waste treatment and increased energy recovery. Section 67 of the Act includes specific provisions on waste



segregation and measures to prevent valuable recyclable materials and resources being incinerated. This protects the environment by ensuring that only residual waste streams are disposed of in landfill or incinerated. The current proposals align with these objectives.

5.20 The provisions of the Act are being implemented through the Welsh Government's Natural Resources Policy 2017 (NRP 2017). The policy document sets out a list of opportunities presented by Wales' natural resources, including (page 6) 'promoting green growth and innovation to create sustainable jobs' and 'supporting a more resource efficient economy'. Page 7 highlights the importance of 'green growth and innovation to create sustainable jobs', and on pages 8 and 20 the document sets the objective of moving towards a more resource-efficient circular economy.

Well-being of Future Generations Wales Act 2015

http://www.legislation.gov.uk/anaw/2015/2/contents/enacted

5.21 This Act aims to improve the social, economic, environmental and cultural well-being of Wales by promoting a more integrated and sustainable response from government to challenges including climate change, poverty, health inequalities and jobs and growth. Section 4 of the Act sets explicit objectives for a prosperous, resilient, healthy, more equal, cohesive, culturally vibrant and globally responsible Wales. Under 'a prosperous Wales' the goal is to deliver:

An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.

5.22 By promoting advanced waste processing, low carbon energy production and opportunities for training and employment, the current proposals are consistent with this goal.

The Waste (England and Wales) Regulations 2011 and

The Waste (England and Wales) (Amendment) Regulations 2012

http://www.legislation.gov.uk/uksi/2011/988/contents/made

http://www.legislation.gov.uk/uksi/2012/1889/made

5.23 These Regulations brought the revised Waste Framework Directive 2008 (see above) into law in Wales. Amongst other things, the 2011 Regulations established duties in relation to the waste hierarchy (see paragraph 5.11 above), the separate collection of waste materials to assist recycling and the management of these waste streams following collection.

5.24 The 2012 Regulations amended the Waste (England and Wales) Regulations 2011 by replacing regulation 13. The new regulations placed a duty on organisations that collect waste paper, metal, plastic and glass to do this by way of separate collection from 1 January 2015. Organisations for this purpose include companies, partnerships, authorities, societies, trusts, clubs,



charities and other organisations but not private individuals. By the same deadline, the Regulations also placed a duty on waste collection authorities to collect waste separately.

5.25 These Regulations partly explain why Enviroparks was compelled to review the waste streams that it can process at Hirwaun. In particular, the demise of 'black bag' municipal solid waste has led to a revised focus on commercial and industrial waste (CIW) and pre-processed refuse-derived fuels (RDF), as explained in chapter four of this ES addendum.

Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017

https://www.legislation.gov.uk/wsi/2017/567/contents/made

5.26 These Regulations transposed the requirements of European Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment into the Welsh planning system. The 2010 and 2019 schemes were prepared under contemporary EIA regulations regimes. The current ES addendum has been prepared in accordance with the 2017 EIA Regulations.

A Low Carbon Revolution: the Welsh Assembly Government Energy Policy Statement – March 2010

5.27 The Welsh Government's general ambitions for low carbon energy were summarised on pp.5-6 of this document as follows:

First, we will maximise energy savings and energy efficiency in order to make producing the majority of the energy we need from low carbon sources more feasible and less costly.

Second, our energy needs in a modern society will remain considerable, and must be met securely from low carbon sources. We will move to resilient low carbon energy production via indigenous (and thus secure) renewables, on both a centralised and localised basis.

Third, we will ensure that this transition to low carbon maximises the economic renewal opportunities for practical jobs and skills, strengthens and engages our research and development sectors, promotes personal and community engagement and helps to tackle deprivation and improve quality of life.

5.28 EWL's proposals are consistent with the second ambition. Chapter 7 of this ES addendum assesses how the current proposals would contribute towards the third ambition.

Energy Wales: A Low Carbon Transition (2012)

http://gov.wales/docs/desh/publications/120314energywalesen.pdf

5.29 This document explains the Welsh Government's ambition as follows:

It is our aim to ensure that Wales is at the forefront of the low carbon energy agenda, and the transition to a low carbon, low-waste and hi-tech economy. We are prepared to do all we can to ensure that Wales is recognised – globally – as an attractive location for energy investment (page 16).

5.30 The document proceeds to identify a range of measures to facilitate this transition, encompassing planning reform (now enacted through the Planning (Wales) Act 2015) and measures to ensure that tangible economic and community benefits flow from low carbon energy development.

Towards Zero Waste - One Wales: One Planet (2010) and

Industrial and Commercial Sector Plan (2013)

enviroparks

http://gov.wales/docs/desh/publications/100621wastetowardszeroen.pdf

http://gov.wales/docs/desh/publications/131203industrial-and-commercial-sector-plan-en.pdf

5.31 Towards Zero Waste provided a long-term framework for resource efficiency and waste management. It established a range of intermediate targets for 2025 with a view to moving towards the ultimate goal of zero waste by 2050. For 2025 the aim is to reduce waste arisings by 27% from 2007 levels, achieved through a combination of waste prevention, separation and recycling, the elimination of landfill as far as possible, and the minimisation of residual waste. An explicit objective on the pathway to eliminating landfill is for residual waste to be processed at 'high energy efficiency energy from waste plants' – of which the current proposals are an example.

5.32 The 2010 strategy is accompanied by 'sector plans'. Section 3.8.2 of the Industrial and Commercial Sector Plan, entitled The benefits of diverting residual waste from landfill sites and recovering energy, states (on page 128) that:

Evidence gathered by the Welsh Government indicates that the treatment method most likely to deliver best the sustainable development outcomes identified in One Wales, One Planet and in 'Towards Zero Waste' for residual waste is the "Use as a fuel of the residual municipal waste left after recycling in energy recovery plants with high energy efficiency".

Treatment of residual waste in high efficiency energy from waste facilities yield significant reductions in greenhouse gas emissions, as compared to other treatment options that include an element of landfilling, as verified by life cycle assessment studies.

The evidence obtained by the Welsh Government referred to above, indicates that the best performing residual waste options are combustion facilities operating in 'heat only' or combined heat and power (CHP) modes, and pyrolysis/gasification options operating in CHP modes...

5.33 Section 3.8.3 of the Sector Plan includes a specific objective 'To deliver good carbon reduction outcomes from residual waste treatment plants (e.g. high-energy efficiency EfW plants)'. The current proposals would support the attainment of this objective.



5.34 The Welsh Government is currently reviewing *Towards Zero Waste*.

Energy Generation in Wales 2018

https://gov.wales/sites/default/files/publications/2019-10/energy-generation-in-wales-2018.pdf

5.35 This report describes the current energy generation capacity of Wales and analyses how it has changed over time. The report aims to support the Welsh Government in its development of energy policy, helping to provide evidence pf the economic, community and environmental benefits from the development of Welsh energy projects.

5.36 The report breaks energy generation down into the 22 local authority areas and specifically refers to the Hirwaun project and the contribution it would make to energy generation using advanced thermal treatment.

Prosperity for All: A Low Carbon Wales (2019)

https://gov.wales/sites/default/files/publications/2019-06/low-carbon-delivery-plan 1.pdf

5.37 This plan sets the foundations for the transition to a low carbon nation. It sets out the action that will be taken to cut emissions and support the growth of a low carbon economy in a way that maximises the wider benefits for Wales, ensuring a fairer and healthier society. The report identifies how Wales intends to meet the first carbon budget and sets the foundations for future action.

5.38 In April 2019, the Welsh Government declared a Climate Emergency as a stimulus for further urgent action.

PLANNING POLICY

5.39 A wide range of planning policy is potentially applicable to the Enviroparks development. Planning policy relevant to the assessment of individual environmental topics is considered in chapters 7-9 of this ES addendum. This purpose of this section is to highlight planning policy of broader relevance to the assessment of the current proposals.

5.40 Because planning permission has already been granted for the development of the site and implemented through the construction of phase I, the principle of the development is established.

Planning Policy Wales edition 10, December 2018

5.41 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs). Having regard to the requirements of the Well-being of Future Generations (Wales) Act 2015 (see above), sustainable development forms the central aim of PPW.

National Park



5.42 A majority of the Enviroparks site is in Brecon Beacons National Park, albeit with a development plan allocation and planning permission for employment use. The development now proposed lies entirely outside the National Park boundary but would be visible from adjacent locations inside the Park.

5.43 As such the effects of the proposed development on the National Park are considered in chapter 8 of this ES addendum, *Landscape and visual effects*. The Applicant's *Design and Access Statement* provides further information on how the presence of the National Park was taken into account in the formulation of the revised development proposals.

Low carbon economy

5.44 Chapter 5 of PPW addresses economic development, entitled *Productive and Enterprising Places*. Paragraph 5.4.18 advises that:

Development plan policies should identify potential networks and clusters, and make clear the criteria used to categorise them. Associated transport, environmental and telecommunications infrastructure links needed to support these networks and clusters and, where improvements are necessary, these should be included in the development plan. Planning authorities should also look favourably on any renewable and low carbon energy generation proposals designed to serve clusters, such as district heating systems and high efficiency energy recovery from waste, or the provision of an integrated network of waste recycling or collection.

5.45 With a large high energy user building co-located with advanced waste processing and low carbon energy generation, EWL's proposals exemplify the type of development anticipated in PPW para. 5.4.18.

Waste and energy

5.46 PPW Chapter 5 also includes guidance on waste and energy. Under the heading *Sustainable Waste Management Facilities*, paragraph 5.13.1 states that:

The planning system has an important role to play in facilitating sustainable waste management by providing a framework for decision making which recognises the social, economic and environmental benefits that can be realised from the management of waste as a resource to meet the needs of society and businesses, whilst at the same time:

- minimising adverse environmental impacts and avoiding risks to human health;
- protecting areas of designated landscape and nature conservation from inappropriate development; and
- protecting the amenity of residents, of other land uses and users affected by existing or proposed waste management facilities.
- 5.47 This ES addendum will serve to set the current proposals in the context of the decision-


making considerations highlighted in PPW paragraph 5.13.1. The Applicant's *Design and Access Statement* provides further explanation of how the current proposals aim to deliver net benefits to local amenity when compared with the scheme that was granted planning permission in 2019.

5.48 PPW paragraph 5.13.6 highlights that 'NRW has a statutory role in relation to the management and regulation of waste and the collection of waste production and management data. It has a key role . . . as a consultee on certain planning applications. This role is important in assisting planning authorities in evaluating complex waste information and making technical judgements, where necessary'. As explained in the Pre-Application Consultation Report that accompanies the current planning application, EWL consulted NRW during the preparation of the ES addendum, prior to and during the formal pre-application consultation. Operation of the proposed development will be subject to an Environmental Permit issued under the Environmental Permitting Regulations (England and Wales) 2010, for which EWL will make a separate application.

5.49 Under the heading *Renewable and low carbon energy*, PPW paragraph 5.9.1 advises that 'Planning authorities should facilitate all forms of renewable and low carbon energy development. In doing so, planning authorities should seek to ensure their area's full potential for renewable and low carbon energy generation is maximised and renewable energy targets are achieved'. Paragraph 5.9.16 identifies a range of matters that local planning authorities should take into account when considering planning applications for low carbon energy development, covering renewable energy targets, the contribution to cutting greenhouse gas emissions and environmental, social and economic benefits. Paragraph 5.9.18 sets out that 'Planning authorities should also identify and require suitable ways to avoid, mitigate or compensate adverse impacts of renewable and low carbon energy development.'. This ES, in combination with the Applicant's Design and Access Statement, aims to satisfy the requirements for environmental information arising from this list.

Environmental protection

5.50 A key planning principle of PPW is *Maximising environmental protection and limiting environmental impact,* and PPW. Where relevant, the guidance has been taken into account in the environmental impact assessment studies reported in corresponding chapters of this ES addendum.

TECHNICAL ADVICE NOTES

5.51 Alongside PPW the Welsh Government has published a series of Technical Advice Notes (TANs), several of which are relevant in the current context.

TAN 21: Waste (2014)

http://gov.wales/docs/desh/publications/140228technical-advice-note-21-en.pdf

5.52 TAN21 was published in 2014 and updated most recently in February 2017. It explains the interactions between the national waste strategy and national planning policy. TAN21 also provides advice on the framework and principles for waste management in the planning system, strategic planning for waste, waste planning assessments and detailed planning considerations in the waste sector.

5.53 According to paragraph 2.1 of TAN21:

When considering development proposals for all types of waste management facilities, planning authorities should take into account their potential contribution to the objectives, principles and strategic waste assessments set out in Towards Zero Waste and the relevant waste sector plans and the relevant development plan for the area. The extent to which a proposal demonstrates this contribution, in environmental, economic and social terms, will be a material planning consideration . . .

5.54 Paragraphs 2.6 - 2.7 explain the importance of the waste hierarchy and affirm that gasification fits into the 'other recovery stage of the hierarchy once recyclable materials have been extracted from the waste stream.

5.55 Section 2.7.4 of TAN21 explains the recovery stage of the waste hierarchy in further detail. It will be cited at length because of its direct relevance.

2.7.4 Recovery

Where wastes cannot be recycled, other waste recovery operations should be encouraged. Waste recovery operations result in waste that can serve a useful purpose by replacing primary fossil fuel materials (i.e. coal or gas) which would otherwise have been used to fulfil a particular function in the plant or in the wider economy. Energy recovery includes: incineration, incineration with energy recovery, co-incineration (e.g. cement kiln), anaerobic digestion, pyrolysis and gasification with energy recovery and the spreading on land of a separated out bio-waste.

The recovery of energy from mixed municipal waste in high efficiency facilities is considered by Welsh Government to be a vital component of the waste management system in Wales. Such facilities are currently considered to represent the most sustainable outcome for mixed municipal waste.

Co-locating these facilities with heat users is preferential in order to allow utilisation of waste heat from the combustion process. When preparing proposals, developers should give consideration to the location of these facilities and the potential for future user demand and planning authorities should identify any opportunities for co-location in their local development plans.

5.56 Paragraph 3.27 of TAN 21 advises that *'industrial areas, especially those containing heavy or specialised industrial uses'* with, amongst other things, suitable transport links and existing planning permissions or environmental permits are suitable places to search for waste development. Chapters one and three of this ES addendum summarise the planning and development history of the application site, and chapter eight of the ES addendum for the 2019 scheme assessed the transport effects of the proposals.

5.57 Paragraph 4.2 and Annex B of TAN21 advise that Waste Planning Assessments should be submitted alongside planning applications for new waste facilities. According to paragraph 4.2:

enviroparks



To enable proper consideration of the principles contained in the Technical Advice Note, a Waste Planning Assessment should be submitted with all applications for a waste facility classified as a disposal, recovery or recycling facility. The purpose of the Waste Planning Assessment is to ensure that the information necessary for making a decision is provided by the applicant when a planning application is submitted. The Waste Planning Assessment should be appropriate and proportionate to the nature, size and scale of the development proposed...

5.58 A Waste Planning Assessment has not been submitted alongside the current planning application because the application relates solely to an amended stack on an already partly-implemented planning permission and does not propose any increase or change in waste feedstocks or introduce recovery technologies that were not envisaged in the scheme that secured planning permission in 2010 and subsequently in 2019. Chapter four of this ES addendum explains how the proposed content of the development has evolved since the 2019 scheme.

5.59 Annex C of TAN21 lists planning considerations relevant to waste management facilities. These considerations reflect a list of 'overarching objectives' and have been taken into account in the formulation and assessment of the current proposals, particularly in respect of:

- Objective 3 Minimising adverse effects on air quality
- Objective 4 Protection and enhancement of landscape, townscape and cultural heritage
- Objective 7 Protecting biodiversity
- Objective 10 Minimising the increased cost of waste management
- Objective 11 Protecting local amenity
- Objective 12 Minimising adverse effects on public health and health inequalities

Other TANs

5.60 Other TAN guidance taken into account by the Applicant and its design and EIA team during the preparation of the planning application includes the following.

- TAN 5: Nature conservation and planning (2009)
- TAN 11: Noise (1997)
- TAN 12: Design (2016)

DEVELOPMENT PLAN POLICY

5.61 Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that 'If regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise'.

5.62 RCT is the Waste Planning Authority for the purpose of the Planning Acts. Waste planning policy in RCT's development plan is relevant to the design and assessment of EWL's revised proposals.



Rhondda Cynon Taf County Borough Local Development Plan up to 2021

http://www.rctcbc.gov.uk/EN/Resident/PlanningandBuildingControl/LocalDevelopmentPlans/Relateddocumen tsLDP20062021/AdoptedLocalDevelopmentPlan.pdf

5.63 This plan (referred to here as the 'RCT LDP') was adopted by RCT in March 2011. Chapter three: *Vision and objectives* identifies the land use planning priorities arising from the Council's Rhondda Cynon Taf Community Strategy (2010 – 2020), which include a land use planning framework that will:

Ensure that Rhondda Cynon Taf achieves its potential by maximizing the advantages of its strategic location, both in terms of the Capital Region and global economy. It will also maximise opportunities for inward investment in Hirwaun and Llantrisant / Talbot Green (paragraph 3.4).

5.64 Chapter four of the plan sets out the core strategy and policies for RCT. According to paragraph 4.4:

For the purpose of the LDP the Northern Strategy Area includes Tonypandy, Porth, Treorchy, Treherbert, Ferndale, Tylorstown, Mountain Ash, Aberdare and Hirwaun. The emphasis in this area is on building sustainable communities and halting the process of depopulation and decline. Development proposals in the Northern Strategy Area will provide appropriate growth to address the problems of deprivation and high levels of social and economic need.

5.65 These objectives are reflected in core policy CS1: *Development in the north*.

5.66 Policy CS9 confirms that Hirwaun Industrial Estate is an appropriate location for 'in-building' waste management uses of the type proposed in the current application:

Policy CS 9 - Waste Management

In order to meet the capacity requirements of between 12.5 and 21.7 hectares in the South East Wales Regional Waste Plan land will be made available at the regional and sub-regional level.-

Regional Sites

The following sites are identified as being able to accommodate a range of waste management options, including recycling and composting, at a regional level:-

1. Land at Bryn Pica (including land filling of residual wastes); and

2. Hirwaun Industrial Estate (in-building processes only).

Sub-regional Sites



Proposals for waste management facilities to serve sub-regional needs will be permitted within existing and allocated B2 employment sites.

5.67 According to supporting paragraphs 4.83 and 4.88:

4.83 In line with the Regional Waste Plan (RWP) that provision should be made for regional waste management facilities to serve more than one local authority area, 2 sites have been identified for such provision: Hirwaun Industrial Estate and land at the existing Bryn Pica Landfill Site. Both sites are well located in relation to the strategic highway network and are accessible within the plan area and to the wider region.

4.88 Waste management development in Hirwaun Industrial Estate will be limited to inbuilding facilities to minimise visual and ecological impact...

5.68 The consented proposals provide an indoor gasification process and relate solely to the amended stack.

5.69 Chapter 6 of the RCT LDP includes policies for the northern strategy area, which includes Hirwaun. Policy NSA14: *Employment allocations* identifies a series of employment sites including the Enviroparks site, which it allocates for up to 4.17 hectares of use class B2 (industrial) and B8 (storage) use. Appendix 1(B) to the plan described the Enviroparks site as follows:

2. North of Fifth Avenue, Hirwaun Industrial Estate, Hirwaun

The site is an area of prepared level land on the edge of the Industrial Estate in Hirwaun, which already benefits from an access point to the estate distributor road and subsequent access to the A465 Heads of the Valley Road. This 4.17 hectare site consists of over half of the overall area of level land, with the remainder being within the Brecon Beacons National Park Authority area. The land is situated below a raised reservoir to the north and the majority of the site is located within the identified flood risk zone B and would require a flood consequences assessment. The site is also located close to the Blaen Cynon SAC which would need to be considered as part of a development scheme.

5.70 Other RCT LDP policies taken into account in the design and assessment of the current proposals include:

Scheme design (ES addendum chapter 3)

Policy AW5: New development Policy AW6: Design and place making Policy AW 12: Renewable and non-renewable energy

Ecology (ES addendum chapter 13)

Policy AW 8: Protection and enhancement of the natural environment

Environmental protection and health

Policy AW 10: Environmental Protection and Public Health

CONCLUSION

5.71 This chapter has considered a wide range of planning, waste and energy policy of general or specific relevance to EWL's proposals for a taller stack at its site on the Hirwaun Industrial Estate, with the joint aims of establishing the need for the proposals, refining the scope of the ES addendum and confirming expectations with respect to environmental mitigation.

5.72 Whereas the policy landscape has evolved since the EIA work for the 2010 and 2019 schemes was completed, it remains the case that the Enviroparks development in the round would respond positively to a wide range of policy concerns concerning waste recycling, energy production, environmental protection and economic and social regeneration. From a planning perspective, the review suggests that the current proposals remain consistent with development plan policy.

5.73 Topic-specific policy requirements are taken into account in later chapters of this ES addendum.

Chapter Six SCOPING AND CONSULTATION

INTRODUCTION

6.1 Chapter six of the ES for the 2010 scheme explained how EWL submitted a Scoping Report to RCT and BBNPA to establish the coverage of the environmental impact assessment. Having considered EWL's Scoping Report, the authorities issued a formal scoping opinion that was reflected in the ES for the 2010 scheme. Chapter six of the addendum for the 2019 scheme supplemented the ES for the 2010 scheme. It explained the scope of the revised proposals and outlined the consultations that had been undertaken prior to the submission of the 2019 scheme on the scope of the ES addendum.

6.2 Scoping provides an opportunity for developers and their consultants to identify and assess the likely main environmental effects and issues of concern, assisted by feedback from, among others, planners, relevant government agencies and other consultees. Scoping is not mandatory but is regarded as best practice.

6.3 This chapter supplements chapter six of the ES and addendum for the 2010 and 2019 schemes. It explains the scope of the current ES addendum and outlines the consultations that were undertaken prior to the submission of the current ES addendum.

THE SCOPE OF THE ES ADDENDUM 2020

6.4 To be effective, environmental impact assessment is a process initiated at an early stage in project development and which then continues through the planning and decision-making stage to the implementation and monitoring of a development project. From a combination of -

- the scoping opinion and the knowledge gained during the completion of the ES and addendum for the 2010 and 2019 schemes respectively;
- the discharge of planning conditions and obligations prior to the implementation of the project, including conditions and obligations requiring environmental monitoring;
- the practical experience and further enhancement in knowledge of the site gained during the implementation of phase I, including an application made to NRW for an Environmental Permit for the phase I operation;
- dialogue with bodies including RCT, BBNPA and NRW;

- EWL's team has developed a close understanding of potential interactions between the Enviroparks development and the local environment.

6.5 Given that the 2020 proposals relate solely to the amended proposals for the stack, a further scoping exercise was considered to be unnecessary. The scope of this ES update has been determined instead with reference to the following considerations.

- i). The scope of the original ES and ES addendum having regard to the benefits of continuity of assessment and the accumulation of environmental knowledge, it was decided to present the revised and updated environmental information in the form of an ES addendum that builds upon the established information base, as opposed to preparing a new stand-alone ES. This approach helps to explain how the project has reached its current status in environmental terms.
- ii). The nature of the revised development proposals no new waste categories or materials recovery processes are proposed that were not anticipated and assessed previously. As set out in earlier chapters of this addendum, the current planning application is concerned solely with the raising and minor relocation of the stack. The main focus of the issues has been determined to be the landscape and visual effects of the increase in height of the stack and the air quality and ecological effects associated with the emissions and their dispersion. All other elements of the previous EIA work are still considered to be relevant and therefore do not require updating.
- iii). Changes in the locality chapter two of this ES addendum identifies a series of new and consented developments on Hirwaun Industrial Estate and beyond. Any significant cumulative environmental interactions between these developments and the revised Enviroparks proposals should be assessed.
- iv). Changes in law and policy as chapter five of this ES addendum demonstrates, the legal and policy landscape has changed since the ES for the 2010 scheme and the addendum for the 2019 scheme were completed. However, the main underlying themes the waste hierarchy, the need for renewable and low carbon energy, environmental protection and the need to regenerate the Valleys economy all remain in place. As chapter five also explains, the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 replace the previous EIA Regulations under which earlier EIA work was undertaken.. The Regulations transpose, amongst other things, the European Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment, (see above) into the Welsh planning system. The current ES addendum has been prepared in accordance with these Regulations.
- 6.6 In the light of these considerations the scope of the ES addendum is as follows.

Primary issues

• The landscape and visual effects of the proposals, including the effects on the Brecon Beacons National Park and on the amenity of residents closest to Hirwaun Industrial Estate.

- Air quality and emissions, including the emissions dispersion from a taller relocated stack and the potential for nutrient nitrogen deposition on statutorily protected grassland and other wildlife habitats.
- *Ecology and biodiversity* the effects of the nutrient nitrogen deposition on the integrity of grassland and other habitats, including the Blaen Cynon Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC).

Secondary issues

• Effects of a taller stack on the setting of cultural heritage assets

6.7 Other environmental topics are scoped out of the current assessment because a taller stack would have no significant change to the environmental effects of the Enviroparks development as consented. These topics include transport and traffic, noise and vibration, ground conditions, hydrology and flood risk and socio-economic effects. The effects on human health and climate change have likewise been scoped out because the effects of a taller and repositioned stack are assessed to be non-existent or at worst negligible.

6.8 To assist cross-referencing, this addendum follows the following structure:

- 1. Introduction
- 2. Site description
- 3. Proposed development and land uses
- 4. Site selection, alternatives and scheme evolution
- 5. Planning policy context
- 6. Scoping and consultation
- 7. Air quality
- 8. Landscape and visual effects
- 9. Ecology
- 10. Other environmental considerations
- 11. Conclusion

6.9 Where appropriate, the technical assessment chapters of this ES addendum provide a further explanation of how the detailed scope of individual studies was established.

CONSULTATIONS

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6.10 In accordance with the Planning (Wales) Act 2015 the Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 introduced requirements for pre-application consultations. The 2016 Order inserted Part 1A: *Pre-application consultation* into the Town and Country Planning (Development Management Procedure) (Wales) Order 2012.

6.11 The amended 2012 Order requires all applicants for major development to undertake preapplication consultation through making available a final draft version of the application at least 28 days before the submission of the formal planning application. The draft application should be made



available to community consultees, specialist consultees and members of the public through the sending of letters, erection of site notices and displaying a copy of the draft application at a public location.

6.12 Under the amended 2012 Order 'major development' includes all waste development. The current proposals are for a stack required in connection with the gasification of waste. Accordingly, the proposals represent major development for which pre-application consultation must be undertaken.

6.13 Feedback from the pre-application consultation is presented in the Pre-Application Consultation Report that accompanies EWL's planning application to RCT. The feedback was reviewed to establish whether it has implications for the scope and content of this ES addendum. The conclusions of this review were that:

6.14 XXX add a summary following the June 2020 consultation XXX

Chapter Seven AIR QUALITY

INTRODUCTION

Purpose of this chapter

7.1 Chapter nine of Enviroparks' 2008 ES and 2017 ES Addendum considered the potential air quality impacts of the proposed Enviroparks development. Although there are no substantial changes now proposed either to the nature of the materials to be treated at the site, or in the technologies used to treat them, changes in the emission limit values that will now be permitted for the site, due to improvements in the Best Available Techniques (BAT), and the changes that will be affected in the dispersion of emissions from a higher and relocated chimney structure require that this chapter be extensively reviewed. As such, this chapter seven replaces the previous chapter nine and details the sources and nature of the emissions to atmosphere from the revised Enviroparks operations and processes. The chapter examines the effects on air quality in the round, including the effects of the full Enviroparks development as consented, as a basis for the assessment of the effects of the proposed stack in its revised height and location.

7.2 Enviroparks (Wales) Limited has secured an Environmental Permit from Natural Resources Wales for the Phase I processing operations (NRW permit reference EPR/WB3490HQ), and the site will require this to be extended to encompass all of the proposed waste and energy creation activities. Enviroparks will operate in strict accordance with this Permit. Through identifying and quantifying the likely emissions for the purpose of this ES Addendum, it is possible to undertake a comprehensive assessment of their likely impact on the surrounding area, and thus to assess whether or not the impacts of the proposed operations are of an acceptable order.

7.3 The Enviroparks scheme aims to use waste as a resource. Most people would agree that, after the reduction of waste production, reuse and recycling are the most positive methods of waste control, and the ethos of the Enviroparks scheme has always been and remains, the recovery of materials for recycling, prior to the recovery of energy from the residual fraction by using the waste as a fuel in an advanced thermal treatment process. Incoming materials will comprise commercial and industrial wastes and pre-sorted materials. All fuel is stored, handled and treated internally once received at the site. The incoming material will be comprehensively processed, and recyclates will be recovered before the residue is further treated to produce a gasifier fuel. The fuel is transported from the main waste reception and handling building internally on a conveyor system into a fuel storage bunker, awaiting use in the on-site gasification process. All of the waste handling, sorting, and treatment facilities are located within contained units, however the key processes which could have a potential impact on air quality are:

• Ventilation releases from operational buildings. The main waste reception and handling building (the Fuel Preparation Hall) and the Gasification Hall will require ventilation, although the ventilation air from the Fuel Storage Hall will be used as combustion air for the gasification

plant;

- Emissions from the three-line gasifier plant which, coupled with a turbine, generate electricity and heat;
- Fugitive emissions from around the site;
- Emissions from road transport.

METHODOLOGY USED

7.4 The methodology employed in the preparation of this chapter is based on, and is similar to the methodology applied previously in both the 2008 ES and the 2017 ES Addendum and all of the supporting documents. The chosen methodology is considered to remain current and appropriate. The assessment begins with the provision of background information, which will include a description of the processes and resultant pollutants from the site. Information on the current air quality standards, objectives and guidelines which apply to the pollutants to be released from the plant is provided, as is baseline information on the current air quality in the vicinity of the site.

7.5 The chapter then considers the likely impacts from the proposed development with a 90metre stack and includes details on the management systems in place for their control. An atmospheric dispersion model has been prepared to determine the dispersion characteristics of the emissions from the gasification lines, and this applies the Atmospheric Dispersion Modelling System (ADMS) model. ADMS is one of the leading atmospheric dispersion models available in the UK and is an accepted method of assessing the impact on ambient pollutant concentrations from industrial installations. The modelling enables an assessment of the potential impact of the proposed operations and includes consideration of the potential cumulative impact from weather conditions, terrain effects and other existing and proposed developments in the area. Assumptions made include the combined and continuous operation of the three site gasifiers to ensure that the assessment is suitably robust, and similar worst-case assessments has been made of the cumulative contributions from new and planned local facilities.

7.6 Calculations on the likely difference in greenhouse gas emissions from the current and proposed waste management activities are updated and included. Finally, a description of the proposed mitigation methods and an assessment of any additional requirement for mitigation will be provided.

BASELINE ANALYSIS

Proposed operations

7.7 The processes at the Enviroparks facility for which planning permission was granted in 2019 are identified in Table 7.1 below, and the potential releases to air associated with each process are listed. No changes are proposed to these processes in the current planning application.

Process	Primary Potential Releases to Atmosphere
Construction	Dust from earth movement works, aggregate handling, foundation piling and
Construction	site traffic on paved and unpaved roadways.
Road traffic; during	Combustion emissions from vehicle engines: Benzene, 1,3-Butadiene,
both construction	Carbon Dioxide, Carbon Monoxide, Oxides of Nitrogen, Particulate Matter,
and operation	Sulphur Dioxide, Volatile Organic Compounds.
Waste acceptance, sorting, and pre- treatment	Materials enter the site in covered vehicles before being off-loaded, handled and treated within enclosed buildings. The incoming waste has a low biogenic content resulting in minimal potential for odorous emissions. Irrespective of this however, the Fuel Storage Hall will be ventilated to the gasifiers in order to minimise any potential for odours to escape the building. A dust suppressing foam will also be used in the Fuel Preparation Hall.
Waste gasification	Abated emissions from the advanced thermal treatment of fuel from waste: Ammonia, Carbon Dioxide, Carbon Monoxide, Dioxins and Furans, Hydrogen Chloride, Hydrogen Fluoride, metal species, Oxides of Nitrogen, Polycyclic Aromatic Hydrocarbons, Poly Chlorinated Biphenyls, particulate matter, Sulphur Dioxide, Volatile Organic Compounds. Emissions constitute point source releases to atmosphere from the site and will be discharged through 90 m high exhaust stacks.
Fugitive emissions	Controlled receipt, handling and processing of the in-coming materials should minimise the potential for fugitive releases of odour or litter, and as all operational areas of the site will be laid to hardstanding, it is unlikely that large quantities of dust will be created by the activities.

Table 7.1: Consented processes and their associated releases

Legislation

7.8 The EU National Emissions Ceilings Directive (2016/2284/EC) (NECD) sets limits on total annual emissions of important air pollutants for all Member States to help reduce transboundary air pollution. Updated from the original 2001 Directive, the 2016 NECD sets pollutant reduction commitments for five main air pollutants (Ammonia (NH₃); non-Methane Volatile Organic Compounds (VOCs); Oxides of Nitrogen (NO_x); particulate matter (PM_{2.5}); and Sulphur Dioxide (SO₂)) to be achieved by 2020 and 2030. The new NECD transposes the reduction commitments for 2020 agreed by the EU and its Member States under the 2012 revised Gothenburg Protocol, part of the Convention on Long-Range Transboundary Air Pollution (LRTAP). The more ambitious reduction commitments agreed for 2030 are designed to reduce the health impacts of air pollution by half compared with 2005.

7.9 A 2019 briefing paper⁽¹⁾ produced by the European Union (EU) and its Member States reported on progress towards the NECD 2010 emission ceilings, which remained applicable until the end of 2019, and provided an assessment of the projected emissions reported by Member States for 2020 and 2030, in relation to the reduction commitments set for those years. In 2017, the most recent year for which data were reported, the total emissions of the four main air pollutants NO_x, VOCs, SO₂ and NH₃ were below the respective ceilings set for the EU as a whole. The target for PM_{2.5}

is only effective from 2020. The UK was reported to consistently achieve its targets between 2010 and 2017 for all reportable pollutants and was expected to achieve its 2020 targets for NOx, VOCs and SO₂. At the time of the report, the UK was reported as not being expected to achieve its 2030 target for any of the five pollutants, and was also expected to miss its 2020 targets for NH_3 and $PM_{2.5}$. This is a similar or better position to many of the other 27 European Member States.

7.10 Although obligations under the NECD may change in future due to the UK's withdrawal from the EU, the Gothenburg Protocol will continue to be taken into consideration in UK Policy in the future as it is a UN Convention, rather than an EU commitment. Additionally, the National Emissions Ceilings Directive is considered too important an issue at a national level to be amended and, as such, emissions from all sources, will continue to be controlled and minimised where possible, in order to meet our national objectives.

7.11 In 2008, European Directive 2008/50/EC on ambient air quality and cleaner air for Europe came into effect (the CAFÉ Directive), and includes the following elements:

- the merging of most of the existing legislation into a single Directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives. In essence, the 2008 Directive merges the requirements of Directive 96/62/EC, Directive 1999/30/EC, Directive 2000/69/EC, and Directive 2002/3/EC, as well as incorporating new requirements;
- new air quality objectives for PM_{2.5} including the limit value and exposure related objectives;
- the possibility to discount natural sources of pollution when assessing compliance against limit values.

7.12 The 2008 Directive therefore continues to have the general aim of identifying the basic principles of a common strategy across the Member States, to:

- define and establish objectives for ambient air quality in the Community designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole;
- assess the ambient air quality in Member States using common methods and criteria;
- obtain adequate information on ambient air quality and ensure that it is made available to the public, inter alia by means of alert thresholds;
- maintain ambient air quality where it is good and improve it in other cases.

7.13 By incorporating the earlier Directives, the 2008 Directive sets a framework of how the UK must monitor and report ambient levels of air pollutants. The UK has been divided into zones and agglomerations within which the pollutants will be monitored, and sets specific limits for ambient concentrations of various pollutants including Nitrogen Dioxide and Oxides of Nitrogen, Sulphur Dioxide, Lead, particulate matter, Benzene, Carbon Monoxide, and Ozone. Directive 2004/107/EC (the fourth Air Quality Daughter Directive) was not included within European Directive 2008/50/EC, but remains in existence and sets ambient air limit values for Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons.

7.14 The European Air Quality Directives inform the UK Air Quality Standards Regulations. When considering primary UK legislation, Part IV of the Environment Act 1995 requires the UK Government and the devolved administrations for Scotland and Wales to produce a National Air Quality Strategy containing standards, objectives and measures for improving ambient air quality and to keep these

policies under review. In Wales, this is implemented through the Air Quality (Wales) Regulations SI 2000/1940, which have since been amended by the Air Quality (Amendment) (Wales) Regulations SI 2002/3182. The Regulations establish the framework for achieving the required improvements in ambient air quality within a given time period.

7.15 Air quality in the UK has generally improved since 1997 when the first Air Quality Strategy was adopted. This was replaced, most recently, by the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007, and provides an overview and outline of the UK Government and devolved administrations' ambient air quality policy. It sets out a way forward for work and planning on air quality issues, details objectives to be achieved, and proposes measures to be considered further to help reach them. The strategy is based on a thorough and detailed analysis of estimating reductions in emissions and concentrations from existing and proposed policies, aimed at achieving the specified objectives, which are based on health studies data for individuals within a population. As such, any exceedances of the objectives should be assessed in relation to the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present.

7.16 The Air Quality Standards (Wales) Regulations 2010 (SI 2010 No. 1433 (W.126)) came into force on 11 June 2010, replacing the previous (2007) Standards and reflect the air quality standards specified by the European CAFÉ Directive, the Fourth Daughter Directive and the UK Air Quality Strategy.

Dollutant	Air Quality Objective		To be achieved by	
Pollutant	Concentration	Measured As	TO be achieved by	
Benzene	5 μg m ⁻³	Annual mean	31 December 2010	
1,3-Butadiene	2.25 μg m⁻³	Running annual mean	31 December 2003	
Carbon Monoxide	10 mg m ⁻³	Maximum daily running 8 hour mean	31 December 2003	
Lead	0.25 μg m ⁻³	Annual mean	31 December 2008	
Nitrogen dioxide	200 µg m⁻³ not to be exceeded more than 18 times per year	1 hour mean	31 December 2005	
	40 μg m ⁻³	Annual mean	31 December 2005	
Particles (PM10) (gravimetric)	50 μg m ⁻³ , not to be exceeded more than 35 times per year	Daily mean	31 December 2004	
	40 μg m ⁻³	Annual mean	31 December 2004	
Dortiolog (DN42 5)	25 μg m ⁻³ (target)	Annual mean	2020	
(gravimetric) All authorities	EU target of 20 % reduction in urban background (20 μg m ⁻³)	Annual mean	2010 - 2020	
Polycyclic Aromatic Hydrocarbons (PAH)	0.25 ng m ⁻³	Annual mean	31 December 2010	

Table 7.2: Summary of the National Air Quality Strategy objectives

Dollutant	Air Quality Objective	To be achieved by	Dollutant
Pollulari	Concentration	Measured As	Pollulani
	350 μg m ⁻³ , not to be exceeded more than 24 times per year	1 hour mean	31 December 2004
Sulphur Dioxide	125 μg m ⁻³ , not to be exceeded more than 3 times per year	24 hour mean	31 December 2004
	266 μg m ⁻³ , not to be exceeded more than 35 times per year	15 minute mean	31 December 2005
Ozone	100 μg m ⁻³ , not to be exceeded more than 10 times per year	8 hour mean	31 December 2005

Table 7.3: UK air quality objectives for protection of vegetation and ecosystems

Dollutent		To be achieved by		
Ponutant	Concentration	Measured As	TO be achieved by	
Nitrogen dioxide				
(for protection of vegetation &	30 µg m⁻³	Annual mean	31 December 2000	
ecosystems)				
Sulphur Dioxide	20 µg m⁻³	Annual mean		
(for protection of vegetation &	20 µg m⁻³	Winter Average	31 December 2000	
ecosystems)		(Oct - Mar)		
		AOT40⁺, calculated		
07070	19000 ug m ⁻³ h	from 1 hour values	01 January 2010	
Ozone	10000 µg III °.II	May-July. Mean of 5	OI January 2010	
		years, starting 2010		

Table 7.4: Target values for arsenic, cadmium, nickel and benzo(a)pyrene

Pollutant	Target value for the total content in the PM ₁₀ fraction averaged over a calendar year	Date by which target value should be met
Arsenic	6 ng m ⁻³	31 December 2012
Cadmium	5 ng m ⁻³	31 December 2012
Nickel	20 ng m ⁻³	31 December 2012
Benzo(a)pyrene	1 ng m ⁻³	31 December 2012



7.17 Whilst the legislative drivers detailed above consider pollutant levels which could affect the general population and set over-arching limits, standards or targets for protecting human health and the environment, the control of the sources of such pollution is usually focused at a local level, with requirements dependent upon the presence or otherwise of certain infrastructure such as major or congested roads, and significant industrial sources. The EU Industrial Emissions Directive (2010/75/EC), which was transposed into UK law through the Environmental Permitting Regulations (SI 2016 No: 1154 as amended), is the main legislative tool for the control of industrial emissions in the UK. However, as the implementation of this legislation is required to be site specific, consideration of any particular site characteristics or the ability of the wider local area to meet the stipulated levels of air quality, can result in more stringent industrial emission limit values or control mechanisms being applied.

7.18 Information on the nature and potential effects of pollutants is presented in Appendix 7.1.

Local Air Quality

7.19 In line with Part IV of the Environment Act 1995 Rhondda Cynon Taf County Borough Council (RCTCBC) periodically reviews and assesses the air quality in its area for compliance with National Air Quality Strategy objectives. A summary of the local air quality and monitoring requirements in the Borough is provided in Appendix 7.2.

7.20 The vast majority of Rhondda Cynon Taf experiences good air quality and this is expected to remain so into the future, with the potential for improvement. Within Rhondda Cynon Taf only some small areas associated with busy urban road junctions, the regional road network or specific local sources are likely to be vulnerable to poor air quality, and many of these areas have been declared Air Quality Management Areas. In response to breaches or potential breaches of the Air Quality Objectives for Nitrogen Dioxide, Rhondda Cynon Taf currently has sixteen Air Quality Management Areas the Borough. None of these areas is local to Hirwaun:

- Aberdare Town Centre Air Quality Management Area
- Broadway Air Quality Management Area
- Church Village Air Quality Management Area
- Cilfynydd Air Quality Management Area
- Cymmer Air Quality Management Area
- Ferndale Air Quality Management Area
- Llanharan Air Quality Management Area
- Llwynypia Air Quality Management Area
- Mountain Ash Town Centre Air Quality Management Area
- Mwyndy Air Quality Management Area
- Nantgarw Air Quality Management Area
- Nightingales Bush Air Quality Management Area
- Pontypridd Town Centre Air Quality Management Area
- Tonyrefail Air Quality Management Area
- Treforest Air Quality Management Area
- Tylorstown Air Quality Management Area

7.21 Air quality monitoring local to the Enviroparks site is restricted to diffusion tube monitoring for NO₂, in Penderyn. Ratified data from 2018 averaged 6.6 μ g m⁻³, and confirms the general trend of a reduction in concentrations of Nitrogen Dioxide in ambient air over time.

Planning policy

7.22 When considering potential developments and the protection and improvement of the environment, the Planning Policy Wales document, Edition 10 – December 2018⁽²⁾ notes that planning and environmental management are separate but complementary. Indeed, the primary objective of Planning Policy Wales is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales.

7.23 The national sustainable placemaking outcomes detailed within Planning Policy Wales, are used to inform the preparation of development plans and the assessment of development proposals. The outcomes provide a framework which contains those factors that are considered to be the optimal outcome of development plans and individual developments, and this includes the requirement to maximise environmental protection and limit environmental impact. The following specific characteristics are promoted for placemaking across Wales whilst meeting this objective:

- resilient biodiversity and ecosystems;
- distinctive and special landscapes;
- integrated green infrastructure;
- appropriate soundscapes;
- reduces environmental risks;
- manages water resources naturally;
- clean air;
- reduces overall pollution;
- resilient to climate change;
- distinctive and special historic environments.

Material considerations in determining applications for potentially polluting development are therefore likely to include:

- location, taking into account such considerations as the reasons for selecting the chosen site itself;
- impact on health and amenity;
- the risk and impact of pollution from a development, especially where this may create or worsen the situation in an existing air quality management area or a noise action planning priority area;
- the effect of pollution on the natural and built environment and the enjoyment of areas of landscape and historic and cultural value;
- the effect on biodiversity and ecosystem resilience, including consideration of cumulative impacts where relevant;
- impact on the road and other transport networks, and in particular on traffic generation.

7.24 RCTCBC recognises the social, economic and environmental benefits that can be realised from the management of waste as a resource, providing this is done while:

- minimising adverse environmental impacts and avoiding risks to human health;
- protecting areas of designated landscape and nature conservation from inappropriate development; and
- protecting the amenity of residents, of other land uses and users affected by existing or proposed waste management facilities.

For this reason, planning authorities, other relevant local authority departments and Natural Resources Wales (NRW) must work closely together to ensure that conditions attached to planning permissions and those attached to Environmental Permits are complementary and do not duplicate one another. Sufficient information should also accompany development proposals in order for planning authorities to be satisfied that proposals are capable of effective regulation.

7.25 Planning policies and proposals must therefore contribute to the protection and improvement of the environment, so as to improve the quality of life, and protect local and global ecosystems. In particular, planning should seek to ensure that development does not produce irreversible harmful effects on human health or the natural environment. Fundamentally, the environmental aims relating to planning policy and development are to:

- maximise environmental protection for people, natural and cultural resources, property and infrastructure, ensuring protection and considering how schemes might enhance such features;
- prevent or manage pollution and promote good environmental practice;
- ensure that high standards of restoration, remediation, decommissioning and beneficial after uses can be achieved;
- promote efficiency in materials and energy use, prevent or minimise waste creation and promote re-use and recycling of unavoidable wastes;
- consider the causes and impacts of climate change and support decarbonisation.

7.26 The Enviroparks development, of which the amended stack proposal form a part, is designed to promote environmentally effective recycling and reduce the requirement for landfill. The development is located on a brownfield site, within an existing industrial estate which has good transport links. Site emissions and the environmental impact of operations will be minimised and controlled. As such, the development will not produce irreversible, harmful effects in the environment and should result in a minimal environmental impact on the local area.

7.27 Further benefits of diverting residual waste from landfill sites and recovering energy, are identified by the Welsh Government in their Industrial and Commercial Sector Plan (2013)⁽³⁾, which states that:

'Treatment of residual waste in high efficiency energy from waste facilities yield significant reductions in greenhouse gas emissions, as compared to other treatment options that include an element of landfilling, as verified by life cycle assessment studies.'

7.28 As such, the consented Enviroparks development which aims to recover recyclable materials from incoming wastes prior to using the residual fraction to produce energy, can be assumed to yield



significant reductions in greenhouse gas emissions. The development is also in line with the UK Government's Carbon Plan⁽⁴⁾, which states that:

'Around 3% of the UK's total greenhouse gas emissions come from waste. Around 89% of these emissions come from landfill sites where biodegradable wastes decompose to produce methane and carbon dioxide gas. Our near-term priority must be to reduce the amount of waste going to landfill in the first place. In the longer term, generation of energy from waste is likely to become an increasingly important source of low carbon energy.'

7.29 Whilst the Welsh Government is working towards 'zero waste' by 2050⁽⁵⁾, with total recycling and no residual waste or energy from waste, there are 30 years between now and that point, and the first steps along the process include the phasing out of landfill, instead diverting residual waste to high energy efficiency, energy from waste plants. Coupled with the impact of increasing export costs due to capacity issues and uncertainty over Brexit trade agreements, it is notable that exports of RDF have fallen over the last two years, resulting in an urgent need to find domestic solutions which do not include landfill.

7.30 The core values of Planning Policy Wales are reflected in the Rhondda Cynon Taf Local Development Plan⁽⁶⁾. Policy AW 10 within the Local Development Plan, relates to environmental protection and public health, and states:

'Development proposals will not be permitted where they would cause or result in a risk of unacceptable harm to health and / or local amenity because of:-

Air pollution;
 Noise pollution;
 Light pollution;
 Contamination;
 Landfill gas;
 Land instability;
 Water pollution;
 Flooding;

9. Or any other identified risk to the environment, local amenity and public health or safety unless it can be demonstrated that measures can be taken to overcome any significant adverse risk to public health, the environment and / or impact upon local amenity.'

7.31 The Plan goes on to note that pollution might cause significant damage to human health, quality of life and residential amenity, as well as affecting both the natural and built environment. Policy AW 10 is designed to ensure that developments that would result in unacceptably high levels of noise, light, water and / or air pollution are located away from residential areas and other sensitive uses, and that new development is not located in close proximity to existing sources of pollution.

Local industry and proposed developments

7.32 Rhondda Cynon Taf has historically had a thriving coal industry. The local Tower Colliery was established in 1864 and was successfully operated until the exhaustion of the workable underground reserves in January 2008. Some open-cast mining was undertaken between 2012 and 2017 but has now ceased. However, the Hirwaun area has had a long industrial history aside from mining. The Enviroparks site on Hirwaun Industrial Estate was an ordnance works during the Second World War, and other industries on the wider estate over the years include a concrete works, a glass factory, a radio factory, engineering works, a bakery and a meat factory, and chemical and pharmaceutical factories. Current industries in the immediate vicinity of the site include the Dwr Cymru Hirwaun Sewage Treatment Works, and Eden UK, which produces shop fittings and shelving. Other local industries include powder coating works, engineering companies, food processors, fencing manufacturers, electronics companies and metal pressers and spinners.

7.33 Located on an industrial estate, the consented Enviroparks development is in close proximity to operations that might have an impact on air quality. Eden UK, across Ninth Avenue from the site, holds a Local Authority Environmental Permit for its coating processes, from which the main regulated pollutant is PM₁₀. Other Local Authority Environmental Permits registered in or around Hirwaun include a coal handling Permit for Tower Regeneration Ltd, a coatings manufacturing Permit for Eftec Limited, which produces engineered materials and application systems for bonding, coating, sealing and damping in vehicles, and a wood product Permit application for the Celtic Communities Wood Fuel Limited. None of these installations and processes is expected to have a significant impact upon local air quality, due to their type, size and distance from existing Air Quality Management Areas or other vulnerable areas.

7.34 Since the original 2008 ES, a number of energy plants have been constructed or are proposed on the Hirwaun Industrial Estate. These include the Green Frog Short Term Operating Reserve (STOR) located off Main Avenue, which has been operational since 2012. Premier Green Energy Ltd was awarded a change of use planning permission to develop a renewable energy generation facility comprising a pyrolysis plant for the conversion of non-hazardous mixed waste wood materials into 8 MW_e energy. The plant is located approximately 580 metres to the south-west of the Enviroparks site, has been developed and is now operational. Additionally, a Nationally Significant Infrastructure Project, Hirwaun Power, was awarded a Development Consent Order in July 2015, for the development of an open-cycle gas turbine peaking plant to generate up to 299 MW_e , which is due to be constructed by 2022.

7.35 Several other new, proposed or committed developments have been identified in the area, including the Pen y Cymoedd wind farm on an upland ridge 3.5 km to the south of the application site, which was commissioned in 2017, the Abergorki Wind Farm situated on land to the North East of Forch-Orky which is yet to be constructed; land remediation and reclamation of old tips, derelict land and buildings, surface coal extraction and associated ancillary development at the Tower Colliery site; potential development of the former Ferrari's Bakery site in Hirwaun, for which the site was sold at auction in July 2016 although there are no further details on whether development will progress at the site in the foreseeable future.

7.36 Allocated land within the Rhondda Cynon Taf Local Development Plan includes:

Policy NSA 8 - Land South of Hirwaun

Land is allocated South of Hirwaun for the construction of 400 dwellings, 36 hectares of employment, a new primary school, a retail store of 2,000m² net floor space, medical / community centre and informal recreation contained in a landscape setting. Development on the Strategic Site will be subject to a large-scale reclamation scheme.

Policy NSA 9 - Housing Allocations

Land is also allocated in the Northern Strategy Area of Rhondda Cynon Taf for residential development on non-Strategic Sites in the following locations:

Land South of Rhigos Road, Hirwaun, a 0.57 hectare flat field situated on the edge Hirwaun, located behind a low density residential street has been identified for 15 Dwellings.

Policy NSA 21 - Park and Ride / Park and Share Provision

Provision for park and ride / park and share facilities will be provided on land to the South of Hirwaun.

7.37 The land to which Policy NSA 8 applies includes the old Tower Colliery site and planning permission was granted in 2019 for an Environmental Resources Centre on a part of this site. An EIA Scoping Report was also submitted in December 2019 (RCTCBC planning reference 19/1318/35) proposing a development which incorporates approximately 1.5 hectares (ha) of residential land, approximately 25 ha of employment land, approximately 5 ha of commercial land with associated open space, access, infrastructure and engineering works. Although some proposed schemes exist for the development of NSA 8, the other sites are not yet being considered within the planning system and there will be minimal potential for cumulative impact from the proposed Environmental Resources Centre at the old Tower Colliery site.

7.38 The Local Authority applies a consistent and proportionate approach to its consideration of planning applications which could either have the potential to adversely affect local air quality or introduce a relevant population to an existing area of potentially poor local air quality. Should a development meet the relevant criteria and if it is proportionate to do so, the Local Authority will require an Air Quality Assessment to be produced in order to objectively examine the air quality implications of a proposed development, and to provide sufficient information to allow the Local Planning Authority to evaluate the material planning consideration. In this way, the Local Authority attempts to ensure that future developments will negate or mitigate any impacts on local air quality whilst continuing to treat each application for planning consent on its individual merits.

7.39 In accordance with the EIA Regulations 2017, the potential cumulative effects of proposed or committed developments in the Hirwaun area, which are either planned or recently built and which have the potential to emit the same pollutants as the Enviroparks facility have been considered and incorporated into the air quality assessment prepared for the ES Addendum. Although sites such as the Green Frog STOR have been operational for some time, it was deemed appropriate to assume that emissions from the site may not be considered in the background data available and to incorporate it as a modelled release, due to its short and infrequent operating hours. The following schemes were therefore included into the dispersion model which informs the Air Quality Assessment:



Table 7.5: Cumulative effects considered

Development Name	Scheme	Consideration
Hirwaun Power	Gas fired 'peaking' power generating	Operational emissions
	plant providing up to $299 MW_e$	
Hirwaun Energy Centre	Wood pyrolysis energy plant	Operational emissions
Green Frog Connect Ltd	STOR generator farm	Operational emissions

7.40 The impacts of construction traffic, including the cumulative effects of construction traffic from the Abergorki wind farm and the Hirwaun Power facility were considered in the 2017 ES Addendum. As there is no change to the proposals, these have not been reconsidered here. Other identified schemes have been assessed as having limited additional, or as having a reduced impact on current background air quality levels, e.g. reduced traffic movements at Tower Colliery, or are considered to have insufficient information available for consideration e.g. the likely proposals for allocated site NSA 8 or the Ferrari's Bakery site.

PREDICTION OF POTENTIAL IMPACTS

7.41 The consented Enviroparks development at Hirwaun has the potential to predominantly impact on air quality in the following ways:

- Dust emissions (construction phase);
- Traffic emissions (construction and operational phases);
- Gasifier exhausts (operational phase);
- Potential odour emissions (operational phase).

Dust emissions

During construction

7.42 Dust emissions from the consented development as a whole will occur predominantly during construction of buildings, plant, landscape features and hard-standings and the proposed increase in the stack height will make an insignificant contribution to construction-phase dust arisings. The main sources of dust include that generated from land stripping and excavation, piling and foundation works, aggregate and materials handling and preparation, and traffic movements across the site which will, periodically at least involve movement across open ground.

7.43 In order to assess the potential magnitude and impact of dust emissions from the construction of the Enviroparks facility, the following criteria have been applied, as taken from the Guidance on the assessment of dust from demolition and construction⁽⁷⁾ from IAQM. It is noted, that although the site is partly developed, with Phase I of the scheme already built, there will be no demolition stage required for the development, and hence this detail has been omitted.

Table 7.6: Potential magnitude and impact of dust emissions

Stage	Small Scale	Medium Scale	Large Scale
Earthworks	 total site area <2,500m², or soil type with large grain size (e.g. sand), or <5 heavy earth moving vehicles active at any one time, or formation of stockpile enclosures <4m in height, or total material moved <20,000 tonnes (where known), or earthworks during wetter months 	 total site area 2,500m² – 10,000m², moderately dusty soil type (e.g. silt), or 5-10 heavy earth moving vehicles active at any one time, or formation of stockpile enclosures 4m – 8m in height, or total material moved 20,000 tonnes – 100,000 tonnes (where known). 	 total site area >10,000m², potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), or >10 heavy earth moving vehicles active at any one time on site, or Formation of stockpile enclosures >8m in height; total material moved >100,000 tonnes (where known).
Construction	 total building volume <25,000m³, or construction material with low potential for dust release (e.g. metal cladding or timber). 	 total building volume 25,000m³ – 100,000m³, or potentially dusty construction material (e.g. concrete), or on-site concrete batching. 	 total building volume >100,000m³, or piling, or on site concrete batching; or sandblasting.
Track-out	 <10 HDV (>3.5t) trips in any one day, surface material with low potential for dust release, unpaved road length <50 m. 	 10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m. 	 >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay/silt content), unpaved road length >100 m.

7.44 The earthworks required at the site will be classed as medium scale, due to the size of the site and the operations required. Construction and track-out impacts will be large scale due, in part to the size of the buildings, and the number of construction vehicle movements required during the peak of the development phase.

7.45 When assessing the sensitivity of dust and soiling effects from construction sites on people and property, the IAQM guidance⁽⁷⁾ proposes the following matrix based on the number of receptors potentially exposed, their sensitivity, and the distance of those receptors from the source (site):

	Receptors			Distance fr	om Source (m)
Sensitivity	Number	< 20	<50	<100	<350
	> 100	High	High	Medium	Low
High	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

Table 7.7: Sensitivity of dust and soiling effects

7.46 Classifying the Penderyn Reservoir as a high sensitivity receptor, the presence of human receptors (anglers; assumed to number between 1 and 10 at any one time) around the edge of the reservoir with the embankment located 40 - 50 metres from the site boundary would suggest a low overall sensitivity to dust impacts. It is noted that, although the reservoir has been considered to be high sensitivity receptor for the purpose of this study, the potential for people to be present on the banks of the reservoir for a full 24-hour period in line with the averaging period of the short-term Air Quality Standard for particulate matter, is likely to be small, which reinforces the low sensitivity classification. Residential properties are limited in number in the immediate vicinity of the site, with up to 10 located within 1 km and all of these being more than 350 m from the site. As such, the potential sensitivity to dust and soiling effects from the construction phase of the site development is considered to be low.

7.47 Similarly, the sensitivity to human health impacts can be assessed through consideration of the annual mean particulate matter (PM_{10}) concentration. The background concentration of PM_{10} in the area is recorded on the DEFRA background maps as 10.34 µg m⁻³, which is below the level for assessment of the high sensitivity receptors as specified in the IAQM guidance⁽⁷⁾. As such, and with only two non-business sensitive receptors identified within 350 m of the site (the Penderyn Reservoir and the Dwr Cymru service reservoir) the sensitivity to human health impacts is confirmed as low.

7.48 Finally, the potential impact on ecological receptors can be considered. However, as the sensitive ecological sites are all located more than 50 m from the development site, the overall sensitivity is considered to be low. With a low sensitivity class calculated for all potential effects, the combined sensitivity of the area is low. Using this combined classification, the impact of any stage of the construction process can be assessed as follows to ascertain the overall risk:



Consitivity of Aroa	Dust Emission Magnitude			
Sensitivity of Area	Large	Medium	Small	
	Excav	vation		
High	High Risk	Medium Risk	Low Risk	
Medium	Medium Risk	Medium Risk	Low Risk	
Low	Low Risk Low Risk		Negligible	
	Constr	ruction		
High	High Risk	Medium Risk	Low Risk	
Medium	Medium Risk	Medium Risk	Low Risk	
Low	Low Risk	Low Risk	Negligible	
	Trac	k-out		
High	High Risk	Medium Risk	Low Risk	
Medium	Medium Risk	Low Risk	Negligible	
Low	Low Risk	Low Risk	Negligible	

Table 7.8: Impact of construction process dust emissions

7.49 The overall risk of dust impacts from the construction activities for the consented development as a whole is therefore considered to be low, and would be negligible in respect of the stack that forms the subject of the current planning application.

7.50 Enviroparks will require its lead contractor for the consented development to provide and work to an Environmental Management Plan produced specifically for the project and as necessary, will request individual plans for any detailed phasing of the works. Amongst other things, this will consider the potential for emissions of dust to occur, and will identify any control measures, as part of the nuisance management controls section. Draft copies of example Environmental Management Plans have been provided for the project previously. However, as these are high-level documents which will only be finalised ready for use once the lead contractor is appointed, no revised proposal is presented here. Fundamentally, the detailed Environmental Management Plan will consider the environmental aspects and potential impacts of the construction works; the controls that will be implemented to minimise any potential negative consequences of the operations, accidents or incidents; staffing and contractor training, control and required levels of competence; any required Consents, Permits or Licences; communication channels and the management of wider stakeholder engagement; monitoring and performance measures and information on the records that will be maintained during the project. All construction staff and contractors will be subject to communication, training, monitoring and auditing of health, safety, and environmental issues across the construction site. The Environmental Management Plan will be applied to the construction of the proposed stack.

During operation

7.51 The site will be operated in accordance with an Environmental Permit, to be obtained from Natural Resources Wales. This will control the site waste handling, gasification and all associated operations, ensuring the application of Best Available Techniques (BAT) across the site, and will specify emission limit values for discharges from the stack. As such, levels of dust emitted from the

stack will be very low (less than 5 mg Nm⁻³). The potential impact of emissions from the stack is discussed further in the 'Process exhausts' section of this Chapter.

7.52 As the site will be covered in hardstanding and landscaped areas once operational, the dust creation potential from the land will be negligible. Additionally, all materials delivery and handling operations will be undertaken within enclosed buildings and thus dust creation through operational practices will also be negligible. Within the Fuel Preparation Hall, a dust suppressing foam is applied during fuel preparation, and a de-dusting unit would be employed to ensure the comfort and occupational health of staff. The foam mixture, which is practically invisible, is dosed onto the shredded material and adheres to the dust making it heavy. The dust therefore settles, and no further dust is created.

7.53 Enviroparks has a draft Environmental Management System (EMS), which has been prepared in the style of the ISO 14001 Standard. Although not currently operational, the Company intends to fully implement their management system once site operations commence, and will subsequently aim to gain certification of the system. The draft EMS includes a Dust Management Plan which details potential sources of dust, control measures and receptors, and actions to be taken in the event of a complaint. A copy of the plan is included in Appendix 7.3.

Odour emissions

During construction

7.54 Odour controls will be implemented similarly to the control of dust at the site through the use of an Environmental Management Plan implemented by the lead contractor. The potential for odour emissions from the construction activities is limited, with sources predominantly being from vehicle emissions during travel to, from and across the site, and also during operations, e.g. diggers, shovel loaders, piling equipment etc.

During operation

7.55 Once operational, EWL will control releases primarily through good site management practices. Similarly to considerations regarding the control of dust emissions, the draft Enviroparks EMS includes an Odour Management Plan which identifies how the site proposes to minimise the risk of odour issues, and identifies actions to be taken in the event that they occur. A copy of the plan is included in Appendix 7.4.

7.56 Feedstock materials will be delivered in heavy goods vehicles which may include curtain sided, tipper or walking floor / ejector type lorries. All vehicles must be covered when arriving at the site. Materials are accepted under contract and as such most deliveries will be scheduled to occur at staggered periods throughout the day, resulting in a well-controlled delivery and acceptance operation. The feedstock material arriving at the site will be from pre-sorted or commercial and industrial sources containing low levels of food waste and other putrescible materials, and thereby limiting the potential for the waste to generate odour.

7.57 Whenever material arrives at the site, the delivery is dealt with as soon as possible. The aim is to receive between four and six deliveries per hour, and the delivery process includes material



acceptance checks and weighing etc. An on-site waiting area is provided for the delivery vehicles should they not be able to enter the delivery system immediately. Deliveries will usually be accepted on a first come first served basis, however should initial check-in and material acceptance procedures suggest that an incoming load would benefit from preferential treatment, for example due to issues with the load or the road network, Enviroparks retain the right to promote a load up the waiting list to ensure that it is not left standing unnecessarily. Enviroparks retains the right to refuse to accept any delivery which arrives at the site in an uncovered or poor state, and will reject outright any materials which are not acceptable under the terms of their Environmental Permit. The Enviroparks EMS includes draft pre-acceptance, acceptance, quarantine and rejection procedures. These will be finalised in line with Best Available Techniques during the application to amend the site Environmental Permit, and will be strictly adhered to once operations commence.

7.58 With the exception of the material acceptance checks, all waste handling operations are undertaken in enclosed buildings. Delivery vehicles are reversed up to the access doors, which are closed whenever they are not in use, and once the door is opened the vehicle manoeuvres into the off-load area. Once unloaded, the vehicle pulls away from the access point and the door is closed.

7.59 The dust suppressing foam applied during the preparation of the fuel also minimises the potential for odour to emanate from the waste. Once treated, segregated recyclates are stored in bunkers within the Fuel Preparation Hall, and are loaded into dedicated containers or collection vehicles within the main building, prior to dispatch, while the fuel for the gasification lines is transported internally on a conveyor within the building, into the Fuel Storage Hall.

7.60 The principles of odour control at the site are based on the use of enclosed operations, which is fully compliant with RCTCBC's proposed allocation of 'in-building' waste facilities on the Hirwaun Industrial Estate (Local Development Plan, Policy CS9), and also on the efficient handling of material to avoid unnecessary storage and increased potential for degradation of the wastes or fuels. Received wastes will be treated within two days and most wastes and recyclables for recovery will be bulked in the Fuel Preparation Hall until a vehicle load is ready for dispatch. This is usually achieved in less than two days after treatment, although metal wastes and inert wastes may be held for marginally longer. Wastes which are considered to have the potential to cause odours will be treated as a priority, stored at the site for no longer than two days, and in order to avoid situations that favour anaerobic breakdown and odours, the waste will be frequently turned. Prepared fuel for gasification is generally held for up to three days within the Fuel Storage Hall in order to ensure sufficient feed for the process, although a maximum of five day's storage is available for use during holiday and maintenance periods, for example.

7.61 Once accepted into the process, materials will remain in enclosed buildings or processes until such time as they are ready for dispatch. Neither wastes nor recyclates will be stored externally.

7.62 The prepared gasifier fuel enters the Fuel Storage Hall and its retention and use is controlled by an automatic crane. The crane is programmed to select waste on a 'first-in-first-out' basis, which ensures that fuel is generally used within three days and aids in minimising the potential for odour build-up. Ventilation air from the Fuel Storage Hall will be used as combustion air within the gasification process to ensure the effective control of any potential emissions of odour. Odour release associated with process emissions to atmosphere from the 90-metre high flues will therefore be negligible as any potentially odorous substance generated during storage or the thermal



treatment of the waste will decompose completely within the gasification plant. Temperatures within the process will be in excess of 850 °C for a residence time of at least 2 seconds, thereby ensuring that odours from within the building are destroyed by the treatment process.

7.63 Having been controlled to ensure optimum combustion conditions, emissions from the gasification process would be released at height through the multi-flue discharge stack. The overall control of the site operations will ensure negligible odour emissions from the process release and there will be no perceptible odour from the proposed 90 m release point. Each gasifier incorporates continuous monitoring systems to assess the emissions concentrations in the flue-gases. All operation and control will be in strict accordance with the requirements of European and Welsh legislation, and will be regulated through the provision of an Environmental Permit, to be issued by Natural Resources Wales.

Process exhausts

7.64 As presented in the 2017 ES Addendum, the current scheme continues to require three, identical gasification lines, each with a dedicated discharge flue, routing up a single, multi-flue chimney stack which discharges at 90-metres. The height and location of the multi-flue chimney is the only proposed change to the layout of the site, and the abatement systems described in the 2017 ES Addendum would all remain. These include:

- Urea dosing for the reduction and removal of Oxides of Nitrogen;
- Lime dosing for the reduction and removal of acid gases (Sulphur Dioxide, Hydrogen Chloride and Hydrogen Fluoride);
- activated Carbon dosing for the reduction and removal of heavy metals and Dioxins;
- bag filtration for the reduction and removal of particulate, including abatement residues.

7.65 The discharges from the flues have been modelled as previously, using a comprehensive dispersion model (ADMS Version 5.2) which enables the dispersion of the emissions from the flues to be predicted while taking into account details of the site and local area, such as terrain and meteorological conditions. The complete dispersion modelling report is presented in Appendix 7.5.

7.66 The model was prepared by inputting data on the maximum anticipated releases from each of the three discharge flues. The mass emission rate of each pollutant was calculated by multiplying the concentration of the release (mg Nm⁻³) by the volumetric flow-rate (Nm³ s⁻¹). The relevant concentration of each pollutant as applied represents either the emission level associated with the application of Best Available Techniques (BAT-AEL) as identified in the recently revised European Commission Best Available Techniques Reference Note (BREF)⁽⁸⁾, or as confirmed by the technology provider where lower concentrations than those stipulated by the BREF can be achieved by the technology under consideration. As such, EWL is committed to discharging pollutants within or up to these concentrations, and accept that these will form the emission limit values specified within the Environmental Permit to be issued by NRW.

7.67 Comprehensive information on the site buildings was also included in the emissions modelling for the 90-metre stack, as were data of local terrain, surface roughness and meteorological conditions for the period 2015-2019. The model provides data of the Process Contribution to ground level concentrations across a specified grid and as required, at identified sensitive receptor locations.

For the purpose of this exercise, a 6 km x 6 km grid was produced, with intersections spaced at 30 m intervals across each axis, resulting in approximately 40,400 grid results being reported. The Enviroparks site was located at the approximate centre of the grid. Additionally, a number of sensitive health or ecological receptors were included. The chosen receptors are detailed in Table 7.9 below and are designed to represent:

- locations where members of the public are likely to be regularly present and hence potentially exposed to pollutants over the relevant averaging period of any associated assessment level;
- designated sites (SACs, SPAs, SSSIs) which are located within 10 km of the Enviroparks facility;
- ancient woodland sites within 2 km of the Enviroparks site boundary as identified by NRW; or
- points within the Enviroparks site boundary, which have been included in order to assess the potential impact on areas within the site which may subsequently be used for ecological enhancement.

Pocontor	Recentor	Grid Reference		Location from	
Number	Name			Sta	ack
Number	Name	X (m)	Y (m)	(m)	Direction
1	Blaen Cynon Cors Bryn-Y-Gaer SSSI / SAC	294600	206600	787	E
2	Cwm Cadlan SAC	296100	209800	3,736	NNE
3	Coedydd Nedd a Mellte SAC	291900	209300	3,151	Ν
4	Dyffrynoedd Nedd a Mellte a Moel Penderyn SSSI	291963	209323	3,131	NW
5	Cwm Gwrelych and Nant Llynfach Streams SSSI	290552	205212	3,665	W
6	Craig-y-Llyn	291766	203223	4,155	SSW
7	Bryn Bwch SSSI	292056	210947	4,497	NNW
8	Caeau Nant-y-Llechau SSSI	290178	210332	5 <i>,</i> 077	NW
9	Gweunedd Dyffern Nedd SSSI	291466	211553	5,296	NNW
10	Bryncarnau Grasslands Llwyncoed SSSI	299833	206502	5,996	E
11	Blaenrhondda Road Cutting SSSI	293072	200784	6,086	S
12	Blaen Nedd SSSI	291639	213639	7,166	NNW
13	Ogof Ffynnon Ddu Pant Mawr SSSI	288138	215120	10,072	NNW
14	Caeau Ton-y-Fildre SSSI	286271	210738	8,527	WNW
15	Penmoelallt SSSI	301713	209502	8,312	NE
16	Mynydd Ty-Isaf Rhondda SSSI	292851	196797	10,073	S
17	Plas-y-Gors SSSI	292106	215519	8,870	NNW
18	Daren Fach SSSI	301914	210477	8,859	NE
19	Cwm Glo a Glyndyrys SSSI	303248	205630	9,478	E
20	Waun Ton-y-Spyddaden SSSI	286404	212193	9,178	NW
21	Gorsllwyn Onllwyn SSSI	285408	210752	9,308	W
22	Cwm Taf Fechan Woodlands SSSI	303945	208684	10,270	NE
23	Nant Llech SSSI	283539	212245	11,646	NW

Table 7.9: Sensitive receptors considered

Deserter	Decenter	Grid Reference		Location from	
Receptor	Receptor			Stack	
Number	Name	X (m)	Y (m)	(m)	Direction
24	Caeau Nant Y Groes SSSI	302833	202232	10,092	SE
25	Tir Mawr A Dderi Hir, Llwydcoed SSSI	298270	206284	4,457	E
26	Penderyn Reservoir	293839	207170	349	Ν
27	Eden UK	294020	206800	176	E
28	House at Penderyn Reservoir	294100	207270	516	Ν
29	Ty Newydd Hotel	294600	206940	764	ENE
30	Caer Llwyn Cottage	293253	207151	678	NW
31	Rhombic Farm	292958	206712	894	W
32	Castell Farm	292871	206783	975	W
33	TY Newydd Cottage	294514	207025	699	NE
34	Residence Woodland Park	294824	207560	1,227	NE
35	Pontbren Llwyd School	295057	208264	1,884	NNE
36	Ffynnon Ddu (spring)	292273	208364	2,203	NNW
37	Ton-Y-Gilfach	289565	208712	4,679	NNW
38	Rose Cottage	291284	208150	2,885	NNW
39	The Don Bungalow	291512	207044	2,344	W
40	Werfa Farm	291944	206721	1,904	SW
41	Willows Farm	294129	205879	984	SSE
42	Trebanog Uchaf Farm	294063	207416	634	NE
43	Tai-Cwpla Farm	293519	207024	384	NNW
44	Neuadd Farm	294906	207282	1,157	NE
45	John Street Allotments, Hirwaun	296180	205605	2,633	SE
46	Dwr Cymru Service Reservoir	294068	206939	252	NE
47	Ancient Woodland Site 6686	293520	207166	472	NW
48	Ancient Woodland Site 7652	292255	207548	1,746	NW
49	Ancient Woodland Site 7730	292350	208036	1,924	NW
50	Ancient Woodland Site 10113	295132	207478	1,448	NE
51	Ancient Woodland Site 10232	295491	206845	1,649	E
52	Ancient Woodland Site 10297	295930	207308	2,144	NE
53	Ancient Woodland Site 10323	293604	207328	560	NW
54	Ancient Woodland Site 10450	295888	206925	2,049	E
55	Ancient Woodland Site 11240	294570	207902	1,303	NE
56	Ancient Woodland Site 11255	292098	207655	1,933	NW
57	Ancient Woodland Site 13252	293704	207271	471	NW
58	Ancient Woodland Site 17279	294678	207487	1,069	NE
59	Ancient Woodland Site 17280	294640	207804	1,266	NE
60	Ancient Woodland Site 17307	293510	207339	615	NW
61	Ancient Woodland Site 17308	293904	207366	549	N
62	Ancient Woodland Site 17326	295073	207097	1,262	NE
63	Ancient Woodland Site 17327	295595	207159	1,785	NE
64	Ancient Woodland Site 17359	295701	206840	1,859	E
65	Ancient Woodland Site 17368	293686	207530	726	NW
66	Ancient Woodland Site 17369	294549	207568	1,029	NE
67	Ancient Woodland Site 17396	292255	207410	1,693	NW

Receptor	Receptor	Grid Re	ference	Locatio Sta	on from ack
Number	Name	X (m)	Y (m)	(m)	Direction
68	Ancient Woodland Site 17397	291757	207848	2,324	NW
69	Ancient Woodland Site 17487	292422	207302	1,499	NW
70	Ancient Woodland Site 18190	293864	207751	930	Ν
71	Ancient Woodland Site 18191	294493	207883	1,246	NE
72	Ancient Woodland Site 18192	295014	207354	1,288	NE
73	Ancient Woodland Site 18212	295502	206353	1,725	SE
74	Ancient Woodland Site 18215	295240	207412	1,518	NE
75	Ancient Woodland Site 18235	294855	208369	1,850	NE
76	Ancient Woodland Site 18296	295870	206531	2,049	E
77	Ancient Woodland Site 18297	295400	206579	1,577	SE
78	Ancient Woodland Site 18347	295654	207338	1,884	NE
79	Ancient Woodland Site 18348	295336	207555	1,665	NE
80	Ancient Woodland Site 18417	294509	208048	1,397	NE
81	Ancient Woodland Site 18418	293731	208107	1,291	NW
82	Ancient Woodland Site 18954	292627	206855	1,215	W
83	Ancient Woodland Site 18955	294701	207247	959	NW
84	Ancient Woodland Site 18956	292957	207163	949	NW
85	Ancient Woodland Site 21799	294095	207765	977	NE
86	Ancient Woodland Site 21855	292363	207227	1,534	NW
87	Ancient Woodland Site 21976	292243	207896	1,927	NW
88	Ancient Woodland Site 42098	292807	206878	1,037	W
89	Ancient Woodland Site 43706	293633	207515	725	NW
90	Onsite Receptor 1	293750	206910	128	NW
91	Onsite Receptor 2	293750	206952	160	NW
92	Onsite Receptor 3	293823	206948	128	Ν
93	Onsite Receptor 4	293881	206944	129	NE
94	Onsite Receptor 5	293952	206940	162	NE

7.68 Table 7.10 presents the maximum results experienced across the modelled grid over the course of five years (meteorological data for 2015–2019). These results are the maximum predicted contributions to ground level concentrations of each pollutant, across the entire grid (36 km²).

Table 7.10: Summary of initial modelling results

Pollutant	Maximum process contribution
Annual Average NO ₂ (100 % NO _x) ug m ⁻³	0.241
99.79 Percentile Hourly Average NO ₂ (50 % NO _x) ug m ⁻³	2.319
Maximum 24 Hour Average NO ₂ (100 % NO _x) ug m ⁻³	1.97
99.90 Percentile 15 Minute SO ₂ ug m ⁻³	1.28
Annual Average SO2 ug m ⁻³	0.0603
99.73 Percentile Hourly Average SO ₂ ug m ⁻³	1.08
99.18 Percentile 24 Hour Average SO ₂ ug m ⁻³	0.361
90.41 Percentile 24 Hour PM ₁₀ ug m ⁻³	0.0862



Pollutant	Maximum process contribution
Annual Average PM ₁₀ ug m ⁻³	0.0301
Annual Average PM _{2.5} ug m ⁻³	0.0301
Annual Average Ammonia ug m ⁻³	0.00301
Maximum Hourly Average HCl ug m ⁻³	1.27
Maximum Hourly Average HF ug m ⁻³	0.255
Maximum 24 Hour HF ug m ⁻³	0.0493
Maximum Weekly Average HF ug m ⁻³	0.0185
Annual Average VOC (as Benzene) ug m ⁻³	0.0603
Maximum Rolling 8 Hour Average CO mg m ⁻³	0.00752
Annual Average Group I Metals ng m ⁻³	0.121
Annual Average Mercury ug m ⁻³	1.21E-04
Annual Average Group III Metals ug m ⁻³	0.00181
Annual Average PAH (as B[a]P) ng m ⁻³	0.00603
Annual Average Dioxins and Furans ug m ⁻³	2.41E-10
Maximum 24 Hour Average Dioxins and Furans ug m ⁻³	1.97E-09
Maximum Weekly Average Dioxins and Furans ug m ⁻³	7.38E-10
Annual Average PCBs	3.61E-10
(combined with Dioxins and Furans) ug m ⁻³	
Maximum Hourly Average PCBs	1.52E-08
(combined with Dioxins and Furans) ug m ⁻³	

7.69 NRW sets criteria for considering the impact of industrial emissions to ambient air, which states that Process Contributions equating to less than 1 % of the long-term assessment level, or 10 % of the short-term level, can be screened as insignificant. The modelled Process Contributions predicted to occur when discharging the maximum allowable emissions from all three gasification lines confirm that the majority of pollutants are screened as insignificant when discharging through a 90 m high stack, the exceptions being the annual average Process Contribution of total Volatile Organic Compound species (VOCs) when assessed against the Air Quality Standard for Benzene, and the annual average Process Contribution of Group I metals (Cadmium and Thallium) when assessed against the Ambient Air Directive target value for Cadmium. This is a significant improvement on the results of the modelling exercise undertaken for a 45 metre stack in the 2017 ES Addendum which predicted that, in addition to VOCs and Group I metals which are not immediately screened in the latest assessment, Process Contributions of the following pollutants were not screened as insignificant at the initial assessment stage:

- Nitrogen Dioxide (health or vegetation impacts);
- Sulphur Dioxide (impacts on sensitive vegetation);
- heavy metals;
- PAH.

7.70 Where the Process Contributions of pollutants cannot immediately be screened as insignificant, a second stage screening test can be applied to consider whether or not further investigation is required. Where pollutants meet both of the following requirements no further assessment of a substance is required:

- the short-term PC is less than 20 % of the short-term environmental standard minus twice the long-term background concentration;
- the long-term PEC is less than 70 % of the long-term environmental standard.

7.71 Continuing the assessment of total VOC species against the Air Quality Standard for Benzene, and Group I metals against the Ambient Air Directive target value for Cadmium, which is recognised as an over-estimate of the impact of any individual pollutant species from the emitted group, the Predicted Environmental Concentration (PEC) of both groups of pollutants remain within 70 % of the assessment levels when discharged through a 90 m stack, and are therefore screened as insignificant at the second stage.

7.72 As such the proposed increase in stack height results in improvements to the Process Contributions that were reported in the 2017 ES Addendum, enabling the Enviroparks development to achieve the lowest practicable emissions from its operation.

7.73 Detailed modelling of emissions from the proposed 90-metre stack has also been undertaken for ninety-four sensitive receptors located up to approximately 10 km from the Enviroparks site. These sensitive receptors represent locations where members of the public might be present for prolonged periods, e.g. residential properties, farms, the neighbouring Eden UK factory, sensitive infrastructure including both the Penderyn Reservoir and the Dwr Cymru service reservoir located immediately to the north of Eden UK, and sensitive ecological receptors identified in Table 7.9 above.

7.74 A similar two stage screening assessment has been applied to the detailed modelling results at the specified receptors. Again, most pollutants are screened as insignificant by the primary assessment methodology, the exceptions being the Process Contributions of VOCs and Group I metals at up to 21 of the 94 modelled locations. However, the secondary screening assessment resulted in all pollutants passing the assessment, and therefore, the latest modelling report demonstrates further improvements on both the consented 2010 and 2019 schemes.

7.75 Process Contributions of VOCs and Group I metals that cannot immediately be screened as insignificant occur only at human health receptors or at areas of ancient woodland when discharged through a 90 m high stack, with contributions to all of the National or European designated ecological sites being screened as insignificant at the initial assessment stage. This again demonstrates an improvement on the previous modelling assessments, whereby in 2017, emissions of NO_x as NO₂, metals and Ammonia all reported Process Contributions greater than 1 % of the long-term Environmental Quality Standard at the Blaen Cynon and Cwm Cadlan SACs.

7.76 Consideration has also been given to the deposited levels of Nitrogen and acid at the sensitive ecological sites. When considering the potential for nutrient Nitrogen and acid deposition at these sites, the assessment is made against the lower end of the relevant Critical Loads for each site with the maximum current background deposition levels applied, thereby providing an absolute worst-case assessment. At the modelled locations representing the sensitive ecological receptors, and generally relating to the nearest point of the receptor to the Enviroparks site, Process Contributions of nutrient Nitrogen and acid deposition remain within 1 % of the Critical Load relevant to each site and can be screened as insignificant. Whereas the modelling for a 45-metre stack in the 2017 ES Addendum identified an acid deposition contribution of 1.7 % to Blaen Cynon at this point, this reduces to 0.4 % of the Critical Load when discharging through a 90 m stack.



7.77 When modelling nutrient Nitrogen and acid deposition across the wider grid, the contributions are widely dispersed from the 90 m stack and, despite the very small Process Contribution of acid deposition to the Critical Load at the modelled receptor points, not all locations across the Blaen Cynon SAC would actually remain within 1 % of the Critical Load for acid deposition.

7.78 When considering the maximum gridded value of potential acid deposition from Process Contributions across the entire 36 km² grid (0.0339 keq/ha/year) and applying the Critical Load specified for the Blaen Cynon site, the highest contribution of acid deposition is calculated at approximately 2.9 % of the Critical Load, while the application of the Critical Load Function tool suggests a lower contribution of 2.6 % of the Critical Load. This level of acid deposition does not occur within the Blaen Cynon SAC and is approximately 235 m away from the nearest point of the sensitive receptor. As such, the contributions of acid across the SAC in its entirety will be less than this, as is demonstrated in Figure 17 of the modelling report.

7.79 It is noted that the 1 % screening criterion is not a threshold of harm and exceeding this threshold does not, of itself, imply damage to a habitat. Indeed, the current minimum background acid deposition identified for the Blaen Cynon site is 1.9 keq/ha/year, which represents approximately 164 % of the lower Critical Load, and the current background concentrations at all three local SACs are above the lower Critical Loads for both nutrient Nitrogen and acid deposition. Therefore, whilst the calculated contributions to acid deposition cannot necessarily be screened as insignificant across the entire Blaen Cynon site, they amount to a tiny fraction of the total loadings currently experienced by the site and, coupled with the mitigation measures that Enviroparks has already committed to, are not expected to have any measurable or significant effect on the status of the Blaen Cynon site, or any of the other SACs or SSSIs in the vicinity of the Enviroparks site.

7.80 In addition to considering the impact of the Enviroparks operation in isolation, the cumulative impact on emissions to atmosphere from the Enviroparks scheme and other, relatively new or not yet developed sites, including the Green Frog STOR site, Hirwaun Energy Centre and the committed Hirwaun Power site, have been modelled. These models have assumed long-term operation, with the Hirwaun Energy Centre assumed to operate 24 hours per day, 7 days per week, the short-term releases from the Green Frog STOR included as a pro-rated discharge over the course of the year, and the emissions from Hirwaun Power included independently as a constant release which was subsequently pro-rated for the maximum operational hours of the plant. The differences in the methods used to incorporate the other local releases were necessary in order to maintain consistency with the available input data, whilst facilitating a combined modelling run.

7.81 The results of the cumulative discharge modelling confirm that, although the combined Process Contributions of pollutants cannot necessarily be screened as insignificant at the initial assessment stage, with the exception of the maximum short-term (24-hour) contribution of Oxides of Nitrogen which is compared to the short-term standard for impacts on vegetation, the Predicted Environmental Concentrations of all pollutants remain below 70 % of their relevant Environmental Quality Standard. The majority of the maximum Process Contributions occur approximately 640 m to the South of the Enviroparks site, approximately 16 m from the modelled location of the Green Frog discharge, and as such, they do not significantly affect any sensitive ecological receptors.

7.82 When considering the contributions of nutrient Nitrogen and acid deposition to the three local SACs in combination with the cumulative effects of other local third-party emissions, the contributions of nutrient Nitrogen remain within 1 % of the Critical Load, as do contributions of acid deposition at Cwm Cadlan and Coedydd Nedd a Mellte. Acid deposition does marginally exceed the 1 % insignificance threshold at Blaen Cynon however, equating to approximately 1.03 % at the modelled receptor point. Cumulative nutrient Nitrogen contributions to the ancient woodland sites equate to a fraction of 1 % and acid deposition also largely remained within 1 % of the Critical Loads, with 32 of 43 ancient woodland sites recording contributions of less than 1 %. Ten sites recorded contributions of between 1 % and 2 %, and one site recorded a contribution marginally over 2 %, the highest contribution equating to 2.01 %. Guidance on assessing the impacts at local nature sites such as ancient woodland, specify that contributions can be screened as insignificant where they remain within 100 % of the assessment level, and as such, the cumulative contributions to local areas of ancient woodland are all screened as insignificant.

7.83 The modelling confirms that the majority, although not all of the of the cumulative Process Contributions are immediately screened as insignificant, with all subsequently screened at the second assessment stage where relevant. Most pollutants were reported to result in much lower Process Contributions when discharging at the emission limit values through a 90 m stack than when discharging at anticipated release levels through a 45 m stack, and the few pollutant species (VOCs and Group III metals) for which the most recent modelling suggests slightly higher results than when previously modelling anticipated emission levels, were significantly lower than when modelling the maximum releases from a 45 m stack.

7.84 The reduction in maximum Process Contributions from the EWL gasification process is clearly the result of some reduced proposed discharges, and the beneficial dispersion from the increased stack height. As such, the Process Contributions are sufficiently low to safeguard human health and the environment. Despite this clear reduction in the Process Contributions and the associated potential impact on human health, the Dioxin and Furan Health Impact Assessment (Appendix 7.6 to this ES Addendum) has been updated to consider the latest modelling results, taking account of revised emission limit values stipulated by the BREF (the European Commission's Best Available Techniques Reference Document for Waste Incineration)⁽⁸⁾, and the proposed revision by the European Food Standards Agency, to acceptable intake levels.

7.85 The US Environmental Protection Agency's (EPA) *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* has been applied as in previous submissions, and confirms that the risk to health of the local population due to exposure to Dioxins in emissions from the Enviroparks facility is likely to be very low. Exposure levels are calculated to remain well below the tolerable daily intake at nearby residential receptor locations, and are significantly reduced on levels modelled in the 2017 ES Addendum. This is the result of both the regulated reduction in the emission concentrations of Dioxins, Furans and PCBs as stipulated by the revised BREF reference document⁽⁸⁾ and the associated Best Available Techniques Conclusions document, and an increase in the height of the discharge point for the emissions. The human intake levels of Dioxins also remain well within the more stringent recommended tolerable weekly intake as now proposed by the European Food Standards Agency. The Dioxin and Furan Health Impact Assessment is presented in Appendix 7.6.


7.86 In summary, the impact of emissions from the process exhausts discharging through the higher stack now proposed have been assessed by applying a similar methodology to those which supported the Environmental Impact Assessments for the scheme as consented in both 2010 and 2019. The results show that all of the Process Contributions can be screened as being insignificant both in terms of their potential impact on human health and when considering the individual locations modelled to represent the sensitive ecological receptors. Process Contributions and therefore the resultant impacts reduce when comparing discharges at the expected emission limit values from a 90 m high stack, compared with a 45 m release, and as such, the proposal to increase the stack height will have a positive overall effect on the impact of the process exhausts from the consented scheme. The significance of this improvement varies with the pollutant type.

Emissions of greenhouse gases

7.87 It is a requirement of The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 No. 567 (W. 136), that an impact assessment considers and describes the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change. Waste management activities of all forms result in contributions to greenhouse gases, albeit of varying quantities, and hence this assessment provides consideration of the potential impacts of the Enviroparks waste gasification operation in the round, in relation to a 'do nothing' scenario. However, it is important to note that the assessment presented here is of the scheme as a whole for which planning permission has already been granted. The inclusion of a taller stack, which forms the basis of this current application, will result in no notable difference to the greenhouse gas emissions from the site as currently consented.

7.88 In the absence of any definitive knowledge of the current fate of the wastes that will be brought into the Enviroparks facility, some assumptions have had to be made and result in a high-level assessment of the overall impact. All assumptions are stated.

7.89 The greenhouse gas assessment has also only considered differences in the emissions relating to the plant infrastructure and operations, including the process itself and the construction of the facility. Emissions related to the transport of waste to the site, any ancillary offices, staff transport and amenity facilities have largely been ignored, as it is considered that these will be similar for all of the scenarios modelled and will generally be insignificant in their quantities in comparison to the main processes. Additionally, although the recycling of the gasification residues will be undertaken at a third-party site and will therefore include a further positive environmental impact on the greenhouse gas emissions from the project, limited information on the likely process to be employed has been available for collation in this study, as no contract has yet been finalised. Hence, in order to present a conservative overall case, no assessment of these greenhouse gas savings from materials recycling has been included.

7.90 The Enviroparks (Wales) Limited facility at Hirwaun will receive up to 238,000 tonnes of waste each year, comprising Refuse Derived Fuel (RDF) and Commercial and Industrial waste. RDF is pre-processed waste which has already had its recyclable content removed, while incoming Commercial and Industrial waste will first be sorted to remove the recyclable fraction. Recyclates will be removed from the site separately. The residual materials will subsequently be shredded to prepare the 180,000 tonnes of fuel required by the gasifiers. There is no change proposed in the

nature or volumes of waste to be handled by the site from those considered by the 2017 ES Addendum.

7.91 Information sources regarding the likely emissions of greenhouse gases from individual waste activities is limited, with no data specific to Wales being readily available. In 2006, the Environment Agency produced an assessment tool for comparing the life cycle impacts of waste management systems. This tool, WRATE, is now owned and managed by Golder Associates, and during its lifetime, there have been some concerns about how regularly the tool is updated. Therefore, and again in the absence of Welsh specific tools, the 2017 ES Addendum applied the English and Scottish Carbon Metrics to provide a National carbon indicator for waste operations. This enabled comparison of the likely impacts of the existing and proposed management of residual wastes. Although the Scottish Metrics have been updated since the 2017 ES Addendum was produced, the Carbon Metric for England is no longer available. As such, other sources of information have had to be obtained and hence for this latest assessment, a paper produced by Eunomia Research and Consulting as part of the Zero Waste Europe project⁽⁹⁾ has been used as the basis of the calculations.

7.92 It is Welsh Government strategy to become a zero-waste nation by 2050⁽⁵⁾, with an interim target of 70 % recycling by 2025. It is understood that, following the extraction from the waste stream of materials suitable for recycling, the residual waste from Rhondda Cynon Taf goes either to landfill or to the Viridor energy from waste facility located in Cardiff, as part of the Project Green partnership. The Council is understood to be four years into a 25-year contract with Viridor Trident Park, although the Amgen-Cymru website also suggests that the Bryn Pica landfill site accepts approximately 150,000 tonnes of material per year made up of:

'Local Authority (mostly household) waste from RCTCBC - 70%; Other local waste sources - 30%'

It has not been possible to confirm what proportions of residual waste from Rhondda Cynon Taf are routed to Bryn Pica or to Trident Park, nor where any remaining residual waste is currently sent to.

7.93 The Trident Park facility is currently the only energy from waste facility in South Wales and has a capacity of 350,000 tonnes per annum. All other residual waste, including domestic and commercial or industrial wastes, must find alternative outlets, which include deposit in landfill or movement over significant distances to other parts of the country, or even being exported to create energy elsewhere. The extant planning consent specifies the acceptable area from which the Enviroparks facility can draw its waste, although includes a derogation for up to 10 % of the waste. The area is not equidistant in all directions, but extends approximately 30 miles from the site. No change is proposed to this agreed catchment in the current planning application. As such, no less than 90 % of the incoming waste to the Enviroparks facility would be from South Wales, and the plant does not seek to draw material away from the existing Trident Park facility. Although the current fate of materials likely to be processed at Hirwaun cannot be confirmed because future contracts for Enviroparks cannot be formalised until the facility has a commissioning date, there is a known shortage of outlets for residual waste, with reduced and increasingly expensive export opportunities, which are restricting waste management options throughout the UK.

7.94 A quantitative greenhouse gas emissions assessment has therefore been provided of the difference between the creation and operation of the Enviroparks facility to convert local residual



waste into electricity for supply to the grid, and the alternative locally available landfilling operations. A qualitative assessment has also been made for the use of alternative energy from waste facilities. For the purpose of this assessment it has been assumed that any material which would be recycled by the Enviroparks facility will also be recycled and removed from the residual waste stream prior to being sent to its final destination, and as such, only the volumes of residual waste planned for gasification in the Enviroparks facility will be considered, amounting to 180,000 tonnes per annum.

7.95 The data in Table 7.11 present the calculated greenhouse gas impact of the Enviroparks gasification plant, which the proposed stack would serve. There is no change to the tonnage of materials required for use from the data provided in the 2017 ES Addendum. The emissions of CO_{2eq} per tonne of material have however been updated, once again being largely drawn from the UK Government Greenhouse Gas Reporting Conversion Factors 2019⁽¹⁰⁾.

Materials Use (T)	Tonnage	Kg CO _{2eq} / Unit	Total Kg
Steel	750	4302.56	3,226,918.58
Rebar	650	4302.56	2,796,662.77
Steel Sheet	10	4302.56	43,025.58
Aluminium Sheet	25	4302.56	107,563.95
Insulation	90	1861.79	167,561.50
In-situ Concrete	27000	131.79	3,558,448.80
Concrete Block Paving	800	131.79	105,435.52
Tarmac	250	39.21	9,803.13
Cedar Wall Clad (Thermowood m ³)	20 204 ⁽¹¹⁾		9,831.33
Total Kg from C	10,025,251.14		
Total Tonnes CO _{2eq} f	10,025.25		
CO _{2eq} per year (30-yea	r lifespan assumed)		334.18

Table 7.11: Greenhouse gas emissions from the construction of phase IIEnviroparks (Wales) Limited

7.96 Table 7.12 quantifies the difference in the emissions of greenhouse gases (CO_{2eq}) when directing 180,000 tonnes of residual waste which has had its biogenic (living organism) content removed, to either a landfill, assumed to have a landfill gas capture rate of 50 %, or to an energy from waste facility assumed to be replacing gas fired electricity production.

Table 7.12: Difference in greenhouse gas emissions between waste processes

Dragona	Impact of 180,000 Tonnes Residual Waste			
Process	Kg CO _{2eq} / Tonne	Annual CO _{2eq} (T)		
Landfill of waste excluding biogenic CO ₂ emissions	202	36,360		
with 50 % landfill gas capture	202			
Gasification of waste excluding biogenic CO ₂ emissions	50	0.260		
and replacing other electricity produced from gas	52	9,300		
Difference in the annual produ	27,000			

7.97 As can be seen, there is a significant difference in the annual emissions of greenhouse gases between the two waste management processes, although as Phase II of the Enviroparks facility requires building before it can gasify waste, the greenhouse gas emissions associated with the development must be removed from the savings otherwise calculated. Over the course of an anticipated 30-year lifespan, the total savings in greenhouse gas emissions from the Enviroparks facility, when compared against landfilling of the residual waste, is identified in Table 7.13.

Table 7.13: Greenhouse	gas emissions from the construction and o	peration of the
Enviroparks gasification	plant	

Activity	Tonnes CO _{2eq} per year	Tonnes CO _{2eq} over 30 years
Landfill Only	36,360	1,090,800
Gasification	9,360	280,800
Construction	10,025	-
Total Enviroparks	19,385 (Year 1)	290,825
Lifetime Savings (30 years) of Enviroparks	-	799,975 tonnes

7.98 In summary, an assessment of the proposed construction and operation of the Enviroparks facility, using updated emissions factors for different waste management facilities, suggests greenhouse gas emissions savings across a 30-year lifetime of almost 800,000 tonnes of CO_{2eq} when compared against landfilling operations. It is noted that, not only has no consideration been made here of any potential differences in the nature and quantity of the opportunities for the recyclable fraction of materials entering the facility but also, no account has been made of the potential for the Enviroparks (Wales) Limited facility to recycle the ash which will be produced from the gasification process, and which would in turn result in further savings in greenhouse gas emissions. It is also noted that, although the calculations have been updated to reflect the most recently available greenhouse gas emission factors, the proposal to incorporate a higher discharge point at the Enviroparks facility does not in itself result in any notable change to the impact from the currently consented scheme.

7.99 As discussed earlier in the chapter, a lack of available energy-from-waste capacity in South Wales will result in any residual waste which is not already sent to the Trident Park energy from waste facility in Cardiff requiring a different disposal option, that is, landfill, or being moved outside of the South Wales area for processing, under a 'do nothing' scenario. The consented Enviroparks facility provides additional energy from waste capacity that will assist Wales to meet its targeted improvements in waste management.

7.100 Although residual waste could be sent to remote energy from waste facilities, this would result in further greenhouse gas emissions with every mile travelled beyond the defined waste catchment that Enviroparks would primarily serve. Even transporting waste from, for example, Aberdare to the Trident Park facility equates to a 50-mile round-trip. However, sending waste further afield, for example into England or to any of the South Wales ports from where it can be exported to facilities in Europe or even more distant countries, adds to the proposed emissions from transport movements. Indeed historically, one RDF exporter transferred residual waste from Wales and Bristol down to Southampton for export to Sweden⁽¹²⁾, a journey of at least 120 UK road miles,



plus approximately 900 nautical miles. With no alternative energy from waste plant within South Wales, the use of any other existing facility will have a negative impact on the greenhouse gas emissions from local waste management. Whilst this cannot easily be quantified here, every fully loaded articulated truck mile emits 1.537 kg $CO_{2eq}^{(10)}$ and hence there would naturally be a negative impact on the alternative option of using the Enviroparks facility.

Traffic emissions

7.101 In preparing the 2017 ES Addendum, the potential changes in operational traffic levels and resultant emissions were considered and demonstrated a significant reduction in vehicle movements from the 2010 scheme, largely due to the fact that the revised scheme would no longer accept waste from refuse collection vehicles, as originally proposed. There are no changes in the vehicle movements proposed by this revised scheme and hence, no further consideration of traffic emissions has been made here. The impact will remain unchanged from the 2019 scheme, and was considered to be negligible for the Enviroparks facility, and insignificant when considered in-combination with other potential developments.

MITIGATION

7.102 Details of the proposed mitigation measures to be employed by the Enviroparks site for the protection of air quality have been provided throughout this chapter, and are unchanged from those already included in the consented development other than for the proposed increase in stack height. However, a summary of these proposals is provided here.

Construction

7.103 An Environmental Management Plan will be produced prior to the commencement of Phase II of the Enviroparks development. This will ensure that full consideration is given to the potential nuisance elements of construction such as the creation of noise, dust or odour. Draft Environmental Management Plans have been submitted in the past and remain relevant at this stage, in preparation for update and issue prior to site works. As such, no revised draft has been provided here, however, measures will include:

- frequent and regular observations of noise, odour and nuisance issues within and outside of the site boundary during construction activities;
- early warnings to be given to neighbouring industries and residents, of activities which may cause a nuisance;
- consideration of weather conditions prior to undertaking potentially dusty works, and the provision of suitable mitigation techniques such as damping down, or delaying works as necessary;
- sheeting raw materials or stockpiles as necessary to control dust emissions;
- the creation of hardcore and / or paved roadways around the site at the earliest opportunity;
- the creation of a transport plan which considers the safest and most direct routes across the site, safe site speed limits and the direction of delivery vehicles.

7.104 Construction of the proposed stack will comply with these measures but will not, as explained above, be a significant generator of dust. The stack and its connecting pipework will be fabricated off-site.

Operation

7.105 Mitigation for operational air quality impacts has been built into the design of the facility and comprises a combination of abatement systems such as:

- all operations which may have an impact on odour generation will be undertaken internally, including waste receipt, handling, treatment and waste and fuel storage;
- no external feedstock storage;
- Enviroparks will undertake frequent and regular observations of odour at key locations to identify any processing or maintenance issues promptly. The Company EMS includes audit and reporting protocols;
- a dust and odour suppressing foam will be applied during the treatment of waste within the Fuel Preparation Hall.
- ventilation from the Gasification Hall will be discharged at a high level.
- ventilation air from the Fuel Storage Hall will serve as combustion air for the gasification processes, in order to abate any odorous emissions from this area.
- the three gasification lines will include abatement measures to control emissions of Oxides of Nitrogen, Sulphur Dioxide, Hydrogen Chloride, Hydrogen Fluoride, Dioxins, metal species, and particulate matter;
- gasification lines will discharge through flues at an adequate height to promote effective dispersion;
- good on-going management and housekeeping practices.

7.106 As a result of the inherent abatement and management systems proposed, it is not anticipated that any of the current air quality objectives or similar assessment levels will be jeopardised, and the potential for odour nuisance around the site and outside of the site boundary is limited.

7.107 Additionally, the proposal to increase the gasifier exhaust stack height from 45 m to 90 m reduces the Process Contribution of pollutants across the local area, with more effective dispersion resulting in lower contributions and therefore reduced impacts. Therefore, no further mitigation measures are proposed.

EVALUATION OF RESIDUAL EFFECTS

7.108 An assessment has been undertaken to consider the effect that the proposed changes to the Enviroparks development will have on air quality. Consideration has been given to the likely regulated emissions from the site processes, as well as the potential for the generation of nuisance emissions such as odour and dust, and emissions from traffic generation. A worst-case scenario has been assumed where possible, and it has been considered unacceptable for the proposed development to suggest any breach of current Environmental Quality Standards. The effects of the development can be assessed against the following significance matrix:



Table 7.14: Significance matrix for the assessment of air quality impacts from the consented Enviroparks gasification plant with the proposed 90-metre stack

Positive or Negative	Significance	Description of Impact						
Negative	High	Predicted Environmental Concentration* is 75 % of the assessment						
		level or more and / or;						
		A significant predicted increase in the potential for local nuisance.						
Negative	Medium	Predicted Environmental Concentration* is 25-75 % of the						
		assessment level and / or;						
		A moderate predicted increase in the potential for local nuisance.						
Negative	Low	Predicted Environmental Concentration* is 25 % of the assessment						
		level or less and / or;						
		A small predicted increase in the potential for local nuisance.						
Either	Negligible	Predicted changes in the air quality are so slight that the effect						
		negligible with insignificant Process Contribution and / or;						
		No change is predicted in the effect of any local nuisance issue.						
Positive	Low	A small predicted decrease in the levels of pollution in the local air						
		and / or;						
		A small predicted improvement in a local nuisance issue.						
Positive	Medium	A moderate decrease in the levels of pollution in the local air and /						
		or;						
		A moderate predicted improvement in a local nuisance issue.						
Positive	High	A significant decrease in the levels of pollution in the local air and /						
		or;						
		A significant predicted improvement in a local nuisance issue.						

* Where any Predicted Environmental Concentration is not available, the assessment will apply the same consideration to the Process Contribution.

7.109 During the construction of the site, full consideration will be given to the potential for the creation of dust emissions and their control through the use of an Environmental Management Plan. Although the potential for dust emissions does exist, comprehensive management and full consideration for the site neighbours should ensure that the impact from dust emissions during construction remains a **low negative risk**. There is no additional risk associated with the proposed increase in the discharge stack height.

7.110 Once operational, the site has limited potential for the creation of dust emissions as materials handling is undertaken internally. Therefore, the potential impact from dust emissions once the site is operational continues to be considered **negligible**. There is no additional risk associated with the proposed increase in the discharge stack height.

7.111 The potential for emissions of odour from the site during construction is **negligible.** There is no additional risk associated with the proposed increase in the discharge stack height.

7.112 Despite proposing to accept wastes for recycling and to provide a fuel for the creation of energy, which might be considered to be an inherently odorous operation, the nature of the incoming wastes which will not have a significant biogenic content, and the proposed control methods at the Enviroparks site which include containment, suppression, the use of potentially odorous air from the fuel storage area as combustion air for the gasifiers, and good management and housekeeping measures, aim to provide a high level of control and abatement of potentially odorous emissions. As identified in the Company Odour Management Plan, potential failures of these normal control measures could occur, however in such an instance, further measures would be implemented to minimise the risk of increased nuisance from the site. As such, despite the potential significant risk of odour creation through the handling of wastes, the control measures proposed for the development should reduce the potential of odour from the site such that it remains one of **medium negative risk** and short-term effect. There is no additional risk associated with the proposed increase in the discharge stack height.

7.113 The dispersion modelling exercise applied information provided by the design engineers. The emissions data included are considered to represent worst case results as the model has been run to assume continuous discharge at the maximum anticipated emission limit values, all year round. Models have also been run to assess the cumulative effects of the Enviroparks site along with other local developments. Incorporation of background pollutant concentration data takes into account other local sources of pollution where these are already in existence, although where sites are very new or may only operate for very short periods, their impact may not have been fully considered within the background. As such, the emissions from these sites have been modelled as specific discharges in-combination with the Enviroparks site. The maximum ground level concentrations across a 6 km x 6 km grid have been reported, for five years' of meteorological conditions, as have the highest ground level concentrations predicted at local sensitive receptors.

7.114 The modelling exercise predicted no breaches of air quality objectives or assessment levels. When modelling a 90 m stack, the Process Contribution and Predicted Environmental Concentrations of all pollutants remained below 70 %, with most Process Contributions being screened as insignificant. The vast majority of pollutants were reported to result in much lower Process Contributions than those representing the anticipated releases for a 45-metre stack, and the few species (VOCs and Group III metals) where the most recent modelling suggests slightly higher results than those from the anticipated emissions data, were significantly lower than the contributions from the maximum releases also modelled in 2017.

7.115 The reduction in maximum Process Contributions is the result of reduced proposed discharges, and the beneficial dispersion from the increased stack height. As such, the Process Contributions are sufficiently low to safeguard human health and the environment. Additionally, a Human Health Impact Assessment for Dioxins, Furans and Dioxin-like PCBs indicates that the risk to health of the local population due to exposure to emissions from the process is very low.

7.116 With Process Contributions consistently lower than those from the maximum proposed releases reported in the 2017 ES Addendum, and with air pollution remaining within the Environmental Quality Standards and having a low potential for health risks, it can be concluded that the currently proposed scheme will have a **positive overall effect** on the impact from the Enviroparks facility.



7.117 With approximately 78 % of the pollutant species and assessment levels reporting Predicted Environmental Concentrations equating to less than 25 % of the assessment level, there is a notable improvement in the potential impact of the proposed development from that of the consented scheme, with most assessments now concluding a **low negative** potential impact from the Enviroparks scheme as a whole, when compared to the 'no-build' baseline, although with some contributors to air pollution equating to a **medium negative** potential impact on the current local air quality. The consented scheme was assessed as having a medium negative potential impact on the local air quality in the 2017 ES Addendum.

7.118 An assessment of the likely greenhouse gas emissions from the construction and operation of the proposed facility against an alternative of landfilling for a 30-year period, results in a **high positive impact** from the Enviroparks operation overall, a development that the proposed stack would facilitate.

7.119 Emissions from the traffic movements created during the construction of the overall Enviroparks development will not change and hence have not been re-assessed from earlier studies. The 2017 ES Addendum concluded that the impact of traffic emissions from the overall development on current and predicted future concentrations of pollutants would be **negligible**. Traffic emissions associated with construction of the taller stack specifically would also be **negligible**.

7.120 Consideration of any potential air quality impacts of the development, including a Habitats Regulation Assessment which considers the impact of the emissions on the local Special Conservation Areas, will continue throughout the preparation of the Environmental Permit Application. This will ensure that all potential impacts are considered and suitably addressed.

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Chapter Eight LANDSCAPE AND VISUAL EFFECTS

INTRODUCTION

8.1 This chapter of the ES Addendum 2020 assesses the potential landscape and visual effects that might arise as a result of implementing the Proposed Development. The process is described as a landscape and visual impact assessment (LVIA) and includes urban or 'townscape' elements. The Proposed Development varies from the 2019 consented scheme in the relocation the main stack within the central area of the Enviroparks site and an increase in the height of the structure from 45 metres, as currently consented, to 90 metres, along with an increase from 3.5 metres diameter as permitted to 3.95 metres. The Proposed Development is described in chapter three of this addendum.

8.2 This chapter covers the assessment of the Enviroparks development as a whole, including the previously permitted buildings and other infrastructure, with the revised stack in place. Any differences between the permitted scheme and the Proposed Development are clearly identified and summarised at the end of the chapter.

Relationship with earlier assessments

8.3 Chapter 12 of the ES Addendum 2017 and the Further Environmental Information submitted in support of the 2017 LVIA form the permitted scheme forms the foundation for this current assessment, incorporating the following main changes:

- minor updates to planning policy at a national level;
- updated photomontage visualisations to include the revised stack;
- consideration of the updated cumulative baseline; and
- more detailed assessment of residential visual amenity at the closest properties including computer generated images.

8.4 The original 2008 ES LVIA Chapter contained a number of supporting figures. The following ES figures are still relevant and cross reference is made in this chapter where relevant.

- Figure 12.1: Site Location and Context
- Figure 12.2: Landscape Related Designations
- Figure 12.3: Landscape Character Areas
- Figure 12.4: Approximate Boundaries of CCW Landmap Visual and Sensory Aspect Areas
- Figure 12.5: Vegetation, Ridgelines and Public Access

8.5 All other 2008 ES figures and visualisations and all material contained in the ES Addendum 2017 are now superseded by the following material contained in this ES Addendum.

- Figure 8.1: Zone of Visual Influence and Viewpoint Locations
- Visualisation Aa: View southwards from northern boundary of Site near route of Public Footpath (Baseline Photograph and Wireline)
- Visualisation Ba: View southwards from southern edge of Penderyn Reservoir (Baseline Photograph and Wireline)
- Visualisation Bb: View southwards from southern edge of Penderyn Reservoir (Photomontage Year 1)
- Visualisation Bc: View southwards from southern edge of Penderyn Reservoir (Photomontage Year 15)
- Visualisation Ca: View southwards from northern edge of Penderyn Reservoir (Baseline Photograph and Wireline)
- Visualisation Cb: View southwards from northern edge of Penderyn Reservoir (Photomontage Year 1)
- Visualisation Cc: View southwards from northern edge of Penderyn Reservoir (Photomontage Year 15)
- Visualisation Da: View south-eastwards from track to property of Tyle-morgrug (Baseline Photograph and Wireline)
- Visualisation Db: View south-eastwards from track to property of Tyle-morgrug (Overlaid Wireline)
- Visualisation Ea: View northwards from layby on the A465 (Baseline Photograph and Wireline)
- Visualisation Eb: View northwards from layby on the A465 (Overlaid Wireline)
- Visualisation Fa: View eastwards from Fifth Avenue adjacent to Hotel access road (Baseline Photograph and Wireline)
- Visualisation Fb: View eastwards from Fifth Avenue adjacent to Hotel access road (Overlaid Wireline)
- Visualisation Ga: View south-eastwards from public footpath near the farmstead of Tai-cwplau (Baseline Photograph and Wireline)
- Visualisation Gb: View south-eastwards from public footpath near the farmstead of Tai-cwplau (Overlaid Wireline)
- Visualisation Ha: View southwards from public bridleway near Moel Penderyn (Baseline Photograph and Wireline)
- Visualisation Hb: View southwards from public bridleway near Moel Penderyn (Photomontage Year 1)
- Visualisation Hc: View southwards from public bridleway near Moel Penderyn (Photomontage Year 15)
- Visualisation Hd: View southwards from public bridleway near Moel Penderyn (Cumulative wireline drawing)
- Visualisation Ia: View north-eastwards from sports field on north-eastern edge of Rhigos (Baseline Photograph and Wireline)
- Visualisation Ib: View north-eastwards from sports field on north-eastern edge of Rhigos (Overlaid Wireline)
- Visualisation Ja: View north-eastwards from A4061 near junction with public footpath (Baseline Photograph and Wireline)
- Visualisation Jb: View north-eastwards from A4061 near junction with public footpath (Photomontage Year 1)
- Visualisation Jc: View north-eastwards from A4061 near junction with public footpath (Photomontage Year 15)

- Visualisation Jd: View north-eastwards from A4061 near junction with public footpath (Cumulative wireline drawing)
- Visualisation Ka: View north-eastwards from public footpath between Rhigos and the A4061 (Baseline Photograph and Wireline)
- Visualisation Kb: View north-eastwards from public footpath between Rhigos and the A4061 (Overlaid Wireline)
- Visualisation La: View eastwards from public footpath near the southern edge of Cefn Rhigos (Baseline Photograph and Wireline)
- Visualisation Lb: View eastwards from public footpath near the southern edge of Cefn Rhigos (Overlaid Wireline)
- Visualisation Ma: View south-westwards from open access land above Pontbren Llwyd (Baseline Photograph and Wireline)
- Visualisation Mb: View south-westwards from open access land above Pontbren Llwyd (Overlaid Wireline)
- Visualisation Mc: View south-westwards from open access land above Pontbren Llwyd (Cumulative wireline drawing)
- Visualisation Na: View north-eastwards from A4061 near layby and promoted viewpoint (Baseline Photograph and Wireline)
- Visualisation Nb: View north-eastwards from A4061 near layby and promoted viewpoint (Photomontage Year 1)
- Visualisation Nc: View north-eastwards from A4061 near layby and promoted viewpoint (Photomontage Year 15)
- 8.6 The appendices to this chapter are as follows:
- Appendix 8.1 Landscape and Visual Methodology,
- Appendix 8.2 LANDMAP Baseline and Landscape Character Assessment
- Appendix 8.3 Viewpoint Assessment
- Appendix 8.4 Residential Visual Amenity Assessment

CONTEXT

enviroparks

Study area

8.7 An initial 10km radius Study Area was reviewed. However, as part of the initial viewpoint selection process it became apparent that likely significant effects arising from the Proposed Development would in reality be restricted to a much smaller area. A 5km radius Study Area, within which all the representative viewpoint locations are located, was therefore adopted for detailed assessment purposes. The approach complies with the proportionate approach now advocated in best practice guidance (GLVIA3 – paragraphs 5.2 and 6.2).



Methodology

8.8 The full methodology for the current assessment is contained in **Appendix 8.1** and the information below presents a summary of the approach and methodology.

Desk study

8.9 The following sources were consulted to establish the up to date baseline:

- LANDMAP;
- Brecon Beacons Landscape Character Assessment;
- Rhondda Cynon Taf CBC's website including development plan documents;
- Brecon Beacons National Park Authority's website including development plan and management plan documents;
- Ordnance Survey mapping and aerial photography; and
- the archaeology/cultural heritage and ecology chapters of the 2010 ES, the 2017 ES Addendum and the current ES Addendum.

Field survey

8.10 All photography was undertaken with a Canon 5D camera with a full frame sensor and a fixed 50mm lens. The 2008 ES viewpoints agreed with RCTCBC and BBNPA were used as a starting point and additional locations suggested by the ZTV were reviewed in the field and used if there was the potential for significant visibility of the proposed development.

8.11 GLVIA3 states at paragraph 3.16 that 'the level of detail provided should be that which is reasonably required to assess the likely significant effects'. It adds in paragraph 6.16 'that the viewpoints from which the proposal will actually be seen by these different groups of people should then be identified'

8.12 It is clear that the reproduction of a large number of photographic viewpoints illustrating no visibility or extremely limited visibility with no potential for significant landscape and visual effects does not comply with the approach advocated by best practice guidance.

Impact assessment methodology

8.13 The overall significance of effect is defined by combining the magnitude of impact and the sensitivity of the receptor (see **Appendix 8.1**). The determination of significance requires professional judgement and takes into account:

- duration (short, medium, long term);
- reversibility; and
- whether the effect is positive or negative and indirect or direct.

Value, susceptibility, sensitivity and magnitude of impact

8.14 The specific criteria adopted are identified in **Appendix 8.1**.

Significance of effect

8.15 A level of effect greater than Moderate is deemed Significant. All effects in this chapter have been assessed as negative (adverse) unless otherwise stated.

Cumulative effects

8.16 Other new and proposed developments are identified at section 2.3 of Chapter 2 and summarised below.

- Open Cycle Gas Power Station (340m south);
- Change of use of existing building to a wood pyrolysis unit (580m southwest);
- Mixed use development and zip wires at former Tower Colliery (1.5km south);
- Highway upgrade works to A465; and
- Abergorki wind farm (7.4 km south).

8.17 The cumulative landscape and visual assessment in this chapter covers the consented Open Cycle Gas Power Station as it is assessed that this is the only scheme to have the potential for significant cumulative effects with the Proposed Development. The other schemes are rejected for the following reasons.

- Change of use of existing building to a wood pyrolysis unit (580m south-west). No material changes to external appearance and no potential for cumulative landscape and visual effects.
- Mixed use development and zip wires at former Tower Colliery (1.5km south). LVIA impacts of development acknowledged by BBNPA to be *'limited'* and infrastructure *'would /merge into existing landscape'*. Consequently no potential for significant landscape and visual effects.
- Highway upgrade works to A465. Localised and restricted visibility of the Proposed Development from the A465 which would not give rise to significant cumulative effects.
- Abergorki wind farm (7.4 km south). Theoretical distant visibility from THE Brecon Beacons National Park north of Site in context of the much closer Pen y Cymoedd wind farm. Any visibility of the Abergorki wind farm in views where the Proposed Development would also be visible would have a very limited contribution to any cumulative effects.
- 8.18 Cumulative effects are reported using the following terminology:
 - In combination where the proposal and other scheme/s are seen together in the same field of view;
 - *Successive* where the Proposed Development and other scheme/s are seen from the same location but not in the same field of view; and



• Sequential - where the Proposed Development and other scheme/s are seen separately at intervals along a route.

LANDSCAPE PLANNING POLICY AND GUIDANCE

Planning Policy Wales (PPW, 10th edition, December 2018)

8.19 The statutory purposes of National Parks are confirmed at PPW paragraph 6.3.6 to conserve and enhance natural beauty, wildlife and cultural heritage and to promote opportunities for public understanding and enjoyment of their special qualities. The statutory duty of the Planning Authorities to have regard to National Parks purposes applies to all activities affecting the designation, whether those activities lie within or in the setting of the designated area (PPW paragraph 6.3.5).

Technical Advice Note 12: Design (March 2016)

8.20 The Design and Access Statement explains how the relevant provisions of TAN12: *Design* have been taken into account in the Proposed Development.

Rhondda Cynon Taf Local Development Plan up to 2021 (RCTLDP, March 2011)

8.21 Provisions relevant to landscape and visual issues include Policy AW 5: *New Development*, which states that development proposals will be supported where the scale, form and design of the development would have no unacceptable effect on the character and appearance of the site and surrounding area. The policy also covers retention of existing site features where appropriate and highlights a need to avoid significant impacts upon the amenities of neighbouring occupiers.

8.22 RCTLDP policy AW 6: *Design and Placemaking* states that development proposals will be supported where they are appropriate to the local context in terms of siting, appearance, scale, height, elevational treatment, materials and detailing. The policy states also that landscaping and planting should be integral to a scheme and enhance the site and wider context, protecting and enhancing landscape and biodiversity.

8.23 RCTLDP policy AW 8: *Protection and Enhancement of the Natural Environment* states that proposals will only be permitted where there would be no unacceptable impact upon features of importance to landscape or nature conservation.

8.24 RCTLDP policy NSA 25 covers Special Landscape Areas (SLA), which include land at Hirwaun Common 1.5 km to the south of the application site. As the policy is applicable within a defined SLA the presence of the Hirwaun Common SLA within the zone of theoretical visibility (ZTV) for the Proposed Development is not relevant.



Brecon Beacons National Park Local Development Plan 2007-2022 (2013)

8.25 The revised stack, including its access from the public highway, is now located wholly within the jurisdiction of RCT and the current planning application is thus submitted to this planning authority alone, with BBNPA becoming a consultee for the application.

8.26 The Local Development Plan Objectives covering landscape and visual issues include SQ1: *Special Qualities*, which sets the objective to conserve and enhance the special qualities of the Brecon Beacons National Park. Objective SQ4: *Landscape* seeks to ensure that all future development will protect and enhance the beautiful and varied character of the landscape.

Brecon Beacons National Park Management Plan 2015-2020

8.27 The Special Qualities of the National Park listed in paragraph 48 of the Management Plan include the following qualities that are relevant to landscape and visual considerations of the Proposed Development:

- rural setting and open land;
- sense of place and cultural identity;
- sweeping grandeur and outstanding natural beauty;
- 'living patchwork' landscape; and
- enjoyable and accessible countryside with widespread and varied recreational opportunities.

8.28 In 2013 the National Park was awarded Dark Sky Reserve Status. The Management Plan is committed to ensuring that the lighting management plan continues to influence lighting improvements in the National Park. Paragraph 182 of the Management Plan states that *'Large areas of the National Park remain free from light pollution, though the gradual encroachment of street, house and security lights puts this at jeopardy'*.

BASELINE CONDITIONS

Landscape character

Brecon Beacons National Park

8.29 The Brecon Beacons National Park Authority's Landscape Character Assessment (2012) identifies the Site and surrounding land within the National Park as lying within Landscape Character Area 4: Waterfall Country and Southern Valleys. The distinctive characteristics relevant to the Site and locality are summarised below (LCA page 48).

- A dramatic landform of steep enclosed valleys separated by ridges of flatter, higher land.
- Land use predominantly of pastoral agriculture but with extensive areas of forestry.



- Limestone walls and hedgebanks enclosing irregular fields in valleys, with some hedges (predominantly beech or hawthorn). Higher land less enclosed, with more use of post and wire fencing.
- A range of historic features in the landscape.
- Development concentrated in valley floors, particularly along the A4067 and A4059. Some intervisibility with settlements, roads and other development beyond the National Park boundary.

8.30 The overall Strategy is described as 'to maintain and enhance the special qualities of the landscape, in particular its historic features and magnificent waterfalls, resisting development which would impact on views from the area'.

LANDMAP

8.31 LANDMAP covers all of Wales and records and evaluates landscape characteristics, qualities and influences on the landscape. It was designed as tool to help sustainable decision making and natural resource planning at a range of levels from local to national whilst ensuring transparency in decision-making.

- 8.32 LANDMAP comprises five spatial datasets:
- Visual and sensory;
- Geological landscape;
- Landscape habitats;
- Historic landscape; and
- Cultural landscape.

8.33 **Appendix 8.2** of this ES Addendum provides the latest extracted LANDMAP for all aspect areas directly affected by or intervisible with the Project at Classification level 3 or 4. The 2008 ES Figure 12.4 identifies the boundaries of the Visual and Sensory layers within the Study Area and the geographical coverage of other layers is illustrated on the published sheets at **Appendix 8.2**.

Field survey

A description of the designations and the Site location and Setting is set out at paragraph12.27 to 12.43 of the 2008 ES. As noted in earlier chapters of this ES Addendum, the Phase 1 building has been constructed. Associated internal roads, hardstanding and other infrastructure are present as the part completed consented scheme. Native tree and shrub planting within grassland is located along the northern and western boundaries of the Site (see **Plate 2**).



Plate 2: Aerial Photo of the Site (not to scale) with the proposed location of the stack shown as a red spot



Image: Google Earth

Zone of Theoretical Visibility (ZTV) analysis

8.34 The ZTV (see **Figure 8.1**) was created to compare the theoretical visibility of the consented stack at 45m high above ground level and the Proposed Development i.e. the revised stack at 90m high above ground level.

8.35 Visual barriers were added to the ZTV model to represent all buildings (conservative estimate of 8m high) and the main blocks of woodland planting (10m high). The proposed development has a lifetime of 25 years and therefore any felling of woodland has the potential to increase the visibility of the stack



from some locations, although topographical analysis (see **2008 ES Figure 12.5**) indicates that the key landscape element restricting visibility of the proposals is landform - i.e. a series of major ridgelines to the north and south and built development and locally elevated land to the east and west.

8.36 The ZTV presents a 'worst case' and does not include tree belts, individual trees or hedgerows, which when combined often notably reduce the visibility of built development. The ZTV should therefore always be interpreted with caution and verified in the field. All areas not covered by the ZTV are highly unlikely to experience any visibility of the proposed development and the ZTV therefore offers an important tool to scope representative viewpoint locations and produce a proportionate and focussed assessment.

8.37 Review of the ZTV indicates a very similar pattern of geographical visibility for the proposed 90 metre high stack compared with the consented 45m high stack with a relatively modest increase in the area where the stack might be visible, as indicated by the yellow shading on **Figure 8.1**.

8.38 The geographical extent of visibility of the revised stack to the north of the Site within the BBNP is largely unchanged within 3km compared with the consented scheme, noting some very minor increases on open access land and parts of the bridleway south of Moel Penderyn, however these would comprise long range views. From even longer range views, the revised stack is predicted to be visible in the vicinity of Coed Cae Ddu Farm (4km north), however much of the land around the farm has no public access.

8.39 To the south of the Site, the ZTV predicts some modest increases in the geographical extent of the revised stack visibility. The areas include parts of the Hirwaun Industrial Estate and the southwestern edge of Hirwaun on land largely affected by road infrastructure and the edge of the restored mine workings at the Tower Colliery Site.

8.40 To the south-west and west of the Site the ZTV indicates a small increase in the geographical extent of visibility from the edge of Rhigos (at least 1.5 km from the proposed stack) and Cefn Rhigos (at least 2km from the proposed stack) and from parts of the surrounding landscape, noting that these areas predominantly comprise farmland with no public access.

8.41 The ZTV indicates some small increases in the geographical extent of visibility of the revised stack to the east of the Site including land either side of the A4059 corridor, which heads north towards Penderyn. In reality the A4059 is flanked by mature tree cover and visibility of the revised stack is unlikely from the additional areas indicated by the ZTV. The surrounding landscape is largely private farmland and increases in the geographical extent of stack visibility from public rights of way is predicted to be negligible. At distances beyond 3km from the Site the ZTV indicates the potential for a small increase in the geographical visibility of the revised stack, on the slopes of Mynydd-y-glog which comprise open access land. However, at this range the stack would be a very minor component in the view (as indicated by the closer viewpoint M above Pontbren Llwyd).

Representative viewpoints

8.42 Viewpoint locations have been reviewed in the field and some changes were made to the 2008 ES viewpoint selection, as described in Table 12.1 of the previous addendum for the approved scheme. On the basis of the ZTV and field assessment no additional or modified viewpoints were assessed to be required for the amended stack. Table 8.1 sets out the selected representative viewpoints.

Table 8.1: Selected representative viewpoints

Viewpoint Reference	Viewpoint Description	Approximate distance to Site (metres / km)	Receptors
А	View southwards from northern boundary of Site near route of Public Footpath	2m	Nearby public footpath users
В	View southwards from southern edge of Penderyn Reservoir	50m	Anglers with permit (no general public access)
с	View southwards from northern edge of Penderyn Reservoir	330m	Anglers with permit (no general public access)
D	View south-eastwards from public footpath near the farmstead of Tai- cwplau	130m	Public Footpath users
E	View northwards from layby on the A465	190m	Road users
F	View eastwards from Fifth Avenue adjacent to Hotel access road.	390m	Road users and residents
G	View south-eastwards from track to property of Tyle-morgrug	1.03km	Visitors to rental property
н	View southwards from public bridleway near Moel Penderyn	1.54km	Public Bridleway users
1	View north-eastwards from sports field on north-eastern edge of Rhigos	1.61km	Sports field users and nearby residents
J	View north-eastwards from A4061 near junction with public footpath	1.71km	Road users and nearby public footpath users
К	View north-eastwards from public footpath between Rhigos and the A4061	1.83km	Public Footpath users
L	View eastwards from public footpath near the southern edge of Cefn Rhigos	2.14km	Public Footpath users
Μ	View south-westwards from open access land above Pontbren Llwyd	2.35km	Walkers on open access land
Ν	View north-eastwards from A4061 near layby and promoted viewpoint	3.82km	Road users and walkers

Potential key landscape receptors

8.43 The key receptors within the 5km study area and the ZTV are:

- The Brecon Beacons National Park (BBNP), covering part of the wider Enviroparks site and the landscape to the north of the Site;
- The host LANDMAP aspect areas and those within the Study Area and ZTV with a High or Outstanding value have been identified as having the potential to be significantly affected by the Proposed Development. Full details of the scoping exercise is contained at **Appendix 8.2** and the selected areas to be assessed in detail are summarised below.
- Visual and Sensory: Penderyn
- Visual and Sensory: Hirwaun Common
- Visual and Sensory: Cadair Fawr
- Cultural: Designated Landscape Areas
- Cultural: Brecon Beacons National Park
- Cultural: Hirwaun
- Cultural: The Rhigos
- Historic: Cynon Valley Corridor
- Historic: Penderyn
- Historic: Tower Colliery
- Historic: Rhondda Uplands
- Historic: Hirwaun Common Enclosure
- Historic: Moel Penderyn
- Landscape Habitats: unnamed host area; and
- Geological Landscape: Rhigos.

Potential key visual receptors

8.44 The key receptors identified within the 5km study area and the ZTV include:

- Recreational receptors including users of the public footpath passing the northern boundary of the Site, Anglers at Penderyn Reservoir, users of Open Access land and the public bridleway near Moel Penderyn, users of the Open Access Land east of Penderyn, users of Open Access Land at Hirwaun Common and users of the public rights of way network in the vicinity of Rhigos and Cefn Rhigos.
- *Road users* including users of the A465, A4061, A4059 and other local roads; and
- *Residents* within settlements including Rhigos, Cefn Rhigos and also scattered dwellings outside settlements.

DESIGN MITIGATION

8.45 Chapter 3 of this ES Addendum describes all of the buildings on the Enviroparks site, both constructed and permitted, in order to present a full picture of the development.

8.46 The buildings have been designed to what is an unusually high specification for this type of use. Structures of a more industrial appearance, such as the gasifiers, would be contained in a building to conceal them in external views. Building materials and colours have been selected to integrate the development into the local landscape in elevated views from the reservoir embankment and the slopes of Moel Penderyn to the north and from the slopes of Llethr Las, Twyn Canwyllyr and Pistyll y Graig on Hirwaun Common to the south.

8.47 Extensive landscape and planting is proposed around the periphery of the Enviroparks site and within the car park as part of the consented scheme. Plant species would be selected to reflect the aims of integrating new planting with that which already exists on the site boundaries, providing a suitable visual foil for the buildings and some ecological benefit.

8.48 Emissions from the gasification plant would be expelled via a main stack. In its consented form the stack would be 45 metres high and 3.5 metres in diameter, and would occupy the verge between the northern side of the Gasification Hall and the internal spine road, which is already constructed.

8.49 The current proposal is for a stack 90 metres high and 3.95 metres in diameter. The increase in stack height follows further studies on the emissions profile of the Enviroparks plant, particularly in relation to acid and nutrient nitrogen deposition on nearby Special Areas of Conservation (SAC). To facilitate access for emissions monitoring in conjunction with Natural Resource Wales (NRW), a continuous emissions monitoring systems (CEMS) gantry is proposed around the stack at a deck height of 18.5 metres above local ground level. Access to the CEMS gantry would be by means of a permanent steel frame ladder. The CEMS gantry would be a cantilevered platform 10.5 metres in diameter, meaning that it would overhang the existing access road if the stack were to remain in its current, consented, location. Given these space restrictions the applicant decided to relocate the stack to the service yard on the eastern side of the Gasification Hall. This location would provide more space in which to maintain the stack, and promotes the mutual safety of access road users and staff working on the stack.

8.50 The proposed stack would be finished in a smooth, flangeless external cladding in a graded colour scheme intended to give the stack a regressive appearance in the local landscape. If aviation warning lights are required, these would be of the infra-red type, invisible to the human eye.



ASSESSMENT OF EFFECTS

Construction phase

Landscape and visual effects

8.51 The assessment of construction effects is set out at paragraph 12.88 to 12.89 of the 2008 ES. There would be no material differences in the construction process as a result of the Proposed Development compared with the consented 2019 scheme.

8.52 In summary it is assessed that the landscape and visual construction effects would be no greater than the operational landscape and visual effects of the proposed scheme at Year 1 following completion of construction, which is described below.

Operational landscape effects

8.53 The full landscape assessment following the methodology at **Appendix 8.1** is contained in **Appendix 8.2** and a summary is provided in **Table 8.2** below.

Table 8.2: Summary of Landscape Character Assessment

Changes in assessment levels resulting from the Proposed Development (revised stack) compared with the consented 2019 scheme are identified in <u>blue text</u>

Area Name (Unique ID)	Sensitivity	Magnitude of Proposed Development	Landscape Character Effects (Year 1 winter)			
(revised stack)		Proposed Development (revised stack)	Consented 2019 scheme			
		Visual and Sensory	•			
Penderyn (CYNONVS833)	Medium	Very Large to Medium at close to medium range	Major to Moderate/Major (Significant)	Major to Moderate/Major (Significant)		
		Medium to Very Small at medium to long range	Minor/Moderate (Not Significant)	Minor (Not Significant)		
Hirwaun Common (CYNONVS340)	Medium	Medium at long range	Moderate (Not Significant)	Moderate (Not Significant)		
Cadair fawr (CYNONVS735)	Medium	Small to Medium at long range	Minor/Moderate (Not Significant)	Minor/Moderate (Not Significant)		
		Cultural Landscape				
Designated Landscape Areas (CYNONCL056)	Medium	No direct or indirect effects	Neutral (No effect)	Neutral (No effect)		



Area Name (Unique ID)	Sensitivity	Magnitude of Proposed Development	Landscape Character Effects (Year 1 winter)		
		(revised stack)	Proposed Development (revised stack)	Consented 2019 scheme	
BBNP	High	Close range: Large	Major (Significant)	Moderate/Major (Significant)	
(CYNONCL044)		At medium to long range: Very Small to Medium	Moderate/Major (Significant) to Minor/Moderate (Not Significant)	Moderate/Major (Significant) to Minor/Moderate (Not Significant)	
Hirwaun (CYNONCL042)	Medium	At close to medium range: Medium to Large	Moderate (Not Significant)	Minor/Moderate (Not Significant)	
The Rhigos Medium (CYNONCL041)		Small to Medium	Moderate/Minor (Not Significant)	Minor (Not Significant)	
	-	Historic Landscape			
Cynon Valley Medium to Corridor High effect (CYNONHL117)		Close to long range: No effect	Neutral (Not Significant)	Neutral (Not Significant)	
Penderyn (CYNONHL176)	Medium	Medium to long range: No effect	Neutral (Not Significant)	Neutral (Not Significant)	
Tower Colliery (CYNONHL183)	Low to Medium	Medium to long range: No effect	Neutral (Not Significant)	Neutral (Not Significant)	
Rhondda Uplands (CYNONHL687)	Medium	Long range: No effect	Neutral (Not Significant)	Neutral (Not Significant)	
Hirwaun Common, Enclosure (CYNONHL903)	, Medium	Long range: No effect	Neutral (Not Significant)	Neutral (Not Significant)	
Moel Penderyn (CYNONHL150)	Medium	Long range: No effect	Neutral (Not Significant)	Neutral (Not Significant)	
		Landscape Habitats			
CYNONLH051	Medium	Small (beneficial) from addition of planting	Minor/Moderate beneficial (Not Significant)	Minor/Moderate beneficial	
		Geological Landscape			
CYNONGL028	Medium	Very Small	Minor (Not Significant)	Minor (Not Significant)	

8.54 The adverse effects at Year 15 upon landscape character would diminish as planting around the Site matures, reducing intervisibility, particularly at lower and mid-levels of the buildings. The external materials of the buildings, in particular the wood cladding would also fade and become less apparent, particularly from medium and long range locations. The stack would remain the most apparent element of the Enviroparks complex.

8.55 In terms of the landscape assessment the key issue is whether any of the Significant effects at Year 1 would become Not Significant by Year 15. It is assessed that the geographical range of

15 - 8



Significant effects would be restricted to the Site itself and immediate locality where clear intervisibility with the Proposed Development would remain e.g. Penderyn Reservoir. The geographical extent of Significant residual effects upon Landscape Character of the Proposed Development (revised stack) would be similar to the consented 2019 scheme.

8.56 The potential for lighting impacts upon landscape character, particularly the BBNP designation including its Dark Sky Reserve status, have been assessed in outline only, noting that a detailed assessment is not possible without a final lighting design that would be subject to a planning condition. The Proposed Development would have a similar night-time impact as the consented 2019 scheme. Should aviation warning lights be required on the stack they would be of the infra-red type, invisible to the human eye.

Operational visual effects

8.57 The assessment focusses on the differences between the Proposed Development (the revised stack) and the consented 2019 scheme. The detailed viewpoint assessment is contained at **Appendix 8.3**, following the assessment methodology at **Appendix 8.1**.

8.58 The revised stack (90m high) would typically be more noticeable than the stack that was part of the consented 2019 scheme (45m high). However, the assessed magnitude and consequently the level of effect is not subject to a consistent increase at all locations. Magnitude is subject to a range of considerations, including, but not limited to the following.

- In line with best practice guidance, the magnitude categories as outlined in the LVIA assessment methodology at Table 15 of **Appendix 8.1** assess the development proposal relative to the context of the overall view. Whilst the distinct categories are presented for simplicity and transparency, as stated at paragraph 8.50 of Appendix 8.1, reasoned professional judgement is applied and assessment is on a continuum. Consequently a doubling in height and slight increase in the width of the stack may not be sufficient to change the assessed magnitude from one category to another, especially if the consented 2019 scheme was at the 'lower end' of a magnitude category.
- The proportion of the view that is occupied by the stack e.g. in more distant views this will typically be smaller and consequently even a noticeable change in the stack relative to the consented 2019 scheme may not be sufficient to change the magnitude category and consequently the assessed level of effect.
- Direct views of the stack from a route such as a road or footpath are likely to experience a greater magnitude of effect than oblique views, particularly if the latter are from routes where fleeting glimpses of the stack would be experienced.
- The relationship of the stack to existing infrastructure e.g. pylons, or other built development varies in each view either as a backdrop or seen in close proximity to the stack.



- The degree of screening of any part of the stack by intervening features typically existing planting in the middle-ground to foreground of the view.
- The relative difference in the perceived increase in height of the stack, influenced by perspective and varying with viewpoint location relative to the stack and ground elevation.
- The degree of skyline impact of the stack.
- The apparency of the stack when seen against different landscape and/or development backdrop's.
- The visibility of the stack in relationship to the consented buildings, with an increase in magnitude more likely if the stack is the only element visible.
- 8.59 A summary of the viewpoint assessment is provided in Table 8.3 overleaf.



Table 8.3: Summary of Viewpoint Assessment

Changes in assessment levels resulting from the Proposed Development (revised stack) compared with the consented 2019 scheme are identified in blue text

				Proposed Development (revised stack)		Consented 20)19 scheme		
	Viewneintlesstien	Dango	Constitution	Magnitude	Visual Effects at	Visual Effects at	Magnitude	Visual Effects at	Visual Effects at
VP Kei		Range	Sensitivity	at Year 1	Year 1 winter	Year 15 winter	at Year 1	Year 1 winter	Year 15 winter
٨	Northern boundary of Site near	Close	Modium	Vorulargo	Major	Moderate	Vonulargo	Major	Moderate
А	route of Public Footpath	Close	Medium	Very Large	(Significant)	(Not Significant)	very Large	(Significant)	(Not Significant)
R	Southern edge of Penderyn	Close	Medium	Very Large	Major	Major	Very Large	Major	Moderate/Major
Ь	Reservoir	Close	Wealum	Very Large	(Significant)	(Significant)	very Large	(Significant)	(Significant)
c	Northern edge of Penderyn	Medium	Medium	Large to	Major	Major	Medium to	Moderate/Major	Moderate/Major
C	Reservoir	Weulum	to High	Very Large	(Significant)	(Significant)	Large	(Significant)	(Significant)
П	Public footpath near the farmstead	Close	Medium	Large	Moderate/Major	Moderate	Medium to	Moderate/Major	Moderate
D	of Tai-cwplau	Close	to High	Laige	(Significant)	(Not Significant)	Large	(Significant)	(Not Significant)
F	Layby on the A465	Close	Low	Medium to	Moderate	Minor/Moderate	Medium	Minor/Moderate	Minor
L		Close	LOW	Large	(Not Significant)	(Not Significant)	Wealdin	(Not Significant)	(Not Significant)
F	Fifth Avenue adjacent to Hotel	Medium	Low to	Medium	Moderate	Moderate	Small	Minor/Moderate	Minor
1	access road	Weulum	Medium	Wedium	(Not Significant)	(Not Significant)	Sman	(Not Significant)	(Not Significant)
G	Track to property of	Medium	Medium	Very Small	Minor/Moderate	Minor	Very Small	Minor/Moderate	Minor
U	Tyle-morgrug	Weulum	to High	to Small	(Not Significant)	(Not Significant)	very Sman	(Not Significant)	(Not Significant)
ц	Public bridleway near Moel	Long	High	Medium	Moderate/Major	Moderate	Medium	Moderate/Major	Moderate
11	Penderyn	LONg	Ingi	Wealdin	(Significant)	(Not Significant)	Wealdin	(Significant)	(Not Significant)
1	Sports field on north-eastern edge	Long	Medium	Small	Minor/Moderate	Minor	Very Small	Minor/Moderate	Minor
·	of Rhigos	LONg	to High	Sman	(Not Significant)	(Not Significant)	very sinan	(Not Significant)	(Not Significant)
	A4061 near junction with public	Long	Medium	Medium	Moderate	Moderate	Very Small	Minor	Negligible
J	footpath	LONg	Wealum	Wedium	(Not Significant)	(Not Significant)	very Sman	(Not Significant)	(Not Significant)
v	Public footpath between Rhigos	Long	Medium	Small to	Minor/Moderate	Minor/Moderate	Vory Small	Minor	Negligible
ĸ	and the A4061	LUIIg	to High	Medium	(Not Significant)	(Not Significant)	very Sman	(Not Significant)	(Not Significant)
	Public footpath near the southern	Long	Modium	Small to	Minor/Moderate	Minor/Moderate	Small	Minor/Moderate	Minor
L	edge of Cefn Rhigos	LONG	weatum	Medium	(Not Significant)	(Not Significant)	Sinan	(Not Significant)	(Not Significant)
М	Open access land above Pontbren	Long	Medium	Small to	Moderate	Moderate	Small	Moderate	Minor/Moderate
IVI	Llwyd	LOUR	to High	Medium	(Not Significant)	(Not Significant)	Silidii	(Not Significant)	(Not Significant)

18 - 8



N	A4061 near layby and promoted	Lana	High to	Creall	Moderate	Minor/Moderate	Small to	Moderate	Minor/Moderate
N	viewpoint	Long	Very High	Small	(Not Significant)	(Not Significant)	Very Small	(Not Significant)	(Not Significant)

Other visual receptors

8.60 An assessment of the impact of the Proposed Development upon the other visual receptors within the Study Area has been made with reference to the representative viewpoint visualisations and the ZTV in combination with assessment in the field. In line with best practice guidance only the receptors with the potential for significant visual effects are covered (as scoped from review of the ZTV and initial visualisations).

8.61 The assessment below puts the representative viewpoints in context e.g. as particular points along a route, whilst at other locations the closest representative viewpoints are used to calibrate the assessment of effects from the receptor in combination with the information provided by the ZTV (see **Figure 8.1**) and review in the field.

8.62 The following assessment necessarily focusses on the differences between the Proposed Development (revised stack) and the consented 2019 scheme. As shorthand, the term 'revised stack' is used to identify the Proposed Development and 'consented scheme' with reference to the consented 2019 scheme.

Recreational receptors

8.63 The location of open access land and public rights of way are shown on **2008 ES Figure 12.5**. Viewpoint locations are illustrated on the ZTV at **Figure 8.1**.

8.64 Views of the revised stack from the public footpath passing the northern boundary of the Site would be partially restricted by the consented buildings on the Site (see **Viewpoint A**), noting the route does not follow the definitive public footpath which is currently prevented by tall fencing around the reservoir. Where the route passes the farmstead of Tai-cwplau, visibility of the revised stack would be largely screened by agricultural buildings (See view from nearby dwelling at **Appendix 8.4** – computer generated view from Tai-cwplau). Fleeting oblique and very restricted glimpses of the revised stack would be seen from a short section of the route to the east of the Tai-cwplau (see **Viewpoint D**), with more distant views likely from the route west of Tai-cwplau, partially restricted by intervening mature trees. In summary, at Year 1 some very localised Significant visual effects would occur, as illustrated by the representative viewpoints. By Year 15 the growth of proposed planting along the perimeter of the Site would further restrict views of the revised stack, with only glimpses of the uppermost parts of the revised stack predicted to be available. Consequently, no Significant residual effects upon the visual amenity of footpath users is predicted.

8.65 Anglers with permits can access the Penderyn Reservoir, however there is no general public access. Representative **Viewpoints B and C** illustrate the visual impact of the revised stack that would be experienced by anglers. The detailed assessment identifies an increased magnitude as a result of the revised stack compared to the consented scheme, however the impact upon visual amenity of the consented scheme at both Year 1 and Year 15, was already identified as being Significant.

8.66 Users of Open Access land and the public bridleway near Moel Penderyn are represented by **Viewpoint H**. The ZTV indicates that visibility would extend for c.1.5km of the bridleway route and the summit and south facing slopes of the nearby open access land. The revised stack, whilst more



noticeable than the consented stack, is seen at long range against a backcloth of industrial development and would also be located further from the viewer. Consequently, it is assessed that the changes to the overall view would be modest and not sufficient to increase the magnitude or level of effect. Significant visual effects are predicted at Year 1; however following the growth of buffer planting to the north and east of the consented buildings, views of ground level activity within the Site and some of the lower buildings facades would be heavily filtered and residual visual effects are assessed to be Not Significant, taking into account the revised stack.

8.67 Users of the Open Access Land to the east of Pontbren Llywdd includes a tract of elevated open access land which extends east of the farmsteads of Pen-y-cae and Bodwigiad to the upper slopes of Mynydd-y-glog (between 1.5km and 4km from the Site). The representative **Viewpoint M** was taken on a track at a location where the roof of the existing building is visible above intervening tree cover. More distant views that may comprise a slightly greater extent of the Site are predicted by the ZTV to be available from remoter locations on the open access land (where accessibility may be reduced, particularly in winter due to wet and uneven ground conditions). The assessment at **Viewpoint M** of the revised stack identified a modest increase in magnitude relative to the consented scheme, although no Significant visual effects are predicted. This assessment applies to the remainder of the access land including more distant and elevated locations.

8.68 Users of Open Access Land on the lower slopes of Hirwaun Common would have similar views of the revised stack to the nearby **Viewpoint J** taken from the A4061 and whilst there would be a clealr increase in the magnitude of effect, no Significant effects upon visual amenity are predicted. More distant views from the more elevated parts of the Open access land include **Viewpoint N**, where an elevated sensitivity is identified. The magnitude as a result of the revised stack would increase slightly compared with the consented scheme. However, there would continue to be No Significant effects upon visual amenity. Views further east on Hirwaun Common would be set in the context of the restored opencast workings. In addition, people would experience views of the revised stack in the context of the nearby commercial scale wind farm and consequently would be less susceptible to change with an overall reduced sensitivity compared with the selected **Viewpoint N**. No significant visual effects are therefore predicted as a result of the revised stack from elevated land at Hirwaun Common.

8.69 The public rights of way network in the vicinity of Rhigos and Cefn Rhigos was assessed in the field and the assessment calibrated in relation to the **Viewpoints I, J, K and L** and the ZTV at **Figure 8.1**. A network of public footpaths cross farmland between Rhigos and Cefn Rhigos and a footpath follows a track between the gliding club and the farmstead of Wyrfa-uchaf. The ZTV indicates the potential for visibility of the revised stack and in places the roofline of the building. However, in reality the majority of the routes are bounded by mature hedgerows with trees and opportunities for visibility of the revised stack (as the permitted scheme) would be relatively limited. Where glimpses are available it is assessed that the sensitivity and magnitude would be similar to Viewpoint L and K i.e. High to Medium sensitivity with a Small to Medium magnitude. Consequently the effect upon visual amenity as experienced by footpath users where views of the revised stack are occasionally available would be slightly increased relative to the permitted scheme. However, the overall effect would remain not Significant.



8.70 A section of the public footpath to the north of Cefn Rhigos falls within the ZTV and to the south of the A465. Assessment in the field indicates that the view remains similar to the view taken in 2008 (see ES Viewpoint 15). The consented buildings would be largely screened by intervening hedgerows with the revised stack visible more than 2.4km distant amid a context of pylons. The viewpoint is located at a lower elevation and is more distant from the Site than **Viewpoint L** and the overall sensitivity and magnitude would be similar resulting in a level of effect that would be not Significant, similar to the consented scheme.

Road receptors

8.71 Fifth Avenue passes adjacent to the southern boundary of the Site within the Hirwaun Industrial Estate. Whilst forming part of the wider minor road network it is likely that the majority of traffic is associated with the Industrial Park and nearby Units and therefore road users would have a lower susceptibility to change, which when combined with a Low value to the views would result in a Low overall Sensitivity. The magnitude of effect of users passing the Site would be Very Large resulting in a Moderate/Major effect that is Significant. The growth of tree planting along the southern boundary of the site and weathering of external cladding would filter some views of the overall Enviroparks development by Year 15. However the revised stack is likely to remain a prominent feature in these localised close range views, resulting in residual significant effects (compared with the non-significant residual effects of the consented scheme).

8.72 The A465 passes east to west through the Study Area. As indicated by the ZTV at **Figure 8.1** the revised stack, as was the case with the consented scheme, would not be visible from the majority of the route. The locations indicated by the ZTV are in the vicinity of **Viewpoint E**, where the photomontage indicates the revised stack would continue to be fully screened by tree cover in summer with filtered views available in winter. The magnitude as a result of the consented stack would increase slightly, although the overall effect would remain Not Significant, as assessed for the consented development.

8.73 The A4061 starts at a roundabout junction with the A465 and A4059 at the western edge of Hirwaun. The route follows a route south towards Hirwaun Common on rising ground and passes outside the Study Area after the ridgeline at Mynydd Beili-glas. With the exception of visibility of the Proposed Development travelling in both directions from the promoted viewpoint at Mynydd-Beili-glas (see **Viewpoint N** where a Moderate effect was assessed), theoretical visibility from the route would only be available to road users travelling north between the entrance to Tower Colliery and the edge of the Hirwaun Industrial Estate (see **Viewpoint J** where a Moderate effect was assessed).

8.74 The A4059 connects Penderyn with Hirwaun in the Study Area. Due to intervening landform and woodland the theoretical opportunity for oblique views of the upper parts of the revised stack only would be largely restricted to a c.600m stretch of the route between the junction with the access road to the Ty Newydd County Hotel and the bridge over the railway to the south. Review in the field indicates that visibility would be restricted from much of the aforementioned route section due to roadside hedgerows. Where fleeting oblique glimpses are available, the upper parts of the revised stack more than 1km distant would be potentially noticeable above intervening hedgerows on the horizon, set in the context of much closer pylons that would be more dominant vertical



structures in the view. The magnitude of effect would be comparable to **Viewpoint G** at a similar distance and ZTV visibility extent i.e. Very Small to Small. The sensitivity of road users is assessed to be Low to Medium, resulting in an overall Minor effect upon visual amenity that is Not Significant.

8.75 A minor road connects the western end of the Hirwaun Business Park with the village of Penderyn to the north, passing the public bridleway near Moel Penderyn (**Viewpoint H**). The ZTV indicates limited visibility from the route due to the woodland planting along the eastern side of the route. Potential for greater visibility lies near the crest of the hill near a layby. However, when assessed in the field it was only possible to glimpse part of the existing building roof above middle-ground woodland when stood outside of a vehicle and the views were additionally restricted by planting on top of an earth mound that surrounded the layby (see 2008 ES Viewpoint 12). The clear focus of any views from this location is across open moorland in the opposite direction to the Site. The sensitivity of road users is assessed to be Medium and the magnitude resulting from visibility of the revised stack Small, resulting in an overall Minor/Moderate effect upon visual amenity that is Not Significant.

8.76 A minor track links the northern edge of Hirwaun with the farmstead of Llwyncoch and is located 2km east of the Site at the closest point. The ZTV indicates potential visibility of the roofline of consented buildings and stack. However, in the field it was determined that the route was flanked by mature trees and there would be no visibility of the revised stack, even in winter.

8.77 Other local roads where there is the potential for intervisibility include the minor roads to the south and south-east of Cefn Rhigos. Review in the field in winter indicates the presence of mature hedgerows flanking the routes and whilst there are limited short sections where the hedgerows have been clipped e.g. to the south east, intervening hedgerows are predicted to largely prevent visibility of the revised stack.

Residential receptors

8.78 The village of Rhigos is located between c.1km and 2km south-west of the Site. The majority of the village lies outside the ZTV. However, the theoretical visibility of the upper parts of the consented building ridge and upper parts of the revised stack from ground level windows and garden is indicated from the eastern edge of the village off Heol Esgyn (see **Viewpoint I**). The sensitivity would be Medium to High, the magnitude Small (slightly increased from the consented scheme) and the overall effect upon visual amenity Minor/Moderate and Not Significant.

8.79 Cefn Rhigos is a small linear village located c.2 km west of the Site. The majority of the village lies outside the ZTV with only the southern fringes indicating potential visibility of the upper parts of the revised stack and consented roofline of the Proposed Development. Review in the field indicates that because of adjacent hedgerow and tree planting and the orientation of the dwellings relative to the Site, no views of the revised stack would be available.

8.80 Cwm-hwnt is a small hamlet south of Cefn Rhigos and the ZTV indicates theoretical visibility of the stack. Review in the field indicates that because of adjacent hedgerow and tree planting and



the orientation of the dwellings relative to the Site, no views of the revised stack would be available.

8.81 Scattered dwellings outside settlements have been identified where they lie within the ZTV and there is the theoretical potential for Significant effects (see **Plate 2**).

Plate 2: Closest Dwellings within the ZTV (not to scale).

N.B. The red line boundary indicates the whole Enviroparks site as opposed to the boundary of the current planning application



Image: Google Earth

Key:

- A: Buckleys Bungalow
- **B:** Reservoir House
- C: Tre-banog-uchaf
- D: Tai-cwplau
- E: Tre-Banog-Isaf
- F: Tyle-Morgrug
- G: Ty Newydd

8.82 The field assessment evaluated the potential for views of the proposed stack from dwellings within the ZTV (see **Figure 8.1**) that are closest to the Proposed Development.

8.83 Buckley's Bungalow (Receptor A) is located c.400m west of the Site and views form the access drive would be similar to nearby **Viewpoint F** (i.e. Moderate and Not Significant). This impact represents an increase compared with the consented scheme as a result of the revised stack. No

windows in the property face the direction of the Proposed Development and potential visibility of the upper parts of the revised stack from the majority of the garden would be restricted by intervening landform and nearby tree cover.

8.84 The effect upon the visual amenity from the following receptors is assessed in detail at **Appendix 8.4** with reference to computer generated images as assessment with residents' consent from private dwellings was not possible due to the Covid-19 pandemic.

- Reservoir House (Receptor B)
- Tre-banog-uchaf (Receptor C)
- Tai-cwplau (Receptor D)

8.85 The assessment concluded that visibility at ground level of the revised stack from the front elevation of Reservoir House facing the Site would be restricted by intervening woodland. Ground level views from the front elevation of Tai-cwplau facing the Site would be largely restricted by intervening farm buildings, with views limited to the uppermost part of the revised stack. The impact upon visual amenity of the revised stack on both Reservoir House and Tai-cwplau is assessed as not Significant.

8.86 The property of Tre-banog-uchaf is located on elevated ground, north of Penderyn reservoir. Views of the consented stack and part of the roof of the consented buildings would also be available. Views of the revised stack would result in an increased magnitude and an overall Moderate effect upon visual amenity that is Not Significant. No overbearing effects upon residential visual amenity were identified.

8.87 Tre-Banog-Isaf (Receptor E) is located c.820m west of the Site. Multiple layers of local tree cover surround the property and are also present along intervening field boundaries. No visibility of the revised stack is predicted.

8.88 Tyle-Morgrug (Receptor F) is located over 1.2km northwest of the Site (close to Viewpoint G); however mature intervening field boundary hedgerow field boundaries close to the dwelling are predicted to filter views to the extent that it is unlikely that the upper parts of the revised stack would be visible.

8.89 Ty Newydd and Ty Newydd Cottage (Receptor G) are located c.510m east of the Site and on the edge of the ZTV; however local tree cover close to the properties is predicted to screen any views of the revised stack.

Miscellaneous receptors

8.90 Other potential miscellaneous receptors in the surrounding landscape with the potential for significant visual effects include the Ty-Newydd Country Hotel, Bryn-y-Gear Cemetery and Mount Pleasant Public House on the edge of Hirwaun.

8.91 Ty-Newydd Country Hotel is located c.570 m east of the Site and on the edge of the ZTV. Review in the field indicates that views towards the Site are unlikely due to intervening tree cover along the boundary of the Site coupled with the orientation of the building.

8.92 Bryn-y-Gear Cemetery is located c.810 m to the south-east of the Site. The access road is flanked by coniferous trees and the older part of the cemetery contains frequent tree specimens that would restrict views out towards the Site. Review of the ZTV and assessment in the field indicates that there is the potential for views of the upper parts of the revised stack only seen behind the much closer pylons that would be the dominant vertical structures in the view. The sensitivity would be Medium, the magnitude Medium and the overall effect Moderate and Not Significant.

8.93 Mount Pleasant Public House is located c.1.2km south-east of the Site and photography was obtained as part of the 2008 Environmental Statement (see 2008 ES Viewpoint 23). The site is located between the second and third pylon in the view. However, the Proposed Development would be predominantly screened by intervening planting along the railway embankment and the southern boundary of the cemetery. The sensitivity would be Medium, the magnitude Small to Medium and the overall effect Minor/Moderate and Not Significant.

Summary of differences in visual effects between the proposed scheme and consented scheme

8.94 The relocation and increase in the size of the stack would result in an increased magnitude of effect upon some landscape and visual receptors. The ZTV (**Figure 8.1**) indicates a slight increase compared with the ZTV for the permitted scheme in terms of the geographic extent of the landscape where the upper parts of the stack only would be theoretically visible. However, these changes do not represent a material change to the pattern of intervisibility recorded for the consented scheme.

8.95 There would be no direct changes to any landscape elements compared to the permitted scheme. It has been assessed that the magnitude of indirect effects upon landscape character would increase for a small number of visual and sensory and cultural landscape LANDMAP areas (see **Appendix 8.2**). However, these small changes do not result in any new significant effects upon any LANDMAP area, compared with the consented scheme.

8.96 The viewpoint assessment at **Appendix 8.3** outlines for each viewpoint location the differences between the assessment of the Proposed Development and the Consented Scheme. The new stack proposals would have an increased magnitude and in some cases an increased overall effect upon visual amenity from some locations. However, at no location would the Proposed Scheme result in new Significant adverse effects upon visual amenity, where previously they would not occur with the consented scheme.

Cumulative landscape and visual effects

8.97 **Appendix 12.3** includes an assessment of the cumulative effects from selected viewpoint locations where both the revised stack and the consented gas power station on the Hirwuan Industrial Estate would be most visible (i.e. **Viewpoints H, J and M**).


8.98 In summary only Moderate cumulative landscape and visual effects were identified, assessed as Not Significant. This represents a slight increase on the levels of effect identified as part of the assessment of the consented scheme (Minor and Not Significant).

SUMMARY AND CONCLUSIONS

8.99 This chapter of the ES Addendum 2020 assesses the potential landscape and visual effects that might arise as a result of implementing the Proposed Development of a taller stack in a revised location.

8.100 The Proposed Development varies from the consented 2019 scheme in the relocation the main stack within the central area of the Enviroparks site and an increase in the height of the structure from 45 metres, as currently consented, to 90 metres and an increase from 3.5m diameter as permitted to 3.95m.

8.101 This chapter has assessed the revised stack in the context of the consented development, including the previously permitted buildings, other infrastructure and mitigation planting. Any differences between the assessment of the Proposed Development (revised stack) and the consented scheme have been clearly identified.

8.102 A 5km radius Study Area, within which all the representative viewpoint locations are located was adopted for detailed assessment purposes. The approach complies with the proportionate approach advocated in best practice guidance (GLVIA3 – paras 5.2 and 6.2).

8.103 The current Planning Policy covering landscape and visual issues at a national and local level has been reviewed and relevant policies identified. The published Landscape Character baseline comprises the Brecon Beacons National Park Authority's Landscape Character Assessment (2012) and the LANDMAP national landscape character assessment.

8.104 A Zone of Theoretical Visibility (ZTV) plan was generated to establish the theoretical visibility of the updated stack location and height at 90m compared with the consented stack at 45m high. The ZTV indicates that the revised stack would visible in similar locations to the consented stack and there would only be a modest increase in the geographical area where it may be seen.

8.105 The representative viewpoint locations submitted for the consented 2019 scheme were used and the visualisations updated with the revised 90m high stack.

8.106 The combination of the ZTV plan, field assessment and preparation of photomontage visualisations identified the key landscape and visual receptors surrounding the Site, where there was the potential for Significant effects and the requirement for detailed assessment.

8.107 The proposed stack would be finished in a smooth, flangeless external cladding in a graded colour scheme intended to give the stack a regressive appearance in the local landscape. If aviation warning lights are required, these would be of the infra-red type, invisible to the human eye.

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8.108 There would be no material differences in the construction process compared with the consented scheme. It is assessed that the landscape and visual construction effects would be no greater than the operational landscape and visual effects of the proposed scheme at Year 1 following completion of construction.

8.109 Significant effects at Year 1 following construction upon the LANDMAP aspects areas would be restricted, as the consented scheme, to the host aspect areas only and localised parts of the surrounding landscape. These areas comprise the Penderyn Visual and Sensory Aspect Area and the Brecon Beacons National Park, Cultural Landscape Aspect Area.

8.110 The adverse effects at Year 15 upon landscape character would diminish from some areas as planting around the Site matures, reducing intervisibility of the consented buildings, although visibility of the upper parts of the revised stack would remain.

8.111 The Proposed Development would have a similar night-time impact compared with the consented scheme, noting if aviation safety lighting on the stack is required it would be infra-red and not visible to the human eye.

8.112 The viewpoint assessment identified Significant visual effects at Year 1 from the majority of close range viewpoints including the Penderyn Reservoir and localised points on the nearby public footpath. More distant views of the Proposed Development with the potential for Significant effects upon visual amenity were assessed from a localised section of a public bridleway near Moel Penderyn. The visual assessment at Year 15, allowing for growth of mitigation planting would result in the reduction of some visual effects to a non-Significant level as the consented buildings would be largely screened and only the upper parts of the revised stack would remain. Significant residual effects upon the visual amenity for anglers using Penderyn Reservoir have been assessed as the revised stack would remain a prominent feature in localised views, however there is no public access to the reservoir and ground level views from nearby residential properties (Reservoir House) would be screened by intervening woodland.

8.113 An assessment of the impact of the Proposed Development upon the other visual receptors within the Study Area has been made with reference to the representative viewpoint visualisations and the ZTV in combination with assessment in the field. The potential for Significant effects upon visual amenity have been identified for users of Open Access land near Moel Penderyn and Road users passing the Site on Fifth Avenue. No significant impact on any views of the revised stack from residential properties within settlements or as outlying dwellings is predicted.

8.114 The cumulative assessment has identified the locations where both the Proposed Development and the consented gas power station on the Hirwuan Industrial Estate would be most visible. Moderate cumulative landscape and visual effects were identified that would be Not Significant.

8.115 The differences in landscape and visual effects between the Proposed Development and the consented 2019 scheme have been assessed. No significant changes upon landscape elements or landscape character would occur. The increase in the size of the stack would typically be most noticeable from close range locations. However at no location would the Proposed



Development result in Significant adverse effects upon visual amenity where previously there were no Significant effects as a result of the permitted scheme.

8.116 In conclusion, whilst the Proposed Development would result in some increases in magnitude and effects compared with the consented scheme, it is assessed that the revised stack could be accommodated in the landscape with only localised Significant landscape and visual effects.



Chapter Nine ECOLOGY AND BIODIVERSITY

INTRODUCTION

9.1 This chapter provides an update to chapter 13 of the 2017 ES Addendum, which was prepared in support of an updated planning application for the Enviroparks scheme, approved in 2019. This chapter has been produced to assess the potential for significant ecological effects relating specifically to the proposed increase in stack height.

METHODOLOGY

- 9.2 This ecology addendum chapter comprises the following:
- an update of the Ecological Impact Assessment methodology;
- an update of the relevant legislation;
- a review of the findings of the 2008 and 2017 ecology chapters; and
- an updated impact assessment following design changes proposed in the current planning application by EWL.

Information sources

9.3 This addendum chapter will consider the ecological baseline findings and impact assessment submitted in the 2008 EIA and the 2017 EIA.

2008 EIA:

9.4 This assessment was supported by the following ecological studies:

- a Desk Study and an Extended phase 1 habitat Survey including an assessment of habitat suitable for protected species;
- the results of surveys for protected species for badgers, bats, breeding birds, great crested newts, marsh fritillary, reptiles, otters and water voles;
- information and data gathered from any previous ecological works.
- 9.5 The ecological baseline informed an assessment of impacts and effects. This work included:
- an evaluation of the site in terms of its value to nature conservation;

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- an assessment of the effects of construction and operation of the proposed development on the existing ecological features;
- recommendations for mitigation measures;
- the identification of residual effects once the appropriate mitigation measures were taken into account.

2017 EIA:

9.6 The 2017 assessment took into account a number of additional ecological studies that were undertaken to comply with planning conditions required by BBNPA and RCTBC. These surveys were undertaken prior to the commencement of construction work for Phase 1 and have been referenced within the updated baseline conditions section detailed within this technical chapter.

- Arboricultural Survey (report ref: PF R57006004) including a Tree Protection Plan (drawing red PF: D57006V102).
- Wildlife Protection Plan (report ref: R57006005) to provide the necessary protection measures to ensure the conservation status of habitats and species during construction.
- Reptile presence/absence surveys completed in 2008, 2012 and 2014 and a Reptile Mitigation Strategy was produced (report ref: R57006V001).
- Reptile translocation within the Site was completed in 2012 and 2014 to agreed refuge areas as detailed in the Reptile Mitigation Strategy (report ref: R57006V001).
- Erection of reptile fencing along the boundary of the Temporary Wildlife Protection Area (TWPA) (drawing ref: D57006V104) and subsequent alterations.
- Supervision of the erection of the perimeter security fencing to minimise effects on trees (August 2016).
- Ground works including ground breaking, soil spreading and seed spreading to improve the quality of reptile habitat within the TWPA.

Previous assessment methodology

9.7 As part of the 2008 and 2017 assessments, ecological features were evaluated in terms of their nature conservation value based on the field surveys and ecological data gathered for the site and adjacent habitats. The assessments followed the criteria set out in what was then the Institute of Ecology and Environmental Management's (IEEM) 2006 *'Guidelines for Ecological Impact in the United Kingdom'* (Ref/ 9.1).

9.8 The value of each ecological feature was determined within a defined geographical context. The following frame of reference has been used: international; UK; national (Wales); regional (South Wales); county (e.g. Powys); district (e.g. Rhondda Cynon Taff); local, and within the immediate zone of Influence (e.g. project site of immediate area). Using this geographical context, ecological features



were assigned a 'value', on a scale from 'Very High' (international), through 'High' (UK/national), 'Medium' (Regional/county) and 'Low' (district/local) to 'Negligible' (within the zone of interest).

9.9 Once the value of an ecological feature had been determined, the significance of the effect on the feature was assessed. The assessment of the potential effects as a result of the scheme took into account both on-site and off-site effects, such as those that may occur on adjacent areas of ecological value.

9.10 The significance of an effect (adverse or beneficial) was defined based on a matrix approach, where significance was the product of magnitude of the effect ('High', 'Medium' or 'Low') and the value of the ecological feature affected. Effects of 'Major' significance would generally be ascribed where 'High' magnitude impacts on 'High' or 'Very High' value features have occurred. Effects of 'Moderate' or 'Minor' significance would generally be ascribed where 'Low' magnitude impacts on 'High' or 'Very High' magnitude impacts on 'High' or 'Very High' magnitude impacts on 'High' or 'Very High' negative impacts on 'High' or 'Very High' magnitude impacts on 'High' or 'Very High' features have occurred, or 'High' magnitude impacts on 'Medium' or 'Low' features has occurred. The matrix approach is summarised in Table 9.1.

Table 9.1:	Significance	matrix
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		Magnitude of Impact		
		High	Medium	Low
Value of Receptor	Very high to High (International/UK/England)	Major	Major/ Moderate	Moderate
	Medium (County/Regional)	Major / Moderate	Moderate	Moderate / Minor
	Low (Local/District)	Moderate	Moderate / Minor	Minor
	Zone of Interest (Site or Immediate Area)	Minor / Negligible	Negligible	Negligible

Updated assessment methodology

9.11 The Chartered Institute of Ecology and Environmental Management (CIEEM) replaced the 2006 'Guidelines for Ecological Impact in the United Kingdom' in 2016. Subsequently, in 2018, CIEEM updated the guidelines again, producing the 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (Ref/ 9.2), which combined the 2016 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal' and the 2010 'Guidelines for Ecological Impact Assessment in Assessment in Britain and Ireland: Marine and Coastal'.

9.12 Regarding the matrix approach, CIEEM (2018) advises that:

'Results are often presented in the form of a matrix in which ecological value/importance and magnitude of impact are combined into a significance score. A matrix approach is commonly used in



EIA by disciplines other than ecology to assign significant residual effects to categories (e.g. major, moderate, minor). In many cases, its use is required to provide consistency across all the topics of an Environmental Statement. If using this approach, it is very important to make a clear distinction between evidence-based and value-based judgements so that decision makers and other stakeholders are aware of the level of subjective evaluation that has been used. Spurious quantification should be avoided in which numerical scores or significance rankings/ categories are used without a clear definition of the criteria and thresholds that underpin them. These Guidelines avoid and discourage use of the matrix approach and categorisation'.

9.13 The CIEEM Guidelines 2018 make reference to an alternative approach outlined by Box *et al* (2017) (Ref/ 9.3) which is not based on a matrix of importance (or value) and 'magnitude' but can be used for categorising significant residual effects if specifically required for an EIA. This allows for conversions between effects deemed to be significant at the minor, moderate and major level (as previously reported in the 2008 and 2017 Ecology chapters) and effects assigned significance at a geographical scale (in accordance with the 2018 CIEEM Guidelines). This approach is outlined in Table 9.2.

Significant effect category (matrix approach)	Geographical scale for effect significance (based on 2018 CIEEM guidelines)
Major	International, national or regional
Moderate	Regional, metropolitan, county, vice-county or other local authority-wide area
Minor	Local (District or Site)

Table 9.2: Categories of significant residual effects

9.14 The changes to the methodology are not considered to result in any changes to the geographical 'value' assigned to ecological features in the 2008 or 2017 assessments, or any qualitative assessment of effects. Instead, the revised methodology would result in a change in how the effects are reported. For example, where the 2008 and 2017 assessments concluded that an effect would be of 'Major' significance, this would be converted to an effect significant at an international, national or county/regional scale. Effects of 'Moderate' significance would be converted to effects significant at the county/regional or district scale and effects of 'Minor' significance would be converted to effects significant at the local/district or site (zone of interest) scale.

LEGISLATION UPDATE

9.15 There have been changes to the legislation in relation to ecology and nature conservation since the 2017 ES addendum was prepared.

9.16 The most notable of these is the Conservation of Habitats and Species Regulations 2017 (The Habitats Regulations 2017. These regulations consolidate and update the Habitats Regulations 2010



(as amended).

9.17 The Conservation of Habitats and Species Regulations 2017 protects animals listed on Schedule 2 and plants listed on Schedule 5 of the Wildlife and Countryside Act, also known as European Protected Species. The Regulations allow the designation and protection of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. These are collectively known as Natura 2000 sites. A development which would have an adverse effect on the conservation interests for which a Natura 2000 area has been designated should only be permitted where:

• there is no alternative solution;

• and there are imperative reasons of over-riding public interest, including those of a social or economic nature.

9.18 Where a priority habitat or species (as defined in Article 1 of the Habitats Directive) would be affected, prior consultation with NRW is required unless the development is necessary for public health or safety reasons. These conditions also apply to any European Protected Species that may be present.

9.19 These legal changes have been considered in the revised scheme impact assessment.

BASELINE CONDITIONS

Designations

9.20 The 2008 ES Chapter and 2017 ES Addendum assessed the effects of the proposed development on designated sites within 2km of the of the site. There are five statutory designated sites within 2km, comprising:

- Blaen Cynon Special Area of Conservation (SAC) approximately 100m to the east;
- Cors Bryn-y-Gaer Site of Special Scientific Interest (SSSI) approximately 100m to the east;
- Woodlands Park and Pontpren SSSI approximately 700m to the north-east;
- Coedydd Nedd a Melte SAC approximately 1.1km to the west; and,
- Dyffrynoedd Nedd a Melte a Moel Penderyn SSSI approximately 1.1km to the west.

9.21 The list of designated sites within 2km has not changed since to 2017 ES Addendum was submitted.

9.22 It should be noted that air quality modelling was completed in 2017 to inform the 2017 ES Addendum and a shadow Habitat Regulations Assessment (sHRA): Stage 1 Screening report (report ref: RT-MME-124755 Rev B) and updated air quality modelling has been undertaken in 2020 to account for the relocation and raising in height of the emissions stack to 90 metres. An updated

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sHRA: Stage 1 Screening and Stage 2 Appropriate Assessment Report (report ref: RT-MME-124755 Rev C, Appendix 9.1) has also been produced. When assessing impacts of air pollutants on sensitive ecological receptors, designated sites (SACs, SPAs, SSSIs) which are located within 10km of the Enviroparks site have been considered.

Habitats

9.23 The 2017 assessment reported that habitats present within the site remained broadly unchanged since the 2008 ES chapter was produced. Full descriptions of these habitats can be found within Chapter 13 of the 2008 ES and consist of:

- bare ground;
- broad-leaved plantation;
- broad-leaved semi natural woodland;
- dense scrub;
- dry ditch;
- fence;
- hardstanding;
- introduced shrub;
- marshy grassland;
- running water;
- scattered broad-leaved trees;
- scattered scrub;
- semi-improved neutral grassland.

9.24 Works associated with Phase 1 have resulted in the loss of some of the bare ground and semi-improved neutral grassland habitats on site and their replacement with hardstanding/building. The remaining habitats have remained largely unchanged. The Phase 1 works are described below.

9.25 Following the submission of the 2008 ES and prior to the submission of the 2017 addendum, construction works for Phase 1 were largely completed, with the exception of the Phase 1 car park.

9.26 A reduced temporary SUDS attenuation swale was constructed as part of Phase 1, which will be replaced by the full scale attenuation and landscape area along the southern boundary which was identified in the original consented site plan. This will be constructed as part of the Phase 2 works and will provide the required mitigation for the loss of reptile and amphibian habitat elsewhere on the Site.

9.27 During Phase 1, mitigation was provided for reptiles and amphibians through good quality habitat being retained within the TWPA.

9.28 Additional works during 2015/16 affected a part of the TWPA, resulting in the need to modify the TWPA perimeter.

9.29 Additional mitigation works were undertaken during August and September 2016 to ensure that habitat for reptiles and amphibians was, and continues to be adequately protected.

9.30 It is understood that there have been no further significant changes on the site since the



2017 addendum was submitted.

SUMMARY OF THE 2008 AND 2017 IMPACT ASSESSMENTS

9.31 Chapter 13: *Ecology* of the 2008 ES concluded that the residual operational effects of the proposed development on statutory sites of nature conservation and ancient woodlands after appropriate mitigation were assessed as being negligible. It was confirmed in Chapter 13: Ecology of the 2017 ES Addendum that there would be no change to this conclusion as a result of the amended scheme layout.

9.32 In addition to the on-site works described above, mitigation included a financial contribution to Butterfly Conservation to promote the management and restoration of grassland butterfly habitats. This financial contribution was secured by means of a s.106 planning obligation and has been paid by the Applicant.

9.33 In Chapter 13: *Ecology* of the 2008 ES, the residual operational effects of the proposed scheme on habitats after appropriate mitigation were assessed as being negligible, with the exception of adjacent habitats and habitats in landscaping areas from the increase in traffic and exhaust, and the local ecosystem, which were assessed as being minor adverse. Landscaping areas were assessed as having a permanent reversible minor beneficial effect. It was confirmed in Chapter 13: *Ecology* of the 2017 ES Addendum that there would be no change to these conclusions as a result of the amended scheme layout.

9.34 Chapter 13: *Ecology* of the 2008 ES concluded that the residual operational effects of the proposed development on species after appropriate mitigation were assessed as negligible. It was confirmed in Chapter 13: *Ecology* of the 2017 ES Addendum that there would be no change to this conclusion as a result of the amended scheme layout.

UPDATED IMPACT ASSESSMENT

On-site effects

9.35 The likely significant ecological effects of the revised scheme, now proposed, have been assessed based on the baseline conditions at the proposed development site, and the previous conclusions drawn in the 2008 ES and 2017 ES addendum.

9.36 The relocated stack falls within the footprint of the previous scheme. Effects on habitats and species within the site are therefore unlikely to change. The 2008 ES and 2017 ES addendum concluded that the impact of increased traffic and exhaust on adjacent habitats and habitats in landscaped areas would constitute a minor adverse effect. In accordance with the CIEEM (2018) guidelines, this would now be reported as an adverse effect, significant at the Local (District or Site) scale (see Table 13.2). The 2008 ES and 2017 ES addendum also concluded that the creation of landscaped areas would have a minor beneficial effect. In accordance with the CIEEM (2018) guidelines, this would now be reported as a beneficial effect. In accordance with the CIEEM (2018) scale (see Table 13.2).



9.37 Planning conditions for the original scheme included the requirement to produce a Wildlife Management Plan for the site, detailing how all of the recommended ecological mitigation measures would be implemented. This Wildlife Management Plan has now been operational for over five years. It is recommended that the Wildlife Management Plan is updated to allow for the relocation of the emissions stack and any alteration to the construction phases. Additional mitigation measures might be required and will be implemented as necessary.

9.38 The proposals to relocate and raise the height of the emissions stack do not affect the northern portion of the site. Accordingly, neither the Provisional Wildlife Protection Area nor the Temporary Wildlife Protection Area would be affected. Suitable protection measures have been agreed with BBNPA which will remain unchanged, and these will be implemented prior to the commencement of construction.

Off-site effects

9.39 Air quality emissions within 10km of Statutory Protected Sites (SPAs, SACs, Ramsar sites and SSSIs) must meet both of the following criteria if they are to be assessed as insignificant and therefore not requiring further assessment:

- the short-term Process Contribution (PC) is less than 10% of the short-term environmental standard for protected conservation areas;
- the long-term PC is less than 1% of the long-term environmental standard for protected conservation areas.

9.40 The current proposals relate to the relocation and raising in height of the emissions stack; there are no other changes to the scheme which was approved in 2019. As reported in 2017, the stack would be fitted with abatement systems including selective non-catalytic reduction for the reduction of NO_x , lime dosing for the reduction of acid gases and activated carbon dosing for the reduction of dioxin and heavy metals discharges. Best Available Techniques (BAT) for the gasification technologies would continue to be applied.

9.41 As stated previously, air quality modelling was completed in 2017 to inform the 2017 ES addendum and a shadow Habitat Regulations Assessment (sHRA): Stage 1 Screening report (report ref: RT-MME-124755 Rev B). The 2017 modelling showed that, based on an emissions stack height of 45 metres and subject to the implementation of abatement systems as part of the scheme design, when considered alone, the scheme process contributions of the following air pollutants at Blaen Cynon SAC would be screened as insignificant (less than 1% of the lower critical load): nutrient nitrogen, ammonia, nitrogen oxides, sulphur dioxide, metals, volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAH). However, levels of acid deposition at Blaen Cynon SAC were modelled to be at a level that could not be screened as insignificant, although they were low (1.79% of the lower critical load). When considered in combination with other projects and plans, process contributions of nutrient nitrogen (1.29% of the lower critical load) and acid deposition (2.79% of the lower critical load) at the closest point within Blaen Cynon SAC to the site would not be screened as insignificant.

9.42 As such, the Biodiversity Scheme for the Enviroparks development, which had been agreed in 2008 with the Countryside Council for Wales (now a part of Natural Resources Wales), RCT and



BBNPA, and secured through a Section 106 agreement, was updated in 2017 to ensure that additional on-site habitat suitable for marsh fritillary (the qualifying species of Blaen Cynon SAC) would be provided. The sHRA: Stage 1 Screening report concluded that, subject to the Biodiversity Scheme being revised and secured through a variation of the Section 106 agreement, the scheme, when considered in combination with other projects and plans, would have 'No Likely Significant Effect' on Blaen Cynon SAC.

9.43 The 2017 air quality modelling showed that, subject to the implementation of abatement systems as part of the scheme design, when considered alone and in combination with other projects and plans, the scheme process contributions of the following air pollutants at Coedydd Nedd a Mellte SAC and Cwn Cadlan SAC would be screened as insignificant (less than 1% of the lower critical load): nutrient nitrogen, acid deposition, ammonia, nitrogen oxides, sulphur dioxide, metals, VOCs and PAH. It was concluded that if abatement systems were implemented, there would be no adverse effects from the proposed development on these SAC sites.

9.44 Updated air quality modelling has been undertaken in 2020 to account for the relocation and raising in height of the emissions stack to 90 metres. An updated sHRA: *Stage 1 Screening and Stage 2 Appropriate Assessment Report* (report ref: RT-MME-124755 Rev C, Appendix 9.1) has also been produced. The full updated air quality impact assessment is provided in Chapter 7: *Air Quality* of the current ES addendum. A summary of the assessment in relation to statutory protected sites is provided below.

9.45 The updated modelling exercise undertaken in 2020 for the 90 metre stack shows that, when considered alone, the scheme process contributions of all modelled air pollutants at the closest point within Blaen Cynon SAC to the site are significantly lower than previously modelled and would be screened as insignificant (less than 1% of the lower critical load). This is an improvement on the 2017 modelling results undertaken for the 45-metre stack. However, the updated modelling of acid deposition across a wider area showed that the contributions are widely dispersed from the 90 m stack, and not all locations across the SAC would remain within 1% of the critical load. As such, acid deposition contributions as a result of the scheme, both alone and in combination with other projects and plans, would not be screened as insignificant.

9.46 As detailed above, Blaen Cynon SAC is designated for supporting marsh fritillary butterflies. The main foodplant for this species is the Devil's-bit-Scabious flower. APIS (2016, Ref/ 9.4) identify the following exceedance impacts from acid deposition on Blaen Cynon SAC:

'Leaching will cause a decrease in soil base saturation, increasing the availability of Al3+ ions, mobilisation of Al3+ may cause toxicity to plants and mycorrhiza, may have direct effect on lower plants (bryophytes and lichens)'.

9.47 As such, increases in acid deposition have the potential to result in changes to the habitats within the SAC, and subsequent changes in the availability of Devil's-bit-Scabious. In the absence of any mitigation, a reduction in Devil's-bit-Scabious could, in turn, lead to changes in the population of marsh fritillary within the SAC, although APIS (2016, Ref/ 9.4) also states that:

'There is insufficient knowledge to make a judgment of the impacts [of acid deposition] on [marsh fritillary]. [The] Decision should be made at a site specific level'.

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9.48 In relation to the potential exceedance impacts on Blaen Cynon SAC as a result of acid deposition from the scheme, accounting for the 90-metre stack, the following is stated in Chapter 7: *Air Quality* of this ES Addendum:

'It is noted that the 1 % screening criterion is not a threshold of harm and exceeding this threshold does not, of itself, imply damage to a habitat. Indeed, the current minimum background acid deposition identified for the Blaen Cynon site is 1.9 keq/ha/year, which represents approximately 164 % of the lower Critical Load, and the current background concentrations at all three local SACs are above the lower Critical Loads for both nutrient Nitrogen and acid deposition. Therefore, whilst the calculated contributions to acid deposition cannot necessarily be screened as insignificant across the entire Blaen Cynon site, they amount to a tiny fraction of the total loadings currently experienced by the site and, coupled with the mitigation measures that Enviroparks has already committed to, are not expected to have any measurable or significant effect on the status of the Blaen Cynon site, or any of the other SACs or SSSIs in the vicinity of the Enviroparks site'.

9.49 It is considered, therefore, that if the revised Biodiversity Scheme, which was agreed and secured as part of the 2017 application, is delivered, then the current scheme, when considered in combination with other projects and plans, would continue to have 'No Likely Significant Effect' on Blaen Cynon SAC.

9.50 With regards to Cwm Cadlan SAC and Coedydd Nedd a Mellte SAC, the updated modelling exercise undertaken in 2020 for the 90-metre stack shows that, when considered alone and in combination with the cumulative effects of other local third-party emissions, the scheme process contributions of all modelled air pollutants are significantly lower than previously modelled and would be screened as insignificant (less than 1% of the lower critical load). This is an improvement on the 2017 modelling results undertaken for the 45-metre stack.

9.51 It can be concluded that there would be no significant effects on Cwm Cadlan SAC and Coedydd Nedd a Mellte SAC as a result of the change in stack height from 45 metres to 90 metres.

9.52 Chapter 7: *Air Quality* of this ES Addendum states that:

'The modelling confirms that the majority, although not all of the of the cumulative Process Contributions are immediately screened as insignificant, with all subsequently screened at the second assessment stage where relevant. Most pollutants were reported to result in much lower Process Contributions when discharging at the emission limit values through a 90 m stack than when discharging at anticipated release levels through a 45 m stack ...

9.53 ... The reduction in maximum Process Contributions from the EWL gasification process is clearly the result of some reduced proposed discharges, and the beneficial dispersion from the increased stack height. As such, the Process Contributions are sufficiently low to safeguard human health and the environment'.

9.54 The updated modelling completed in 2020 has confirmed that there would be no significant effects on any of the other designated sites in the vicinity of the Enviroparks site as a result of the change in stack height from 45 metres to 90 metres.

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SUMMARY AND CONCLUSIONS

9.55 In operation the proposed taller stack would give rise to a reduced deposition of airborne pollutants in a given location compared to consented the 45 metre stack. The background level of air pollutants far outweighs any process contribution from the proposed development.

9.56 There would be no significant effect on the integrity of Blaen Cynon SAC from the operation of the plant.

9.57 The air pollutant levels at Cwm Cadlan SAC and Coedydd Ned a Mellte SAC will not affect their integrity.

9.58 Existing mitigation measures will be adequate with respect to on and off-site requirements as provided for in the previous planning conditions and s. 106 obligations agreed with both local planning authorities. These include a financial contribution of £205,031 that EWL has made to the conservation group Butterfly Conservation for the management of local grassland habitats.

9.59 There are not considered to be any revised construction impacts from the proposed development.

9.60 The revised Residual Impacts of the operational phases of the Proposed Development are summarised in Table 9.3 overleaf.

REFERENCES

Ref/ 9.1IEEM (2006). *Guidelines for Ecological Impact Assessment in the United Kingdom*. Institute of Ecology and Environmental Management, Winchester.

Ref/ 9.2CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

Ref/ 9.3Box, J., Dean, M. and Oakley, M. (2017) An Alternative Approach to the Reporting of Categories of Significant Residual Ecological Effects in Environmental Impact Assessment. *Bulletin of the Chartered Institute of Ecology and Environmental Management*. Issue 97, September 2017.

Ref/ 9.4APIS (2016). Air Pollution Information System – Select a Feature. Site Code: UK0030092, Site Name: Blaen Cynon. Available at: <u>http://www.apis.ac.uk/srcl/select-a-</u>feature?site=UK0030092&SiteType=SAC&submit=Next

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Table 9.3: Summary of findings

Site	Previous Residual Effect from scheme approved in 2019	Impact from proposed development	Updated Mitigation	Updated residual impact from development
Completed deve	elopment (Operatio	onal Effects)		
Effects on Statu	tory Sites of Natur	e Conservation In	nportance	
Blaen Cynon SAC	Probable negligible impact at international level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at international level
Cwm Cadlan SAC	Probable negligible impact at international level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at international level
Cors Bryn-y- Gaer SSSI	Probable negligible impact at national level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level
Coedydd Nedd a Melte SAC & SSSI	Probable negligible impact at international level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at international level
Woodlands park and Pontpren SSSI	Probable negligible impact at national level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level
Dyffrynoedd Nedd a Melte a Moel Penderyn SSSI	Probable negligible impact at national level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level



Chapter Ten OTHER ENVIRONMENTAL TOPICS

INTRODUCTION

10.1 This chapter provides a summary of the other environmental topics that were considered as part of the ES and ES addendum for the 2010 and 2019 schemes respectively, but which are not addressed in chapters 7 - 9 in this ES addendum 2020.

10.2 Each environmental topic is considered in turn and the outcome of the previous work is summarised, before consideration is given to the likely effects arising from the 2020 scheme.

COMMUNITY EFFECTS

Previous assessment

10.3 The 2019 addendum assessed that the Enviroparks development would require an estimated 108 temporary construction workers, averaged over the two year construction period. This was considered to be a moderate beneficial effect on the local employment market and an indirect beneficial effect on the local economy through increased expenditure.

10.4 The social impact of the scheme was deemed to be negligible, given the distance of the site to nearby residential properties and businesses. Any disruption during the construction phase would be controlled and managed through the implementation of the Construction Environmental Management Plan (CEMP).

10.5 The operation of the plant would require 69 full time jobs in a range of sectors and skills, which was considered to be a major beneficial effect.

10.6 Operationally, the secondary effect of the scheme was considered to be moderately beneficial through increased levels of expenditure in the local economy. The proposals also contribute to improving the image of the local area and enhancing its attractiveness as an investment location.

10.7 The provision of a facility for educational use was also deemed to be a moderately beneficial effect, through enhancing the awareness and understanding of environmental and sustainability issues and the need for waste reduction.

The 2020 scheme

10.8 The 2020 scheme, as described in chapter three, proposes the increase in height of the stack from a consented 45m to 90m and a change in location within the permitted site boundaries. During



the construction phase, due to the increase in height and the proposed inclusion of a CEMS gantry around the stack, it is anticipated that construction of the stack will take marginally longer than previously considered. However, this increase would be absorbed within the construction programme for the consented Gasification Hall and would not change the social or economic effects of the project as previously assessed.

10.9 Operationally, the effects identified through the work undertaken for the 2010 and 2019 schemes is still considered to be relevant and appropriate and no additional assessment work is required.

TRANSPORT

Previous assessment

10.10 A Transport Statement for the consented 2019 scheme was provided in appendix 8.1 of the ES addendum 2017. According to paragraphs 8.16 - 8.17 of the Transport chapter of the same ES addendum:

8.16 The Transport Statement identifies that the percentage increase on the network from the construction of the development range from approximately 24 % to 84 % on the local network serving the industrial estate. This is relatively comparable with the previous assessment which suggested increases of 71.43 % on the estate roads during the peak hour, and 31.45 % at the junction with the A4061 at the peak hour. The percentage increases are higher still when considering the cumulative effects of other proposed developments, and are predicted to be 110 % of the current peak local traffic level at their maximum. Although percentage increases of more than 5 % where congestion is an issue and 10 % in all other areas is deemed to constitute the criteria for further assessment, these large increases only apply to the estate roads, which are currently under-used and are often quiet, and of course are only planned for a short period during the construction of one or more industrial facilities. As such, no further assessment is proposed at this stage.

8.17 The percentage increase caused by construction traffic on the A465 is, as would be expected, far less significant, and remains below 5 % when considering the construction vehicle movements from the Enviroparks development in isolation, and when considered cumulatively with other potential construction projects. As such, no further assessment is required.

10.11 Fifth Avenue on Hirwaun Industrial Estate remains very lightly trafficked. The additional increment of construction and operational traffic associated with a full development of the Enviroparks site would be well within local highway capacity.

The 2020 scheme

10.12 The proposed stack will generate up to five additional HGV movements more than the consented proposals during construction, associated with the delivery of modular stack components



for assembly. In operation the stack generate no traffic movements additional to the consented 2019 scheme. This level of traffic generation falls well below the threshold of significance for EIA.

NOISE AND VIBRATION

Previous assessment

10.16 The previous assessment identified that the construction phase of the overall Enviroparks development had the potential to give rise to noise effects. As a result, the previous 2017 ES addendum set out a series of noise and vibration control measures that the contractor would need to adhere to during the construction phase. It was proposed that these measures would be applied and enforced through a noise and vibration abatement scheme to be incorporated in a Construction Method Statement.

10.17 Operationally, a series of design features have been incorporated into the scheme in respect to noise and vibration, with these design features in place, the noise and vibration effects were assessed to be neutral at receptor locations.

The 2020 scheme

10.18 The 2020 scheme does not alter the design and layout of the consented Enviroparks development with the exception of an adjustment to stack height and location. In its revised position, the stack would be further away from identified sensitive receptors to the north and west of the Enviroparks site. In operation the stack would not be a significant source of noise. For these reasons, noise is scoped out of the assessment for the purpose of the current ES addendum.

GROUND CONDITIONS

Previous assessment

10.20 At the construction phase of the overall Enviroparks development, the assessment identified a series of potential effects on ground conditions, in part reflecting the industrial heritage of the site. With proposed mitigation measures in place these effects were assessed to be negligible to minor adverse and not significant.

10.21 Operationally, similar likely effects were identified. Once again with the provision of the specified mitigation measures, effects were assessed to be negligible to minor adverse and not significant.

The 2020 scheme

10.23 The planning application boundary for the proposed stack sits within the boundary of the existing consented Enviroparks development. The stack itself has a small footprint. The effects on ground conditions identified as part of the previous assessments remain applicable and no further assessment is required.

DRAINAGE AND FLOOD RISK

Previous assessment

10.25 The previous EIA work for the 2010 and 2019 schemes considered the effects of the proposed development on the flow and effect of water and proposed a number of mitigation measures. These measures in the 2019 scheme included a number of new and enhanced features to provide additional and more substantial mitigation against contamination and the risk of flooding for downstream receptors.

10.26 At the construction phase, a number of potential pathways and impacts were identified, but none of these was assessed to be significant. Once the development is complete, the 2019 ES addendum assessed that the development will provide a positive drainage system along with attenuation with the means to control surface water runoff to the stream or down gradient sources. It concluded that there will be a nominal reduction in surface water runoff to the stream to the western boundary of the site. The reduction in flows will assist in protecting downstream receptors. The development proposals were therefore considered to have a medium positive effect on the site in respect to drainage and flood risk.

10.27 To ensure an effective and enforceable mitigation of a sustainable drainage scheme for the site, EWL proposed that the planning condition attached to the 2010 scheme should be applied to the 2019 scheme.

The 2020 scheme

10.28 The proposed stack has a small footprint and entails no alterations to the drainage strategy for the overall Enviroparks site. As such, the assessment of effects undertaken for the 2019 scheme remains applicable and no further assessment is required.

ARCHAEOLOGY AND CULTURAL HERITAGE

Previous assessment

10.29 The assessments for the 2010 and 2019 schemes concluded that the effects of the proposed development on cultural heritage would be negligible. This reflected the absence of any likely archaeological or historical features on or in proximity to the site and the distance of the proposed development from any significant features of cultural heritage value. The assessment concluded that

there were no listed buildings or scheduled monuments, historic parks and gardens, registered battlefields or conservation areas that would be directly affected by the proposed scheme.

10.30 Given the conclusion reached in the 2010 and 2019 work, no specific mitigation measures were required in order to protect the cultural heritage of the area. Planning permissions were issued by BBPA and RCT in 2010 and 2019 and neither planning authority included a condition in respect to archaeology or heritage.

The 2020 scheme

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Archaeology

10.31 The proposed stack would occupy a small footprint within the boundary of the consented 2010 and 2019 schemes. Previous assessment work in relation to below-ground archaeology remains pertinent and no new effects are predicted in relation to the current proposals.

Cultural heritage baseline

10.32 The ES and ES addendum for the 2010 and 2019 schemes identified the statutory and other cultural heritage assets that might potentially be affected by the proposals. The cultural heritage baseline identified and assessed at that time remains unchanged.

Proposed development

10.33 With the proposed increase in stack height there will be an change in the zone of theoretical visibility of the Enviroparks development, as identified in figure 8.1 in chapter 8 of this ES Addendum. Potential significant effects on the setting of above ground heritage features have been reviewed to determine whether the increase in stack height gives rise to materially different and adverse effects upon identified heritage assets.

Assessment of effects

10.35 There would be no material differences in the construction process as a result of the changes set out within the proposals. As such construction effects remain non-significant and as assessed through the work undertaken in 2010 and 2019.

10.36 The ZTV illustrates that whilst there is an increase in the area where the stack would be visible, given the increase in height from 45m to 90m, the surrounding buildings, topography and vegetation limit the visibility as with the previous assessment work. The increase stack height would typically be most noticeable from locations close by.

10.38 The **listed buildings** and historic property in the search radius of the site have been reconsidered against the revised ZTV. Heritage Cottage (Cadw historic property), Siloa Baptist Church (21371), the Milestone in the boundary wall of the Lamb Hotel (26831), Hirwaun war memorial clock tower (26828), the tramroad, causeway and bridge at Hirwaun Ironworks (26827),



Nebo Independent Chapel (21370) and the building by Millstreet Bridge (10898) all still fall outside of the ZTV and there is no potential for adverse effects on setting.

10.39 The listed buildings at the old house with attached byre and barn at Trebanog Fach (26832) and the complex at Penderyn, consisting of The Rectory (10848), Church of St Cynog (18046), churchyard wall, including pound and lychgate at St Cynog's church (18047) and the signpost at the road junction SE of St Cynog's church (26834) are all situated at the edge of the revised ZTV. This suggests that there may be some distant views of the stack at these locations. The group of buildings is surrounded by mature trees and vegetation. Whilst there may be glimpsed views of the proposed stack, it is likely that the intervening vegetation will block these views such that any adverse effects are not considered to be significant.

10.40 The only previously assessed listed buildings that fall within the revised ZTV are Bodwigiad (11381) and the agricultural range at Bodwigiad (26833). These assets are on the slope east of Penderyn, 2 km north-east of the proposed stack. The LVIA assessed a viewpoint at this location to understand the likely visual effects, the outcomes of this assessment (viewpoint M) are reported in chapter 8 of this addendum. In summary, the assessment at viewpoint M identified a modest increase in magnitude relative to the consented scheme, but concludes that no significant visual effects are predicted. Therefore, there might be a minor adverse effect upon the setting of the listed buildings in these locations, but this is not considered to be at a level that is significant, by virtue of the distance to the site, the intervening topography and landscape and vegetation.

10.39 Glynneath Gunpowder Works, a **Scheduled Monument**, is situated 2.3km to the north-west. Intervening terrain and vegetation means that there is no intervisibility between the works and the consented proposals. When taking into consideration the increase in height of the stack, the ZTV confirms that there remains no intervisibility and therefore no potential for adverse effects.

10.37 The closest **Conservation Area** to the site is located approximately 6km away at Aberdare Town Centre. Given the distance from the site and the intervening topography, buildings and vegetation, there is no intervisibility between the two and therefore the increased height of the stack would not result in significant effects upon the protected area.

10.40 Given the conclusions reached in the 2010 and 2019 work and the reconsideration of effects as set out above above, no specific mitigation measures are proposed in order to protect the cultural heritage of the area.



Chapter Eleven CONCLUSION

INTRODUCTION

11.1 This chapter provides a summary of the mitigation measures that are proposed and an outline of the residual environmental effects that are predicted after taking these into account.

11.2 A summary of mitigation measures is provided to assist the local planning authority to formulate conditions to ensure that the measures specified in the ES addendum are implemented, should they decide that planning permission should be granted.

AIR QUALITY

11.3 An assessment has been undertaken to consider the effect that the proposed increase in stack height will have on air quality. Consideration has been given to the likely regulated emissions from the site as well as the potential for the generation of nuisance emissions such as odour and dust, and emissions from traffic generation. A worst-case scenario has been assumed for assessment purposes.

11.4 The modelling exercise predicted no breaches of air quality objectives or assessment levels. In the emissions modelling for a 90 m stack, the majority of pollutants were reported to result in much lower Process Contributions than those representing the anticipated releases for a 45-metre stack, and the few species (VOCs and Group III metals) where the most recent modelling suggests slightly higher results than those from the anticipated emissions data, were significantly lower than the contributions from the maximum releases also modelled in 2017.

11.5 The reduction in maximum Process Contributions is the result of reduced proposed discharges and the beneficial dispersion from the increased stack height. As such, the Process Contributions are sufficiently low to safeguard human health and the environment. Additionally, a Human Health Impact Assessment for Dioxins, Furans and Dioxin-like PCBs indicates that the risk to health of the local population due to exposure to emissions from the process is very low.

11.6 With Process Contributions consistently lower than those from the maximum proposed releases reported in the 2017 ES Addendum, and with air pollution remaining within the Environmental Quality Standards and having a low potential for health risks, it can be concluded that the proposed taller stack will have a **positive overall effect** on the impact from the Enviroparks facility.

11.7 With approximately 78 % of the pollutant species and assessment levels reporting Predicted Environmental Concentrations equating to less than 25 % of the assessment level, there is a notable improvement in the potential impact of the proposed development from that of the consented scheme, with most assessments now concluding a **low negative** potential impact from the



Enviroparks scheme as a whole, when compared to the 'no-build' baseline, although with some contributors to air pollution equating to a **medium negative** potential impact on the current local air quality. The consented scheme was assessed as having a medium negative potential impact on the local air quality in the 2017 ES Addendum.

11.8 An assessment of the likely greenhouse gas emissions from the construction and operation of the proposed facility against an alternative of landfilling for a 30-year period, results in a **high positive impact** from the Enviroparks operation overall, a development that the proposed stack would facilitate.

11.9 Emissions from the traffic movements created during the construction of the overall Enviroparks development will not change and hence have not been re-assessed from earlier studies. The 2017 ES Addendum concluded that the impact of traffic emissions from the overall development on current and predicted future concentrations of pollutants would be **negligible**. Traffic emissions associated with construction of the taller stack specifically would also be **negligible**.

11.10 Consideration of any potential air quality impacts of the development, including a Habitats Regulation Assessment which considers the impact of the emissions on the local Special Conservation Areas, will continue throughout the preparation of the future Environmental Permit Application. This will ensure that all potential impacts are considered and suitably addressed.

LANDSCAPE AND VISUAL EFFECTS

11.11 The potential landscape and visual effects that might arise as a result of implementing the Proposed Development of a taller stack in a revised location have been assessed.

11.12 A Zone of Theoretical Visibility (ZTV) plan was generated to establish the theoretical visibility of the Proposed Development based on ground level activity (set at 2m above ground), the ridge height of the main buildings (varying between 11.4m and 234m) and the updated location and height of the stack at 90m. The representative viewpoint locations submitted for the consented 2019 scheme were used.

11.13 The combination of the ZTV plan, field assessment and preparation of photomontage visualisations identified the key landscape and visual receptors surrounding the Site, where there was the potential for significant effects and the requirement for detailed assessment.

11.14 There would be no material differences in the construction process compared with the consented scheme. It is assessed that the landscape and visual construction effects would be no greater than the operational landscape and visual effects of the proposed scheme at Year 1 following completion of construction.

11.15 The differences in landscape and visual effects between the Proposed Development and the consented 2019 scheme have been assessed. No significant changes upon landscape elements or landscape character would occur. The increase in the size of the stack would typically be most noticeable from close-range locations. However at no location would the Proposed Development result in significant adverse effects upon visual amenity where previously there were no significant effects as a result of the permitted scheme.



11.16 In conclusion, whilst the Proposed Development would result in some increases in magnitude and effects compared with the consented scheme, it is assessed that the revised stack could be accommodated in the landscape with only localised significant landscape and visual effects.

ECOLOGY AND BIODIVERSITY

11.17 There are five statutory designated nature conservation sites within 2 km of the planning application site, as follows:

- Blaen Cynon Special Area of Conservation (SAC) approximately 100 m to the east;
- Cors Bryn-y-Gaer Site of Special Scientific Interest (SSSI) approximately 100 m to the east;
- Woodlands Park and Pontpren SSSI approximately 700m to the north-east;
- Coedydd Nedd a Melte SAC approximately 1.1km to the west; and
- Dyffrynoedd Nedd a Melte a Moel Penderyn SSSI approximately 1.1 km to the west

11.18 In accordance with the Conservation of Habitats and Species Regulations 2010, an Appropriate Assessment must be undertaken where a project has the potential to result in adverse impacts upon on a European Protected Site(s). An Appropriate Assessment will be required for the proposed development to determine the level of effects on Blaen Cynon SAC, Cwm Cadlan SAC, and Coedydd Nedd a Melte SAC.

11.19 Planning conditions for the 2010 and 2019 planning consents required the submission and approval of a Wildlife Management Plan (WMP) for the site, setting out how ecological mitigation measures would be implemented. This WMP has now been operational for a number of years. The existing mitigation measures will be adequate with respect to on and off site requirements in the current context.

11.20 There are not considered to be any revised construction impacts from the proposed development.

11.21 In operation the proposed taller stack would give rise to a reduced deposition of airborne pollutants in a given location compared to the consented 45 metre stack. The background level of air pollutants far outweighs any process contribution from the proposed development.

11.22 There would be no significant effect on the integrity of Blaen Cynon SAC from the operation of the plant.

11.23 The air pollutant levels at Cwm Cadlan SAC and Coedydd Ned a Mellte SAC will not affect their integrity.

11.24 Existing mitigation measures will be adequate with respect to on and off-site requirements as provided for in the previous planning conditions and s. 106 obligations agreed with both local planning authorities. These include a financial contribution of £205,031 that EWL has made to the



conservation group Butterfly Conservation for the management of local grassland habitats.

11.25 There are not considered to be any revised construction impacts from the proposed development.

11.26 The revised residual impacts of the operational phases of the Proposed Development are summarised in Table 11.1 overleaf.

Table 11.1: Summary of findings

Site	Previous Residual Effect from scheme approved in 2019	Impact from proposed development	Updated Mitigation	Updated residual impact from development
Completed developme	nt (Operational Effe	ects)		
Effects on Statutory Site	es of Nature Conse	rvation Importan	се	
Blaen Cynon SAC	Probable negligible impact at international level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at international level
Cwm Cadlan SAC	Probable negligible impact at international level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at international level
Cors Bryn-y-Gaer SSSI	Probable negligible impact at national level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level
Coedydd Nedd a Melte SAC & SSSI	Probable negligible impact at international level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at international level
Woodlands park and Pontpren SSSI	Probable negligible impact at national level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level

Site	Previous Residual Effect from scheme approved in 2019	Impact from proposed development	Updated Mitigation	Updated residual impact from development
Dyffrynoedd Nedd a Melte a Moel Penderyn SSSI	Probable negligible impact at national level	Reduced deposition of air pollutants (in comparison to 2017 ES)	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level

ARCHAEOLOGY AND CULTURAL HERITAGE

11.27 The lack of any archaeological or historical features on or around the site and the distance of the proposed development from protected heritage assets, indicate that the potential effects of the proposed development on the cultural heritage of the Hirwaun or Brecon Beacons area would be negligible. In line with the assessment work undertaken in 2010 and 2019, there are no Scheduled Monuments, historic parks and gardens, registered battlefields or Conservation Areas that would be directly affected by the proposed scheme.

11.28 The assessment of effects upon listed buildings indicates that the majority of buildings within the search radius remain outside of the revised ZTV and therefore no adverse effects would occur. The buildings at Bodwigiad, on the slope east of Penderyn, and the agricultural range at Bodwigiad are located within the ZTV, 2km to the north-east of the proposed stack, however, the LVIA viewpoint at this location assessed that there would be no significant visual effects and therefore the effects upon the setting of these listed buildings are not considered to be significant.

11.29 Based on the above conclusion, no specific mitigation measures are required in order to protect the cultural heritage of the area.

OTHER ENVIRONMENTAL TOPICS

11.30 Other environmental topics considered as part of the environmental work undertaken in 2010 and 2019 have been considered. These topics cover community effects, transport, noise and vibration, ground conditions and drainage and flood risk. In all cases, there would be no significant environmental effects arising from the current proposals. As such the effects identified in the 2010 and 2019 assessments remain valid.

11.31 Protective environmental measures in the 2010 and 2019 planning permissions for the Enviroparks site would all remain in place should the taller stack be granted planning permission.











	ALL DIMENSIONS TO BE CHECKED ON SITE. DO NOT SCALE THIS DRAWING. ALL DISCREPANCIES TO BE REPORTED IMMEDIATELY. © COPYRIGHT
	KEY:
	(1) VISITORS CENTRE (791sqm GEA)
	(2) EXISTING GATEHOUSE (103sqm GEA)
4	(4) HV SUBSTATION (220sqm GEA)
	5 BIOMAX AREA (2742sqm GEA)
	6 PROPOSED B2 HIGH ENERGY USE UNIT 10,240sqm (INC OFFICE
	(7) WATER TREATMENT PLANT (8) FUEL STORAGE HALL (2110sam GEA)
	(9) TURBINE HALL (380sqm GEA)
	(10) GASIFICATION HALL (6270sqm GEA)
	<u>KEY</u>
	RED LINE AREA = 0.39acres / 1,584 sqm
	LAND WITHIN APPLICANT'S CONTROL
	TOTAL SITE AREA = 21.1 acres / 85,511 sqm
	GRASS
	SHRUBS & HEDGES
	PROPOSED LANDSCAPE BUFFER TO BBNP
	GRASSCRETE
	EXISTING BUILDINGS
	STONE GABION BASE
	EXISTING BUILDINGS
	PROPOSED BUILDINGS
	TARMAC ROAD SURFACE
	BRUSHED CONCRETE SURFACE
	LIGHT GREY BLOCK PAVING TO ROADS
	BLOCK PAVING TO PARKING
	BLOCK PAVING TO PEDESTRIAN AREAS
	GANGWAY
	CYCLE SHELTER (10 CYCLE SPACES)
	POST & RAIL FENCE
	2.4m HIGH SECURITY FENCE
	GATE
	IMPORTANT NOTES: ALL LANDSCAPING SHOWN INDICATIVE
	LAYOUT OF SUDS PONDS SHOWN INDICATIVE ONLY. REFER
	TO DETAILED SUDS DESIGNER DRAWINGS.
	P10 Stack location changed 03/04/20 MT
	roof plan
	P8 Amendments to Gasification Hall and 14/09/17 DJS emergency flare stack added
	P7 Additional notes added 24/02/17 DJS P6 Various amendments following client 22/02/17 DJS
	meeting dated 09/02/17 P5_Site Areas updated 17/01/17_D.IS
	P4 Revision clouds removed for clarity 13/01/17 DJS
	P3 Motocycle parking and path amended 12/01/17 DJS following client comments
	P2 Various amendments following clients 11/01/17 DJS comments dated 04/01/17 & undated
	FBW site model dated 10/01/17 P1 Issue for Planning 10/12/16 MT
	No. Revision Description Date By
	Ee.
	enviroparks reuse, recycle recover
	TY CEFN , RECTOR ROAD
03/04/2020 10	J: 35 CANTON, CARDIFF CF5 1QL TEL 029 20 344 966
	FAX : 029 20 344 942 ept@eptpartnership.com www.eptpartnership.com
	PROJECT
	Enviroparks - Hirwaun Ind. Est
	Stack relocation / height increase
	Proposed Overall Site Plan
	Drawn : MT Date : 08/12/16 Checked : MT
	Scale : Original sheet size :
	1:500 A0
	 Planning Tender Design Development Pre-Construction
	 Planning Tender Design Development Pre-Construction Construction
	 Planning Tender Design Development Pre-Construction Construction Record
	 Planning Tender Design Development Pre-Construction Construction Record Drawing No Revision



METRES









SECTION A-A









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