

## Chapter Fifteen

### CONCLUSION

#### INTRODUCTION

15.1 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.

15.2 The summary of mitigation measures is provided to assist the planning authorities to formulate conditions to ensure that the measures specified in the ES are implemented, should they decide that planning permission should be granted.

#### COMMUNITY EFFECTS

15.3 The Enviroparks development is scheduled to commence in the second half of 2017. The construction programme would require an estimated 108 temporary construction workers, averaged over the two year construction period. It is therefore considered that EW's scheme would have a moderate beneficial effect on the local employment market. The presence of the construction workforce would have an indirect benefit on the local economy with their increased expenditure in the local community.

15.4 Given the distance of the site from dwellings, the proposed development would not have significant effects upon residents during the construction phase. In the same way, local businesses are likely to experience only minimal effects. Recreational users of the Penderyn Reservoir, which lies adjacent to the site, and users of the rights of way are likely to experience some noise during the construction period. Any disruption during construction would be controlled and managed through implementation of a Construction and Environmental Management Plan. The social impact of the scheme during construction is negligible.

15.5 The operation of the plan would require 69 full time jobs in a range of sectors and skills. This is considered to be a major beneficial effect.

15.6 The overall effect of the EWL scheme in secondary economic terms is considered to be moderately beneficial through the 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.

15.7 The proposals involve the provision of a facility suitable for educational use by visiting schools, colleges and the wider public. This is intended to enhance the awareness and understanding

of environmental and sustainability issues and the need for waste reduction. The social effects of the proposal on education are therefore moderately beneficial.

15.8 Mitigation during construction involves an Environmental Management Plan (EMP) and Health and Safety Plan in order to control and manage any disruption and to ensure that any negative social or economic or social effects remain negligible.

15.9 No adverse residual socio-economic effects have been identified. The Enviroparks project is likely to result in a range of beneficial socio-economic conditions within the catchment of the project, which could be enhanced with complementary measures such as local employment and skills and training initiatives.

## TRANSPORT

15.10 While the Enviroparks proposal will result in a number of daily vehicle movements once operational, the most significant traffic generation will occur during construction and will therefore be short term in nature. The operational vehicle movements to the Enviroparks site, compared to the consented scheme, are set to reduce. Enviroparks intends to change collection practices and will now receive materials from commercial and industrial sources and pre-sorted materials. Accordingly, the number of heavy goods vehicles (HGV) attending the site on a daily basis will reduce significantly.

15.11 Due to significant changes in staff shift requirements, with more staff working 8-hour shifts instead of 12-hour shifts, the number of staff attending the site has increased slightly compared to the consented scheme. The peak hour p.m. for staff vehicle movements has reduced from 73 to 59, but the peak hour a.m. has increased by one vehicle movement from 45 to 46. The impact of this is negligible.

15.12 It should be noted that the revised Enviroparks development might be constructed at a similar time to other key sites in the area, which could result in parallel construction and partial operational activities. The resultant impact of the cumulative local construction traffic remains within the maximum daily cumulative construction traffic over the entire build programme.

15.13 The local network serving the industrial estate is set to have an increase during construction of between 24% to 84%, compared to the previous range of 31.45% and 71.43%. The percentage increases are higher when considering the cumulative effects of other proposed developments and are predicted to be 110% of the current peak local traffic at their maximum. However, these increases will apply to estate roads, which are currently under-used, are often quiet and would be only planned for a short construction period. The percentage increase caused by construction traffic on the A465 is far less significant and required no further assessment.

15.14 With a reduction in the operational traffic of the development proposed, the available highway network is considered to remain suitable and sufficient for the needs of the revised scheme and the effects of the proposed development on the traffic flows in the area will be minimal.

15.15 To ensure the effective and enforceable mitigation of adverse transport effects during construction and operation,, EWL proposes that relevant planning conditions and obligations attaching to the 2010 planning permission should be applied to the current proposals, including the following provisions:

- Planning condition RCT5 / BB13 – requiring the submission and approval of a Construction Method Statement;
- Planning condition RCT23 / BB28 – provision of secure cycle parking facilities;
- Planning condition RCT11 / BB14 – times during which construction can take place;
- Planning conditions BB31, BB32 and RCT26 – restrictions on times at which materials can be transported to and from the site during the operation of the plant;
- Planning obligations in the Fourth Schedule of the 2010 s.106 agreement concerning bus stop contributions, the implementation of a green travel plan and HGV routing.

## AIR QUALITY

15.16 Dust emissions from the proposed development site will occur predominately during construction. 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 are likely to involve movement across the open ground. With only two non-business sensitive receptors identified within 350m of the site (the Penderyn Reservoir and the Dwr Cymru Service Reservoir) the sensitivity to human health impacts can be considered to be low. For ecological receptors, the sensitive ecological sites are all located more than 50m from the development site and the overall sensitivity is considered to be low. The overall risk of dust arising from the construction activities at the proposed development site is therefore considered to be low.

15.17 Once built, the site will be operated in accordance with an Environmental Permit, to be obtained from and issued by Natural Resources Wales. The site will comprise hardstanding and landscaped areas once operational and the dust creation potential will be negligible. In addition, all materials delivery and handling operations would take place within enclosed buildings and this dust creation through operational practices will be negligible. Inside the Fuel Preparation Hall, a dust suppressing foam would be applied during fuel preparation and a de-dusting unit is proposed to ensure the comfort and health of staff.

15.18 The potential for odour emissions from the construction activities is limited, with sources predominately being from vehicle emissions during travel to, from and across the site, and from diggers, shovel loaders and piling equipment. Once operational the site intends to control releases primarily through good site management practices.

15.19 The number of process exhausts from the site has reduced significantly in the revised scheme. The rationalisation of the energy production processes and the removal of the requirement for flaring results in only three discharge flues being required at the site, each serving a single

gasification line and incorporated into a single stack 45 metres in height and with a diameter of 3.5 metres. Additionally, the proposed scheme includes abatement systems, which were not proposed for the consented scheme. Modelling of air emissions from the proposal demonstrates that although not all of the pollutants can be readily screened as insignificant, levels are sufficiently low to safeguard human health and the environment. The human health impact assessment also indicates that the risk to health of the local population living and working in the vicinity of the Enviroparks facility, due to exposure of dioxins in emissions, is predicted to be low, with exposure levels well below the Tolerable Daily Intake at nearby receptor locations.

15.20 The Design Manual for Roads and Bridges (DMRB) screening methodology concludes that the increase in pollutant concentrations for each year from the development construction traffic showed little change in all pollutant concentrations. The largest increase was predicted at the petrol station on the A465 to the east, where the traffic from the construction of the Enviroparks site, the Abergorki Wind Farm and the proposed Hirwaun Power Station in combination could result in an additional contribution on the background levels of oxides of nitrogen. This takes into account that each development is constructed in accordance with proposed timescales, but leads nonetheless to the conclusion that the effect of proposed development traffic on the local air quality would be insignificant.

15.21 It is proposed that air quality mitigation measures at the construction stage will be enforced through adherence to a Construction Method Statement, which will ensure that full consideration is given to the potential nuisance elements of construction such as the creation of noise, dust or odour. 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 stock piles as necessary to control dust emissions;
- the creation of hardcore and / or paved roadways around the site at the earliest opportunity. Much of this work has already been undertaken as a part of EWL's phase I development;
- 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.

15.22 Mitigation for operational air quality effects is inherent in 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. this includes waste receipt, handling, treatment and waste and fuel storage;
- there will be no external feedstock storage;
- EWL 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, on 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, heavy metals, dioxins and particulate matter;
- gasification lines will discharge through flues at an adequate height to promote effective dispersion;
- good on-going management and housekeeping practices.

15.23 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 assessments levels will be jeopardised and the potential for odour nuisance around the site and outside of the site boundary is limited.

15.24 Although the potential for dust emissions does exist, comprehensive management through the Construction Method Statement should ensure that the impact from dust emissions during construction remains a low negative risk. Emissions from construction traffic movements suggest that the impact of the proposed development on current and predicted future concentrations of pollutants is negligible. The potential for odour emissions during construction is negligible.

15.25 Once operational, the site has limited potential for the creation of dust emissions and the impact is therefore considered negligible. Despite the potentially 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 to one of medium negative risk and short term effect.

15.26 With air pollution remaining within the Environmental Quality Standards and having a low potential for health risks, it can be concluded that there is no change in the potential impact from the process from that already consented and overall, the development continues to a medium negative impact on local air quality.

15.27 As noted, operational emissions from the proposed development will be closely controlled and monitored under the terms of an Environmental Permit that EWL will apply for from NRW.

## NOISE AND VIBRATION

15.28 There are a number of sites in the vicinity of the proposed development that could give rise to cumulative noise and vibration effects. These include the unbuilt High Energy Use (HEU) building within the application site, the existing Enviroparks Fuel Preparation Hall, Hirwaun Power Station and the Abergorki Wind Farm in respect of construction traffic.

15.29 During construction, the contractor will be required to adhere to the following:

- reduce noise to a minimum, as defined in section 72 of the Control of Pollution Act 1974 using the Best Practical Means (BPM) at all times and in agreement with the Local Planning Authorities;
- maintain / replace exhaust silencers to ensure they are effective;
- use well silenced compressors in noise-sensitive areas;
- maintain plant and ensure that noise abatement measures (e.g. covers) are fully operational and used correctly;
- confine construction activity to within a time period agreed with the Local Authority;
- keep local residents and the local authorities informed of the proposed working schedule where appropriate, including the times and duration of any abnormally noisy activity that may cause concern;
- provide a helpline / contact number for any complaints or concerns from members of the public;
- employ a manager to ensure that all works are being carried out in accordance with BPM.

15.30 It is proposed that these measures will be applied and enforced through a noise and vibration abatement scheme to be incorporated in a Construction Method Statement. The same arrangements were applied in respect of the Enviroparks project consented in 2010 through planning conditions RCT5 / BB13.

15.31 The following noise mitigation measures have been included in the design of the Enviroparks site:

- the proposed buildings walls and roofs will be clad in an appropriate cladding;
- all vehicle access doors will be rapid closing and will be required to be closed when not in use;
- the roof fans on the Gasification Hall will be located within the building envelope and ducted to the roof through appropriate attenuators;

- the Air Cooled Condenser (ACC) units located beside the Gasification Hall will generate no more than 70dB;
- the Dry Air Cooler (DAC) fans to the north and west will be enclosed by an acoustic barrier and lined on the internal facing with acoustically absorbent material;
- the process water and gas booster stations will be constructed to be acoustically robust;
- the standby diesel generator should generate a sound of no greater than 75dB.

15.32 The long term noise and vibration impacts are predicted to be Neutral at the identified receptor locations.

## GROUND CONDITIONS, DRAINAGE AND FLOOD RISK

### Section A – Ground conditions and land contamination

15.33 The tables overleaf summarise the effects, mitigation measures and residual effects during the construction and operational phases of development.

15.34 To ensure the effective and enforceable mitigation of contaminated land during construction and operation,, EWL proposes that relevant planning conditions and obligations attaching to the 2010 planning permission should be applied to the current proposals, including the following provisions:

- Planning condition RCT18 / BB23 – requiring the submission and approval of a contaminated land risk assessment and monitoring verification plan;
- Planning condition RCT19 / BB24 – requiring the submission and approval of a contaminated land remediation verification report.

**Table 15.1: Ground conditions and land contamination: summary of effects and proposed mitigation during construction**

Aspect	Identified Risks	Pre Mitigation Effect Significance	Description of Mitigation Measure	Receptor Sensitivity	Impact Magnitude	Effect Significance
<b>Construction</b>						
Effects upon Human Health from land contamination	Health impacts upon construction workers	Major Adverse Effect. Short term	Mitigation to be developed in line with published guidance and best practice. Appropriate PPE Safe systems of work	High	Negligible	Negligible
	Health impacts upon general public	Moderate Adverse Effect	Mitigation to be developed in line with published guidance and best practice. Use of any dust suppression techniques Avoid stockpiling contaminated soils	Medium	negligible	Negligible
Effects upon contaminated waters from land contamination	Impacts from construction works	Minor Adverse Effect	Further groundwater sampling with appropriate modern analysis and assessment Possible Controlled Waters DQRA Possible foundation works risk assessment	Medium	Minor Adverse	Minor Adverse Risk may be reduced post groundwater sampling, analysis and assessment
	Storage of chemicals, fuels and construction materials	Minor Adverse Effect	Apply appropriate working procedures such as: Handling and storage of any potential hazardous liquids / materials in accordance with NRW/EA requirements. Use of appropriately tanked and bunded areas for storage of fuels, oils and other chemicals	Medium	Minor Adverse	Negligible
Geotechnical Risks	High groundwater, risk of excavation collapse	Major Adverse Effect	Safe system of work. Groundwater Control Excavation support.	High	Major Adverse	Negligible

**Table 15.2: Ground conditions and land contamination: summary of effects and proposed mitigation during operation**

Aspect	Identified Risks	Pre Mitigation Effect Significance	Description of Mitigation Measure	Receptor Sensitivity	Impact Magnitude	Effect Significance
<b>Operation</b>						
Effects upon Human Health from land contamination	Risks to future site users	Moderate Adverse	Further PAH sampling, analysis and assessment  Barrier Pipe should be used for all water supply pipes  Cap of clean topsoil with an anti-dig barrier in soft-scaping – if required  Hydrocarbon resistant vapour proof membrane – if required	High	Negligible	Negligible
Effects upon Controlled Waters from land contamination	Risks to controlled waters from potentially contaminated groundwater within the application site area	Minor Adverse	Further groundwater sampling with appropriate modern analysis and assessment  Possible controlled waters DQRA  Possible foundation works risk assessment  Mitigation to be developed in line with published guidance and best practice	Medium	Minor Adverse	Minor Adverse Effect  Risk may be reduced post groundwater sampling, analysis and assessment
Ground Gas effects	Risks to future site users	Moderate Adverse	Cast in situ monolithic reinforced slab  Intrinsic monitoring, ventilation and gas control measures within the structure	High	Negligible	Negligible
Geotechnical risks	Risks to the proposed development	Major Adverse  Long term	Further development-specific ground investigation. Selection of an appropriate foundation solution.	High	Negligible	Negligible

## Section B – Drainage and flood risk

15.35 The table below summarises the predicted residual effects of the proposed development on the flow and effect of water following the use of mitigation measures for the proposed development. In summary, the proposals would introduce a number of additional and enhanced features to provide additional and more substantial mitigation against contamination and the risk of flooding for downstream receptors.

**Table 15.3: Ground conditions and land contamination: summary of effects and proposed mitigation during construction**

Aspect	Current Pathway	Current Receptor	Modifications and Mitigation	Likely pathway	Likely receptors	Increase or reduction in impact
Groundwater	There are areas of the site that are developed under Enviroparks Phase 1 however parts remain without impermeable area or hardstanding. Within these pockets site drainage remains limited.	In areas of uncontrolled ground water movement, where site drainage is limited, there is a risk of inundation during periods of heavy rainfall over spilling to downstream areas.	The downstream areas now contain the swale system constructed under Enviroparks Phase 1; further infrastructure to be constructed under Phase 2 is located to the south west which includes increasing the swale capacity. Potential overland flows from groundwater or pluvial sources will be intercepted by this swale system thus preventing silt entering the receptor.	Pathway is typically in a south westerly direction. However the swale is at the southern boundary of the site.	Receptors remain unchanged. But the site has a greater level of impermeable surfacing and a well-constructed drainage system.	The likelihood of flooding either at the site or at the local receptors from groundwater sources is greatly reduced now that development of the site has commenced.

*(Table continues on following pages)*

Aspect	Current Pathway	Current Receptor	Modifications and Mitigation	Likely pathway	Likely receptors	Increase or reduction in impact
Stream to the west	The stream receives overland flows and drainage from French drains associated with the reservoir.	The stream flows to the Camnant.	The stream accepts flows from the newly constructed swale system under Enviroparks Phase 1 plus limited flows from overland flows from the northern part of the site. As part of Phase 2, the swale will be increased in capacity. A penstock is also available at the downstream end, in the event that a critical event occurs this can be closed.	The proposed Enviroparks site will have approximately 6.5ha impermeable area and a gross area of 8.5ha. The permitted discharge is based upon a greenfield rate of 17.8l/sec/ha based upon 1 in 1 year return period. The discharge to receptors is via the swale system.	The River Camnant remains a receptor for the stream. But attenuation by way of the swale and balancing pond; the restricted discharge based upon greenfield rates results in reduced flows to receptors.	Creation of SuDS by way of swales and balancing ponds and possible underground storage will reduce the flow to the downstream receptor. There is also a control penstock which can isolate flows to the downstream receptor in an emergency. As part of Phase 2, the existing swale will be increased in capacity.
Penderyn Reservoir	Penderyn reservoir is subject to minimal impact.	Penderyn reservoir supplies the Hirwaun Water Treatment Works which will supply the site with potable water. French drains serve the reservoir; these discharge to the stream.	None.	No change.	No change.	No change in impact.

Aspect	Current Pathway	Current Receptor	Modifications and Mitigation	Likely pathway	Likely receptors	Increase or reduction in impact
River Camnant	The River Camnant receives flows from the stream to the western boundary of the site and also treated water from the Hirwaun STW.	The River Camnant flows to the River Sychryd.	With the construction of Enviroparks Phase 1 and subsequent Phase 2 works, surface water runoff water will be intercepted by drainage serving hardstandings and roofs. These flows will be diverted from the stream which flows to the Camnant, reducing the flows from the source. However diverted surface water flows out falling to the swale system will discharge at a controlled rate at a greenfield rate of 17.8l/sec/ha. This rate is based on a 1 in 1 year return period.	The surface water runoff from the site flows via underground pipe drainage, through the swale system out falling to the stream to the west of the site. River Camnant will receive flows from the stream which will not be greater than existing. Treated effluent will be discharged from the Hirwaun STW to the Camnant according to the DCWW consent.	There is no change to receptors.	There shall be a reduction in surface water runoff flows given the provision under Phase 1 of the controlled outfall to the south west corner. Greenfield rates of 17.8l/sec/ha according to 1 in 1 year rainfall events ensure a reduction in overall flood waters downstream. There is a potential for marginal increase of foul water flows directed to the Hirwaun STW from the development once fully operational; these flows will be treated and discharged to the Camnant according to the DCWW consent.

Aspect	Current Pathway	Current Receptor	Modifications and Mitigation	Likely pathway	Likely receptors	Increase or reduction in impact
Rainfall	Rainfall across the site is partly intercepted by the newly constructed infrastructure (roads, roofs and drainage) and in areas where future development will occur runoff will occur in an uncontrolled manner. The vast majority of the site will drain to the swale and balancing pond arrangement to the south boundary. A limited runoff may enter the stream to the west via drainage channels.	Limited groundwater will enter the stream and River Camnant. Likewise a restricted flow will the stream via a control structure to the south west corner.	The final state of the site is approximately 77% impermeable; this equates to about 6.5ha. Runoff from the hardstandings and roofs will be intercepted and stored primarily within the swale and balancing pond to the southern boundary. As part of Phase 2, the swale will be increased in size; further underground storage will provide attenuation where landscaping is limited. And these may be used to store recycled rainwater water for re-use within processes of the site. The site will be required to discharge surface water at greenfield rates to the stream to the western boundary.	Pathway of rainfall from landscaped areas remains unchanged. Pathway of rainfall from hardstandings and roofs is diverted to storage areas comprising swales, balancing ponds and underground storage tanks. The swale and balancing pond constructed at a gentle gradient allows for settlement of silts; during periods of construction when silts increase due to excessive construction traffic, the control penstock may be closed.	Receptors remain unchanged. The amount of rainwater contributing to groundwater has reduced following construction of Enviroparks Phase 1 works. With completion of Phase 2 including the enlargement to the swale system. The overall groundwater over the site will decrease when	Discharges to the groundwater and stream to the west will reduce thereby reducing likelihood of flooding. Discharge will be uncontaminated rainwater. Overall flow to the Camnant should not increase given that the restricted discharge is based on a 17.8l/sec/ha determined from 1 in 1 year events. There should be a marginal reduction of flooding potential to the downstream River Camnant.
Construction	None	None	Construction activities can impact on watercourse directly or through groundwater. A site management plan will be implemented. Mitigation measures will include the use of bunding, temporary filtration systems, emergency response equipment and use of control penstock at outfall.	Release to the stream or to permeable ground – this can be exacerbated through piling or excavations.	The stream and River Camnant and downstream River Sychryd or the groundwater and minor aquifer.	The potential impact from the construction process increases however comprehensive control measures will be implemented to minimise risk of pollution (primarily groundwater/silt). Local surface waters will be inspected regularly.

Aspect	Current Pathway	Current Receptor	Modifications and Mitigation	Likely pathway	Likely receptors	Increase or reduction in impact
Site Effluent/water	None	None	Phase 2 works may make provision for onsite storage of recycled surface water runoff intercepted by building roofs.	Any water stored within underground tanks providing the recycled surface water will require an overflow to the swale system.	Discharge to the stream to the west boundary is via the enlarged swale system constructed under Phase 2.	Under Phase 2 works treatment of onsite recycled surface water is dependent upon the final design process. Storage and treatment shall comply with current regulations. There shall be no change to the potential impact.
Wastewater	None	None	The Phase 1 development provides for a trade effluent consent discharge to the DCWW dia300mm foul water sewer. The domestic type foul water is discharged to the dia300 sewer at two different locations constructed under Phase 1.	All foul flows will drain southwards to the DCWW dia300 foul water sewer. There are three outfall locations permitted by DCWW. The dia300 sewer will drain west to the nearby Hirwaun STW.	The foul flows (trade effluent or domestic) discharged to the DCWW dia300 sewer will outfall to the Hirwaun STW which will be treated and discharged to the River Camnant.	Discharge of trade effluent will be to the prescribed DCWW consent TE692. There shall be no change to the potential impact.
Accidental Release	None	None	Site process and storage areas to consist of impermeable hardstanding. Secondary containment measures provided at cortical locations and spills managed immediately. In an emergency isolation of site drainage by use of penstock on surface water outfall.	None	None	Potential for an accidental impact is presently low considering the site is not operational. During the construction of the Phase 2 works the potential for accidental release increases and the contractor shall adopt suitable management systems for control, in accordance with regulations and best guidance.

15.36 Once the Enviroparks development is complete, it will provide a positive drainage system along with attenuation with the means to control surface water runoff and discharge at an agreed Greenfield rate. This includes a 30% climate change allowance, thereby reducing the flood water runoff to the stream or down gradient sources. 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 are therefore considered to have a Medium Positive effect on the site in respect of drainage and flood risk.

15.37 To ensure the effective and enforceable mitigation of a sustainable drainage scheme for the site EWL proposes that planning condition RCT17 / BB22 attaching to the 2010 planning permission should be applied to the current proposals.

## LANDSCAPE AND VISUAL EFFECTS

15.38 The differences between the consented scheme and the proposed development result in a small but noticeable increase in the massing of buildings at the south-western end of the Site and an incremental increase in the height and diameter of the stack. The new and amended buildings would use the same elevational treatment and building materials that were approved for the consented scheme. In terms of secondary mitigation, the landscape strategy remains unchanged from the consented scheme with the exception of the green wall that enclosed the gasifier yard, which is no longer required.

15.39 There are no material differences in the construction process compared with the consented scheme and therefore, the landscape and visual construction effects remain unchanged following completion of construction. Thereafter, and at Year 1, significant effects are restricted to the host aspect areas and localised parts of the surrounding landscape, which comprises the Penderyn Visual and Sensory Aspect Area and the Brecon Beacons National Park, Cultural Landscape Aspect Area. At Year 15, these adverse effects upon landscape character would diminish as planting around the site matures, reducing the intervisibility, particularly at the lower and mid-levels of the buildings. The external materials of the buildings, for example the wood cladding would also fade through weathering and become less apparent, especially from the medium and long range locations.

15.40 The proposed development would have a reduced night-time impact compared with the consented scheme because more operations would be housed inside buildings.

15.41 There would be significant visual effects at Year 1 from the majority of close range viewpoints including the Penderyn Reservoir. Further afield at points such as the public bridleway near Moel Penderyn, the proposed development would give rise to significant effects upon visual amenity. By Year 15, mitigation planting would have grown and the fading of building facades would result in the reduction of visual effects to a non-significant level from some locations. However, significant effects upon visual amenity for anglers using the Penderyn Reservoir would remain. No significant effect on any views from residential properties is predicted.

15.42 In view of the proposed development and the consented gas power station, only minor cumulative landscape and visual effects were identified and were assessed as being insignificant.

## ECOLOGY

15.43 There are five statutory designated sites within 2km and include:

- 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

15.44 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.

15.45 Planning conditions RCT31 / BB30 of the original Enviroparks planning permissions granted in 2010 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 over two years. The existing mitigation measures will be adequate with respect to on and off site requirements in the current context. EWL proposes that, should the current proposals be approved, the WMP should be updated to allow for the layout changes within the site and any alteration to the construction phases. Additional mitigation measures might be required and will be updated accordingly.

15.46 The amendments to the development proposed do not affect the northern portion of the site and the protection measures agreed previously with BBNPA will be implemented prior to commencement of construction.

15.47 There are not considered to be any revised construction impacts from the proposed development. The residual impacts of the operational phases of the proposed development are summarised in the table overleaf:

**Table 15.4: Summary of ecological effects and proposed mitigation during operation**

Site	Previous Residual Impact from original development	Impact from new development	Updated Mitigation	Updated residual impact from development
Completed development (Operational Effects)				
Effects on Statutory Sites of Nature Conservation Importance				
Blaen Cynon SAC	Probable negligible impact at international level	Deposition of ammonia and NO <sub>x</sub>	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	Deposition of ammonia and NO <sub>x</sub>	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	Deposition of ammonia and NO <sub>x</sub>	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	Deposition of ammonia and NO <sub>x</sub>	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	Deposition of ammonia and NO <sub>x</sub>	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	Deposition of ammonia and NO <sub>x</sub>	Continue mitigation proposals as in previous ES and planning obligations currently in place	Probable negligible impact at national level

## ARCHAEOLOGY AND CULTURAL HERITAGE

15.48 The lack of any likely archaeological or historical features on or around the site and the distance of the proposed development from any significant features of interest, indicate that the potential effects of the proposed development on the cultural heritage of the Hirwaun or Brecon Beacons area would be negligible. There are no listed buildings or Scheduled Monuments, historic parks and gardens, registered battlefields or Conservation Areas that would be directly affected by the proposed scheme.

15.49 No specific mitigation measures are required in order to protect the cultural heritage of the area.

## OVERALL CONCLUSION

15.50 The original Enviroparks development was the subject of an EIA, a Habitat Regulations Assessment and detailed scrutiny by statutory consultees and the public before planning permission was granted in 2010. The current proposals represent a rationalisation of the approved scheme, with elements such as the anaerobic digestion plant being dropped from the development and the

gasification plant being enclosed in a building, offering odour and noise attenuation benefits and reduced scope for light pollution. As explained in chapter four of this ES addendum, incoming waste streams have also been rationalised, with unsorted 'black bag' municipal waste and food waste no longer being brought to the site for processing.

15.51 Whereas this ES addendum has identified differences in the environmental effects of the approved 2010 scheme and the current proposals, in most cases the effects of the revised proposals assessed in this document vary little from those arising from the 2010 proposals and, in some respects, are of lower impact and significance.

15.52 Given that the 2010 proposals are partly implemented, the Applicant was concerned to ensure that established environmental mitigation and safeguards are, where appropriate, carried over to the revised scheme. The mitigation measures identified in the ES addendum thus seek to work within the protective framework established by the planning conditions and s.106 planning obligations attaching to the existing planning permissions.