

Parc Busnes Porth Cymru

Port Road, Rhose



Environmental Statement Volume 1: Main Report & Figures

July 2019

Parc Busnes Porth Cymru, Port Road, Rhoose Environmental Statement

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Environmental Statement

Chapter 1 – Introduction

July 2019

1 INTRODUCTION

1.1 Preamble

- 1.1.1 This Environmental Statement (ES) has been prepared on behalf of Legal & General (Strategic Land) Ltd (the Applicant) in support of an outline planning application with all matters reserved, apart from access, for the demolition of existing buildings and erection of a 44.79ha Class B1/B2/B8 business park, car parking, landscaping, drainage infrastructure, ecological mitigation and ancillary works on land at Model Farm, Port Road, Rhoose.
- 1.1.2 The ES has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017.

1.2 Legislative Framework

- 1.2.1 Environmental Impact Assessment (EIA) is the process of compiling, evaluating and presenting all likely significant environmental effects of a proposed development and ensures such effects are fully understood. The purpose of an EIA is to provide the local planning authority, when determining a planning application, with sufficient information to allow it to properly assess the environmental effects of a scheme.
- 1.2.2 The assessment process is designed to help produce an environmentally sensitive scheme. Detection of potentially significant adverse environmental impacts will enable appropriate mitigation measures to be built into the design at an early stage.
- 1.2.3 The legislative background for EIA originated with the European Community Directive on 'The Assessment of the Effects of Certain Public and Private Projects on the Environment' (85/337/EEC) as amended by Directive 97/11/EC. These directives are implemented for the purpose of determining planning applications via the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 which came into force on 16th May 2017.
- 1.2.4 The above Regulations establish the criteria which determine whether EIA is necessary or not and identify the nature and scale of the projects and their applicability to be determined as Schedule 1 or Schedule 2 projects. Schedule 1 projects require EIA in every case. Schedule 2 projects may or may not require EIA dependent on whether the project in question is likely to give rise to significant environmental effects by virtue of factors such as nature, size or location.
- 1.2.5 Paragraph 33 of Circular 11/99 'Environmental Impact Assessment' identifies three main types of cases where EIA will be needed for Schedule 2 developments: a) for major developments, which are of more than local importance; b) for developments which are proposed for particularly environmentally sensitive or vulnerable locations; and c) for developments with unusually complex and potentially hazardous environmental effects.
- 1.2.6 Schedule 3 of the 2017 Regulations also sets out criteria which must be taken into account in determining whether a scheme is likely to have significant effects relating to the characteristics of the development which include:
- a) the size and design of the whole development;
 - b) cumulation with other existing development and/or approved projects;
 - c) the use of natural resources in particular land, soil, water and biodiversity;
 - d) the production of waste;
 - e) pollution and nuisances;

- f) the risk of major accidents and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge;
- g) the risks to human health (for example due to water contamination or air pollution).

1.3 Screening Opinion

- 1.3.1 A formal Screening Opinion Request was submitted to the Vale of Glamorgan Council as the Local Planning Authority (LPA) on 1st March 2019. The Screening Opinion and accompanying Screening Report, dated 15th May 2019 (LPA Ref: P/DC/2019/00254/SC1) advised that it was the LPA's opinion that a focussed EIA would be required to be submitted under the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017.
- 1.3.2 The LPA concluded that a focussed EIA would be required due to the size and urbanising effect of the development, its visual impact within the landscape of a rural and coastal area, the presence of historically sensitive sites and buildings nearby, and the potential for significant increases in traffic and potential congestion to the highway network beyond the immediate locality.
- 1.3.3 A copy of the LPA's Screening Opinion and accompanying Screening Report is included at **Appendix 1.1**.
- 1.3.4 There is no requirement in the EIA Regulations to formally scope the contents of an ES. RPS has taken the view that the scope of the ES could be adequately determined without undertaking a scoping exercise due to the specific nature of the information within the LPA's Screening Opinion and accompanying Screening Report and, especially, for the following reasons:
 - Immediately prior to the issuing of the Screening Opinion the LPA confirmed, via email on 15th May 2019, that it would be recommending the proposal be subject to EIA as a result of its potential transportation, landscape/visual and heritage impacts.
 - The Screening Report notes that the development is of a significant size and the associated landscape impact would require EIA (landscape and visual assessment is therefore scoped in and the application is also accompanied by a separate, standalone Landscape and Visual Appraisal).
 - The Screening Report notes that notwithstanding the potential for mitigation measures, the development is likely to result in significant impacts relating to traffic and transportation that could extend beyond the immediate locality and as such, the impact on the wider highway network is considered to require EIA (highways and transportation is therefore scoped in and the application is also accompanied by a separate, standalone Transport Assessment and a Framework Travel Plan).
 - The Screening Report notes the development could be visible from some of the Scheduled Ancient Monument sites that lie within a 5km radius of the site. Furthermore, there are other structures in relatively close proximity that could be permanently affected and further assessment of the extent of their setting would be required. Overall, in view of the size, density and scale of the development, assessment of the impact on built heritage assets was considered to be necessary through EIA (built heritage assessment is therefore scoped in and the application is also accompanied by a separate, standalone Built Heritage Assessment).
 - The Screening Report notes the site is not in an ecologically sensitive area but has the potential to support protected species. The Council's Ecologist has advised that in their opinion, the development is not likely to give rise to significant effects on the environment and that any impact of the development in relation to ecology can, in likelihood, be mitigated (ecology has therefore been scoped out, although the application is accompanied by a separate, standalone ecological assessment).

- The Screening Report notes any impact on local receptors in relation to ground conditions, noise, vibration and air quality would be no more than of local significance (air quality, noise and vibration and ground conditions have therefore been scoped out).
- The Screening Report does not make any reference to socio-economic impact but as the application site is allocated for employment uses, socio-economic impact are considered to be the main potential impact and it has therefore been scoped in.
- The application site is not in an area identified as being at risk from flooding. The Screening Report notes the planning application should be supported by a drainage strategy to identify how foul and surface water from the development would be managed. The permanent nature of the impact is acknowledged, but the Report notes it is likely the impacts of the development can be mitigated and reduced to such a degree that it is not significant having regard to the EIA Regulations (flooding and hydrology has therefore been scoped out although the application is accompanied by a separate, standalone Sustainable Drainage Assessment).
- With regard to cumulative impact, the Screening Report is clear that there are no outstanding planning applications, approved or committed development on allocated land to the north of the application site and it could, feasibly proceed in isolation to the remainder of the allocation. Therefore it is appropriate to consider its impact in isolation of the remainder of the allocated land.
- Following the issuing of the Screening Report, through exchange of email the LPA confirmed it would not expect an ES to consider cumulative impact on the basis there are no other development proposals under consideration in the vicinity of the application site (consideration of cumulative impact has therefore been scoped out). The email exchange is included at **Appendix 1.2**.

1.3.5 No separate chapter is proposed in respect of climate change.

1.3.6 No separate chapter is proposed in respect of population and human health. The subject has a broad scope and is in practice considered across a range of other topic areas within the ES.

1.4 Structure of the Statement

1.4.1 The ES consists of three documents:

- Main text and figures (this document) providing a description of the scheme and results of the assessments subdivided by topic.
- Appendices containing technical data to support the text.
- A Non Technical Summary (NTS) providing a brief description of the scheme and a broad summary in layman's terms of the significant issues and impacts likely to arise, along with proposals for mitigation measures.

1.4.2 This document is divided into the following chapters:

1. Introduction
2. Site Description and Development Proposal
3. Planning Policy Context
4. Highways and Transportation
5. Landscape and Visual Character
6. Built Heritage
7. Socio-Economic

1.5 The Assessment Team

- 1.5.1 The EIA has been managed by RPS, taking into account information provided by the Applicant and design team. The authors of this ES are senior members of RPS unless otherwise specified in **Table 1.1** below.

Table 1.1 Assessment Team

ES Chapter	Main Author/Contributor
ES Chapters 1 – 6	RPS
ES Chapter 7	Hardisty Jones

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Environmental Statement Chapter 2 – Site Description and Development Proposal

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2 SITE DESCRIPTION AND DEVELOPMENT PROPOSAL

2.1 Site Description

- 2.1.1 The application site extends to 44.79ha and lies wholly within the Vale of Glamorgan Council's administrative boundary. It sits adjacent to Cardiff Airport, 14km south west of Cardiff city centre and 2km east of Barry. A Site Location Plan is included at **Figure 2.1**.
- 2.1.2 The site is bounded to the north by Port Road (A4226), open agricultural land to the east, Porthkerry Country Park to the south and Cardiff Airport and associated infrastructure to the west.
- 2.1.3 The site is currently in agricultural use, with arable pasture fields being the dominant use. The land is considered to be of moderate to poor agricultural quality, with the majority in Grades 3b and 4. A map showing the Agricultural Land Classification is included at **Figure 2.2**.
- 2.1.4 The field system is enclosed by hedgerows of varying heights and density and is intensively managed through annual cutting. There are a number of buildings on the site including the farm house and agricultural buildings.
- 2.1.5 The site slopes gently from north to south in its upper reaches, before falling away steeply in the southern portion. This southern part of the site is characterised by more significant areas of mature vegetation, mostly woodland.
- 2.1.6 There are no water features within the application site, but Bullhouse Brook and Whitehouse Brook fall immediately outside of the application site boundary, and within the ownership of Legal & General.
- 2.1.7 A Public Right of Way (PRoW) runs along the eastern boundary of the site.
- 2.1.8 The upper reaches of the site, comprising the fields, are considered to be of low ecological value and are not considered to be species-rich under the JNCC Phase 1 Habitat Classification System. The semi-natural broadleaved woodland in the south is considered to be of high ecological value in the context of the site only.
- 2.1.9 Much of the surrounding landscape to the north, south and east can be considered rural in nature, but the character to the west is dominated by large scale infrastructure associated with Cardiff Airport (runway and terminal building), Cardiff and Vale College's International Centre for Aerospace Training ("ICAT") campus and the British Airways Maintenance Cardiff hanger, which lies beyond the Airport.
- 2.1.10 The land to the north, known as Nant Llancarfan, is allocated as a Special Landscape Area in the adopted Vale of Glamorgan Local Development Plan.
- 2.1.11 A three/four storey Holiday Inn Express hotel sits immediately adjacent to the site's north western corner. Other built form within the vicinity includes The Old Rectory, Lower Porthkerry Farm and Church Farm.
- 2.1.12 The application site itself does not include any heritage assets, but there are a number within a 1km radius. These comprise nine Grade II listed buildings and structures (including Porthkerry Viaduct), three Grade II* listed buildings, two Conservation Areas and a number of buildings considered worthy of non-designated heritage asset status in the Vale of Glamorgan Council's County Treasures List. Furthermore, there are several Scheduled Ancient Monuments within a 1km radius.

2.2 The Development Proposal

- 2.2.1 Planning permission is sought for the demolition of existing buildings and erection of a 44.79ha Class B1/B2/B8 business park, car parking, landscaping, drainage infrastructure, biodiversity provision and ancillary works. The planning application is submitted in outline with all matters reserved apart from access.
- 2.2.2 The proposed primary access will be at the eastern end of the site, via a new arm off the existing Port Road/A4226 junction, with secondary access available from the existing Holiday Inn roundabout at the western end.
- 2.2.3 A series of parameter plans which illustrate the proposed development relating to land use and storey heights, movement and access and green infrastructure are included at **Figure 2.3, 2.4 and 2.5**. These will form the framework for the future development of the site through reserved matters. The parameter plans also illustrate a 'worse-case scenario' in order to ensure that potential environmental impacts are adequately assessed and to allow the proposed scheme maximum flexibility, thereby making it capable of adapting quickly to the market and the needs of potential occupiers.
- 2.2.4 An Indicative Concept Masterplan is also included at **Figure 2.6** and illustrates the following:
- Access points and internal road layout;
 - Approximate position of development blocks and uses;
 - Pedestrian and cycle links;
 - Landscaping zones;
 - Drainage features including attenuation areas and swales; and
 - Extension to Porthkerry Country Park to the south.

2.3 Aims and Objectives of the Development Proposal

- 2.3.1 The application site forms part of the wider St Athan – Cardiff Airport Enterprise Zone, designated by Welsh Government in 2012 specifically to attract aerospace and defence related investment. The overall vision for the Enterprise Zone is to for it to become:

“Europe’s centre of aeronautical excellence, a catalyst for growth in the Cardiff Capital Region and an international gateway with world-class facilities, opportunities and a highly skilled workforce.”¹

- 2.3.2 The development proposal will make a major contribution to the delivery of the Enterprise Zone:
- The development proposal will provide 44.79ha of Class B1, B2 and B8 uses to accommodate appropriate manufacturing, research and development businesses within the ‘Gateway Development Zone’ (a 77ha allocation within the Enterprise Zone) and assist in the continued growth of Cardiff Airport;
 - The Indicative Concept Masterplan (**Figure 2.6**) seeks to provide a coherent development which responds to the site’s topography, landscape and heritage sensitivities and ecological constraints to maximise its development potential whilst making the most of the high quality landscape setting;
 - The development proposal will provide land to facilitate a 42ha extension to Porthkerry Country Park, which will provide increased opportunities for recreation and amenity, habitat creation and connectivity and biodiversity management; and
 - The co-location of the development proposal with Cardiff Airport, British Airways Maintenance Cardiff and Cardiff and Vale College will encourage cluster opportunities for aerospace related advance manufacturing, research and development and innovation.

2.4 Connectivity with the Wider Enterprise Zone

- 2.4.1 The development proposal is the first to come forward within the Gateway Development Zone. Through a series of meetings with Council Officers and other key stakeholders, the Indicative Concept Masterplan (**Figure 2.6**) seeks to ensure the development proposal is consistent with, and will not prejudice, the future development of the wider St Athan – Cardiff Airport Enterprise Zone, particularly those parts immediately adjacent including Cardiff Airport and the remainder of the Gateway Development Zone.
- 2.4.2 The Council has recently published a draft supplementary planning guidance document relating to Cardiff Airport and the Gateway Development Zone, which extends to approximately 288.6ha. As a major landowner within the Gateway Development Zone, the applicant, Legal & General, has provided input into the document. The draft masterplan within it illustrates the integration of the vision for Cardiff Airport and the development proposal.
- 2.4.3 The supplementary planning guidance document recognises that due to the scale of the site, the phasing of applications will be important to ensure there is adequate infrastructure to support each proposal. The applicant is part of a working group comprising representatives from Cardiff Airport, Welsh Government, the Vale of Glamorgan Council and Cardiff and Vale College and discussions are ongoing with regard to sharing the costs of infrastructure provision to ensure each development proposal is supported by adequate infrastructure.

2.5 Alternatives

- 2.5.1 As previously noted, the application site falls within the St Athan – Cardiff Airport Enterprise Zone, designated by Welsh Government. The designation has been incorporated into the adopted Vale of Glamorgan Local Development Plan and is recognised within the Plan as being of regional importance and a significant opportunity to bring aerospace related inward investment to the area. Of the Plan's four key development strands, St Athan is highlighted as a 'Key Development Opportunity' and Cardiff Airport as an 'Employment and Transport Opportunity'.
- 2.5.2 The employment allocation relating to the Enterprise Zone under Policies MG9 and MG10 was subject to significant scrutiny throughout the Local Development Plan examination process prior to its adoption in 2017 and the locational benefits of Cardiff Airport were a critical factor in the allocation of the Gateway Development Zone:
- There is land (including the application site) and facilities available close to the airport for potential maintenance, repair and operations and associated supply chain operators, which complement the existing British Airways Maintenance centre;
 - The proximity of the airport and runway allow for the fast movement of aerospace parts, storage and salvage, cargo operations and freight related businesses; and
 - The runway at Cardiff Airport can accommodate all generations of aircraft and future improvements to airport infrastructure will allow the runway to accommodate the new generation of wide bodied aircraft.
- 2.5.3 As such, the location of the development proposal is the most appropriate and it accords fully with the Council's published aspirations for the future expansion of wider St Athan – Cardiff Airport Enterprise Zone. To locate the development proposal outside of the Gateway Development Zone or the wider Enterprise Zone would not fulfil the requirements of the planning policy framework.
- 2.5.4 There are, therefore, no other reasonable alternatives within which to locate the development proposal.

References

- 1 Cardiff Airport – St Athan Enterprise Zone Strategic Development Framework 2015 (Draft) p.29

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Environmental Statement Chapter 3 – Planning Policy Context

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3 PLANNING POLICY CONTEXT

3.1 Introduction

- 3.1.1 This chapter sets out the planning policy and legislative context against which the development proposal will be considered. It provides a broad overview of the context relating to the development proposal, with more topic specific policy and legislation being referred to in individual chapters as necessary.
- 3.1.2 A detailed analysis of the development proposal having regard to the planning policy and legislative context is provided in the Planning Statement that accompanies the application.

3.2 National Legislation and Policy

Well-being of Future Generations Act 2015

- 3.2.1 The Well-being of Future Generations (Wales) Act 2015 places a duty on public bodies to place the principles of sustainability and sustainable development at the heart of its decision-making processes. The objectives of the Act are as follows:

“A Prosperous Wales

- *Promoting resource-efficient and climate change resilient settlement patterns which minimise land take and urban sprawl, especially through the reuse of suitable previously developed land and buildings, wherever possible avoiding development on greenfield sites;*
- *Play an appropriate role to facilitate sustainable building standards;*
- *Play an appropriate role in securing the provision of infrastructure to form the physical basis for sustainable communities;*
- *Support initiative and innovation and avoid placing unnecessary burdens on enterprises so as to enhance the economic success of both urban and rural areas, helping businesses to maximise their competitiveness;*

A Resilient Wales

- *Contributing to the protection and improvement of the environment, so as to improve the quality of life, and protect local and global ecosystems;*

A Healthier Wales

- *Contribute to the protection and, where possible, the improvement of people’s health and well-being as a core component of achieving the well-being goals and responding to climate change;*

A More Equal Wales

- *Promoting access to, inter alia, employment, shopping, education and community facilities and open and green space, maximising opportunities for community development and social welfare;*
- *Promote quality, lasting, environmentally-sound and flexible employment opportunities;*
- *Respect and encourage diversity in the local economy;*

A Wales of Cohesive Communities

- *Locating development so as to minimise the demand for travel, especially by private car;*

- *Fostering improvement to transport facilities and services which maintain or improve accessibility to services and facilities, secure employment, economic and environmental objectives, and improve safety and amenity;*
- *Fostering social inclusion by ensuring that full advantage is taken of the opportunities to secure a more accessible environment for everyone that the development of land and buildings provides. This includes helping to ensure that the development is accessible by means other than the private car;*

A Wales of Vibrant Culture and Thriving Welsh Language

- *Helping to ensure the conservation of the historic environment and cultural heritage;*
- *Positively contribute to the well-being of the Welsh language;*

A Globally Responsive Wales

- *Support the need to tackle the causes of climate change by moving towards a low carbon economy."*

Wales Spatial Plan Update 2008

- 3.2.2 The Wales Spatial Plan acknowledges the important contribution that Cardiff Airport makes to providing the essential economic and tourism links that give the Capital Region international visibility. The Plan states there is a need to ensure good road and public transport access to the airport.

Planning Policy Wales Edition 10 (December 2018)

- 3.2.3 Planning Policy Wales ("PPW") was revised in 2018 to take account of the Well-Being of Future Generations (Wales) Act 2015. Figure 3 of PPW identifies five key planning principles aimed at 'achieving the right development in the right place' as follows:
- Growing our economy in a sustainable manner;
 - Making better use of resources;
 - Facilitating accessible and healthy environments;
 - Creating and sustaining communities; and
 - Maximising environmental protection and limiting environmental impact.
- 3.2.4 Paragraph 1.21 states that up-to-date development plans are the basis of the planning system and set the context for rational and consistent decision making. Planning applications must be determined in accordance with the adopted development plan, unless material considerations indicate otherwise.
- 3.2.5 Paragraph 3.40 makes it clear that the identification of sites in the open countryside must only be considered in exceptional circumstances. The search process and identification of land for development must be in a manner that fully complies with the requirements of all relevant national planning policy.
- 3.2.6 Paragraph 5.3.17 specifically acknowledges the importance of airports, identifying the important role they play in providing national and international connectivity for business.
- 3.2.7 Paragraph 5.4.1 defines economic development as development of land and buildings for activities that generate sustainable long-term prosperity, jobs and incomes.
- 3.2.8 Paragraph 5.4.2 states economic land uses include the traditional employment land uses (offices, research and development, industry and warehousing), as well as uses such as retail, tourism, and public services. It also states that the construction, energy, minerals, waste and telecommunications sectors are also essential to the economy.

- 3.2.9 Paragraph 5.4.4 states, wherever possible, planning authorities should encourage and support developments which generate economic prosperity and regeneration.

Technical Advice Note 23: Economic Development (2014)

- 3.2.10 Technical Advice Note (TAN) 23 paragraph 1.1.1 states economic development can include any form of development that generates wealth, jobs and income. It is important that the planning system recognises the economic aspects of all development and that planning decisions are made in a sustainable way which balance social, environmental and economic considerations.
- 3.2.11 Paragraph 1.2.1 states the economic benefits associated with development may be geographically spread out far beyond the area where the development is located. Consequently, it is essential that the planning system recognises, and gives due weight to, the economic benefits associated with new development.
- 3.2.12 Paragraph 1.2.2 advises that planning for economic land uses should aim to provide the land that the market requires, unless there are good reasons to the contrary. Where markets work well, this will help maximise economic efficiency and growth.
- 3.2.13 Paragraph 1.2.7 stipulates that in identifying land for economic uses in development plans, or when determining applications, local planning authorities should apply a sequential test approach. Land in the open countryside should be the third choice, but if the resulting benefits outweigh any adverse impacts of the development, land may be identified in such locations.
- 3.2.14 Paragraph 2.1.1 is clear that it should not be assumed that economic objectives are necessarily in conflict with social and environmental objectives.
- 3.2.15 Paragraph 2.1.5 states that where a planning authority is considering a site allocation or planning application that could cause harm to the environment or social cohesion, it should ask three questions to help balance the economic, social and environmental issues:
- **Alternatives:** if the land is not made available is it likely that the demand could be met on a site where development would cause less harm?
 - **Jobs accommodated:** how many direct jobs will be based at the site?
 - **Special merit:** would the development make any special contribution to policy objectives?
- 3.2.16 Paragraph 2.1.14 advises that planning authorities should use these criteria comparatively and should assess the additional benefits of development of the subject site (if any) against those of meeting demand in locations where the development would cause no harm (if any).

Technical Advice Note 5: Nature Conservation and Planning (2009)

- 3.2.17 Technical Advice Note (TAN) 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN provides advice for local planning authorities on:
- The key principles of positive planning for nature conservation;
 - Nature conservation and Local Development Plans;
 - Nature conservation in development management procedures;
 - Development affecting protected internationally and nationally designated sites and habitats; and
 - Development affecting protected and priority habitats and species.

Technical Advice Note 6: Planning for Sustainable Rural Communities (2010)

- 3.2.18 Technical Advice Note (TAN) 6 provides practical guidance on the role of the planning system in supporting the delivery of sustainable rural communities and highlights the key role the planning system has by ensuring that appropriate development takes place in the right place at the right time, making sufficient land available to provide homes and employment opportunities.
- 3.2.19 Paragraph 6.2.1 states that when preparing development plans and considering planning applications, planning authorities should consider the quality of agricultural land and other agricultural factors and seek to minimise any adverse effects on the environment.
- 3.2.20 Paragraph 6.2.3 highlights that agricultural land is classified by grades – 1 to 5, with grade 3 divided into two sub-grades. The best and most versatile land falls into grades 1, 2 and sub-grade 3a and is the most flexible, productive and efficient in response to inputs.
- 3.2.21 Paragraph 6.2.4 makes reference to the Agricultural Land Classification Map for Wales, noting this is published at a scale of 1:250,000 and provides only a generalised indication of the distribution of land quality. As such, the map is not considered suitable for use for evaluating individual sites and in such cases a resurvey at a larger scale is necessary to obtain a definitive grade.

Technical Advice Note 12: Design (2016)

- 3.2.22 Technical Advice Note (TAN) 12 promotes a collaborative, creative, inclusive, innovative and holistic approach to design and the use of design briefs is advocated as a route to good design.
- 3.2.23 Section 5.12 is concerned with the design of employment and commercial areas. Paragraph 5.12.1 stipulates the design of employment areas is important as high quality design can add value to commercial property, support the image of modern businesses and encourage further investment.
- 3.2.24 Paragraph 5.12.3 makes it clear that where employment premises are grouped together, a sufficient scale of planting and earth forms is essential, to absorb the bulk of the building, ancillary circulation and parking areas. Mixed employment uses would improve the feasibility and viability of such schemes and care should be taken to avoid the creation of insular estates. Furthermore, efforts should be made to present a positive, outward looking image by ensuring key buildings in the development front onto road and help improve connectivity.

Technical Advice Note 18: Transport (2007)

- 3.2.25 Technical Advice Note (TAN) 18 highlights the role that integrating land use planning and development of transport infrastructure can play in addressing the environmental aspects of sustainable development. Paragraph 2.3 sets out how integration can help Welsh Government achieve wider sustainable development policy objectives through a number of measures:
 - Ensuring new development is located where there is, or will be, good access by public transport, walking and cycling, to minimise the need for travel;
 - Managing parking provision – using maximum car parking standards as a form of demand management;
 - Encouraging the location of development near other related uses to encourage multi-purpose trips;
 - Promoting cycling and walking; and
 - Supporting the provision of high quality, inclusive public transport.

- 3.2.26 Section 7 of TAN 18 is concerned with public transport. Paragraph 7.1 acknowledges that new and improved public transport provision has the potential to provide alternatives to private vehicle use and to change existing travel demands. It states further that where enhanced public transport services or infrastructure is necessary to serve new development, but provision on a commercial basis is not viable, a developer contribution may be appropriate.
- 3.2.27 Paragraph 8.12 stipulates development which attracts substantial movements of freight, including large scale warehousing and distribution, should be located away from congested inner areas and residential neighbourhoods.
- 3.2.28 Paragraph 8.19 states that development plans should consider the contribution air traffic makes to the Welsh economy and also consider the benefits of having suitable ancillary or dependent facilities, although this should be balanced against the environmental impact on surrounding areas in terms of road and rail access, traffic and noise generation or floodplain protection.
- 3.2.29 Paragraph 8.20 states further that in determining planning applications planning authorities need to give careful consideration to the extent to which proposed development is related to the operation of the airport and is sustainable given the existing and planned levels of public transport.
- 3.2.30 Paragraph 9.2 requires developers to submit a Transport Assessment with any planning applications that are likely to result in significant trip generation. Early engagement with the relevant local highway authority is encouraged.

Technical Advice Note 24: The Historic Environment (2017)

- 3.2.31 Technical Advice Note (TAN) 24 sets out conservation principles to assess the potential impacts of a development proposal on the significance of any historic asset(s) and to assist in the decision making where the historic environment is affected. The six principles are as follows:
- Historic assets will be managed to sustain their values;
 - Understanding the significance of historic assets is vital;
 - The historic environment is a shared resource;
 - Everyone will be able to participate in sustaining the historic environment;
 - Decisions about change must be reasonable, transparent and consistent;
 - Documenting and learning from decisions is essential.
- 3.2.32 Paragraph 1.12 encourages the use of these principles when considering development proposals and other works to historic assets. There are four heritage values which need to be understood before the significance of the asset can be assessed.
- Evidential value;
 - Historical value;
 - Aesthetic value;
 - Communal value.
- 3.2.33 An understanding of these values forms the basis of a statement of significance prepared as part of a Heritage Impact Statement.

3.3 Local Planning Policy

- 3.3.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004 states that decisions made under the planning acts should be made in accordance with the Development Plan unless material considerations indicate otherwise.

Vale of Glamorgan Local Development Plan (2017)

Strategic Policies

- 3.3.2 The overarching strategy of the Local Development Plan comprises four key elements, including ensuring the St Athan area is a key development opportunity and Cardiff Airport is a focus for transport and employment investment.
- 3.3.3 Strategic Policy SP1, 'Delivering the Strategy', seeks to improve the living and working environment, promote enjoyment of the countryside and coast and manage important environmental assets.
- 3.3.4 Strategic Policy SP2 allocates land adjacent to Cardiff Airport and Port Road for employment uses as part of the St Athan – Cardiff Airport Enterprise Zone. Furthermore, Strategic Policy SP5 allocates a total of 492ha of land to meet regional and local employment needs.
- 3.3.5 Strategic Policy SP7 sets out a range of proposed sustainable transport improvements, including improvements to the A4226 between Waycock Cross, Barry and Sycamore Cross (Five Mile Lane). These improvements are now well advanced and should be complete by early 2020.
- 3.3.6 Strategic Policy SP10 states that development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including conservation areas, Special Landscape Areas and important archaeological features.

Development Management Policies

- 3.3.7 Policy MG9 allocates land for three strategic employment sites including 77.4ha of land adjacent to Cardiff Airport and Port Road for Class B1, B2 and B8 uses. Supporting text to the policy makes it clear that all three sites are intended to cater for the needs of the aerospace industry and high-tech manufacturing, encouraging investment from the regional and sub-regional market place.
- 3.3.8 Policy MG10 is concerned with the St Athan – Cardiff Airport Enterprise Zone. The policy states the development of the Enterprise Zone will be guided by a masterplan, which will include the following in relation to the application site:
- New aerospace, education, research and development, manufacturing, office and other ancillary development at the Cardiff Airport and Gateway Development Zone (77ha);
 - A 42 hectare extension to Porthkerry Country Park;
 - Provision of sustainable transport infrastructure; and
 - The incorporation of a sustainable energy centre at the Cardiff Airport and Gateway Development Zone.
- 3.3.9 With specific regard to the application site, supporting text to the policy reiterates that development in the Enterprise Zone will focus on the aerospace and defence sectors. The policy is clear that it is not allocated to meet local market demand for general industrial or office uses, but rather to accommodate business and employment uses catering specifically for the needs of the aerospace industry and high tech manufacturing.
- 3.3.10 Policy MG17 is concerned with Special Landscape Areas ("SLAs"). The land to the north of the application site, Nant Llancarfan, is designated as an SLA. Supporting text to the policy stipulates that any development proposal that is likely to have a significant impact on landscape character, or have a significant visual effect within the wider landscape, will need to be supported by a Landscape and Visual Impact Assessment.
- 3.3.11 Policy MG20 refers to nationally protected sites and species. The policy states that development proposals likely to affect protected species will only be permitted where it is demonstrated that:

- The population range and distribution of the species will not be adversely impacted;
 - There is no suitable alternative to the proposed development;
 - The benefits of the development clearly outweigh any adverse impacts; and
 - Appropriate avoidance, mitigation and compensation measures are provided.
- 3.3.12 Policy MG21 states development proposals that are likely to have an adverse impact on priority species will only be permitted where the need for development clearly outweighs the conservation value, appropriate and proportionate mitigation and compensation measures can be provided and the development conserves, and where possible, enhances biodiversity interests.
- 3.3.13 Policy MG28 allocates 42ha of land for the provision of open space and recreational facilities at Porthkerry Country Park. Supporting text to the policy makes it clear that extension will be delivered as part of the first phase of development proposed under Policy MG10.
- 3.3.14 Chapter 7 of the LDP sets down general development management policies including:
- Policy MD2 – Design of New Development
 - Policy MD4 – Community Infrastructure and Planning Obligations
 - Policy MD7 – Environmental Protection
 - Policy MD8 – Historic Environment
 - Policy MD9 – Promoting Biodiversity
 - Policy MD14 – New Employment Proposals
 - Policy MD15 – Protection of Allocated Employment Sites.

Parc Busnes Porth Cymru

Port Road, Rhose



Environmental Statement

Chapter 4 – Highways and Transportation

July 2019

4 HIGHWAYS AND TRANSPORTATION

4.1 Introduction

- 4.1.1 This chapter assesses the likely significant traffic and transport effects resulting from the development proposal.
- 4.1.2 A Transport Assessment (TA) has been prepared to accompany this chapter and is attached at **Appendix 4.1**.

4.2 Regulatory and Policy Framework

Planning Policies

- 4.2.1 A review of the national and local policies and guidance that the development proposal has been considered against is provided in Chapter 2 of the TA attached at **Appendix 4.1**.

4.3 Methodology

Scoping and Consultation

- 4.3.1 This ES chapter follows the advice received from Highways Officers at the Vale of Glamorgan Council set out within the formal EIA screening opinion. A comprehensive scoping exercise was undertaken with the Council, Welsh Government and Transport for Wales to assess the transport aspects of the development proposal, full details of which are set out in the Transport Assessment attached at **Appendix 5.1**. The scoping exercise has guided the content and assessment within this chapter.

Establishing Baseline Conditions

- 4.3.2 Site visits have been undertaken which identified the geometries and layout of the highway network, its local environs and the location of sensitive receptors. Traffic flow data has been obtained from the Department for Transport, the Vale of Glamorgan Council's Local Development Plan background papers and site-specific traffic surveys has been undertaken at the proposed northern site access. Personal Injury Accident data has been obtained from the Council to enable road safety to be analysed. Full details of these are set out in Section 3 of the TA.

Relevant Guidance

- 4.3.3 As a matter of best practice, this assessment has been undertaken based on current relevant guidance for assessing the environmental effects of traffic. This is set out within The Institute of Environmental Assessment (IEA) (now the IEMA) publication 'Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic', 1993, the 'IEMA Guidelines' with reference to Volume 11 - Environmental Impact Assessment of the Design Manual for Roads and Bridges (DMRB).

Magnitude of Impact

- 4.3.4 The IEMA Guidelines recommend two rules to be considered when assessing the impact of development traffic on a road link and how far the geographical boundaries of that assessment should extend:
- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and

- Rule 2: Include any other specifically sensitive areas where total traffic flows have increased by 10% or more.

- 4.3.5 The above guidance is based upon knowledge and experience of environmental effects of traffic. The 30% threshold is based upon research and experience of the environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic. At a simple level, the guidance considers that projected changes in total traffic flow of less than 10% creates no discernible environmental effect, hence the second threshold as set out in Rule 2.
- 4.3.6 In cases where the thresholds are exceeded, Column 3 in Table 2.1 of the IEMA guidelines sets out a list of environmental effects which should be assessed for their magnitude of change: noise, vibration, visual impact, severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety, hazardous loads, air pollution and dust and dirt.
- 4.3.7 Definitions of each of the potential effects identified in the IEMA guidelines are summarised below along with explanatory text relating to assessment criteria to determine the magnitude of impact. It is on this basis that the assessment in this chapter has been undertaken.
- 4.3.8 It is acknowledged at paragraph 2.4 of the IEMA guidelines that not all the effects listed in Column 3 of Table 2.1 would be applicable to every development. A detailed inspection of the surrounding road network incorporating the current geometric layout of the road, traffic management and regulation orders and general observations of existing road user movements has been undertaken to assist with the assessments.

Noise and Vibration

- 4.3.9 Noise and vibration effects have been considered to be negligible and have been scoped out of the EIA through discussions with the Council and therefore, these effects are not included in this chapter.

Visual Effects

- 4.3.10 The visual effect of traffic is complex and subjective and includes both visual obstruction and visual intrusion. The IEMA guidelines states that obstruction refers to the blocking of views, by structures for example, and intrusion refers to the more subjective impact by traffic on an area of scenic beauty or of historical or conservation interest.
- 4.3.11 It goes on to state that increases in the number of large or high-sided vehicles may have an intrusive impact in areas of scenic beauty and in historic or conservation areas and acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect.
- 4.3.12 Where relevant, the visual effects of traffic are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the IEMA Guidelines. The visual effects of the scheme as a whole are considered in Chapter 5.

Severance

- 4.3.13 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance can also result from difficulty in crossing a heavily trafficked road (IEMA, March 1993).
- 4.3.14 The guidance indicates that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively.
- 4.3.15 Where relevant, effects on severance are considered within this chapter.

Driver Delay

- 4.3.16 Where roads affected by development are at or near capacity, the traffic associated with such development can cause or add to vehicle delays. Some roads are typically at or near capacity during the weekday AM (07:45 to 08:45) and PM (16:30 to 17:30) peak hours. Other sources of delay for non-development traffic can include:
- at the proposed site access where there will be additional turning movements;
 - on the roads passing the site where there is likely to be additional traffic;
 - at other key intersections along the road which might be affected by increased traffic; and
 - at junctions where the ability to find gaps in the traffic may be reduced, thereby lengthening delays.
- 4.3.17 Where relevant, the effects on driver delay are considered within this chapter and the magnitude of impact identified using operational junction modelling, professional judgement and the advice provided in the above guidance document.

Pedestrian Delay

- 4.3.18 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. Studies have shown that pedestrian delay is perceptible or considered significant beyond a lower delay threshold of 10 seconds, for a link with no crossing facilities. A 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour (IEMA, March 1993).
- 4.3.19 Where relevant, the effects on pedestrian delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Pedestrian Amenity

- 4.3.20 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is considered to be affected by traffic flow, speed and composition as well as footway width and the separation/protection from traffic.
- 4.3.21 It encompasses the overall relationship between pedestrians and traffic, including fear and intimidation which is the most emotive and difficult effect to quantify and assess. There are no commonly agreed thresholds for quantifying the significance of changes in pedestrian amenity, although the IEMA guidelines refer to a useful study which could be referenced when considering any effect.
- 4.3.22 Where relevant, the effects on pedestrian amenity are considered within this chapter and the magnitude of impact identified.

Accidents and Safety

- 4.3.23 It is possible to estimate the effects of increased traffic on accidents and safety from existing accident records, national statistics, the type and quantity of traffic generated, journey lengths and the characteristics of the routes in question.
- 4.3.24 Where relevant, the effects on accidents and safety are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Hazardous Loads

- 4.3.25 The development proposal will not generate hazardous loads and therefore there is nothing to assess in this regard in this chapter.
- 4.3.26 Certain types of development, particularly construction sites, can give rise to deposition of dust and dirt on surrounding roads. The overall impact of this phenomenon normally depends to a large extent on the management practices adopted at the site in question, such as vehicle sheeting and wheel washing.
- 4.3.27 Problems with dust and dirt are unlikely to occur at distances greater than 50m from the road (IEMA, March 1993).
- 4.3.28 Where relevant, the effects relating to dust and dirt are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Sensitive Receptors

- 4.3.29 Paragraph 2.5 of the IEMA Guidelines explains that locations which may be sensitive to changes in traffic conditions could be:
- people at home;
 - people in work places;
 - sensitive groups such as children, the elderly or the disabled;
 - sensitive locations such as hospitals, churches, schools or historical buildings;
 - people walking or cycling;
 - open spaces;
 - recreational sites;
 - shopping areas;
 - sites of ecological/nature conservation value; and
 - sites of tourist/visitor attraction.
- 4.3.30 As a general guide, the determination of receptor sensitivity is based on the criteria of value, adaptability and tolerance. In terms of transport, receptors include people that are living in and using facilities, and using transport networks, in the area.
- 4.3.31 Given that all persons are deemed to be of equal value, sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to or recover from changes. Table 4.2 summarises the broad criteria for identifying receptor sensitivity as based on the IEMA Guidelines.

Table 4.2: Definitions of Sensitivity or Value

Sensitivity	Typical Descriptors
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident black spots (with reference to accident data), retirement homes, urban/residential roads without footways that are used by pedestrians
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycleways, community centres, parks, recreation facilities
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions

- 4.3.32 Highway links with descriptions of high or medium sensitivity will be considered against the Rule 2 threshold described above. Other links with descriptions of low or negligible sensitivity will be considered against the Rule 1 threshold. Where necessary, professional judgement has been applied in identifying the relevant category for each link.
- 4.3.33 Receptors to be considered within the impact assessment were selected based upon the access routes to be taken by the construction and operational route vehicles generated by the development proposal.

Significance Criteria

- 4.3.34 The approach to the assessment of significance of effects is summarised in Table 4.3 and Table 4.4 below, adapted from the Design Manual for Roads and Bridges (DMRB) HA 205/08. This considers the duration, magnitude, direction and location of each effect as well as the sensitivity of the receptor. Where any of the above potential effects define any specific criteria to determine effects, these will be assessed to establish the significance.

Table 4.3: Definitions of Magnitude

Magnitude	Typical Descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Low	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Table 4.4: Assessment Matrix

Sensitivity	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or slight	Negligible or slight	Slight
Low	Negligible or slight	Negligible or slight	Slight	Slight or moderate
Medium	Negligible or slight	Slight	Moderate	Moderate or Substantial
High	Slight	Slight or moderate	Moderate or substantial	Substantial

4.3.35 The broad definitions of the terms used to determine significance criteria are as follows:

- Substantial: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process;
- Moderate: These beneficial or adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a resource or receptor;
- Slight: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project; and
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

4.3.36 Effects described as moderate are considered to be significant as set out in Chapter 4.

4.3.37 In accordance with the above IEMA guidelines, the assessment is based upon the relative change between the baseline conditions and the baseline plus construction/development conditions. The effect along key highway links of the adjacent highway network where any development related traffic is predicted to route along and could result in an environmental effect will be assessed.

4.4 Baseline Conditions

Site Access

4.4.1 The development will be accessed via two points on the existing highway network. There will be one access in the north of the development, served by the addition of a fourth arm to the existing Port Road/A4226 three-arm roundabout. The second access will be in the south of the site, from the unnamed road serving the Holiday Inn Express which is accessed from the Port Road/Cardiff International Airport access road/unnamed road roundabout.

4.4.2 The Port Road/A4226 roundabout will be repositioned and enlarged with a fourth arm. The preliminary access proposal is shown at Appendix J of the Transport Assessment attached at **Appendix 4.1**.

4.4.3 The southern access will be a simple priority junction which connects to the unnamed road that serves the Holiday Inn Express. The preliminary access proposal available at Appendix K of the Transport Assessment attached at **Appendix 4.1**.

Highway Network

- 4.4.4 The local highway network is illustrated in Figure 1 of the Transport Assessment attached at **Appendix 4.1**.

Port Road

- 4.4.5 Port Road routes from the north of the site to the south-west of the site along the entirety of the western site boundary. The road is an urban clearway, restricting vehicles from stopping for one and three-quarter miles, has a 50mph speed limit and is street-lit.
- 4.4.6 The road has three roundabout junctions, one simple priority junction and several private accesses. The simple priority junction serves Blackton Lane, which provides access to a small number of dwellings.
- 4.4.7 A roundabout junction with three arms connects Port Road and the A4226, at the north-eastern end of the road.
- 4.4.8 A second roundabout junction is located approximately 170m from the south-western end of the road. This junction has four arms which provides access to Cardiff Airport and Holiday Inn Express.
- 4.4.9 A third roundabout junction is located at the south-western end of Port Road. This junction has three arms which serve Port Road, Porthkerry Road and an Unnamed Road serving Raven Express Logistics.

A4226

- 4.4.10 The A4226 routes north-east to south-west from Barry to the north of Cardiff International Airport. The A4226 has four roundabout junctions along its route. There is a speed limit of 50mph from the 'Waycock Cross' roundabout to the A4226 / B4265 roundabout, with street lighting provided.
- 4.4.11 The first roundabout is in Colcot and has three arms. The roundabout serves the A4226, A4050 and Colcot Road. The A4050 is a continuation of the A4226, heading north-east towards the Culverhouse roundabout junction to the west of Cardiff.
- 4.4.12 The second roundabout is located north-west of Barry and is known as 'Waycock Cross'. The roundabout has four arms which connect the A4226, Waycock Road (Five Mile Lane) and B4266. The B4266 Pontypridd Road routes into Barry.
- 4.4.13 The third roundabout is located to the north of the site. This roundabout has three arms which serve the A4226 and Port Road.
- 4.4.14 The fourth roundabout is located north of Cardiff Airport. The roundabout has five arms and serves the A4226, B4265, Tredogan Road and Dragonfly Drive. Dragonfly Drive routes south-west to airport hangers

Five Mile Lane

- 4.4.15 Five Mile Lane is a highway link improvement along the A4226 (Waycock Road), designed to improve access from the M4 corridor and Cardiff to Cardiff Airport Enterprise Zone, commissioned by Welsh Government. The aim of Five Mile Lane is to improve journey time and network resilience to Cardiff Airport Enterprise Zone and to overcome congestion on Port Road. The highway improvements scheme is currently under construction and is estimated for completion in Summer 2019. Street lighting is proposed on the approach to Waycock Cross roundabout only.
- 4.4.16 The scheme will upgrade the road to a single lane carriageway of 7.3m width. The Waycock Cross roundabout will be upgraded as part of the scheme, undergoing widening to two lanes on

the A4226 arm and a length of unsegregated footway / cycleway will be provided to the Waycock Cross roundabout.

- 4.4.17 The 'Sycamore Cross' junction is a staggered crossroad signalised junction accessed when travelling north along Five Mile Lane from the Waycock Cross roundabout, which will also be upgraded as part of the scheme. The work at this junction will increase capacity for turning movements at the junction, allowing for the highway improvement scheme to be maximised. The route provides access to the A48, an alternative route to the Culverhouse gyratory roundabout.

Porthkerry Road

- 4.4.18 Porthkerry Road routes from the south-west of the site. The road begins at the roundabout junction of Port Road / Porthkerry Road / Unnamed Road (serving Raven Express Logistics) and meanders south-west towards Rhoose. The road is street-lit and subject to a 50mph speed limit.
- 4.4.19 There are four simple priority junctions on this road; two of these junctions serve unnamed roads, one serving a few dwellings and the other serving a leisure park, church and farm. One of the other junctions serves Murlande Way and the other serves Rhoose Way; both roads serve residential areas.
- 4.4.20 Porthkerry Road also has two roundabouts along its course. The first roundabout has three arms, serving Porthkerry Road and Pentir Y De. The second roundabout is located at the end of Porthkerry Road and serves Porthkerry Road, Rhoose Road and Readers Way. Rhoose Road routes into the centre of Rhoose and Readers Way provides access to a residential area.

Tredogan Road

- 4.4.21 Tredogan Road routes from north to south from the village of Penmark to car parking areas for Cardiff International Airport.

B4265

- 4.4.22 The B4265 is a continuation of the A4226 and is accessed west of the site. The road routes west through Llantwit Major and culminates in Bridgend.

Pedestrian Routes

- 4.4.23 Footways are provided on the southern section of Port Road, south of the Holiday Inn Express roundabout access, and provide access to the Holiday Inn Express bus stops. These footways connect, albeit with the need to cross Port Road twice, to the shared use cycleway on the northern side of Porthkerry Road which provides a continuous link into Rhoose. The footways are well lit.
- 4.4.24 There are no footways on the northern section of Port Road or on the A4226, to the north of the site.
- 4.4.25 There are public footpaths which connect the site to Barry as well as the Wales Coastal path, to the south of the site. This can be seen on Figure 2 of the Transport Assessment attached at **Appendix 4.1**. Public Right of Way (PRoW) footpath P4 17/1 provides access from the A4226 to Porthkerry Country Park and routes partially within the site, close to the eastern boundary.

Cyclist Routes

- 4.4.26 National Cycle Network (NCN) route 88 can be accessed on Porthkerry Road and used to route to Barry and Llantwit Major, together with Ewenny, just to the south of Bridgend. There is also a local cycle link to the NCR from Rhoose which connects the site to the Rhoose Cardiff International Airport Railway Station, as shown on Figure 2 of the Transport Assessment attached at **Appendix 4.1**.

Public Transport

- 4.4.27 There are currently three bus stops in the vicinity of the site, providing four services. These provide links to Cardiff International Airport, Rhoose (CIA) Rail Station, Barry, Barry Rail Station, Llantwit Major, Bridgend and Cardiff.
- 4.4.28 There are six rail stations within 25 minutes cycle time of the station. The two closest, Rhoose (CIA) and Barry Rail Stations, provide services to and from Cardiff Central, Newport, Bridgend, Aberdare and Merthyr Tydfil.

Bus

- 4.4.29 There are three bus stops in the vicinity of the site. A summary of the frequency of the services is provided in Table 4.5.

Table 4.5 Summary of Local Bus Services

Service	Stop	Route	Weekday Frequency (per hour)			Time	
			AM Peak (07:00- 09:00)	Inter- Peak	PM Peak (16:30- 18:30)	First Arrival	Last Departur e
303	Wellford Farm, Sky Plaza Hotel, Holiday Inn Express.	Bridgend - Barry	Two per hour	One per hour	Two per hour	07:25	00:55
905	Holiday Inn Express.	Cardiff Airport – Rhoose Railway Station	One per hour	One per hour	One service	06:20	17:20
X91	Wellford Farm, Sky Plaza Hotel, Holiday Inn Express.	Cardiff – Llantwit Major	One service	-	One service	06:34	18:20
TrawsCymru T9	Sky Plaza Hotel.	Cardiff Airport - Cardiff	Two per hour	Two per hour	Two per hour	04:36	23:04

- 4.4.30 A meeting held with the Council's Group Manager for Transport Services explored the current public transport provision. He considered that the 905 service would stop operating and be replaced with the 303 service.

Rail

- 4.4.31 The site is located between the two rail stations of Rhoose (CIA) and Barry. Both stations offer regular arrivals and departures from Cardiff Central, Newport, Bridgend, Aberdare and Merthyr Tydfil.

Rhoose Cardiff International Airport Rail Station

- 4.4.32 Rhoose Cardiff International Airport Rail Station is located approximately 3.9 kilometres south-west of the centre of the site. The 905 bus service serves the rail station bus stop, approximately 50 metres walking distance from the station. The 303 and X91 bus services route to and from the Station Road bus stop in Rhoose, approximately 350m walking distance from the station. The destinations and frequency of services provided from the rail station are summarised in Table 4.6.

Table 4.6: Arrival and Departure Frequency Rhoose Cardiff International Airport Rail Station

Arrivals			
Origin	Weekday Frequency		
	AM Peak (0700-0900)	Inter- Peak	PM Peak (1630-1830)
Cardiff Central	60 mins	60 mins	60 mins
Newport	60 mins	30 mins	30 mins
Bridgend	60 mins	60 mins	60 mins
Departures			
Destination	Weekday Frequency		
	AM Peak (0700-0900)	Inter- Peak	PM Peak (1630-1830)
Cardiff Central	60 mins	60 mins	60 mins
Newport	Two per hour	Two per hour	Two per hour
Bridgend	60 mins	60 mins	60 mins
Aberdare	60 mins	60 mins	60 mins

- 4.4.33 Rail services at Rhoose will increase from one train per hour to two trains per hour in 2022/23 with increased bus frequency to provide access to the site.

Barry Rail Station

- 4.4.34 Barry Rail Station is located approximately 4.9 kilometres east of the centre of the site by road (bus and cycle). Alternatively, Barry Rail Station can be accessed using Porthkerry Country Park and the walking and cycling routes and trails provided within it. NCN route 88 provides a route from the development to the rail station. The 303 bus services the Barry Hotel bus stop, approximately 170m north of Barry Rail Station. The destinations and frequency of services provided from Barry Rail Station are summarised in Table 4.7.

Table 4.7: Arrival and Departure Frequency Barry Rail Station

Arrivals			
Origin	Weekday Frequency		
	AM Peak (0700-0900)	Inter- Peak	PM Peak (1630-1830)
Cardiff Central	15 – 20 mins	15 – 20 mins	15 – 20 mins
Newport	15 – 20 mins	15 – 20 mins	15 – 20 mins
Barry Island	15 – 30 mins	15 – 30 mins	15 – 30 mins
Bridgend	20 – 40 mins	20 – 40 mins	20 – 40 mins
Aberdare	30 mins	30 mins	30 mins
Merthyr Tydfil	30 mins	30 mins	30 mins
Departures			
Destination	Weekday Frequency		
	AM Peak (0700-0900)	Inter- Peak	PM Peak (1630-1830)
Cardiff Central	15 mins	15 mins	15 mins
Newport	15 mins	15 mins	15 mins
Barry Island	15 mins	15 mins	15 mins
Bridgend	15 – 30 mins	15 – 45 mins	15 – 30 mins
Aberdare	30 mins	15 – 45 mins	30 – 60 mins
Merthyr Tydfil	30 mins	30 mins	30 mins

Traffic Flows

- 4.4.35 To determine existing traffic flows on the adjacent highway network an independent Manual Classified Count was undertaken at the existing A4226/Port Road roundabout on Thursday 24th May 2018 between 07:00 and 10:00 and between 16:00 and 19:00. A factor was applied to the peak hour traffic flows to provide an Average Annual Daily Traffic (AADT) flow.
- 4.4.36 The 2018 AADT flows for the majority of the links was obtained from the Department for Transport Road Traffic Statistics.
- 4.4.37 Traffic flows for links where DfT was not available have been taken from the Vale of Glamorgan Local Development Plan 2011-2016 Background Paper 'Highway Impact Assessment' (September 2013). Factors were applied to the peak hour traffic flows to provide an AADT flow.

Initial Study Area

4.4.38 Based on the above, the following links form the initial study area for the screening exercise (Rules 1 and 2) to determine which links will be subject to EIA:

- Port Road, between A4226 roundabout and Tredogan Road roundabout;
- Port Road and Porthkerry Road, between Tredogan Road roundabout and Pentir Y De roundabout;
- A4226, between A4226 roundabout and B4265 roundabout;
- B4265, between B4265 roundabout and Llanwit Road;
- B4265, between Llantwit Road junction and B4270 roundabout;
- B4270, between B4270 roundabout and Sigingstone Road junction;
- B4265, between B4270 roundabout and Wick Road junction;
- Cowbridge Road, between B4270 roundabout and High Street roundabout;
- A4226, between A4226 roundabout and B4266 roundabout;
- B4266, between B4266 roundabout and A4050 roundabout;
- A4226, between Stirling Road junction and Colcot Road roundabout;
- A4226, between Colcot Road roundabout and Merthyr Dyfan Road;
- A4231, between A4231 roundabout and A4055 roundabout;
- A4050, between A4231 roundabout and Old Port Road roundabout;
- A4050, between Old Port Road roundabout and A48 roundabout;
- A4232, between A48 roundabout and A4232 slip road (north of B2467 roundabout);
- A48, between A48 roundabout and Green Farm Road junction;
- A4232, between A48 roundabout and south of M4 roundabout;
- M4, between M4 roundabout and Coryton roundabout;
- M4, between M4 roundabout and A4119 roundabout;
- A4226, between B4266 roundabout and A4226 junction;
- A48, between A4226 junction and Redway Road junction;
- A48, Village of St Nicholas;
- A48, between 40mph speed limit sign (west of Copthorne Way junction) and A48 roundabout;
- Pendoylan Road, Village of Pendoylan;
- Pendoylan Road, Village of Clawdd-coch;
- M4, between A4119 roundabout and A473 roundabout.

Road Safety

- 4.4.39 Personal Injury Accident (PIA) data for the previous five-year period (01/01/14 - 31/12/18) has been provided by Welsh Government on a confidential basis with strict controls over its reporting. The study area is between the A4226/B4265/Dragonfly Drive roundabout and the A4050/A4321 roundabout and along Port Road to the west of the Development proposal.
- 4.4.40 The analysis of the PIA's is provided in Chapter 3 of the Transport Assessment attached at **Appendix 4.1**
- 4.4.41 The analysis of the PIA data indicates that there are no common contributory factors of injury accidents which would highlight any potential deficiency in the design of the highway network. Therefore, there no prevailing highway safety issues that need to be addressed within the area of the scope. It is therefore concluded that analysis has shown that there are no existing highway safety issues along the highway network selected for analysis.

Sensitivity of Receptors

- 4.4.42 The sensitive receptors listed in Table 4.8 below have the potential to be affected by effects arising from the development proposal. The assessment in this chapter has considered the effects listed in the table upon the identified sensitive receptors.
- 4.4.43 Receptors to be considered within the impact assessment were selected based upon the access route to be taken by vehicles to the site and the assessment methodology set out above.
- 4.4.44 Table 4.8 highlights the qualification of the sensitivity assessment of each receptor group for the proposals.

Table 4.8: Definitions of Magnitude

Receptor	Sensitivity	Qualification
Port Road, between A4226 roundabout and Tredogan Road roundabout	Low	Road link contains a hotel, caravan park and airport car park on a section of its northern side. There are bus stops on the northern and southern side of the road link at the hotel and airport car park, there is no pedestrian footway provided.
Port Road and Porthkerry Road, between Tredogan Road roundabout and Pentir Y De roundabout	Low	Road link contains a low number of residential properties on its eastern side only that are set back from the carriageway. There is a good standard footway / cycleway on its eastern side.
A4226, between A4226 roundabout and B4265 roundabout	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
B4265, between B4265 roundabout and Llanwit Road	Low	Road link contains a section with a low number of residential properties that are set back from the carriageway on its northern and southern side. There is a good standard footway on its northern

Receptor	Sensitivity	Qualification
		and southern side in the vicinity of the residential properties. Non-signalised crossing for pedestrians is provided.
B4265, between Llantwit Road junction and B4270 roundabout	Low	Road link contains residential properties on its southern side only that are set back from the carriageway and screened. There are two signalised crossings at junctions which have a good standard footway.
B4270, between B4270 roundabout and Sigingstone Road junction	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
B4265, between B4270 roundabout and Wick Road junction	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
Cowbridge Road, between B4270 roundabout and High Street roundabout	High	Road link contains residential properties on its eastern side that are set back from the carriageway and screened. There are also residential properties on its western side which front onto the road link together with a farm access. There are no footways provided for pedestrians.
A4226, between A4226 roundabout and B4266 roundabout	Low	Road link contains a farm on its northern side which is set back from the carriageway and screened. The road link also contains a hotel and public house on its southern side. There are bus stops on either side of the road link at the hotel which connect to bus stops via narrow footways.
B4266, between B4266 roundabout and A4050 roundabout	Low	Road link contains residential properties on its northern and southern sides that are set back from the carriageway. Wide footways are provided to a good standard which connect to bus stop and signalised crossing points are provided.
A4226, between Stirling Road junction and Colcot Road roundabout	High	Road link contains residential properties on its northern side that are set back from the carriageway and screened, together with a supermarket and emergency services station. On its southern side the link contains a school. Footways are provided to a good

Receptor	Sensitivity	Qualification
		standard on the northern and southern sides of the road link, which connect to the bus stops. Signalised crossings are also provided.
A4226, between Colcot Road roundabout and Merthyr Dyfan Road	Medium	Road link contains residential properties on its northern side that are set back from the carriageway, together with a golf course and service station. On its southern side residential properties are set back from the carriageway and screened, together with a school. A good standard of footway provision is provided together with signalised crossings.
A4231, between A4231 roundabout and A4055 roundabout	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
A4050, between A4231 roundabout and Old Port Road roundabout	Low	The village of Wenvoe is located to the west of a section of the road link, with residential properties set back from the carriageway. There is also a school, hotel and garden centre on the link. There is a good standard of footway provision together with a footbridge over the carriageway.
A4050, between Old Port Road roundabout and A48 roundabout	Medium	Road link contains businesses on its western side which are set back from the carriageway and screened. On its eastern side the road link contains a retail park with restaurants and a supermarket. Footways are provided to a good standard, together with signalised crossing points which connect to bus stops. The road link connects to a congested junction.
A4232, between A48 roundabout and A4232 slip road (north of B2467 roundabout)	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
A48, between A48 roundabout and Green Farm Road junction	Medium	The road link contains a cemetery and residential properties which are set back from the carriageway on its northern side. On its southern side residential properties front onto the carriageway together with retail businesses. Footways are provided to a good

Receptor	Sensitivity	Qualification
		standard on the northern and southern sides of the carriageway together with signalised crossings. The road link connects to a congested junction.
A4232, between A48 roundabout and south of M4 roundabout	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
M4, between M4 roundabout and Coryton roundabout	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
M4, between M4 roundabout and A4119 roundabout	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
A4226, between B4266 roundabout and A4226 junction	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.
A48, between A4226 junction and Redway Road junction	Medium	The road link bisects the village of Bonvilston, there are residential properties on its northern and southern sides which are set back from the carriageway. On its northern side there is a public house which fronts onto the carriageway. There are narrow footways provided together with a signalised crossing point.
A48, Village of St Nicholas	Medium	Road link bisects the village of St Nicholas, there are residential properties on the northern and southern sides which are set back from the carriageway. There are narrow footways provided together with a signalised crossing.
A48, between 40mph speed limit sign (west of Copthorne Way junction) and A48 roundabout	Medium	Road link has retail park with restaurants and supermarket set back from the carriageway and screened on its northern and southern sides. A good standard of footway is provided on its northern and southern sides with signalised crossings. The road link connects to a congested junction.
Pendoylan Road, Village of Pendoylan	High	Road link bisects the village of Pendoylan with residential properties set back from the carriageway and

Receptor	Sensitivity	Qualification
		screened on its eastern and western sides. On its eastern side there is a public house and a school. Narrow footways are provided with no crossing points. The western side contains no footway provision at its southern point.
Pendoylan Road, Village of Clawdd-coch	High	Road link bisects the village of Clawdd-coch with residential properties on its eastern and western sides fronting the carriageway. On its eastern side no footway provision is provided and on its western side narrow footways connect to a bus stop, there are no crossings points.
M4, between A4119 roundabout and A473 roundabout	Negligible	Road link does not contain any sensitive receptors as advised by the IEMA Guidelines.

- 4.4.45 On the basis of the above, highway links with descriptions of high or medium sensitivity will be considered against the Rule 2 threshold described above. Other links with descriptions of low or negligible sensitivity will be considered against the Rule 1 threshold.

Future Baseline

Future Assessment Year

- 4.4.46 The traffic survey was undertaken and the DfT traffic data is for 2018 and therefore, the baseline for the development proposal is 2018. The development proposal is expected to begin occupation and therefore operation in 2023 and this has been used as the future assessment year. When fully operational the development proposal will generate approximately 6,400 AADT light vehicles movements and 400 AADT heavy vehicle movements; this is considered to be in excess of the expected construction daily vehicle movements and therefore no assessment of the construction impacts has been undertaken.

Traffic Growth Rates and Committed Development

- 4.4.47 A future year baseline traffic scenario of 2023 has been created by applying traffic growth rates to the observed traffic flows. The local planning authority in their EIA Screening Opinion and subsequent correspondence (**Appendices 1.1 and 1.2**) stated that there were no committed or cumulative developments to be considered in the assessment.
- 4.4.48 Growth rates have been applied to the observed traffic flows using the DfT software TEMPRO to create future 2023 traffic flows. The TEMPRO software presents the output of the DfT's National Trip End Model which forms part of the National Transport Model (NTM). The DfT's Webtag guidance Unit 3.15.2 advises the use of NTM in preference to the National Road Traffic Forecasts (NRTF) as the NTM data is based on a more up-to-date model.
- 4.4.49 It should be noted that growth rates include allowances for background traffic growth as well as development growth and therefore will include allowance for expected development traffic expected to be on the highway network in 2023. Growth rates for the individual authority and South-East Wales were investigated against different road types and the highest value used to

ensure the assessment was robust. The TEMPRO growth rate used is 1.06635 (based on the average of the growth rates for the Vale of Glamorgan and Cardiff areas – Rural Principle road type).

4.5 Predicted Effects

Construction Effects

- 4.5.1 When operational the Development proposal is expected to generate approximately 6,400 AADT light vehicle movements and 400 AADT heavy vehicle movements. Vehicle generation during the construction period is expected to be significantly less than the operational vehicle generation and therefore no assessment of the construction impacts has been undertaken.

Completed Development Effects

Trip Generation

- 4.5.2 The trip generation for the development proposal has been calculated by interrogating the online TRICS database and the methodology and generation is set out in Chapter 7 of the Transport Assessment attached at **Appendix 4.1**. In order to calculate AADT flows it has been assumed that the B1 element would operate 5 days a week with the B2 and B8 elements operating 7 days a week.

Temporal Distribution

- 4.5.3 The development proposal traffic has been temporally distributed throughout the day in accordance with the TRICS profiles shown in Appendix L of the Transport Assessment attached at **Appendix 4.1**.

Trip Distribution and Assignment

- 4.5.4 For the purposes of this assessment, the development proposal traffic has been distributed from the inputs into the strategic VISUM modelling undertaken using the South East Wales Transport Model which has itself assigned the traffic onto the highway network. Details of which are within Chapter 8 and Appendix M of the Transport Assessment attached at **Appendix 4.1**.

Impact of Operational Traffic

- 4.5.5 The assessment has been undertaken to enable an understanding of the typical effects for the operation of the development proposal.
- 4.5.6 In accordance with the IEMA guidelines, the operational traffic flows as attached to the Transport Assessment at **Appendix 4.1** and have been assessed against the 2023 baseline traffic flows. A summary of the assessment is set out in Table 4.9.

Table 4.9: Summary of Daily Impact of Development Proposal Traffic Flows

Receptor		Impact					
		Total Vehicles			HGVs		
Link No.	Link	2023 Base	Dev	%	2023 Base	Dev	%
1	Port Road, between A4226 roundabout and Tredogan Road roundabout	8298	-399	-4.8%	199	24	11.9%

Receptor		Impact					
		Total Vehicles			HGVs		
Link No.	Link	2023 Base	Dev	%	2023 Base	Dev	%
2	Port Road and Porthkerry Road, between Tredogan Road roundabout and Pentir Y De roundabout		-289			0	
3	A4226, between A4226 roundabout and B4265 roundabout	10295	361	3.5%	466	-95	-20.4%
4	B4265, between B4265 roundabout and Llanwit Road	10295	591	5.7%	466	-24	-5.1%
5	B4265, between Llantwit Road junction and B4270 roundabout	9477	721	7.6%	380	-24	-6.3%
6	B4270, between B4270 roundabout and Sigingstone Road junction	11023	260	2.4%	605	24	3.9%
7	B4265, between B4270 roundabout and Wick Road junction	3923	184	4.7%	215	-40	-18.4%
8	Cowbridge Road, between B4270 roundabout and High Street roundabout	4280	-196	-4.6%	10	8	81.6%
9	A4226, between A4226 roundabout and B4266 roundabout	16008	5488	34.3%	362	190	52.5%
10	B4266, between B4266 roundabout and A4050 roundabout	14400	-108	-0.7%	149	71	47.8%
11	A4226, between Stirling Road junction and Colcot Road roundabout	16566	2109	12.7%	477	111	23.3%

Receptor		Impact					
		Total Vehicles			HGVs		
Link No.	Link	2023 Base	Dev	%	2023 Base	Dev	%
12	A4226, between Colcot Road roundabout and Merthyr Dyfan Road	25237	1461	5.8%	608	-24	-3.9%
13	A4231, between A4231 roundabout and A4055 roundabout	19588	172	0.9%	852	-32	-3.7%
14	A4050, between A4231 roundabout and Old Port Road roundabout	31405	639	2.0%	1408	8	0.6%
15	A4050, between Old Port Road roundabout and A48 roundabout	34864	436	1.3%	1562	-32	-2.0%
16	A4232, between A48 roundabout and A4232 slip road (north of B2467 roundabout)	60558	578	1.0%	2164	0	0.0%
17	A48, between A48 roundabout and Green Farm Road junction	21917	337	1.5%	501	16	3.2%
18	A4232, between A48 roundabout and south of M4 roundabout	76120	471	0.6%	3208	24	0.7%
19	M4, between M4 roundabout and Coryton roundabout	107809	224	0.2%	7557	-16	-0.2%
20	M4, between M4 roundabout and A4119 roundabout	115654	237	0.2%	7438	-24	-0.3%
21	A4226, between B4266 roundabout and A4226 junction	7920	1311	16.6%	120	-24	-19.7%

Receptor		Impact					
		Total Vehicles			HGVs		
Link No.	Link	2023 Base	Dev	%	2023 Base	Dev	%
22	A48, between A4226 junction and Redway Road junction	15966	-58	-0.4%	470	55	11.8%
23	A48, Village of St Nicholas	15188	1760	11.6%	310	71	23.0%
24	A48, between 40mph speed limit sign (west of Copthorne Way junction) and A48 roundabout	15188	1707	11.2%	310	71	23.0%
25	Pendoylan Road, Village of Pendoylan	1872	-49	-2.6%	11	16	138.2%
26	Pendoylan Road, Village of Clawdd-coch	1872	-49	-2.6%	11	16	138.2%
27	M4, between A4119 roundabout and A473 roundabout	94253	155	0.2%	6920	0	0.0%

4.5.7 Using the above thresholds and the receptor sensitivity Links 9 and 10 exceed the Rule 1 threshold and Links, 8, 11, 23, 24, 25 and 26 exceed the Rule 2 threshold and assessment has been undertaken below to assess the effect of the Development proposal traffic in detail.

4.5.8 The remaining links are below the relevant threshold for the links due to their receptor sensitivity and in accordance with the IEMA guidelines the development proposal traffic flows will result in imperceptible effects along the adjacent highway.

Link 8 - Cowbridge Road, between B4270 roundabout and High Street roundabout

4.5.9 This link will have a decrease in daily traffic of 196 vehicles (-4.6% impact) and a daily increase of 8 HGVs (+81.6%) impact. Although the HGV percentage increase appears high, this is as a result of the low baseline HGV flows (10 vehicles). This link has been assessed under Rule 2.

4.5.10 **Driver Delay** – the effect of delay to other road users of an additional 8 HGVs would be imperceptible. The Transport Assessment at **Appendix 4.1** undertakes an assessment of the development proposal peak hour traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the junction in the vicinity of this link would be imperceptible to the daily traffic flow fluctuation. As a result, the effect of the development proposal upon receptors on this link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.

4.5.11 **Increased Risk of Accidents** - the increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network

and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible. The effect would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.

- 4.5.12 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. There will be fewer total vehicles on this link and the additional 8 HGVs on a handful of residential properties will not impact on severance. It is therefore considered that the magnitude of impact on severance would be negligible. The effect would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.13 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. The HGV daily increase is 81.6% and therefore is approaching this threshold. However, this increase is due to the low baseline HGV flow and an additional 8 HGVs are not expected to have a significant impact. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible. The effect would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.14 **Pedestrian Delay** – The total number of daily vehicles is predicted to fall by 4.6% with an increase of 8 daily HGV movements. On this basis, it is therefore considered the effect on pedestrian delay as a result of the development proposal will be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.15 **Dust and Dirt** – the additional 8 daily HGV movements will be associated with Class B1, B2 and B8 uses and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and slight adverse ((negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.16 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. With a daily increase of only 8 HGV movements it is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 9 - A4226, between A4226 roundabout and B4266 roundabout

- 4.5.17 This link will have an increase in daily traffic of 5,488 vehicles (+34.3% impact) and a daily increase of 190 HGVs (+52.5%) impact. This link has been assessed under Rule 1.
- 4.5.18 **Driver Delay** - the Transport Assessment at **Appendix 4.1** undertakes an assessment of the Development proposal peak hour traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the Waycock Cross junction in the vicinity of this link would lead to an increased driver delay of 104 seconds in the AM peak hour and 651 seconds in the PM peak hour. During other parts of the day, when base traffic and development traffic are both significantly lower than the levels during the peak hours delay will be less. As a result, the effect of the development proposal upon receptors on this link would be long-term and

slight/moderate adverse (high magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of moderate significance.

- 4.5.19 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows may lead to an increase in minor accidents (i.e. rear shunt at low speeds) and therefore an increase to slight injury accident rates. It is therefore considered that the magnitude of impact of the development proposal on accidents and safety may be low/medium. The effect would therefore be long term and slight adverse (low/medium magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.20 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. However, the link does not route through a community and there are only a very small number of pedestrian crossing movements. It is therefore considered that the magnitude of impact on severance would be negligible. The effect of the development proposal on severance would therefore be long term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.21 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to be 34.3% and for HGV movements 52.5%, which are well below such changes. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect of the development proposal on pedestrian amenity would therefore be long term and slight adverse (negligible to low magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.22 **Pedestrian Delay** – The maximum increase in daily vehicles expected due to the development proposal will be 5,488 on the link. It is generally accepted that peak hour traffic flows equate to approximately 10% of daily traffic flows giving an estimated peak hour increase of 549 vehicles. The increase in traffic movements falls below the 1,400 vehicles per hour as described in the IEMA guidelines. On this basis, it is therefore considered the effect on pedestrian delay as a result of the development proposal would be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.23 **Dust and Dirt** - the additional traffic will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.24 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect of the development proposal on visual effects would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 10 - B4266, between B4266 roundabout and A4050 roundabout

- 4.5.25 This link will have a decrease in daily traffic of 108 vehicles (-0.7% impact) and a daily increase of 71 HGVs (+47.8% impact). This link has been assessed under Rule 1.
- 4.5.26 **Driver Delay** - the Transport Assessment at **Appendix 4.1** undertakes an assessment of the development proposal peak hour traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the Waycock Cross junction in the vicinity of this link would lead to an increased driver delay of 23 seconds in the AM peak hour only with an improvement of 0.49 seconds in the PM peak hour on Pontypridd Road. The impact assessment also shows that this arm of the junction will continue to operate within capacity. During other parts of the day, when base traffic and development traffic are both significantly lower than the levels during the peak hours delay will be less. As a result, the effect of the development proposal upon receptors on this link would be long-term and negligible/slight adverse (low magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.27 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. Overall there is a decrease in traffic with an increase of 71 daily HGV movements. It is not considered that the increase in HGV movements on a highway link subject to a 30mph speed limit will lead to an increase in injury accident rates. . It is therefore considered that the magnitude of impact on accidents and safety would be negligible. The effect of the development proposal would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.28 **Severance** - the IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. There will be fewer total vehicles on this link and the additional 71 daily HGV movements will not impact on severance. It is therefore considered that the magnitude of impact on severance would be negligible. The effect of the development proposal on severance would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.29 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to be -0.7% and for HGV movements 47.85%, which are well below such changes. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible to low. The effect of the development proposal on pedestrian amenity would therefore be long term and negligible/slight adverse (negligible to low magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.30 **Pedestrian Delay** – The total number of daily vehicles is predicted to decrease by 0.7% with an increase of 71 daily HGV movements. On this basis, it is therefore considered the effect on pedestrian delay as a result of the development proposal will be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.31 **Dust and Dirt** - the additional traffic will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and negligible/slight adverse ((negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.

- 4.5.32 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 11 - A4226, between Stirling Road junction and Colcot Road roundabout

- 4.5.33 This link will have an increase in daily traffic of 2,109 vehicles (+12.7% impact) and a daily increase of 111 HGVs (+23.3% impact). This link has been assessed under Rule 2.
- 4.5.34 **Driver Delay** - the Transport Assessment at **Appendix 4.1** undertakes an assessment of the development proposal peak hour traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the Waycock Cross junction in the vicinity of this link would lead to an increased driver delay of 7 seconds in the AM peak hour and 0.28 seconds in the PM peak hour on the A4226 east of the junction. The impact assessment also shows that this arm of the junction will continue to operate within capacity. During other parts of the day, when base traffic and development traffic are both significantly lower than the levels during the peak hours delay will be less. The assessment of the junction at the eastern end of the link shows that the impact of the increased traffic flows would be imperceptible to the daily traffic flow fluctuation. As a result, the effect of the Development proposal upon receptors on this link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.35 **Increased Risk of Accidents** - PIA statistics have been obtained for the highway network for the latest available five year period, an analysis of which is set out above and concludes there are no current road safety issues. The increase in traffic flows may lead to an increase in minor accidents (i.e. rear shunt at low speeds) and therefore an increase to slight injury accident rates. It is therefore considered that the magnitude of impact on accidents and safety may be low. The effect of the development proposal would therefore be long term and negligible/slight adverse (low magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.36 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. Whilst the majority of development is on one side of the link there is a ribbon of development on the opposite side; however, there are two controlled pedestrian formal pedestrian crossings available. It is therefore considered, with the development proposal increasing daily traffic flows by 12.7%, that the magnitude of impact on severance would be negligible. The effect of the development proposal on severance would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.37 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to be 12.7% and for HGV movements 23.3%, which are well below such changes. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible. The effect of the development proposal on pedestrian amenity would therefore be long term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

- 4.5.38 **Pedestrian Delay** – The maximum increase in daily vehicles expected due to the development proposal will be 2,109 on the link. It is generally accepted that peak hour traffic flows equate to approximately 10% of daily traffic flows giving an estimated peak hour increase of 211 vehicles. The increase in traffic movements falls below the 1,400 vehicles per hour as described in the IEMA guidelines. On this basis, it is therefore considered the effect on pedestrian delay as a result of the Development proposal would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 5.3 and 5.4) and thus of minor significance.
- 4.5.39 **Dust and Dirt** - the additional traffic will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.40 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with low sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 23 - A48, Village of St Nicholas

- 4.5.41 This link will have an increase in daily traffic of 1,760 vehicles (+11.6% impact) and a daily increase of 71 HGVs (+23.0% impact). This link has been assessed under Rule 2.
- 4.5.42 **Driver Delay** - the Transport Assessment at **Appendix 4.1** undertakes an assessment of the Development proposal peak hour traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the Sycamore Cross junction in the vicinity of this link would be imperceptible to the daily traffic flow fluctuation. As a result, the effect of the development proposal upon receptors on this link would be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.43 **Increased Risk of Accidents** - the increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible. The effect of the development proposal would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.44 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. Where the link routes through the village of St Nicholas there is development on both sides; however, there is a controlled pedestrian crossing available. It is therefore considered, with the development proposal increasing traffic flows by 11.6%, that the magnitude of impact on severance would be negligible. The effect of the development proposal on severance would therefore be long term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.45 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to be 11.6% and

for HGV movements 23.0%, which are well below such changes. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible. The effect of the development proposal on pedestrian amenity would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

- 4.5.46 **Pedestrian Delay** – The maximum increase in daily vehicles expected due to the Development proposal will be 1,760 on the link. It is generally accepted that peak hour traffic flows equate to approximately 10% of daily traffic flows giving an estimated peak hour increase of 176 vehicles. The increase in traffic movements falls below the 1,400 vehicles per hour as described in the IEMA guidelines. On this basis, it is therefore considered the effect on pedestrian delay as a result of the Development proposal would be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.47 **Dust and Dirt** - the additional traffic will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.48 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect of the development proposal would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 24 - A48, between 40mph speed limit sign (west of Copthorne Way junction) and A48 roundabout

- 4.5.49 This link will have an increase in daily traffic of 1,707 vehicles (+11.6% impact) and a daily increase of 71 HGVs (+23.0% impact). This link has been assessed under Rule 2.
- 4.5.50 **Driver Delay** - the Transport Assessment at **Appendix 4.1** undertakes an assessment of the development proposal peak hour traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the Culverhouse Cross junction in the vicinity of this link would be imperceptible to the daily traffic flow fluctuation. As a result, the effect of the development proposal upon receptors on this link would be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.51 **Increased Risk of Accidents** - the increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible. The effect of the development proposal would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.52 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. It is therefore considered, with the development proposal increasing traffic flows by 11.2%, that the magnitude of impact on severance would be negligible. The effect of the development proposal

would therefore be long term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

- 4.5.53 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. Daily increases in total vehicle movements are predicted to be 11.2% and for HGV movements 23.0%, which are well below such changes. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible. The effect would therefore be negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.
- 4.5.54 **Pedestrian Delay** – The maximum increase in daily vehicles expected due to the development proposal will be 1,707 on the link. It is generally accepted that peak hour traffic flows equate to approximately 10% of daily traffic flows giving an estimated peak hour increase of 171 vehicles. The increase in traffic movements falls below the 1,400 vehicles per hour as described in the IEMA guidelines. On this basis, it is therefore considered the effect on pedestrian delay as a result of the development proposal would be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.55 **Dust and Dirt** - the additional traffic will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.56 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. It is therefore considered that the magnitude of impact on visual effects would be negligible. The effect of the development proposal would therefore be long-term and negligible/slight adverse (negligible magnitude of impact with medium sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 25 - Pendoylan Road, Village of Pendoylan

- 4.5.57 This link will have a decrease in daily traffic of 49 vehicles (-2.6% impact) and a daily increase of 16 HGVs (+138.2% impact). Although the HGV percentage increase appears high, this is as a result of the low baseline HGV flows (11 vehicles). This link has been assessed under Rule 2.
- 4.5.58 **Driver Delay** – the effect of delay to other road users of an additional 16 daily HGV movements would be imperceptible. The Transport Assessment at **Appendix 4.1** undertakes an assessment of the development proposal traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the junction in the vicinity of this link would be imperceptible to the daily traffic flow fluctuation. As a result, the effect of the development proposal upon receptors on this link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.59 **Increased Risk of Accidents** - the increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is therefore considered that the magnitude of impact on accidents and safety would be negligible. The effect of the development proposal would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.

- 4.5.60 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. There will be fewer total vehicles on this link and the additional 16 HGVs at Pendoylan village will not impact on severance. It is therefore considered that the magnitude of impact on severance would be negligible. The effect of the development proposal on severance would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.61 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. The HGV daily increase is 138.2% and therefore meets this threshold. However, this increase is due to the low baseline HGV flow and only an additional 16 daily HGV movements are not expected to have a significant impact. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible. The effect of the development proposal on pedestrian amenity would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.62 **Pedestrian delay** – The total number of daily vehicles is predicted to fall by 2.6% with an increase of 16 daily HGV movements. On this basis, it is therefore considered the effect on pedestrian delay as a result of the development proposal will be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.63 **Dust and Dirt** – the additional 16 daily HGV movements will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.64 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. With a daily increase of only 8 HGV movements it is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Link 26 - Pendoylan Road, Village of Clawdd-coch

- 4.5.65 This link will have a decrease in daily traffic of 49 vehicles (-2.6% impact) and a daily increase of 16 HGVs (+138.2% impact). Although the HGV percentage increase appears high, this is as a result of the low baseline HGV flows (11 vehicles). This link has been assessed under Rule 2.
- 4.5.66 **Driver Delay** – the effect of delay to other road users of an additional 16 daily HGV movements would be imperceptible. The Transport Assessment at **Appendix 4.1** undertakes an assessment of the development proposal traffic on key junctions on the highway network and concludes that the impact of the increased traffic flows at the junction in the vicinity of this link would be imperceptible to the daily traffic flow fluctuation. As a result, the effect of the development proposal upon receptors on this link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.67 **Increased Risk of Accidents** - the increase in traffic flows would be similar to those which are already on the network. There would be no significant change in the character of the network and therefore it is considered that the proposals would not alter the injury accident rate. It is

therefore considered that the magnitude of impact on accidents and safety would be negligible. The effect of the development proposal would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.

- 4.5.68 **Severance** - The IEMA guidelines indicate that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively. There will be fewer total vehicles on this link which has very little development and the additional 16 HGVs will not impact on severance. It is therefore considered that the magnitude of impact on severance would be negligible. The effect of the development proposal on severance would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.69 **Pedestrian Amenity** - the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled. The HGV daily increase is 138.2% and therefore meets this threshold. However, this increase is due to the low baseline HGV flow and only an additional 16 daily HGV movements are not expected to have a significant impact. It is therefore considered that the magnitude of impact on pedestrian amenity would be negligible. The effect of the development proposal would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.70 **Pedestrian delay** – The total number of daily vehicles is predicted to fall by 2.6% with an increase of 16 daily HGV movements. On this basis, it is therefore considered the effect on pedestrian delay as a result of the development proposal will be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.71 **Dust and Dirt** – the additional 16 daily HGV movements will be associated with B1, B2 and B8 Use Classes and as all roads and car parking will be constructed to the relevant highway design standards and will be hard surfaced are not expected to distribute dust and dirt on the local road network. It is therefore considered the dust and dirt effect as a result of the development proposal on receptors on the link would be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.
- 4.5.72 **Visual Effects** - The IEMA guidelines set out that the number of high sided vehicles (HGVs) may have an intrusive impact in areas of scenic beauty and in historic or conservation areas. It acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect. This link is not located in such locations and there are already HGVs travelling along it. With a daily increase of only 8 HGV movements it is therefore considered that the magnitude of impact on visual effects would be negligible. The effect would therefore be long-term and slight adverse (negligible magnitude of impact with high sensitivity as set out in Tables 4.3 and Table 4.4) and thus of minor significance.

Summary

- 4.5.73 The effect of the development proposal operational flows is predicted not to have any significant effect on the majority of criteria for all links.
- 4.5.74 The exception to this is that it is predicted that the development proposal will have a moderate significant effect on driver delay on Link 9. The delay has been identified from the operational assessments undertaken and reported in the Transport Assessment attached at **Appendix 4.1** of the Waycock Cross roundabout junction.

Mitigation

- 4.5.75 The development proposal will reduce traffic impact through the delivery of a strong Travel Plan which will promote sustainable travel and a Car Parking Management Plan which will limit the provision of parking for staff at the site.
- 4.5.76 The development proposal will provide walking and cycling links to the existing infrastructure and provide a spine road that enables public transport penetration.
- 4.5.77 An improvement scheme at Waycock Cross roundabout to reduce delay and its delivery will be discussed with the Vale of Glamorgan Council and 3rd party landowners.

Residual Effects

- 4.5.78 An improvement scheme at Waycock Roundabout will reduce the effect of the development proposal upon receptors on Link 9. The expected effect of the improvement scheme would be long-term and negligible/slight adverse (low magnitude of impact with low sensitivity as set out in Tables 4.3 and 4.4) and thus of minor significance.

Cumulative Effects

- 4.5.79 The local planning authority, in their EIA screening opinion stated that there were no committed or cumulative developments to be considered in the assessment. Therefore, no cumulative assessment has been undertaken.

Summary

- 4.5.80 This chapter has assessed the likely significant traffic and transport effects resulting from the development proposal. Assessments have been undertaken using current guidance documents and best practice and baseline conditions have been established through industry standard methods.
- 4.5.81 The assessment predicts that with the exception of a moderate significant effect on driver delay on Link 9 that the development proposal would result in effects that are not significant.
- 4.5.82 Mitigation for the moderate significant effect on driver delay on Link 9 would result in a residual effect of negligible/slight adverse.

Parc Busnes Porth Cymru

Port Road, Rhose



Environmental Statement

Chapter 5 – Landscape and Visual Character

July 2019

5 LANDSCAPE AND VISUAL CHARACTER

5.1 Introduction

- 5.1.1 This chapter of the ES presents the results of the Environmental Impact Assessment (EIA) for the potential landscape and visual impacts that would result from the development proposal.
- 5.1.2 It is intended that the ES will provide statutory and non-statutory consultees with sufficient information to determine the potential significant impacts of the development proposal on the receiving environment and will inform the issue of appropriate planning consent by the local authorities. It will also inform any consent conditions.
- 5.1.3 In particular, this ES chapter:
- Presents the existing environmental baseline established from desk studies, and consultation;
 - Presents the potential environmental effects of the landscape and visual impacts arising from the development proposal, based on the information gathered and the analysis and assessments undertaken;
 - Presents the potential environmental effects on the visual amenity of the study area and from the selected viewpoints including changes to the composition of views and the perception and response by receptor groups to these changes;
 - Identifies any assumptions and limitations encountered in compiling the environmental information; and
 - Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.
- 5.1.4 The site, hereafter referred to in this report as the 'application site', is centred on National Grid Reference (NGR) ST 307787 (E), 167506 (N) approximately 1.6km to the northwest of Barry, approximately 1.2km to the north-east of Rhooose and approximately 0.7km east of Tredogan. It lies with the administrative boundary of the Vale of Glamorgan Council (VoGC). Cardiff Airport lies adjacent and immediately to the west. Cardiff is approximately 12 km to the north-east of the application site.
- 5.1.5 A plan showing the location of the application site and its context are shown in the Site Location Plan in **Figure 5.1**.
- 5.1.6 This report considers the effects on:
- Landscape elements and features;
 - Landscape character; and
 - Visual amenity.
- 5.1.7 A detailed methodology is provided in **Appendix 5.1**.
- 5.1.8 This chapter provides an overview of the application site within the landscape and visual context of the surrounding area and sets out the planning context of the application site with reference to landscape issues. The existing baseline landscape features and landscape character, which together make up the landscape resource, are described and reference is made to published landscape character studies and any relevant landscape designations. The current visibility of the application site from selected representative viewpoints in the surrounding landscape is also assessed.

- 5.1.9 A description of the development proposal is provided and the potential effects on the landscape resource and the visual environment are identified. Mitigation measures, which form an integral part of the development proposal, are also described together with how these measures are likely to prevent, reduce or offset any perceived adverse effects. The Indicative Concept Masterplan provided at **Figure 2.6** provides further detail of mitigation.
- 5.1.10 Landscape effects refer to changes arising from the development proposal on the physical elements that make up the landscape and which influence its character. These, together, form the landscape resource. Visual effects refer to the changes to existing views available from representative Viewpoints within the landscape surrounding the application site.
- 5.1.11 An assessment has been made of the effects of the development proposal on the visual environment during the first winter following completion of the development (Year 1) and for the summer 10 years after completion of the development (Year 10).

Consultation

- 5.1.12 The Landscape and Visual Assessment (LVA) and this chapter has been prepared in consultation with the Landscape Officer at the Vale of Glamorgan Council, within which the application site lies.

5.2 Methodology and Assessment Criteria

Relevant Guidance

- 5.2.1 This chapter has been prepared with regard to best practice as described in the documents below:
- Guidelines for Landscape and Visual Impact Assessment, Third Edition Landscape Institute and the Institute of Environmental Management and Assessment GLVIA3, (2013);
 - GLVIA3 Statement of Clarification 1/13;
 - An Approach to Landscape Character Assessment, Natural England (2014);
 - Photography and Photomontage in Landscape and Visual Impact Assessment Advice Note 01/11, Landscape Institute (2011); and
 - Planning Policy Wales LANDMAP Guidance Note 1: LANDMAP and Special Landscape Areas (2016) and
 - Planning Policy Wales LANDMAP Guidance Note 3: (2013).
- 5.2.2 The Guidelines for Landscape and Visual Impact Assessment (GLVIA3) are broad guidelines rather than detailed prescriptive methodologies. The methodologies tailored for the assessment of the development proposal are based on GLVIA3 guidance and are presented in detail at **Appendix 5.1** and summarised below.
- 5.2.3 Landscape and visual studies provide an analysis of the physical and perceptual attributes of an area. The assessment of landscape issues relates to the potential effect of development on the landscape resource, which encompasses landscape character, quality and distinctive features, including topography, drainage, vegetation and built features, whereas the study of visual constraints is concerned with the potential effect on views and visual amenity.
- 5.2.4 The analysis of visual constraints includes the identification of important views towards the application site, which are generally from a range of visual receptors, both public (highways and public rights of way) and private (residential properties and places of employment). Visual receptors are of varying sensitivity to change, with views from the ground floors of private residences generally accepted as being more sensitive to change than those from highways or

places of work where attention is focussed elsewhere. Public rights of way through rural areas with attractive landscapes, which are used for recreational purposes, are also usually accepted as being of high sensitivity to change.

Landscape Assessment Methodology

- 5.2.5 The landscape assessment combines the results of both an objective and subjective appraisal of the landscape. This appraisal consisted of three stages including a desk study, a field survey and an analysis of the likely effects resulting from the development proposal in the light of these studies.
- 5.2.6 The study area for the assessment extends to a radial distance of 5km from the application site boundary. Whilst there may be the potential for effects of the development proposal to extend beyond this limit, it is considered that the visual perception of the development proposal within the landscape is likely diminish with ever increasing distance and the development proposal, where visible, would be seen as an increasingly smaller component of the wider composite view.

Desk Study

- 5.2.7 The desk study involved an examination of 1:25,000 scale Ordnance Survey maps and aerial photographs to establish the general context of the study area. This was followed by an analysis of relevant documentation (reports, development plans, assessments, government guidance etc.) to clarify the landscape and planning context. This was followed by an analysis of relevant documentation (reports, development plans, assessments, government guidance etc.) to clarify the landscape and planning context.

Fieldwork

- 5.2.8 Fieldwork involved a visual survey of the application site and the surrounding area to assess its character and identify key landscape elements and features. To inform the EIA, site specific surveys were undertaken within the environs of the application site to record the character and identify key landscape features and visual analysis as per the methodology in GLVIA3. A summary of the surveys undertaken to inform the landscape and visual assessment is outlined in Table 5.1 below with the viewpoints visited listed in Table 5.2.

Table 5.1: Summary of site-specific survey data.

Title	Extent of survey	Overview of survey	Survey contractor	Date	Reference to further information
Landscape and visual survey	Barry to the east, Llancarfan to the north, Rhoose to the west and shoreline at Porthkerry Park to the south.	Environs and shore-based survey along the long-range Wales coastal path and the local network of public rights of way and public highways relating to the application site.	N/A	03 rd May 2019, 04 th June 2019 and 26 th June 2019.	N/A

Analysis

- 5.2.9 Based on the findings of the desk study and field survey, distinctive elements in the landscape, the pattern of their arrangement and dominant features were identified and the existing character and quality of the affected landscape described.
- 5.2.10 An assessment was then made of the degree of change to various landscape components or elements and the overall landscape character that would result from the development proposal and the nature of any potential effects was assessed.
- 5.2.11 Effects on the landscape can be defined as the relationship between the sensitivity of the landscape receptor and the magnitude of any change which the proposals would create. Effects may be adverse, beneficial or neutral in nature.

Visual Assessment Methodology

- 5.2.12 An assessment has been undertaken to determine the degree of visual effect of the development proposal upon visual receptors in the surrounding landscape.

Desk Study

- 5.2.13 In order to help determine the extent of the study area for a landscape and visual assessment, a computer generated Zone of Theoretical Visibility (ZTV) is frequently used. Preparation of a ZTV is recommended in GLVIA3 which states: “it makes clear that the area so defined only shows land from which the proposal may theoretically be visible” (para. 6.8, p.103).
- 5.2.14 The ZTV Plan (**Figure 5.2**) shows areas from which the development proposal may be visible. The ZTV takes account for the screening effects of existing significant vegetation blocks (modelled at 12m) and built form (modelled at 9m), uses an assumed observer height of 1.5m. Five origin points have been used to represent the parameters of the development proposal. Landform data was taken from OS Terrain 5 mapping, using point data across the application site. The range of proposed building heights (between 8m – 16m) for building plots is listed on **Figure 5.2**.
- 5.2.15 A 5km radius has been selected for the extent of the study area used for this assessment which is considered to be consistent with GLVIA3 guidelines which refer to a “need for an approach that is in proportion to the scale of the project that is being assessed and the nature of the likely effects. Judgement needs to be exercised at all stages in terms of the scale of investigation that is appropriate and proportional.”
- 5.2.16 Visual receptors include the public or community at large and residents and visitors to an area. Viewpoints looking towards the development proposal have been selected from varying distances and directions to represent these visual receptors. These include views from the Public Rights of Way (PRoW) and areas of Access Land, highways, places of recreation and other potentially important areas including Scheduled Ancient Monuments.
- 5.2.17 Ten Representative Viewpoints were put forward to the Landscape Officer at the Council in early June 2019, and a further 12 additional viewpoints were proposed by them for assessment as follows:
 - Valeways Millennium Trail (Promoted Route).
 - Porthkerry Country Park (Important visitor area).
 - Wales Coast Path (Promoted Route) / Porthkerry village (Conservation Area).
 - Ceri Road (Open Space and Public Right of Way).
 - The Knap (listed park) and promenade (Important visitor area).
 - Whitmore Bay: Friars Point (Important visitor area).

- Whitmore Bay: Nells Point (Important visitor area).
- Valeways Millennium Trail Llancarfan (Promoted Route) Register of Outstanding Historic Landscapes in Wales) (SLA).
- Llanbethery (Conservation Area) (SLA)
- Moulton (Public Right of Way) (SLA)
- Moulton Roman Site (Scheduled Ancient Monument) (SLA)
- Church Hill Wood (Public Right of Way) (SLA)

Fieldwork

- 5.2.18 The provisional identification of representative Viewpoints was refined by subsequent fieldwork, at which stage visual receptors identified from the desk study together with the viewpoints put forward by the Landscape Officer were visited and either confirmed or omitted. These Viewpoints included those from highways and public rights of way. Existing views from a representative number of these locations were recorded photographically (see **Figure 5.2** for Viewpoint locations).
- 5.2.19 Baseline photographs were taken at eye level from the representative viewpoints, using a digital SLR camera with an f1.4 50mm fixed focal length lens in 35mm film format in accordance with Landscape Institute guidelines. The representative Viewpoints are shown in **Figures 5.3a – 5.3p** of the ES and a description of each representative Viewpoint has been provided in section 5.8. Four of the viewpoints were selected for representative computer generated images of the development proposal (shown on **Figures 5.4a – 5.4d**). A summary of the viewpoints is shown in Table 5.2 below.

Analysis

- 5.2.20 The existing views were then compared with those that would result if the development proposal was to be constructed. The comparative changes in the views have been assessed for the winter of the first year following completion of the development proposal and then for the anticipated views of the development proposal in the summer months 10 years after construction.

Limitations of the Landscape and Visual Assessments

- 5.2.21 The visual assessment has been based on analysis of OS mapping of the application site and the surrounding area and on a field survey of views towards the application site from publicly accessible viewpoints in the surrounding landscape. Although every effort has been made to include viewpoints in sensitive locations and locations from which the development would be most visible, not all public viewpoints from which the development would be seen have necessarily been included in the assessment.
- 5.2.22 The visual assessment and associated field work has been carried out during late Spring/early Summer 2019 with near full foliage on deciduous trees and hedgerows. Views towards the development proposal may increase during the winter months with the absence of foliage on trees and hedgerows and conversely decrease during the summer months with trees and hedgerows in full leaf. Given the timing of the field work, professional judgement has been used to anticipate the likely visibility of the proposed development during the winter months.
- 5.2.23 With the exception of the application site itself, no access to private land or property was obtained during the course of the assessment.

Table 5.2: Viewpoints.

View Point	View Point Orientation	View Point Description	Selected for Representative Computer Generated Image
VP1	Layby on Porth Road	Looking south west at a distance of 369m from the nearest site boundary at contour 77 AOD.	
VP2	Junction of Porth Road and PRoW P4/17/1	Looking south west at a distance of 153m from the nearest site boundary at contour 73 AOD.	YES
VP2a	Along PRoW P4/17/1	Looking west at a distance of 107m from the nearest site boundary at contour 70 AOD.	
VP3	Junction of Porth Road and Blackton Lane	Looking south east at a distance of 10m from the nearest site boundary at contour 60 AOD.	YES
VP4	Near junction of Port Road and Porthkerry Road	Looking south east at a distance of 100m from the nearest site boundary at contour 60 AOD.	
VP5	View from Porthkerry Road	Looking east at a distance of 5m from the nearest site boundary at contour 60 AOD.	
VP6	Junction of un-named lane and Porthkerry Road	Looking north east at a distance of 200m from the nearest site boundary at contour 60 AOD.	
VP7	Junction of Porthkerry Road and end of runway	Looking north at a distance of 501m from the nearest site boundary at contour 60 AOD.	YES
VP8	Along PRoW P4-20-1 from West Ridge	Looking north west at a distance of 507m from the nearest site boundary at contour 74 AOD.	YES
VP9	Cold Knap Point, Barry	Looking north west at a distance of 2680m from the nearest site boundary at contour 15 AOD.	
VP10	Friars Point, Whitmore Bay, Barry	Looking north west at a distance of 3451m from the nearest site boundary at contour 15 AOD.	
VP11	Wales Coast Path, Neil's Point, Whitmore Bay, Barry	Looking north west at a distance of 3952m from the nearest site boundary at contour 25 AOD.	
VP12	Public Road, Moulton	Looking south at a distance of 2140m from the nearest site boundary at contour 71 AOD.	
VP13	Valeways Millennium Heritage Trail near Llanbethery	Valeways Millennium Heritage Trail near Llanbethery	
VP 14	Valeways Millennium Heritage Trail near Font-y-gary	A very brief of glimpse of the new built development may be visible above the airport runway through the airport boundary fencing.	
VP 15	Ceri Road near recreation area	Looking east at a distance of 739m from the nearest site boundary at contour 65 AOD.	

5.3 Baseline Conditions

Landscape Baseline

- 5.3.1 The aim of the baseline study is to describe the individual components of the physical landscape which are present on-site and within the study area and to provide an understanding of how the landscape's constituent elements including its character, its spatial variation, geographic extent, condition and the way in which the landscape is experienced and the value attached to it may be effected by the development proposal.
- 5.3.2 The application site is centred on National Grid Reference (NGR) ST 307787 (E), 167506 (N) approximately 1.6km to the northwest of Barry, approximately 1.2km to the north east of Rhoose

and approximately 0.7km east of Tredogan. Cardiff Airport lies adjacent and immediately to the west. Cardiff is approximately 12 km to the north east of the application site.

- 5.3.3 The application site makes up part of the 'Gateway Development Zone' of the 'St Athan – Cardiff Airport Enterprise Zone' and is c.87ha. It is located on a gently sloping site which falls from the north east at 70m AOD to between 50 and 55m on the southern boundary of the application site.
- 5.3.4 The application site comprises irregular shaped arable and pasture fields bounded by predominantly low hedgerows with occasional hedgerow trees. There are blocks of small woodland and small wooded valleys of Whitelands Brook and Bullhouse Brook to the south running down to Porthkerry Country Park.
- 5.3.5 The infrastructure of Cardiff Airport dominates the landscape and lies immediately to the west of the application site. A hotel is located at the junction of Porthkerry Road on the western boundary of the application site and Port Road which forms the northern boundary. There are no high voltage overhead power lines on the application site.

Description of Surrounding Area

Landscape Designations

- 5.3.6 The application site does not form part of any statutory landscape designations. There are no nationally designated landscapes within the study area.
- 5.3.7 The application site is situated less than 100m south of the locally designated and non-statutory Nant Llancarfan Special Landscape Area at its closest point in the northeast of the site. Porthkerry Country Park which is also locally designated as a Green Wedge in the LDP forms most of the southern boundary of the application site. A Landscape Designation Plan is provided in **Figure 5.5**.

Settlements and Built Form

- 5.3.8 The nearest settlements to the application site are:
 - Barry (approximately 1.6km to the east);
 - Rhoose (approximately 1.2km to the south west);
 - Tredogan (approximately 0.7km to the north west).
- 5.3.9 Distances are taken from the centre of the application site to the closest edge of the settlement.
- 5.3.10 There are a small number of individual farm complexes and private residences within the surrounding area. These include:
 - Model Farm (within the application site located off port Road);
 - Blackton Farm (approximately 0.8km from the northern boundary of the application site);
 - Welford (immediately north of Port Road on the northern boundary of the application site);
 - Cwm-cidy Farm (0.95km to the east of the application site);
 - Properties associated with Upper and Lower Porthkerry Farm complex including the Old Rectory at Lower Porthkerry (approximately 0.35km from the southern boundary of the application site)

Listed Buildings and Conservation Areas

- 5.3.11 The Conservation Areas within the Study Area are shown in **Figure 5.5**.
 - Porthkerry Conservation Area (approximately 0.65km from the southern boundary of the application site).

- Barry Garden Conservation Area (approximately 1.25km from the south east boundary of the application site).
- Rhoose Conservation Area (approximately 1.05km from the western boundary of the application site).
- Penmark Conservation area (approximately 1.7km north west from Port Road on the northern boundary of the application site).
- Llancarfan Conservation area (approximately 3.12km north west from Port Road on the northern boundary of the application site).

5.3.12 Listed Buildings are shown on the Historic Designation Plan in **Figure 5.6**. There are a number of listed buildings in the study area. These are generally located in clusters associated with the Conservation Areas listed above. There are some which fall outside the Conservation Areas and may have potential inter-visibility with the development proposal noted below:

- 4 Grade II listed buildings associated with Cwm-cidy Farm (0.95km to the east of the application site);
- 2 Grade II listed buildings associated with Lower Porthkerry Farm (approximately 0.01km from the south western corner of the application site);
- Grade II listed Porthkerry viaduct (approximately 0.65km from the southern boundary of the application site);
- Grade I Listed Fonmon Castle and associated Grade II listed structures – (approximately 2.7km from the western boundary of the application site);
- 3 Grade II listed buildings in Fonmon approximately 2.6km from the western boundary of the application site);

Scheduled Ancient Monuments (SAMs)

5.3.13 There are a number of SAMs in the study area which may have potential views of the application site. These include:

- The Bulwarks Camp (approximately 0.88km from southern boundary of the application site);
- Site of Medieval Mills and Leat at Cliffwood (approximately 0.48km from southern boundary of the application site);
- Westward Corner Round Barrow (approximately 0.7km from southern boundary of the application site);
- Moulton Roman Site (approximately 1.8km from northern boundary of the application site);
- Penmark Castle (approximately 2km from north west corner / boundary of the application site);
- Castle Ditches near Llancarfan (approximately 2.85km from northern boundary of the application site);
- Walterston ringwork (approximately 3.5km from northern boundary of the application site);
- Highlight Church Remains (approximately 2.4km from the north east corner of the application site);

Public Highways

5.3.14 Port Road forms the northern boundary to the application site and joins the A4226 to the east of Model Farm. This trunk road runs east to west connects Barry with St Athan. Port Road runs

along the eastern boundary of Cardiff Airport where it meets a minor road to Porthkerry Country Park. Port Road continues west to Rhooose.

- 5.3.15 The A4226 is the major A road in the study area and also runs northwards at the roundabout junction with the B4266 which in turn runs south to Barry.
- 5.3.16 There are local roads off the A4226 which serve the small villages within the study area such as Moulton, Penmark and Llancarfan.

Rail

- 5.3.17 The coastline railway connects Barry with Rhooose and is less than 0.7km away from the application site at its closest point near Porthkerry Viaduct.

Topography

- 5.3.18 The application site is located on gently sloping land 70 to 50m AoD which faces south towards the coast which is less than 1.2km away at its closest point. The surrounding landscape is classified as rolling lowland in the Visual and Sensory Aspect Area with wooded lowland valleys to the south. The east to west valley associated with the River Waycock approximately 0.9km to the north. However, the land generally rises travelling north of the application site to approximately 90m AoD near Whitton Rosser Farm close to the northern boundary of the Study Area. To the north-east of the Study Area the land in the Open Lowland Valleys is generally lower lying than the application site.

Trees, Woodland and Hedgerows

- 5.3.19 The study area is classed predominantly as a 'Mosaic' landscape in the Habitats Aspect Area LANDMAP classification, indicating a mix of woodland arable and pasture farmland.
- 5.3.20 Notable areas of small woodland in the area immediately south of the application site tend to be confined to valley edges and watercourses such as in Bullhouse Brook valley. An area of predominantly mixed woodland is located in Porthkerry Country Park where the railway runs. Fragmented pockets of deciduous woodland are located along the River Waycock Valley and include Churchill Wood.
- 5.3.21 Immediately north of the A4226 but south of the Waycock Valley are two blocks of predominantly deciduous woodland Welford (140m²) and Middleton Woods (220m²). There are small woodland blocks set with farmland scattered throughout the study area.
- 5.3.22 Field boundaries are generally formed from mature hedgerows often with trees. Low hedgerows are locally present on the application site; however, those associated with the A4226 to the north of the application site are generally thicker and taller. Further north the hedgerows are frequently well treed and mature.

Public Rights of Way (PRoW) and Public Access

- 5.3.23 The study area contains numerous PRoW footpaths but very few bridleways. The PRoW footpaths are distributed particularly on its western side associated with Lancarfan and within and around Porthkerry Country Park.
- 5.3.24 The application site has one PRoW footpath P4/17/1 which runs on its eastern side boundary, southwards from Port Road to Lower Porthkerry. There is a Restricted Byway which continues southwards from here to Porthkerry church south of the railway and eventually links with the Wales Coastal Path.
- 5.3.25 The closest PRoW outside the application boundary are:
 - Public footpath P4/14b/1 - running northwards and across the A4226 to Blackton Farm, 295m to the north of the application site at its closest point;

- The closest Public footpath to the application site in Porthkerry Country Park and north of the railway line include B1/28/1, P4/20/1, B1/26/1, all within 1km of the boundary of the application site.
- Cardiff Airport has severed several PRow, but there are several connecting Rhoses with the Wales Coastal Path, including: P7/2/1, P4/1/2 and P4/3/1 860m, 1.6km and 2.5km away from the application site respectively.
- The Wales Coastal Path follows the coastline to the south of the application site.

5.3.26 There are no areas of Open Access Land within the application site.

Watercourses and Waterbodies

- 5.3.27 The application site is drained by a number of minor water courses including the Whitelands Brook and the Bullhouse Brook. There are also a number of springs, and a well, located within the application site boundary. These minor watercourses follow the topography of the application site to converge and flow towards the southeast of the study area, and eventually discharge beneath a railway viaduct, located off the south-east corner of the site.
- 5.3.28 Major watercourses within the study area reflect the topography of the surrounding landscape. The majority of the major watercourses flow southwest towards Llancatal and Burton, before converging on the western edge of the study area and eventually discharging into the Bristol Channel.
- 5.3.29 The River Waycock (flowing from east to west) passes through the study area at an approximate distance of 860m from the application site. The Moulton Brook flows from east to west through the centre of the study area approximately 2.4km north of the application site. The Ford Brook (flows from east to west) passes to the north of the application site at an approximate distance of 3.0km.
- 5.3.30 The River Waycock, Ford Brook and the Moulton Brook all eventually discharge into the Nant Llancarfan approximately 3.2km north west of the application site. The Nant Llancarfan aligns to the northwest of the study area, passing through Llancarfan approximately 3.9km north-west of the application site. The Nant Llancarfan flows from north to south, eventually discharging into the Kenson River (located approximately 2.9km west of the application site).
- 5.3.31 The Kenson River looks to flow from east to west and discharge into the River Thaw. The River Thaw extends along the southwest study area boundary and is located approximately 4.0 km west of the application site. The River Thaw eventually discharges into the Bristol Channel. The edge of the Bristol Channel is noted approximately 682m south of the application site.
- 5.3.32 The land surrounding the application site to the south contains a numerous drainage ditches, springs and minor watercourses that issue on areas of higher ground and drain into the major river systems.
- 5.3.33 There are numerous static waterbodies in the study area. Barry Docks are located approximately 2.6km to the east of the application site boundary. A number of ponds appear to have been created as a result of depressions in the landscape created by former quarries. These are located approximately 3.0 km west and south-west of the application site.
- 5.3.34 A number of small tidal ponds are located towards the southern and south-western extremities of the Bristol Channel shore line (approximately 3.5 km west of the application site). A number of ponds associated with Goldsland Brook are located approximately 3.0km north east of the application site.

Recreation

- 5.3.35 Porthkerry Country Park is located approximately 540m east of the application site. The Park contains numerous public footpaths and an Ordinary watercourse (Nant Talwg).

- 5.3.36 Cliff Wood (Golden Stairs) is a designated Local Nature Reserve (LNR) and Site of Special Scientific Interest (SSSI) that is located approximately 0.3km south east of the application site. This SSSI and LNR is connected to the Wales Coast Path via a public footpath. The Wales Coastal Path follows the coastline to the south of the application site.
- 5.3.37 Fferm Walters SSSI is located approximately 1.2km north east of the application site and contains a zoological garden and areas of woodland.
- 5.3.38 Barry Island SSSI is also intersected by the Wales Coast Path. Barry Island is located approximately 2.2 km south east of the application site and appears to include a carpark, play facilities and a tourist railway.
- 5.3.39 Fonmon Castle is located approximately 2.6km west of the application site and forms an area of public interest.
- 5.3.40 The East Aberthaw Coast SSSI (located approximately 2.8km south west of the application site) appears to be intersected by the Wales Coast Path.
- 5.3.41 Nant Whitton Woodlands is a designated SSSI and Local Nature reserve located approximately 3.9km north west of the application site. Public footpaths dissect the Nant Whitton Woodlands providing access to the wider site area.

LANDMAP Aspect Areas

- 5.3.42 LANDMAP is the formally adopted methodology for landscape assessment and is advocated by Planning Policy Wales (PPW), is promoted by the Countryside Council for Wales (CCW) and is considered to be a “whole” landscape approach that covers all landscapes, designated and non-designated in Wales.
- 5.3.43 LANDMAP separates each character area into nationally consistent data sets into the following five categories (Aspects):
- Geological Landscape;
 - Landscape Habitats;
 - Visual and Sensory Landscape;
 - Historic Landscape; and
 - Cultural Landscape.

Each category is provided with an evaluation level as follows:

Evaluation	Definition
Outstanding	Of national importance
High	Of regional or county importance to the aspect
Moderate	Of local importance to the aspect
Low	Of little or no importance to the aspect
Unknown	Insufficient information exists to evaluate the area

Refer to LANDMAP Aspect Area Plans in **Figures 5.7a – 5.7g**.

- 5.3.44 A summary of each LANDMAP Aspect Area and description covering the site are provided in Table 5.3 below:

Table 5.3 LANDMAP Aspect Areas

Aspect type	Area ID	Area name	Classification	Evaluation Value
Geological Landscape	VLFGGL962	Barry-Rhose	Lowland hills and valleys	High
Landscape Habitat	VLFGLLH840	Rhose-Moulton	Mosaic	Moderate
Visual and Sensory	VLFGVLS641 (southern and eastern part)	Rhose Hinterland	Mosaic Rolling Lowland	Moderate
Historic Landscape	VLFGHL030 (southern and eastern part)	Porthkerry Rural	Regular Fieldscapes	Moderate
Cultural Landscape	VLFGCL039	Vale of Glamorgan Rural Landscape		High

5.3.45 Whilst all LANDMAP Aspect areas have been considered, the main foci are on the Landscape Habitat, Visual and Sensory and Historical and Cultural Landscape LANDMAP Aspect Areas. An assessment of these and their relevance to the site are described below.

5.3.46 For the purposes of this report the Visual and Sensory areas which potentially fall within the visual envelope of the development proposal (identified from the ZTV) have been assessed. These are as follows:

- **Rhose Hinterland** VLFGVLS641 (host Visual and Sensory Aspect Area);
- **Porthkerry Country Park and Environs** VLFGVLS987 Visual and Sensory Aspect Area (immediately south);
- **Cardiff Wales Airport** VLGLVS723 Visual and Sensory Aspect Area (immediately north and west);
- **Llancarfan and Waycock Valleys** VLFGVLS453 Visual and Sensory Aspect Area (north and west). Very small part affected – confined to upper slopes.
- **Upper Waycock Valley / Dyffryn Area** VLFGVLS608 Visual and Sensory (north east). Very small part affected.

5.3.47 LANDMAP provides the following descriptions of each of the identified Visual and Sensory Aspect Area as follows:

Rhose Hinterland (host Visual and Sensory Aspect Areas)

“The aspect area is a gently undulating lowland plateau landscape situated close to the coast. It has a maximum height of approximately 77m AOD at New Farm, toward the north east of the area, and a low point of approximately 15m AOD, towards the coast at Rhose Point. The landcover is a pattern of mostly medium to large scale arable fields set in managed hedgerows. The area contains no woodland. The plateau quality, and absence of woodlands, enables long views from the area, towards Barry and occasionally Somerset, it also gives the area a feeling of openness. Settlements within the area consist of scattered farms. Several roads cross the area. The A4226 links the airport with Cardiff and Barry. The B4265 then runs west to Llantwit Major. A railway line runs close to the coast linking Barry and Bridgend. Tranquillity is most affected by the presence of the airport. Hedgerows are generally well maintained. However, there is suburbanisation of the area especially along the main roads. Change detection 2014: Aberthaw Quarry expanded into area, plus housing at Rhose.”

Porthkerry Country Park and Environs

“The aspect area is a wooded lowland valley. Used as a country park it is situated next to the coast and bordering urban Barry. The maximum height of the area is approximately 70m AOD towards its north eastern boundary with Barry. Its lowest point is just above sea level. The landcover is a mixture of fields with hedgerows on upper slopes, grassland areas on the valley floor and woodlands. The woodland areas form the majority of the landcover and are situated on the valley sides. This gives the valley a confined quality. There are three farms scattered throughout the area. There is one minor access road which terminates at the park facilities and car park. These are well situated to minimise their overall effect. A railway line linking Barry to Bridgend bisects the area and the viaduct provides a dramatic and positive feature. The area is well used by local people for dog walking and other recreational pursuits. The character is of a pleasant country park, of cut glades and woodlands but showing signs of wear in places such as in the woodlands and on the stream edge. There are some detractors, especially the noise from Cardiff Airport. Change detection 2014: housing on edge of Barry excluded.”

Cardiff Wales Airport

“The aspect area is an open lowland plateau which has been developed to create Cardiff Airport. The highest point in the area is approximately 70m AOD near the airport hotel and the lowest 45m AOD towards the northern boundary of the airport near the A4226. The landcover is development and can be described as continuous expanses of open land consisting of hard standing and grasses with some concentration of airport and ancillary buildings with the development of a business park with hotel to the north. The large expanse of open space creates an area of long, wide views, which has an exposed quality. Only one road passes through it which is the access road to the airport terminal. The area is bordered by several main roads and this together with the take-off and landing of aeroplanes has a major effect on tranquillity. The nature of the landscape of the airport (its flat functional sterility) makes building clutter easily visible, particularly the BA 747 maintenance facility which dwarfs the other elements which this include fences, ancillary buildings, roads, lighting and signage. Change detection 2014: less flights so less disturbance.”

Llancarfan and Waycock Valleys

“The area is a steep sided narrow and enclosed lowland valley, which contains a tranquil landscape of streams, woodlands and small farms. The highest point of the valley is approximately 85m AOD in the north west, the lowest approximately 5m AOD near the village of Llancadle. The landcover of the valley is a mosaic pattern of pastoral fields and hedgerows, the latter often containing trees and there are substantial areas of woodland. The woodland areas are generally situated on the steeper upper slopes of the valley sides and assist in creating a confined sense of enclosure to the valley. The settlements of the area consist of a number of scattered farms and the village of Llancarfan. There is evidence of historic fortifications on the plateau edge and further lines provided by soil slip patterns on steep slopes. Several minor road cross the area, which tend to be centred on Llancarfan. However the area remains tranquil. The Llancarfan and Waycock Valleys are a well maintained landscape of unspoilt hedgerows and fields, conservation area villages and steep wooded valley sides. The power lines in the Waycock valleys are a detractor.”

Upper Waycock Valley / Dyffryn Area

“The upper Waycock Valley is a broad gently sloping valley traversed by several minor watercourses. The highest point of the area is approximately 103m AOD in the north at the head of the Waycock Valley. The lowest point is approximately 25m AOD in the south west. The landcover is a mosaic of mostly pastoral fields with some arable enclosed by trimmed

hedgerows with trees. Woodlands are dispersed throughout the area, generally on upper valley slopes and spurs. Settlement is centred on Dyffryn, which is an attractive village of stone dwellings, stone walls and a stream running alongside the road. Dyffryn Gardens are a formal designed gardens nearby, with an improved access to the road to the A48 to the north. Farms and occasional dwellings are scattered across the area. These are linked by quiet minor roads and a network of public footpaths and generally the area is tranquil. However, the area borders Barry to the south east as well as the A4226, hence tranquillity is affected here. In general the rural landscape is well maintained and the farms and settlements maintain their character. Detractors are pylons which cross the area to the south and the prominent edge of Barry on the hill top to the south. The adjacent golf course also significantly modifies the landscape character.”

5.3.48 In addition, and in accordance with ‘LANDMAP Information Guidance Note 3’ (June 2010), plans have been prepared to show the following LANDMAP data with respect to the ‘Visual and Sensory’ aspect layer (see **Figures 5.7c to 5.7d**):

- Question 46 - ‘Scenic Quality’;
- Question 48 - ‘Character Evaluation’; and
- Question 50 - ‘Overall Evaluation’.

Visual sensory	and	Evaluation	Justification text
Rhoose Hinterland			
46		Moderate	<i>Well managed pastoral landscape of hedgerows and fields which offers many moderately attractive views to sea to south and the rest of the Vale plateau to the north.</i>
48		Moderate	<i>Neutral, pleasant character but through its open flat character is influenced by adjacent uses such as the airport.</i>
50		Moderate	<i>Well managed pastoral landscape of hedgerows and fields which offers many moderately attractive views to sea to south and the rest of the Vale plateau to the north. The area is in fairly good condition with fairly consistent character with slight variation to the west. The area has a neutral, pleasant character but through its open flat character is influenced by adjacent uses such as the airport. It possesses many elements which are common to a farmed plateau which are not rare. The area is therefore assessed as moderate</i>
Porthkerry Country Park and Environs			
46		High	<i>The aspect area offers many picturesque views to landscape elements such as framed grassed areas, wooded valley sides., viaduct and sea.</i>

Visual and sensory	and Evaluation	Justification text
48	High	<i>The enclosing topography, tree cover and relationship with the sea gives the aspect area a sense of distinctive place and character.</i>
50	High	<i>Offers many picturesque views to landscape elements such as framed grassed areas, wooded valley sides, viaduct and sea. It is in fairly good condition although there are signs of wear and is of consistent character. The enclosing topography, tree cover and relationship with the sea gives the aspect area a sense of distinctive place and character. The enclosing topography, tree cover and relationship with the sea gives the aspect area a sense of distinctive place and character. The aspect area offers a strongly enclosed wooded valley, which is quite rare in the study area. The overall evaluation is therefore high.</i>
Cardiff Wales Airport		
46	Low	<i>Offers few views of a pleasing picturesque quality but rather views to an open and flat landscape dominated by fences and the huge airport terminal. There are several major detractors in the area including the BA hangar</i>
48	High	<i>Exciting and distinctive place with strong movement and interest of planes landing and taking off. BA hangar is huge visible building.</i>
50	Low	<i>Offers few views of a pleasing picturesque quality, but rather views to an open and flat landscape dominated by fences and the huge airport terminal. The area has been heavily developed with large scale buildings and infrastructure. Airport is exciting and distinctive place with strong movement and interest of planes landing and taking off. BA hangar is huge visible building. Cardiff Airport is the only functioning commercial airport in the vale area. However, the visual and sensory qualities of the area are not rare but share much in common with other areas, for instance RAF Athan and Llandow Industrial Estate</i>
Llancarfan and Waycock Valleys		
46	High	<i>High quality scenic landscape with many picturesque views to fields, hedgerows and steeply wooded valley sides in an aesthetic composition.</i>
48	High	<i>Distinctive character defined by the strong enclosing topography, historic settlement pattern</i>

Visual sensory	and Evaluation	Justification text
		<i>and features, woodland cover all creating a strong sense of place.</i>
50	High	<i>High quality scenic landscape with many picturesque views to fields, hedgerows and steeply wooded valley sides in an aesthetic composition. The integrity of the area is intact with consistent character and no inappropriate development within the settlements. The power lines in the Waycock do not mask the areas intrinsic qualities. The integrity of the area is also maintained within the rural landscape where hedgerows are maintained. The aspect area possesses a distinctive character defined by the strong enclosing topography, historic settlement pattern and features, woodland cover all creating a strong sense of place. The narrow enclosure and continuity of historic character are relatively rare. The overall evaluation is therefore high</i>
Upper Waycock Valley / Dyffryn Area		
46	Moderate	<i>Attractive panoramic views across the coalfield plateau including to the Brecon beacons to the north. The aspect area has broad, pleasing views to well managed countryside with a coherent field pattern and woodlands with settlements well integrated with the landscape and surrounding vegetation. The settlements have stone walls and streams also add to the picturesque quality of this area...</i>
48	High	<i>Unspoilt and contains well managed landscapes and picturesque settlements and gardens which help give the area a distinctive sense of place...</i>
50	High	<i>Broad, pleasing views to well managed countryside with a coherent field pattern and woodlands with settlements well integrated with the landscape and surrounding vegetation. The settlements have stone walls and streams also add to the picturesque quality of this area. The area is unspoilt, well managed and is in good and consistent condition throughout. The overall evaluation for the area is therefore high.</i>

- 5.3.49 LANDMAP Guidance Note 2 (2010) has been used to inform an understanding of how the development proposal may affect the various LANDMAP aspects. Paragraph 6.2.3 states "is advised that the Visual & Sensory overall evaluation is mapped, (Collector survey question 50) as well as the scenic quality and character evaluation criteria (Collector survey questions 46 and 48) to help identify aspect areas which may experience "likely significant effect". Attention should be focused on the outstanding, high and moderate aspect areas for further assessment. Aspect areas with an outstanding or high overall evaluation-score, or aspect areas with a moderate

overall evaluation score but an outstanding or high evaluation in either scenic quality or character evaluation criteria, could be starting points for the assessment of significant effect.”

- 5.3.50 The overall evaluation for the **Porthkerry Country Park and Environs, Llancarfan and Waycock Valleys** and **Upper Waycock Valley / Dyffryn** aspect areas is High (suggesting the potential for significant effects). The latter two aspect areas have very little overlap with the ZTV. The remaining Visual and Sensory Aspect areas **Wales Cardiff Airport** with Low overall evaluation and **Rhoose Hinterland** (the host aspect area) judged as Moderate suggests that significant effects may be unlikely.
- 5.3.51 With regards to the Historic Landscape Aspect Area, the application site falls within the **Porthkerry Rural** (VLFGHL030). This Aspect Area has a Moderate overall evaluation, the justification for which is the aspect area *“has been encroached upon by modern development, in the form of Aberthaw, Rhoose and Cardiff International Airport, a significant proportion of the regular fieldscape contained within the Aspect Area as shown on historic OS mapping has survived intact, as has the pattern of dispersed, small-scale settlement which appears to be of medieval origin. The large multivallate hillfort of The Bulwarks has also remained largely intact and represents a site with significant potential for further study and development as a public amenity.”*
- 5.3.52 In respect of the Cultural landscape aspect layer, the application site falls within the **Vale of Glamorgan Rural Landscape** (VLFGCL039). The overall evaluation is High as it is relatively untrammelled and evolved surviving agricultural and historic landscape. *‘The Aspect Area is intended to encapsulate the landscape’s historic past, and its size - surrounding the proliferation of small settlements and hamlets - helps to demonstrate that the Vale is essentially an evolved agricultural landscape. It contains abundant evidence of man’s occupation and exploitation and its economic value (especially in the mediaeval period), evidenced by the large number of stone-built fortifications. Other evidence includes tumuli, earthworks and burial chambers from prehistory, Early Christian places of devotion and learning, monastic granges, a deserted mediaeval village, field systems and farmsteads. More recent attributes typical of a prosperous landscape are the 16 registered parks and gardens and their associated manor houses. The relatively unspoiled nature of the landscape is evidenced by the high number of designated Conservation Areas, testament in themselves to the gradual evolution and acceptable development over time. The rural landscape is served by a bewildering variety of narrow roads between (away from the coast) mostly unkempt hedgerows. Planning policies and the costs of upgrading these ancient communications routes have the culturally beneficial effect of limiting dormitory development in this highly attractive hidden landscape.’*

Visual Resource

- 5.3.53 The ZTV and Viewpoint Location Plan are provided in **Figure 5.2**.
- 5.3.54 The ZTV shows that the most prominent areas of potential visibility of the development proposal occur in areas to the east and south west at distances between approximately up to 0.7km from the application site. The ZTV also indicates that some parts of the application site are potentially visible across Cardiff Airport. The ZTV indicates that some of the application site is potentially visible from the ridge between Moulton and Pen Onn just over 2km to the north. Continuing northwards, it is also potentially visible from ridges further north, approximately 3 and 4km away. Part of the application site is potentially visible from the beach south of The Knap in Barry.

Baseline Visual Receptors

- 5.3.55 The ZTV indicates that the development proposal would not generally be visible to the north east or from the western outskirts of Barry to the east. To the east, views diminish quickly beyond 650m from the eastern edge of the application site. To the south, views are shown to be relatively well contained by the railway approximately 650m away from the southern boundary and by local

woodland. The eastern edge of Rhose approximately 750m away is indicated as having potential views. There are potential views of part of the development proposal from the north west, including Tredogan approximately 350m away from the north western edge of the application site. North of the A4226 the landscape is incised by valleys and potential views of the development proposal are confined to ridge tops and south facing valley sides. Settlements such as Penmark, Llancarfan do not fall within the ZTV extent.

Residential Properties

- 5.3.56 The closest residential properties which are within the ZTV and would therefore have potential views of the application site are identified as:

To the north of the application site along Port Road:

- Model Farm within the application site on the northern boundary
- Welford Farm approximately 180m to the north east of the application site boundary
- New Farm Port Road approximately 640m to the north east of the application site boundary

To the west of the site along Porthkerry Road:

- Upper Porthkerry Farm immediately adjoining the south western boundary of the application site
- The Stables, 90m to the south east of the south west corner of the application site
- Lower Porthkerry Farm 130m to the south east of the south west corner of the application site
- The Old Rectory at Lower Porthkerry – approximately 230m to the south of the application site boundary
- Residential properties on the north east edge of Rhose which have views across Cardiff Airport towards the application site.

Commercial Properties

- 5.3.57 There are three hotels which are close to the application site and within the ZTV and would therefore have potential views of it:

- Hotel/Private Property at Lower Porthkerry – approximately 230m to the south of the application site boundary
- The Holiday Inn Express off the roundabout junction between Port Road and Porthkerry road
- Sky Plaza Motel off Port Road opposite Model Farm
- Celtic International Hotel off Port Road opposite Model Farm

Public Highways

- 5.3.58 The application site is located within the surroundings of the following public highways:
- Port Road / A4226 located parallel to the northern boundary of the application site
 - Porthkerry Road located to parallel to the south western boundary of the application site

Public Rights of Way (PROW)

- 5.3.59 The application site is located within the surroundings of the following public rights of way (PROW) and are within the ZTV:

- Most of the length of footpath P4/17/1 and northern section of restricted byway P7/6/1 which runs south of the application site from Lower Porthkerry and follows the course of Whitelands Brook along the eastern boundary of the application site to the Welford on Port Road.
- Parts of the public footpath B1/41/1 in Porthkerry Country Park, within 1km of the boundary of the application site.
- A short section of footpath east of the church at Porthkerry P7/7/1, within 1km of the boundary of the application site.
- Most of the length of P4/20/1 which runs west to east from Whitelands Brook to West Ridge and the railway line within 1km of the application site.
- Short sections of footpaths P4/15/1 and P4/21/1 (Valeways Museum Heritage Trail) adjacent to the western boundary of Cardiff Airport, both 1.4km away from the application site western boundary.
- Specific and short sections of the Wales Coastal Path to the south of the application site at The Bulwarks and Bull Cliff, 750m and 1km from the southern boundary of the application site.

Recreation

5.3.60 The proposals are located within the surroundings of the following areas of recreation which have been identified on the Vale of Glamorgan Council interactive mapping web site. The following sites fall partly or completely within the extent of the ZTV:

- Porthkerry Country Park which lies less than 0.5km from the south east boundary of the application site.
- Ceri Road recreation ground on the eastern outskirts of Rhoose (approximately 700m south west of the western boundary of the application site)

Landscape Designations

5.3.61 The ZTV confirms that the development proposal does not fall within the visual envelope of any statutory landscape designations.

Selection of Representative Viewpoints

5.3.62 The ZTV for the development proposal was used to guide the selection of representative viewpoints for the visual assessment. The selected viewpoints are not intended to cover every possible view, but rather are representative of a range of receptor types e.g. residents, horse riders, walkers, cyclists and road users from various directions and distances from the application site boundary.

5.3.63 A visual assessment from the representative viewpoints was carried out in April and May 2019 to determine how the development proposal might influence the visual amenity for these typical receptors. The assessment was carried out as part of the site survey, with the photographic assessment recording the character of the view and the existing visibility of the application site. The viewpoint photographs, detailed visual assessments and representative computer generated images from four of the viewpoints (VP2a, VP3, VP7 and VP9) are provided in **Figure 5.3**.

5.4 Description of Proposals

5.4.1 The application proposes the delivery of a business park known as Parc Busnes Porth Cymru on c.87ha of farmland which includes a 42ha extension to Porthkerry Country Park on land at Port Road, Rhoose, adjacent to Cardiff Airport. The business park proposes approximately 1.7

million sq ft Class B1, B2 and B8 floorspace, car parking, landscaping, drainage infrastructure and ecological mitigation. It will provide high quality offices, light industrial and warehousing and distribution units as shown on the Indicative Concept Masterplan at **Figure 2.6**.

- 5.4.2 Primary vehicular access will be provided via a new arm from the existing Port Road/A4226 roundabout. Legal & General's total landholding extends to 109ha. As part of the proposals 42ha of land will be transferred to the Vale of Glamorgan Council to facilitate an extension to Porthkerry Country Park to the south is with better walking and cycling connections from Port Road to the existing Country Park.
- 5.4.3 The application site lies on heavily improved agricultural land divided by managed hedgerows. These features have low value in terms of recreation and ecology. Despite this much of the existing hedgerow network and landscape buffers have been incorporated into the green infrastructure of the scheme layout concurrent with incorporation of existing semi-natural features and provision of new green space in a network of connected features within and adjoining the scheme.
- 5.4.4 The vegetation removal that will be associated with the proposed scheme is a section of the group of immature trees shown as Group 2 in the Tree Survey placed on the highway verge to accommodate the new access and visibility splays and made up of a mix of *Crataegus monogyna* (Common Hawthorn), *Quercus robur* (Pedunculate Oak), *Fraxinus excelsior* (Common Ash), *Salix caprea* (Goat Willow), *Acer pseudoplatanus* (Sycamore), *Prunus avium* (Wild Cherry) and identified as tree quality category B2. In addition to the impact noted above the following trees/tree groups will be impacted: G1 (category C), G12 (category C), G13 (category U), Group 14 (category B) and 4 number Ash trees T69 (category B), T70 (category B), T71 (category C) and T72 (category B). Consequently, no category A trees will be removed as a result of the development proposal.
- 5.4.5 The following hedgerows will be impacted mainly to accommodate the new spine road: H1 (part), H5, H10 (part), H15, H17, H18 (part), H19 (part) and H20 (part).

Proposed Mitigation

- 5.4.6 As shown on the Indicative Concept Masterplan (**Figure 2.2**), a new belt of native woodland is proposed along the eastern boundary in association with the existing PRow. A new belt of native woodland planting is proposed along the extent of the southern boundary in association with the new attenuation areas. An area of new woodland is proposed in the south west corner to soften the impact on the group of properties associated with Lower and Upper Porthkerry Farms. The extensive new native planting proposed as part of the new green infrastructure will more than mitigate for the loss of the vegetation listed in paragraphs 5.4.4 and 5.4.5 above.
- 5.4.7 The proposed 42ha extension to the very well used Porthkerry Country Park will benefit the communities within the settlements close by as well as the wider community within the Vale.

5.5 Planning Policy Context

Planning Policy Wales and Technical Advice Note 23 (TAN 23)

- 5.5.1 Chapter 7 of Planning Policy Wales and TAN23: Economic Development, set out the Welsh Government's planning objectives and policies in respect of economic development. They state that the planning system should support economic and employment growth alongside social and environmental considerations and within the context of sustainable development.

National Character Areas

- 5.5.2 LANDMAP is the formally adopted methodology for landscape assessment and is advocated by PPW and is promoted by Natural Resource Wales. It is considered to be a "whole" landscape approach that covers all landscapes, designated and non-designated in Wales.

Cardiff Airport – St Athan Enterprise Zone – Strategic Development Framework (SDF)

- 5.5.3 This document is in draft form and has yet to be adopted. The development proposal is in the 'Gateway Development Zone' one of three zones that make up the Cardiff Airport – St Athan Enterprise Zone:

'The Gateway Development Zone includes potential development land to the east of Cardiff Airport. It comprises two land parcels with land to the north owned by the Vale of Glamorgan Council and land to the south owned by Legal and General.'

The site has been identified as having the potential to be a destination for local and international business including office accommodation, education/training facilities, leisure development and transport logistics. Together with the Aerospace Business Park, the Gateway Development Zone is allocated in the Vale of Glamorgan Deposit LDP as a strategic employment site.'

- 5.5.4 The SDF goes on to summarise the landscape context of the Enterprise Zone as:

'The Enterprise Zone is not located within any national landscape designations although Glamorgan Heritage Coast is adjacent to the southern boundary of the St Athan Aerospace Business Park. Special Landscape Areas (SLA) have been designated to protect areas of the Vale of Glamorgan that are considered to be important for their geological, natural, visual, historic or cultural significance. The Upper and Lower Thaw Valley SLA is adjacent to the eastern boundary of St Athan Aerospace Business Park whilst the Nant Llancarfan SLA is situated to the north of the Gateway Development Zone and west of Cardiff Airport.'

The landscape within the Enterprise Zone boundary is generally considered to be of low quality according to Natural Resources Wales' LANDMAP, although parts of the Gateway Development Zone are evaluated as 'Moderate' and the southern parts of St Athan as 'Outstanding'. Along the coastline, the landscape is considered to be of generally outstanding quality.'

Potentially sensitive visual receptors include properties within the settlements on the western edge of Barry (between 1 km and 1.5 km from the Gateway Development Zone), Penmark and Llancarfan to the north and the larger village of Rhoose to the immediate south. However, the potential for significant visual impacts is likely to be low given the existing topography, vegetation and tree cover as well as the presence of existing development.'

- 5.5.5 The section on Green Infrastructure within the SDF states that:

'The Gateway Development Zone itself offers coastal views and access and views to a mature coastal country park. The location provides easy access to a choice of established and desirable villages and towns within the Vale of Glamorgan as well as access to city living in Cardiff. In design terms, the setting creates the opportunity for adding value to sites overlooking the southern edge of the Gateway Development Zone. The illustrative masterplan indicates office and leisure uses within these prime areas.'

'...Importantly, the green infrastructure network of the Gateway Development Zone will connect to an expanded Porthkerry Country Park that will provide an important public open space with opportunities for habitat creation and enhancement. The illustrative masterplan suggests that the landscape treatment of the east/west spine road from a point east of the junction with Port Road should represent a transition point from the less formalised landscape of the extended park through to the more formalised approach to landscaping taken along the remainder of this road as well as the main north/south spine road.'

Vale of Glamorgan Local Development Plan LDP (2017)

- 5.5.6 The development proposal falls within The Vale of Glamorgan Council area. The Adopted Proposal Map indicates that the development proposal is a Strategic Site – Cardiff Airport and Port Road, Rhoose. In terms of landscape and visual impacts the following policies are relevant to the development proposal, relevant extracts from the Local Development Plan (LDP) are provided here.

Policy SP2(3) Strategic Site – Cardiff Airport and Port Road Rhoose

- 5.5.7 *Cardiff Airport 5.41 The LDP Strategy recognises the importance of Cardiff Airport to the future prosperity of the Vale of Glamorgan, as does its designation (along with St Athan) as part of the ‘St Athan – Cardiff Airport’ Enterprise Zone. This strategically located flagship site is intended to stimulate inward investment and consolidate the role of the Vale of Glamorgan within the Capital Region.*
- 5.5.8 *To facilitate the Enterprise Zone, Policy MG10 allocates 77.4Ha of land surrounding the airport, which is intended to focus on business and employment uses catering specifically for the needs of the aerospace industry and high- tech manufacturing. Policy MG10 expands upon this strategic allocation designation, which will require a Masterplan to demonstrate how a comprehensive development can achieve the strategic goals identified within the LDP, alongside the provision of a sizeable extension to the existing Porthkerry Country Park to the west of Barry (Policy MG28 refers to this).*

Policy SP 5 - Employment Requirements

- 5.5.9 *In order to ensure the continued prosperity of the Vale of Glamorgan and promote growth in the capital region, 492 hectares (369 ha net) of land is allocated to meet regional and local employment needs. The ‘St Athan – Cardiff Airport’ Enterprise Zone forms part of this allocation in the LDP.*

Policy MG 10 - St Athan – Cardiff Airport Enterprise Zone

- 5.5.10 *Land is allocated adjacent to Cardiff Airport and Port Road, Rhoose (77 ha) and at the aerospace business park St Athan (305ha) for the development of 382 hectares of strategic employment land (class B1, B2 and B8) forming part of the St Athan – Cardiff Airport Enterprise Zone. The development of the enterprise zone will be guided by a masterplan to include the following elements:*
- *The refurbishment of the existing 70,000 sqm hanger at St Athan (17.95 ha);*
 - *An aerospace business park north and south of the runway at St Athan;*
 - *A business park for aviation support services at Picketston (11.79 ha);*
 - *A new northern access road at the St Athan Enterprise Zone (Policy MG16 refers);*
 - *New aerospace, education, research and development, manufacturing, office and other ancillary development at the Cardiff Airport and gateway development zone (77 ha);*
 - *A 42 hectare extension to Porthkerry Country Park (Policy MG28 refers);*
 - *Provision of sustainable transport infrastructure; and*
 - *The incorporation of sustainable energy centre at the Cardiff Airport and gateway development zone.*

Located immediately to the east of the Airport, and south of Port Road, this strategic employment site measures approximately 77.4 hectares and draws benefits from its designation as an Enterprise Zone, alongside the Welsh Government’s Aerospace Space Business Park at St

Athan, as well as its proximity to the motorway network. Development of the site will encourage inward investment and consolidate the role of the Vale of Glamorgan within the Capital Region.

In order to deliver a high quality, comprehensive and sustainable development on this strategically important site, a Masterplan will be required to guide the development at the St Athan and Cardiff Airport Enterprise Zone considering the elements set out within Policy MG10. For the Cardiff Airport Gateway Development Zone this will include the following elements:

- a. Employment - the strategic employment site will be developed for B1, B2 and B8 uses, which will be required to be related to appropriate manufacturing, research and development.*
- b. Land for the extension of Porthkerry Country Park – Given the fine landscape qualities of the Vale of Glamorgan, and the need to promote sustainability, development to the south of Port Road is only considered acceptable as part of a comprehensive development including the transfer to the ownership of the Vale of Glamorgan Council (together with appropriate negotiated financial contributions) of land for a 42 ha extension to Porthkerry Country Park (Policy MG28 refers).*
- c. The provision of an energy centre, such as a Combined Heat and Power (CHP) Plant, to ensure the development has high sustainable credentials.*
- d. Sustainable transport infrastructure including consideration of a route for a potential rail link to Cardiff Airport across the site to ensure the development does not compromise future proposals to enhance sustainable access to the airport.*

Policy MG28 – Public Open Space Allocations

- 5.5.11 This includes 42ha extension to Porthkerry Country Park immediately south of the Cardiff Airport Enterprise Zone which is part of this Strategic Site development proposals.

Policy SP10 - Built and Natural Environment

- 5.5.12 *Development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including:*
- 5.5.13 The areas and aspects most pertinent to this landscape and visual assessment of the development proposal and within the 5km study area are;
- 1. The architectural and / or historic qualities of buildings or conservation areas, including locally listed buildings;*
 - 2. Historic landscapes, parks and gardens;*
 - 3. Special landscape areas; - Nant Llancafarn adjoins the application site immediately to the north is subject to Policy MG17 Special Landscape Areas.*

Policy MG17 – Special Landscape Areas (SLA)

- 5.5.14 Nant Llancafarn SLA is located immediately to the north of the application site.

Within the special landscape areas identified above, development proposals will be permitted where it is demonstrated they would cause no unacceptable harm to the important landscape character of the area.

SLAs have been designated to protect areas of the Vale of Glamorgan that are considered to be important for their geological, natural, visual, historic or cultural significance.

A LVIA will be required for any development that is likely to have a significant impact upon landscape character or have a significant visual effect within the wider landscape (by virtue of its size or prominence or degree of impact on the locality) and will be prepared in accordance with the latest Landscape Institute and the Institute of Environmental Management and Assessment guidelines.

5.6 Effect on Landscape Elements and Features and Assessment of Significance

- 5.6.1 The effect on landscape elements relates to the direct effect on the physical fabric of the application site arising from the proposals. These are assessed as follows:

Site Topography

- 5.6.2 The application site is located at between 64.52m along Port Road and 51.63m AOD on a southwest facing slopes of the southern boundary.

Sensitivity: The undulating farmland surrounding the application site is considered to be of Medium value and Medium susceptibility as its inter-visibility with the wider surrounding area is restricted by intervening topography. The overall sensitivity is therefore considered to be Medium.

Magnitude: The overall application site topography would remain largely unchanged, however within the site at a local level remodelling will be required especially for the larger building plots, site access roads and localised regrading to create level platforms by up to 5m. The Magnitude of Change is therefore considered to be Medium.

Effect: With a Medium sensitivity and a Medium Magnitude of Change, the development proposal would result in a Moderate effect on site topography.

Trees and Hedgerows

- 5.6.3 The fields separating the application site generally comprise bushy native hedgerows, containing isolated hedgerow trees. The development proposal has been designed to retain all of the boundary hedgerows, with the exception of a short section to accommodate the eastern access point off Port Road, negating the requirement for hedgerow removal.

A survey of trees undertaken by RPS (May 2019) confirms that the proposed layout will require the removal of a section of category B trees in G2 to accommodate the access.

Sensitivity: The on-site hedgerows and trees are considered to be of Medium value and susceptibility. The Rhose Hinterland Visual and Sensory Aspect Area surrounds the Cardiff Wales Airport Aspect Area and is bordered by the Porthkerry Country Park and Environs Aspect Area to the south east. LANDMAP's evaluation of Value in Visual and Sensory terms is Medium. The landscape elements and features within the application site are not particularly unique. Therefore, their overall sensitivity is considered to be Medium.

Magnitude: There would be a minor loss of trees and hedgerows to accommodate the access, as a result of the development proposal. Consequently, there would be an overall Low effect on trees and hedgerows.

Effect: With a Medium sensitivity and Low Magnitude of Change, the development proposal would result in a Minor effect on hedgerows and trees on the application site according to the assessment criteria.

Farmland

- 5.6.4 The Preliminary Ecological Appraisal (RPS, 2019) indicates that the application site comprises heavily improved agricultural land divided by managed hedgerows. These features have low value in terms of recreation and ecology. Despite this much of the existing hedgerow network and landscape buffers have been incorporated into the green infrastructure of the scheme layout

concurrent with incorporation of existing semi-natural features and provision of new green space in a network of connected features within and adjoining the scheme.

Sensitivity: The farmland is considered to be of low value and of low susceptibility due the lack of any statutory designations. The overall sensitivity is considered to be Low.

Magnitude: the ecological appraisal advises that the layout has been designed to avoid higher value habitats, with much of the existing hedgerow network and landscape buffers incorporated into the green infrastructure of the scheme layout. However, the farmland will be changed to developed land. The magnitude of change is therefore considered to be High.

Effect: With a Low sensitivity and High Magnitude of Change, the development proposal would result in a Moderate (but localised) effect on the farmland within the application site.

Public Rights of Way

- 5.6.5 Most of the length of footpath P4/17/1 and northern section of restricted byway P7/6/1 which runs south of the application site from Lower Porthkerry and follows the course of Whitelands Brook along the eastern boundary of the application site to the Welford on Port Road.

Sensitivity: Public Rights of Way are considered to be of High susceptibility and value and consequently are of High sensitivity.

Magnitude: There would be a Negligible effect on the PRoW within the redline boundary of the application site.

Effect: With a High sensitivity and a Negligible Magnitude of Change, there would be Minor effect on Public Rights of Way through the application site according to the assessment criteria. However, in reality it is considered that there would be Negligible/No effect.

Landform and Enclosure

- 5.6.6 The landform surrounding the south of the application site is characterised by the sloping south facing land that slopes downwards towards the country park and the coastline. The land to the west has been heavily remodelled to accommodate the runway for the airport. To the north Port Road lies on a localised ridge before the land slopes gently away. The sense of enclosure within the study area is influenced by the topography and the presence of intervening woodland and hedgerow boundary vegetation. As the development proposal would fit within the existing field boundaries, the landform and the enclosure would not change as a result of the development proposal.

Sensitivity: The undulating surrounding landform is considered to be of Medium value and Medium susceptibility as its inter-visibility with the wider surrounding area is restricted by intervening topography. The overall sensitivity is therefore considered to be Medium.

Magnitude: The overall landform would remain largely unchanged except at a local level where remodelling will be required especially for the larger building plots, site access roads and localised regrading to create level platforms. The Magnitude of Change is therefore considered to be Medium.

Effect: With a Medium sensitivity and a Medium Magnitude of Change, the development proposal would result in a Moderate effect on landform and enclosure.

Settlement Pattern

- 5.6.7 The larger settlements within the study area comprise Rhoose (south west) and Barry (east). Cardiff Airport complex lies adjacent to the north. The Holiday Inn Express lies adjacent to the north and a number of other hotel complexes lies along Port Road. There would be no change in the settlement pattern as a result of the development proposal.

Sensitivity: The larger settlements have Low value and Low and their inter-visibility is restricted by intervening topography. The overall sensitivity is therefore considered to be Low.

Magnitude: The settlement pattern would remain largely unchanged. The Magnitude of Change is therefore considered to be Low.

Effect: With a Low sensitivity and a Low Magnitude of Change, the development proposal would result in a Negligible effect on the settlement pattern.

Table 5.4 Summary of effects on landscape elements.

Landscape Elements	Value	Susceptibility	Sensitivity	Magnitude	Effect	EIA Significance
Site Topography	Medium	Medium	Medium	Medium	Moderate (localised)	Yes
Hedgerows and Trees	Medium	Medium	Medium	Low	Minor	No
Farmland	Low	Low	Low	High	Moderate	Yes
Public Rights of Way	High	High	High	Negligible	Negligible/No Effect	No
Landform and Enclosure	Medium	Medium	Medium	Medium	Moderate (localised)	Yes
Settlement Pattern	Medium	Medium	Medium	Medium	Moderate	Yes

5.7 Effect on Landscape Character and Assessment of Significance

- 5.7.1 The effect on the LANDMAP Aspect Areas relates to the direct effect on the characteristics of the surrounding landscape from the proposals. These are assessed as follows:

The Rhoose Hinterland Aspect Area (VLFGGLVS641)

Sensitivity

- 5.7.2 The Rhoose Hinterland Visual and Sensory Aspect Area surrounds the Cardiff Wales Airport Aspect Area and is bordered by the Porthkerry Country Park and Environs Aspect Area to the south east. LANDMAP's evaluation of Value in Visual and Sensory terms is Medium. The Aspect Area offers some natural enclosure by way of its undulating rolling topography mature woodland blocks and the surrounding urbanising influences especially its proximity to both Cardiff Airport and Barry. Also, the landscape elements and features within the application site are not particularly unique. Therefore, the susceptibility to the type of development proposed is judged to be Medium. Therefore, its overall sensitivity is considered to be Medium.

Magnitude

- 5.7.3 The proposals would result in the conversion of a small part of the host Aspect Area from a predominantly agricultural landscape to a new mixed development of employment use. Consequently, the Magnitude of Change would be High locally but Low in the context of the whole Aspect Area.

Effect

- 5.7.4 With a Medium sensitivity and a Low Magnitude of Change, the development proposal would have a Major effect locally on the Rhose Hinterland Visual and Sensory Aspect Area. However, In the context of the whole Aspect Area as the Magnitude of Change is judged to be Low the effect would be Minor which is not significant in terms of EIA.

Porthkerry Country Park and Environs Aspect Area (VLFGVLS987)

Sensitivity

- 5.7.5 This aspect area lies to the south within a wooded lowland valley and is used as a country park, bordering urban Barry. LANDMAP's evaluation of Value in Visual and Sensory terms is Medium. The landcover is a mixture of fields with hedgerows on upper slopes, grassland areas on the valley floor and woodlands. The woodland areas form the majority of the landcover and are situated on the valley sides. This gives the valley a confined quality. The character is of a pleasant country park, of cut glades and woodlands but showing signs of wear in places such as in the woodlands and on the stream edge. There are some detractors, especially the noise from Cardiff Airport. Therefore, its overall sensitivity is considered to be High.

Magnitude

- 5.7.6 As a result of limited inter-visibility the proposals would result in no changes to this Aspect Area as a result of the proposed employment use. Consequently, the Magnitude of Change would be Negligible in the context of the whole Aspect Area.

Effect

- 5.7.7 With a High sensitivity and a Negligible Magnitude of Change, the development proposal would have a Minor effect locally on the Porthkerry Country Park and Environs Aspect Area Sensory Aspect Area.

Cardiff Wales Airport

Sensitivity

- 5.7.8 This aspect area lies to the west and is an open lowland plateau which has been developed to create Cardiff Airport. LANDMAP's evaluation of Value in Visual and Sensory terms is Low. The landcover is development and can be described as continuous expanses of open land consisting of hard standing and grasses with some concentration of airport and ancillary buildings with the development of a business park with hotel to the north. The area is bordered by several main roads and this together with the take-off and landing of aeroplanes having a major effect on tranquillity.

Magnitude

- 5.7.9 The proposals would result in limited changes to this Aspect Area as a result of the proposed employment use. Consequently, the Magnitude of Change would be Low in the context of the whole Aspect Area.

Effect

- 5.7.10 With a Low sensitivity and a Low Magnitude of Change, the development proposal would have a Negligible effect locally on the Porthkerry Country Park and Environs Aspect Area Sensory Aspect Area, which is not significant in terms of EIA.

Llancarfan and Waycock Valleys

- 5.7.11 This aspect area lies to the north and west and is a steep sided narrow and enclosed lowland valley, which contains a tranquil landscape of streams, woodlands and small farms. LANDMAP's evaluation of Value in Visual and Sensory terms is High. The landcover of the valley is a mosaic pattern of pastoral fields and hedgerows, the latter often containing trees and there are substantial areas of woodland. The woodland areas are generally situated on the steeper upper slopes of the valley sides and assist in creating a confined sense of enclosure to the valley. The Llancarfan and Waycock Valleys are a well maintained landscape of unspoilt hedgerows and fields, conservation area villages and steep wooded valley sides. The power lines in the Waycock valleys are a detractor.

Magnitude

- 5.7.12 As a result of limited inter-visibility the proposals would result in no changes to this Aspect Area as a result of the proposed employment use. Consequently, the Magnitude of Change would be Negligible in the context of the whole Aspect Area.

Effect

- 5.7.13 With a High sensitivity and a Negligible Magnitude of Change, the development proposal would have a Minor effect locally on the Llancarfan and Waycock Valleys Aspect Area, which is not significant in terms of EIA.

Upper Waycock Valley/Dyffryn Area

Sensitivity

- 5.7.14 This aspect area lies to the north east and is a broad gently sloping valley traversed by several minor watercourses. LANDMAP's evaluation of Value in Visual and Sensory terms is Medium. The landcover is a mosaic of mostly pastoral fields with some arable enclosed by trimmed hedgerows with trees. Woodlands are dispersed throughout the area, generally on upper valley slopes and spurs. In general, the rural landscape is well maintained and the farms and settlements maintain their character. Detractors are pylons which cross the area to the south and the prominent edge of Barry on the hill top to the south.

Magnitude

- 5.7.15 As a result of limited inter-visibility the proposal would result in no changes to this Aspect Area as a result of the proposed employment use. Consequently, the Magnitude of Change would be Negligible in the context of the whole Aspect Area.

Effect

- 5.7.16 With a Medium sensitivity and a Negligible Magnitude of Change, the development proposal would have a Negligible effect locally on the Llancarfan and Waycock Valleys Aspect Area, which is not significant in terms of EIA.

Nant Llancarfan SLA

- 5.7.17 LANDMAP's evaluation of Value in Visual and Sensory terms is High. The landcover of the valley is a mosaic pattern of pastoral fields and hedgerows, the latter often containing trees and there are substantial areas of woodland. The woodland areas are generally situated on the steeper upper slopes of the valley sides and assist in creating a confined sense of enclosure to the valley.

The Lllancarfan and Waycock Valleys are a well maintained landscape of unspoilt hedgerows and fields, conservation area villages and steep wooded valley sides. The power lines in the Waycock valleys are a detractor.

Magnitude

- 5.7.18 As a result of limited inter-visibility the proposals would result in no changes to this SLA as a result of the proposed employment use. Consequently, the Magnitude of Change would be Negligible in the context of the whole SLA.

Effect

- 5.7.19 With a High sensitivity and a Negligible Magnitude of Change, the development proposal would have a Minor effect locally on the Nant Lllancarfan SLA, which is not significant in terms of EIA.

Summary

- 5.7.20 The assessment of significance of the impact on the 5 LANDMAP Aspect Areas and the 1 SLA identified within the ZVT concludes that the level of predicted impact of the development proposal will not result in impact of EIA significance on landscape character (see summary Table 5.5 below).

Table 5.5: Summary of effects on landscape character

Landscape Elements	Value	Susceptibility	Sensitivity	Magnitude	Effect	EIA Significance
Rhoose Hinterland Aspect Area	Medium	Medium	Medium	Low	Minor	No
Porthkerry Country Park and Environ Aspect Area	High	High	High	Negligible	Minor	No
Cardiff Airport Aspect Area	Low	Low	Low	Negligible	Negligible	No
Lllancarfan and Waycock Valleys	High	High	High	Negligible	Minor	No

Upper Waycock Valley / Dyffryn Area	Medium	Medium	Medium	Negligible	Negligible	No
Nant Llancarfan SLA	High	High	High	Negligible	Minor	No

5.8 Effect on Visual Amenity and Assessment of Significance

Residential Receptors

Welford Farm complex

- 5.8.1 Views towards the development proposal are partially contained from the private residence within the Welford Farm complex as a result of intervening road side boundary vegetation, however there would be views of the new buildings above this vegetation to the south.

Sensitivity: Views from residential properties are generally considered to be of high value, susceptibility and overall sensitivity.

Magnitude: The development proposal would be lower lying, would not break the skyline however, as buildings would be visible to the south west the Magnitude of Change is considered to be high.

Effect: With a High sensitivity and a High Magnitude of Change, the effect would be Substantial which is significant in EIA terms.

New Farm Port Road

- 5.8.2 Views towards the development proposal are largely contained by intervening roadside vegetation immediately to the south of the property largely concealing views of the new development.

Sensitivity: Views from residential properties are generally considered to be of high value, susceptibility and overall sensitivity.

Magnitude: The development proposal would be low-lying, would not break the skyline and would be concealed by existing vegetation, the Magnitude of Change is considered to be low.

Effect: With a High sensitivity and a Low Magnitude of Change, the effect would be Moderate which is significant in EIA terms.

Upper Porthkerry Farm

- 5.8.3 Views towards the development proposal are largely open across the aa especially to the north.

Sensitivity: Views from residential properties are generally considered to be of high value, susceptibility and overall sensitivity.

Magnitude: The development proposal would be clearly visible and break the skyline in this part of the application site, therefore the Magnitude of Change is considered to be high.

Effect: With a High sensitivity and a High Magnitude of Change, the effect would be Substantial which is significant in EIA terms.

The Stable Porthkerry Farm

5.8.4 Views towards the development proposal are largely concealed by a combination of adjacent dwellings and trees.

Sensitivity: Views from residential properties are generally considered to be of high value, susceptibility and overall sensitivity.

Magnitude: The development proposal would be largely concealed in this part of the application site, therefore the Magnitude of Change is considered to be Medium.

Effect: With a High sensitivity and a Medium Magnitude of Change, the effect would be Major which is significant in EIA terms.

Lower Porthkerry Farm

5.8.5 Views towards the development proposal are largely concealed by a combination of adjacent dwellings and trees.

Sensitivity: Views from residential properties are generally considered to be of high value, susceptibility and overall sensitivity.

Magnitude: The development proposal would be largely concealed in this part of the application site, therefore the Magnitude of Change is considered to be Medium.

Effect: With a High sensitivity and a Medium Magnitude of Change, the effect would be Major which is significant in EIA terms.

The Old Rectory

5.8.6 Views towards the development proposal are largely concealed by a combination of adjacent dwellings and trees.

Sensitivity: Views from residential properties are generally considered to be of high value, susceptibility and overall sensitivity.

Magnitude: The development proposal would be largely concealed in this part of the application site, therefore the Magnitude of Change is considered to be Medium.

Effect: With a High sensitivity and a Medium Magnitude of Change, the effect would be Major which is significant in EIA terms.

Public Highways

5.8.7 The application site is located within the surroundings of the following public highways:

- Port Road is located adjacent to the application site's north boundary;
- Porthkerry Road is located adjacent to the application site's western boundary.

Port Road

- 5.8.8 Views from the section of Port Road to the south are contained by the screening effect of boundary hedgerows and trees. However, where there are gaps in the vegetation along the application site's northern boundary, there are open views of the application site.

Sensitivity: Views from public highways are considered to be of Medium value and of Medium susceptibility due to the visual enclosure provided by vegetation limiting views across the adjacent landscape. The overall sensitivity is considered to be Medium.

Magnitude: For the surrounding highway network the Magnitude of Change as a result of the development proposal is assessed as High/Medium.

Effect: Sections of Port Road to the south west of the application site, would undergo a High effect on visual amenity as a result of the development proposal. With a Medium sensitivity and a High Magnitude of Change, the effect would be Major but localised which is significant in EIA terms.

Porthkerry Road

- 5.8.9 Views from the section of Porthkerry Road to the south are contained by the screening effect of boundary hedgerows and trees. However, where there are gaps in the vegetation along the application site's northern boundary, there are open views of the application site.

Sensitivity: Views from public highways are considered to be of Medium value and of Medium susceptibility due to the visual enclosure provided by vegetation limiting views across the adjacent landscape. The overall sensitivity is considered to be Medium.

Magnitude: For the surrounding highway network the Magnitude of Change as a result of the development proposal is assessed as High/Medium.

Effect: Sections of Porthkerry Road to the south west of the application site, would undergo a High effect on visual amenity as a result of the development proposal. With a Medium sensitivity and a High Magnitude of Change, the effect would be Major but localised which is significant in EIA terms.

Public Rights of Way

- 5.8.10 The development proposal is located within the surroundings of the following public rights of way:
- Most of the length of footpath P4/17/1 and northern section of restricted byway P7/6/1 which runs south of the application site from Lower Porthkerry and follows the course of Whitelands Brook along the eastern boundary of the application site to the Welford on Port Road.

Sensitivity: PRoWs are representative of the views experienced by walkers, local residents and tourists and are considered to be of high value, susceptibility and overall sensitivity.

Magnitude: A short sections of this footpath as it crossed the field adjacent to the north east corner of the application site would undergo a High Magnitude of Change as direct views of the development proposal would be visible at close-range.

Effect: With a High sensitivity and a High Magnitude of Change, there would be a Substantial effect on visual amenity but localised which is significant in EIA terms.

Visual Assessment

Distant Views (2km+ from the application site)

- 5.8.11 There are four medium range representative Viewpoints – VP9, VP10, VP11, VP12 and VP13. All of these viewpoints are assessed as undergoing a Negligible effect on visual amenity as a result of the development proposal.

Medium Range Views (500m to 2km from the application site)

- 5.8.12 There are four medium range representative Viewpoints – VP7, VP8, VP14 and VP15. Viewpoint 7 and 8 would undergo a Major and Substantial Visual Effect respectively and Viewpoint 14 and 15 are assessed as undergoing a Minor effect on visual amenity as a result of the development proposal.

Short-range Views (less than 500m from the application site)

- 5.8.13 Of the six representative short-range Viewpoints (VPs), all of the effects would be localised as follows:
- VP1 would undergo Moderate Visual Effects at Years 1 reducing to Negligible after 10 years;
 - VP2 would undergo Substantial Visual Effects at Years 1 reducing to Minor after 10 years;
 - VP2a would undergo Substantial Visual Effects at Year 1 reducing to and Minor after 10 years;
 - VP3 would undergo Major Visual Effects at Years 1 reducing to Moderate after 10 years;
 - VP4 would undergo Major Visual Effects at Years 1 reducing to Moderate after 10 years;
 - VP5 would undergo Major Visual Effects, at Years 1 reducing to Minor after 10 years; and
 - VP6 would undergo Major Visual Effects at Years 1 reducing to Minor after 10 years;
- 5.8.14 The summary of the anticipated effects on visual receptors and representative viewpoints are shown in Table 5.6:

Table 5.6 Summary of Effects on Visual Receptors and Representative Viewpoints

Visual Receptor/ Representative Viewpoint	Description of the View	Change in Baseline	Sensitivity	Magnitude	Effect Year 1	Effect Year 10 with mitigation	Significance in EIA Terms
Welford Farm complex			High	High	Substantial	Moderate	YES
Farm Port			High	Low	Moderate	Low	NO
Upper Porthkerry Farm			High	High	Substantial	Moderate	YES
Porthkerry Farm Stables			High	Medium	Moderate	Minor	NO

Visual Receptor/ Representative Viewpoint	Description of the View	Change in Baseline	Sensitivity	Magnitude	Effect Year 1	Effect Year 10 with mitigation	Significance in EIA Terms
Lower Porthkerry Farm			High	Medium	Moderate	Minor	NO
The Rectory Old			High	Medium	Moderate	Minor	NO
Port Road			Medium	High	Major (localised)	Moderate	YES
Porthkerry Road			Medium	High	Major (localised)	Minor	NO
Wider PROW Network			High	Low	Moderate	Minor	NO

Viewpoint 1 Layby on Porth Road	Looking south west at a distance of 369m from the nearest site boundary at contour 77 AOD.	New built development will be visible above the roadside boundary hedge.	Medium	Medium	Moderate (localised)	Negligible	NO
Viewpoint 2 Junction of Porth Road and PROW P4/17/1	Looking south west at a distance of 153m from the nearest site boundary at contour 73 AOD.	New built development will be clearly visible against a background of built development in distance.	High	High	Substantial (localised)	Minor	NO
Viewpoint 2a Along PROW P4/17/1	Looking south west at a distance of 107m from the nearest site boundary at contour 70 AOD.	New built development will be clearly visible against a background of built development in distance.	High	High	Substantial (localised)	Minor	NO

Visual Receptor/ Representative Viewpoint	Description of the View	Change in Baseline	Sensitivity	Magnitude	Effect Year 1	Effect Year 10 with mitigation	Significance in EIA Terms
Viewpoint 3 Junction of Porth Road and Blackton Lane.	Looking south east at a distance of 10m from the nearest site boundary at contour 60 AOD.	New built development will be visible above the roadside boundary hedge.	Medium	High	Major (localised)	Moderate	YES
Viewpoint 4 Near junction of Port Road and Porthkerry Road	Looking south east at a distance of 100m from the nearest site boundary at contour 60 AOD.	New built development will be visible above the roadside boundary hedge against a background of built development in distance.	Medium	High	Major (localised)	Moderate	YES
Viewpoint 5 View from Porthkerry Road and Sustrans Cycle Route	Looking east at a distance of 5m from the nearest site boundary at contour 60 AOD.	New built development will be visible above the roadside boundary hedge against a background of built development on the skyline.	Medium	High	Major (localised)	Minor	NO
Viewpoint 6 Junction of unnamed lane and Porthkerry Road	Looking north east at a distance of 200m from the nearest site boundary at contour 60 AOD.	New built development will be visible above the roadside boundary hedge against a background of built	Medium	High	Major (localised)	Minor	NO

Visual Receptor/ Representative Viewpoint	Description of the View	Change in Baseline	Sensitivity	Magnitude	Effect Year 1	Effect Year 10 with mitigation	Significance in EIA Terms
Viewpoint 7 of Porthkerry Road and end of runway Viewpoint 8 Along PRoW P4-20-1 from West Ridge Viewpoint 9 Cold Knap Point, Barry Viewpoint 10 Friars Point, Whitmore Bay, Barry		development on the skyline.					
	Looking north at a distance of 501m from the nearest site boundary at contour 60 AOD.	New built development will be visible above the roadside boundary hedge against a background of built development on the skyline.	Medium	High	Major (localised)	Minor	NO
	Looking north west at a distance of 507m from the nearest site boundary at contour 74 AOD.	New built development will be visible on the south facing slope.	High	High	Substantial (localised)	Moderate	YES
	Looking north west at a distance of 2680m from the nearest site boundary at contour 15 AOD.	A very brief of glimpse of the new built development may be visible though Porthkerry viaduct.	High	Negligible	Minor	Minor	NO
	Looking north west at a distance of 3451m from the nearest site boundary	A very brief of glimpse of the new built development may be visible though Porthkerry viaduct.	High	Low	Minor	Minor	NO

Visual Receptor/ Representative Viewpoint	Description of the View	Change in Baseline	Sensitivity	Magnitude	Effect Year 1	Effect Year 10 with mitigation	Significance in EIA Terms
	at contour 15 AOD.						
Viewpoint 11 Wales Coast Path, Neil's Point, Whitmore Bay, Barry	Looking north west at a distance of 3952m from the nearest site boundary at contour 25 AOD.	A very brief of glimpse of the new built development may be visible though Porthkerry viaduct.	High	Low	Minor	Minor	NO
Viewpoint 12 Public Road, Moulton	Looking south at a distance of 2140m from the nearest site boundary at contour 71 AOD.	A very brief of glimpse of the new built development may be visible above the airport runway.	High	No change	Negligible	Negligible	NO
Viewpoint 13 Valeways Millennium Heritage Trail near Llanbethery	Looking south east at a distance of 4380m from the nearest site boundary at contour 70m AOD.	A very brief of glimpse of the new built development may be visible above the airport runway.	High	No change	Negligible	Negligible	NO
Viewpoint 14 Valeways Millennium Heritage Trail near Font-y-'Gary	Looking east at a distance of 1470m from the nearest site boundary at contour 64 AOD.	A very brief of glimpse of the new built development may be visible above the airport runway through the airport boundary fencing.	High	Negligible	Minor (which is not significant for EIA)	Minor	NO
Viewpoint 15	Looking east at a	A very brief of glimpse of	High	Negligible	Minor	Minor	NO

Visual Receptor/ Representative Viewpoint	Description of the View	Change in Baseline	Sensitivity	Magnitude	Effect Year 1	Effect Year 10 with mitigation	Significance in EIA Terms
Ceri Road near recreation area	distance of 739m from the nearest site boundary at contour 65 AOD.	the new built development may be visible above the airport runway through the airport boundary fencing.					

*indicates a minor effect in accordance with the methodology in **Appendix 5.1**, however in reality No Effect.

Night-time Visual Effects

- 5.8.15 A sensitive lighting scheme should be provided for the development to minimise the night time visual effects on the local landscape.

5.9 Cumulative Effects

- 5.9.1 This section sets out the potential cumulative effects which may arise as a result of the development proposal.
- 5.9.2 A cumulative assessment considers the cumulative effects of multiple schemes upon the landscape fabric, landscape character and visual amenity.
- 5.9.3 It is acknowledged that wherever more than one development is visible at any given location in the landscape, there will be a greater overall or cumulative effect on landscape character than if just one development was visible in the landscape. Likewise, it is acknowledged that the more developments that are constructed in any given landscape, the greater the magnitude will be of overall (or combined) change to the landscape character that was present prior to the introduction of the development.
- 5.9.4 However, it is also noted that in any given landscape where developments of this type are already present the combined effect on landscape character of introducing further development may not be as significant as the initial introduction of the initial development due to a diminished affect caused by the existence of development within the baseline. Furthermore, the greater the amount of development in the baseline landscape the less significant the addition may be of further development on landscape character, as the landscape will be more heavily characterised by development in the baseline situation.
- 5.9.5 As there are no significant existing or consented developments within the 5km study area, there will be no cumulative landscape of visual effects as a result of the development proposal.

Summary and Conclusion

- 5.9.6 This chapter of the ES presents the results of the EIA for the potential landscape and visual impacts that relates to the construction of a business park and associated infrastructure on allocated land known as Parc Busnes Porth Cymru on c.87ha of farmland which includes a 42ha extension to Porthkerry Country Park on land at Model Farm, Port Road, Rhoose. The land forms

part of the St Athan – Cardiff Airport Enterprise Zone as identified within the Vale of Glamorgan Local Development Plan (LDP). It forms part of land allocated for employment use under Policies SP2, MG9 & MG10 of the LDP. Policy MG28 also refers to the allocation of a portion of the land for an extension to Porthkerry Country Park.

- 5.9.7 The application site does not form part of any statutory landscape designations and there are no nationally designated landscapes within the 5km study area. It is situated less than 100m south of the locally designated and non-statutory Nant Llancarfan Special Landscape Area (SLA) at its closest point in the northeast of the application site. Porthkerry Country Park which is also locally designated as a Green Wedge in the LDP forms most of the southern boundary of the application site.
- 5.9.8 Analysis of the LANDMAP Aspect Areas reveal that the application site lies outside the SLA designations. Any potential adverse effects on landscape character within the Nant Llancarfan SLA in the wider landscape to the north east is likely to be very localised due to limited inter-visibility. The primary landscape qualities of the 5 Aspect Areas within the ZTV are maintained and respected.
- 5.9.9 The land use of the application site would change from one of agriculture to one of development for mixed business use, comprising small business units (B1), industrial use (B1), general industrial use (B2), storage (B8), associated access infrastructure and landscape/ecological mitigation.
- 5.9.10 The development proposal would fit within and respect the existing field boundaries. The layout has been designed to retain the existing green infrastructure and the combination of the retention of the existing woodland, trees and field boundary hedgerows, together with the creation of new areas of woodland, scrub and rough grassland, would result in a longer-term benefit for both the application site and the surrounding landscape, especially along the boundary with the land to be transferred to extend Porthkerry Country Park.
- 5.9.11 There would be some loss of vegetation to accommodate the north east access along Port Road and the internal spine road, however this loss will be mitigated by the introduction of extensive areas of new native planting along the eastern boundary and elsewhere on the application site.
- 5.9.12 The development proposal would generally follow the contours of application site respecting the topography which would remain largely intact except at a local level where remodelling will be required for site access roads, attenuation areas and localised regrading to create level platforms for the buildings. Consequently, the landscape pattern and complexity would not change extensively as a result of the development proposal.
- 5.9.13 There is very limited inter-visibility with the lower-lying local coastal settlements of Barry and Rhoose as the site benefits from a high level of visual containment created by the surrounding landscape, which arises from a combination of undulating topography and landscape components including established blocks and belts of woodland limiting the effects on visual amenity from the surrounding area.
- 5.9.14 Cardiff Airport and its associated infrastructure is a dominant built element and a major detractor in the local host landscape. This complex is already visible when looking towards the application site from the fifteen representative viewpoints analysed as part of this study.
- 5.9.15 Of the sixteen representative viewpoints, 1 to 6 are local views which would undergo Substantial or Major effects on visual amenity as a result of the development proposal at Year 1 reducing in impact at Year 10 to Moderate or Minor when the mitigation planting has matured. It should be noted that all of these impacts are localised which is a predicted result of any type of development. Viewpoints 9 to 15 are medium and long range and would undergo Minor or Negligible effects on visual amenity, demonstrating there would be limited impacts on the wider landscape visual context including Nant Llancarfan SLA.

- 5.9.16 Consequently, there are a very limited number of visual receptors that would undergo the highest effects. These are limited to those in the immediate vicinity of the application site, namely residents living in the private residences associated with Upper and Lower Porthkerry Farm, Welford Farm private residences, walkers using the short section of PRoW P4/17/1 as it crosses the open field to the north east of the application site and road users along short sections of Porthkerry Road and Port Road adjacent to the site boundaries. The proposal would appear as a prominent new element within localised views but not to such an extent that it prevents receptors enjoying wider views to the expansive landscape setting in which the proposal would be seen.
- 5.9.17 Landscape mitigation measures including extensive woodland belts, tree and hedge planting are proposed along the southern boundary in association with the new attenuation areas and will create screening of the development proposal from views in from the south, Porthkerry Road and the residential properties associated with Upper and Lower Porthkerry Farms along the western boundary. Furthermore, a new belt of native woodland will be implemented along a section of the north eastern boundary to soften views in from the adjacent PRoW and the residential properties associated with Welford Farm complex. The proposed 42ha extension to the very well used Porthkerry Country Park will benefit the communities within the settlements close by as well as the wider community within the Vale.
- 5.9.18 It is acknowledged that with delivery of this development, as with any type of development, it will give rise to change in the landscape character of the application site itself and to the views of people overlooking, visiting or walking through the localised area. However, the extent of change has been minimised through careful/sensitive design and well placed mitigation will influence to ensure that the landscape and visual impacts judgement will need to be outweighed against the benefits delivered by the development proposal.

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