

**PENRHOS LEISURE VILLAGE
LAND & LAKES (ANGLESEY) LTD
ENVIRONMENTAL IMPACT ASSESSMENT
VOLUME 2: MAIN TEXT**

NOVEMBER 2012

HOW Planning LLP, 40 Peter Street, Manchester, M2 5GP
Contact Partner: Gary Halman Telephone: 0161 835 1333

ENVIRONMENTAL STATEMENT VOLUME 2 – MAIN TEXT

CONTENTS

Chapter 1	-	Introduction
Chapter 2	-	Approach
Chapter 3	-	Site Description
Chapter 4	-	Alternatives
Chapter 5	-	The Proposed Development
Chapter 6	-	Demolition and Construction
Chapter 7	-	Planning Policy Context
Chapter 8	-	Socioeconomics, Regeneration and Health
Chapter 9	-	Landscape and Visual
Chapter 10	-	Ecology and Nature Conservation
Chapter 11	-	Archaeology and Heritage
Chapter 12	-	Ground Conditions
Chapter 13	-	Drainage and Flood Risk
Chapter 14	-	Transport and Access
Chapter 15	-	Air Quality and Dust
Chapter 16	-	Noise and Vibration
Chapter 17	-	Waste
Chapter 18	-	Lighting
Chapter 19	-	Utilities
Chapter 20	-	Sustainability
Chapter 21	-	Cumulative Impacts
Chapter 22	-	Summary of Mitigation and Residual Impacts

Abbreviations
Glossary

List of Figures

Figure 1.1: Outline Planning Application Boundary

Figure 4.1: Penrhos Version 1

Figure 4.2: Penrhos Version 2

Figure 4.3: Penrhos Version 3

Figure 4.4: Cae Glas Version 1

Figure 4.5: Cae Glas Version 2

Figure 4.6: Kingsland Version 1

Figure 4.7: Kingsland Version 2

Figure 5.1: Penrhos Master Plan

Figure 5.2: Cae Glas Master Plan

Figure 5.3: Kingsland Master Plan

Figure 5.4: Penrhos Land Use Plan

Figure 5.5: Cae Glas Land Use Plan

Figure 5.6: Kingsland Land Use Plan

Figure 5.7: Penrhos Building Heights Plan

Figure 5.8: Cae Glas Building Heights Plan

Figure 5.9: Kingsland Building Heights Plan

Figure 5.10: Penrhos Access and Movement Plan

Figure 5.11: Cae Glas Access and Movement Plan

Figure 5.12: Kingsland Access and Movement Plan

Figure 5.13: Penrhos Advanced Planting Strategy

Figure 5.14: Cae Glas Advanced Planting Strategy

Figure 5.15: Kingsland Advanced Planting Strategy

Figure 5.16: Penrhos Access Plan

Figure 5.17: Cae Glas Access Plan

Figure 5.18: Kingsland Access Plan

Figure 5.19: Indicative Pipe Route

Figure 6.1: Buildings to be Demolished

Figure 8.1: JSA Claimant Rate in Holyhead

Figure 8.2 Comparison of JSA claimant rate between Holyhead, Anglesey, Wales and GB

Figure 10.1: Location of Penrhos site and context of site areas.

Figure 10.2: Statutory Nature Designations within 5km of Proposed Development

Figure 10.3: Phase 1 Habitat Survey - Inset 3 (Amendment to Capita Symonds Drawing CS042489_GIS_SL1)

Figure 10.4: Phase 1 Habitat Survey - Inset 2 (Amendment to Capita Symonds Drawing CS042489_GIS_SL1)

Figure 10.5: Phase 1 Habitat Survey - Inset 1 (Amendment to Capita Symonds Drawing CS042489_GIS_SL1)

Figure 10.6: Potential Ecological Receptors Penrhos Country Park

Figure 10.7: Potential Ecological Receptors Cae Glas

Figure 10.8: Potential Ecological Receptors Kingsland

Figure 10.9: Mitigation and Enhancement Penrhos

Figure 10.10: Mitigation and Enhancement Cae Glas

Figure 10.11: Mitigation and Enhancement Kingsland

Figure 11.1: Kingsland: Location of known archaeological sites within defined development area

Figure 11.2: Cae Glas: Location of known archaeological sites within defined development area

Figure 11.3: Penrhos: Location of known archaeological sites within defined development area

Figure 12.1: Penrhos Site Constraints Penrhos

Figure 12.2: Kingsland Site Constraints

Figure 12.3: Cae Glas Site Constraints

Figure 13.1: Penrhos Site Plan

Figure 13.2: Kingsland Site Plan

Figure 13.3: Cae Glas Site Plan

Figure 15.1: Location of Sensitive Receptors

Figure 16.1: Noise Constraint Area, Infrastructure Policy SG7, Stopped Unitary Development Plan – Cae Glas Site

Figure 16.2a: Noise and Vibration Sensitive Receptors – Kingsland Site

Figure 16.2b: Noise and Vibration Sensitive Receptors - Cae Glas Site

Figure 16.2c: Noise and Vibration Sensitive Receptors – Penrhos Site

Figure 16.3: Noise Measurement Locations - All Sites

Figure 16.4: Construction Noise Assessment Locations - All Sites

Figure 16.5a: TAN 11 Noise Exposure Categories – Daytime Kingsland Site

Figure 16.5b: TAN 11 Noise Exposure Categories – Night-time Kingsland Site

Figure 16.6a: Daytime Noise levels and Proposed Sample Receptor Locations – Cae Glas and Penrhos Sites

Figure 16.6b: Night-time Noise levels and Proposed Sample Receptor Locations – Cae Glas and Penrhos Sites

Figure 18.1: Monitoring locations

Figure 18.2: Site locations

Figure 19.1: Existing utility infrastructure

List of Tables

Table 2.1: EIA Parameters and Relevant Plans

Table 2.2: Supporting Plans

Table 2.3: Comments on EIA Scope

Table 2.4: Significance Criteria to be adopted for impact assessment

Table 2.5: The Project Team

Table 5.1: Assessment Parameters

Table 6.1: Potential Construction Effects and Mitigation

Table 7.1: Planning Policy Framework

Table 7.2: Relevant Planning Policy Wales Policies

Table 7.3: Relevant Anglesey Local Plan Policies

Table 7.4: Relevant Gwynedd Structure Plan Policies

Table 7.5: Summary of Relevant UDP Policies

Table 8.1: 2001 Census Population and 2010 Mid-year Population Estimates

Table 8.2: Welsh Language 1991 – 2001

Table 8.3: Visitors to the Penrhos Coastal Park 2003 – 2010

Table 8.4: Economic Activity in the Wards surrounding the Study Area and the wider Area

Table 8.5: Primary Schools in Holyhead

Table 8.6: Secondary Schools in the Local Area

Table 8.7: Proximity of medical facilities

Table 8.8: Dwelling Tax Bands

Table 8.9: Community Facilities

Table 8.10: Crime Statistics for Anglesey and Wales 2010-2011

Table 8.11: Estimated Construction Costs

Table 8.12: Estimate of Construction Employment

Table 8.13: Estimation of Potential Visitors (weekly and annually) for the Leisure Village

Table 8.14: Indicative Staffing Breakdown for the Penrhos / Cae Glas Leisure Village (based on evidence from Center Parc operations).

Table 8.15: Build-up of Visitors and On-site Employment (FTE jobs), 2020 and 2022

Table 9.1: Construction Phase – Predicted Landscape and Visual Impacts

Table 10.1 Source of information reviewed for desktop survey

Table 10.2 Quantification of habitats present within Penrhos

Table 10.3 Quantification of habitats present within Cae Glas

Table 10.4 Quantification of habitats present within Kingsland

Table 10.5 Species of Conservation Concern known from desktop records (2007 to 2012)

Table 10.6 Peak counts of birds of importance with the Beddmanarch-Cymyran SSSI – Winter 2011 – 2012

Table 10.7 Great Crested Newt Habitat Suitability Index assessment results April 2012

Table 10.8 Amphibian survey results for 2012

Table 10.9 Identification of potential ecological receptors

Table 10.10 Habitats lost, modified and gained

Table 10.11 Summary of chough land management requirements

Table 10.12 Summary of demolition and construction impacts prior to mitigation

Table 10.13: Predicted numbers of visitors to the Penrhos Leisure Village (Penrhos and Cae Glas)

Table 10.14 Annual numbers of visitors using different parts of the Anglesey Coastal Footpath

Table 10.15 The condition of qualifying feature habitats within the Holy Island Coast SAC

Table 10.16 Road distances between Penrhos sites and public car parks within or adjacent to the Holy Island SAC

Table 10.17 Annual numbers of visitors using Penrhos CP

Table 10.18 Summary of post-construction impacts prior to mitigation

Table 10.19 Long term monitoring of biodiversity at Penrhos 2013 to 2022

Table 10.20 Summary of residual impacts arising from demolition and construction

Table 10.21 Summary of residual impacts arising post-completion

Table 11.1: Factors for assessing the value of archaeological assets

Table 11.2: Factors in the Assessment of Magnitude of Impacts

Table 11.3: Determination of Significance of Effect

Table 11.4: Construction Stage Impacts

Table 11.5: Operational Impacts

Table 11.6: Construction Stage Mitigation Measures

Table 11.7: Residual Construction Impacts

Table 11.8: Residual Operational Impacts

Table 12.1: Assessment of Magnitude

Table 12.2: Assessment of Receptor Value

Table 12.3: Table format

Table 12.4: Generic Significance Descriptors

Table 12.5: Leachate Levels in Cae Glas Landfill (from Golders 2008)

Table 12.6: Contaminant concentrations in Cae Glas Leachate (from WEL, 1994 and Golders 2008)

Table 12.7: Current and historic potentially contaminating uses within 500m of the sites

Table 12.8: Summary of Gas Monitoring Data (Golders 2008 and 2010)

Table 12.9: Contamination associated with on-site activities

Table 12.10: Potential Contamination associated with off-site activities

Table 12.11: Potential Receptors to contamination

Table 12.12: Penrhos Environmental Risk Assessment (Conceptual Model)

Table 12.13: Kingsland Environmental Risk Assessment (Conceptual Model)

Table 12.14: Cae Glas Environmental Risk Assessment (Conceptual Model)

Table 12.15: Construction Impacts (Soils, Geology, Groundwater)

Table 12.16: Construction Impacts (Contaminated Land)

Table 12.17: Operational Impacts (Soils, Geology, Groundwater)

Table 12.18: Operational Impacts (Contaminated Land)

Table 12.19: Construction Residual Impacts (Soils, Geology, Groundwater)

Table 12.20: Construction Residual Impacts (Contaminated Land)

Table 12.21: Operational Residual Impacts (Contaminated Land)

Table 13.1: Assessment of Impact Magnitude

Table 13.2: Significance Criteria

Table 13.3: EA Predicted Extreme Sea Levels for the Vicinity of Penrhos (Return Period T)

Table 13.4: Surface Water Impacts from Demolition and Construction

Table 13.5: Foul Drainage Impacts from Demolition and Construction

Table 13.6: Flood Risk Impacts from Demolition and Construction

Table 13.7: Surface Water Impacts from the Completed Development

Table 13.8: Foul Drainage Impacts from the Completed Development

Table 13.9: Flood Risk Impacts from the Completed Development

Table 13.10: Demolition and Construction Residual Impacts

Table 13.11: Completed Development Residual Impacts

Table 14.1: Growth Factors

Table 14.2: Parc Cybi Traffic Generation

Table 14.3: Personal Injury Collisions: Annual Totals

Table 14.4: Summary of Bus Services Penrhos

Table 14.5: Summary of Local Bus Services Cae Glas

Table 14.6: Summary of Local Bus Services Kingsland

Table 14.7: Traffic Generation Weekday Peak Hours 2022

Table 14.8: Traffic Generation Saturday Peak Hour 2022

Table 14.9: Comparison of Future Baseline and Future Year Flows Weekday AM Peak Period

Table 14.10: Comparison of Baseline and Future Year Flows Weekday PM Peak Assessment

Table 14.11: Comparison of Baseline and Future Year Flows Saturday

Table 14.12: Pedestrian Delay Weekday Peak Periods

Table 14.13: Pedestrian Delay Saturday

Table 14.14: Summary of Effects

Table 14.5: Summary of Residual Effects

- Table 15.1: Local monitoring data sources suitable for model verification
- Table 15.2: Significance of Effects of Each Activity Pre Mitigation
- Table 15.3: Significance of Effects of Each Activity with Mitigation
- Table 15.4: Matrix for Determining the Significance of Effects
- Table 15.5: Significance Criteria for Annual Mean NO₂ and PM10-_T Concentrations
- Table 15.6: Significance Criteria for Daily Mean PM10 Concentrations
- Table 15.7: Summary of method for assessing the significance of air quality effects
- Table 15.8: 2010 Estimated background concentrations used in the assessment (µg/m³)
- Table 15.9: IOACC's Monitoring Data (µg/m³)
- Table 15.10: Examples of Receptor Sensitivity to Construction Phase Impacts
- Table 15.11: Receptor Locations Used in the Assessment
- Table 15.12: Construction Phase Summary Significance Table Prior to Mitigation
- Table 15.13: Construction Phase Summary Significance Table with Mitigation

- Table 16.1: Planning Advice for each Noise Exposure Category
- Table 16.2: Noise Levels Corresponding to the NECs for New Dwellings LA_{eq,T} dB
- Table 16.3: Impact Scale for Comparison of Future Noise Against Existing Noise
- Table 16.4: Classification of Magnitude of Noise Impacts in the Short Term
- Table 16.5: Classification of Magnitude of Noise Impacts in the Long Term
- Table 16.6: Guidance on Effects of Vibration Levels Based on Human Perception
- Table 16.7: Transient Vibration Guide Values for Cosmetic Damage
- Table 16.8: Criteria Used to Define the Sensitivity of Receptors
- Table 16.9: Impact Magnitude Scale for Construction Noise
- Table 16.10: Impact Magnitude Scale for Construction Vibration - Human Perception - Absolute Levels
- Table 16.11: Impact Magnitude Scale for Road Traffic Noise Level Changes
- Table 16.12: Impact Magnitude Scale for Proposed Fixed Plant
- Table 16.13: Matrix for Determining the Impact Significance (Impact Magnitude Versus Sensitivity of Receptor)
- Table 16.14: Noise Measurement Equipment
- Table 16.15: Summary of Measured Road Traffic Noise Levels (Surveys 1 and 3) – Free field, dB(A)
- Table 16.16: Summary of Measured Noise Levels from Alpoco Works (September 2012 – Survey 3), Free-field dB(A)
- Table 16.17: Summary of Measured Noise Levels from Match Event at Holyhead Hotspur Ground (Survey 2), Free-field, dB(A)
- Table 16.18: Summary of Measured Noise Levels from Holyhead Leisure Centre Fixed Plant (Survey 3)
- Table 16.19: Summary of Measured Background Noise Levels at Existing and Proposed Noise Sensitive receptors (Surveys 1 and 2), Free-field dB(A)
- Table 16.20: Assumed Construction Plant Details
- Table 16.21: Predicted Unmitigated Construction Noise Levels (Cae Glas and Penrhos Sites) – Façade LA_{eq,T} (dB)
- Table 16.22: Predicted Unmitigated Construction Noise Levels (Kingsland Site) – Façade LA_{eq,T} (dB)
- Table 16.23: Predicted Groundborne Vibration Levels Applicable to Typical Vibration Generative Construction Work Activities
- Table 16.24: Predicted Impact Magnitude for Range of Activities at Closest Receptors - Groundborne Vibration – Cae Glas and Penrhos
- Table 16.25: Predicted Impact Magnitude for Range of Activities at Closest Receptors - Groundborne Vibration – Kingsland
- Table 16.26: Required Sound Insulation Performance for Dwellings on Site Boundary with Holyhead Hotspur Sports Stadium and Holyhead Leisure Centre, dB
- Table 16.27: Required Sound Insulation Performance for Sample Holiday Accommodation on Cae Glas and Penrhos sites, dB
- Table 16.28: Predicted Changes in Road Traffic Noise Levels Resulting from Operation of the Redevelopment (2012 versus 2017), Free-field, dB(A)

Table 16.29: Predicted Changes in Road Traffic Noise Levels Resulting from Operation of the Redevelopment (2012 versus 2022), Free-field, dB(A)

Table 16.30: Predicted Changes in Road Traffic Noise Levels Resulting from Operation of the Redevelopment (2012 versus 2037), Free-field, dB(A)

Table 16.31: Proposed Noise Limits for Future Plant Noise

Table 16.32: Predicted Noise Levels at Closest Proposed Residential Dwelling to Kingsland Road, and Required Building Fabric Sound Attenuation to Achieve BS8233 Criteria, dB

Table 16.33: Sound Insulation Performances of Different Glazing Types for A Road Traffic Noise Source, As Set Out In PPG24, dB

Table 16.34: Range of Measured Sound Reduction Performances of Passive Ventilators, with Vents Open, dBA

Table 16.35: Required Sound Insulation Performance for Sample Holiday Accommodation on Cae Glas and Penrhos sites (With Proposed Noise Bund and Barriers), dB

Table 16.36: Required Noise Reduction for Worst Case Construction Noise Levels, Penrhos and Cae Glas dB(A)

Table 16.37: Required Noise Reduction for Worst Case Construction Noise Levels, Kingsland dB(A)

Table 17.1: Estimated Waste Arisings from Construction of the Building Development

Table 17.2: Estimated Construction Waste Composition from the Development

Table 17.3: Penrhos Waste Arisings

Table 17.4: Cae Glas Nuclear Workers Waste Arisings

Table 17.5: Cae Glas Leisure Village Waste Arisings

Table 17.6: Kingsland Residential Waste Arisings

Table 18.1: Monitoring locations descriptions

Table 18.2: Environmental Zones

Table 18.3: Obtrusive Light Limitations for Exterior Lighting Installations (ILP, 2011)

Table 18.4: Significance Criteria used in the Assessment

Table 18.5: Baseline Lighting Conditions Recorded on the Site and in the Surrounding Area and Details of the ILP Environmental Zone Criteria

Table 18.6: Obtrusive Light Limitations for Exterior Lighting Installations (ILP, 2011)

Table 20.1: Anglesey and Gwynedd Sustainability Objectives

Table 20.2: Methodology for Determining Magnitude of Effects

Table 20.3: Key baseline/ sustainability Issues

Table 20.4: Sustainability Appraisal

Table 22.1: Summary of Residual Effects