04. Design Response

4.1. This Chapter sets out the Design Principles developed in response to the emerging principles identified in Chapter 3. The Design Principles have been developed under the following headings:

- Built Form and Visual Structure;
- Movement and Connections;
- Landscape

4.2. These principles set the brief for the Design Proposals which are described in Chapter 5 of this statement.

4.3. The Table opposite demonstrates how the design principles form the framework for the site in terms of the three headings.

Analysis Component	Design Principle	Hirwaun Principle
Built Form, Uses and Activities	Specify or design items of larger plant with consideration to their visual appearance in the local and wider landscape.	The proposed buildings, structures and perimeter security fencing shall be of high quality design. Materials used for cladding shall above all need to be durable and functional for operation for 25yrs in a power station environment. Consideration should be given to cladding in grades of greyscale or colour appropriate to the local surroundings, for the largest buildings, to minimise visibility in long distance views whilst adding visual interest at street level.
Built Form, Uses and Activities	Reinstate the routes of the gas and electrical connections with appropriate planting for their wider and local landscape and habitat setting, taking into account the need to avoid damage from roots.	Soft planting along connection routes should be reinstated in accordance with soil handling and reinstatement strategy to be developed as part of project CEMP and restored to an appropriate grassland mix or grazing pasture or to Marshy Grassland as appropriate. Where existing woodland / trees are lost and cannot be replaced through tree planting due to restrictions above and adjacent to the pipeline to retain the linear feature and provide connectivity for wildlife. Where inside the permanent easement of the Gas Connection, only shallow-rooting tree/shrub species should be used in order to avoid interfering with the installed Gas Connection.
Built Form, Uses and Activities	The use of soft landscaping should be maximised within the Power Generation Plant site where safety and operational considerations allow.	Amenity planting should be used to enhance the character of the industrial estate. The design of perimeter security fencing and its alignment inside boundary structure planting should provide a ‘soft’ edge to the industrial development, and connect with adjacent trees and vegetation. Where safe and operationally feasible to do so, further planting within the interior of the site should be considered where it provides amenity to both passers by and users of the site itself.
Built Form, Uses and Activities	Seek to re-use existing materials and hardstanding to minimise embodied energy losses and reinforce local character, where safe to do so and the materials are durable.	Seek to retain most or all of the existing foundation slabs and locate the majority of development thereon. Site-won materials should be stored and re-used on site in line with the CEMP / Demolition Method Statement.

Analysis Component	Design Principle	Hirwaun Principle
Built Form, Uses and Activities	A landscaping scheme should be developed that ensures the site is designed and land-scaped to complement the local and wider setting, and screen in identified views. Good quality trees shall be retained so far as possible.	The approach to screen planting should seek to improve the amenity of the area and enhance biodiversity, and be carried out in accordance with the Landscape Strategy. Existing woodland should be retained where possible. Belts of trees along both eastern and western edges of the site should be planted. An avenue of trees should be planted along Main Avenue to the south of the site and the line of trees on the south side of Main Avenue should be extended. To the north of the site, intermittent tree planting should reflect the character of scrub. An area of semi-improved grassland is to be retained/ reinstated where lost on the northern boundary. All re-instatement planting should be native species.
Built Form, Uses and Activities	Lighting shall be appropriate to the local context, to create visual interest at the street level if appropriate but avoid lighting impacts upon identified habitats, neighbouring occupiers, and the wider landscape.	The lighting shall maintain the 'Ambient night time' Environmental Zone that the site is identified as falling within at present and is appropriate in its local context, in accordance with the Outline Lighting Strategy. This would be achieved through appropriate placing, directionality, and technology of lighting and a preference for a greater number of, lower level, building mounted lamps. Design choices for lighting should be made with a view to minimising the impact on sensitive receptors identified in the Lighting Strategy, such as the SINC.
Built Form, Uses and Activities	Stacks should be designed at a height which causes minimum visual impact whilst also allowing for adequate dispersion of stack emissions	The design of the project utilises technology (SGCT) that allows a signifi-cant reduction in stack height compared to other technology types. Stack shall be between 30m – 35m height and shall not be illuminated or contain signage or branding unless necessary for a recognised safety / operational requirement.
Built Form, Uses and Activities	The Power Generation Plant site shall be laid out and maintained in a safe and attractive manner and which supports a positive public perception of the operation.	The main entrance and other permanent accesses shall have high quality branded signage so that visitors and passers-by can understand the use of the site. Vehicle parking, storage areas and smaller structures shall be laid out and screened so as to minimise visual clutter and improve the safety and per-ception of safety of the site operation. The CEMP shall include measures for the maintenance of a tidy and con-tained site compound during construction
Built Form, Uses and Activities	The site layout shall consider the need to minimise noise and vibration impacts on the wider area.	Detailed design shall ensure that noise is mitigated as far as possible, through the Project Site layout and consideration of the orientation of plant items associated with higher sound power levels. Inherently quiet plant items shall be selected wherever practicable. Consideration shall be given to the use of silencers and housing plant items in acoustic enclosures where practicable.

Analysis Component	Design Principle	Hirwaun Principle
Built Form, Uses and Activities	Consideration shall be given to the most appropriate choice of materials. Materials should be agreed with the local planning authority.	Materials chosen shall be robust, high quality and cost-effective. The architectural design, use of raw materials and colours of the buildings and structures on the Hirwaun Site shall be designed to reduce glare and assimilate the Project into the surrounding landscape.
Movement and Connections Movement	Ensure that access routes are appropriate for the vehicles that shall use them during site construction and operation	Re-use existing entrances to provide adequate operational and safety access. Design of new access track for the AGI shall minimise hard standing area and grassland loss whilst remaining clear for the necessary vehicles to access. Where removed for construction works, roadway and footpath shall be reinstated with a durable and well-finished surface
Movement and Connections Access	Provide suitable access for emergency vehicles to and around the site.	Access to fire vehicles shall be provided consummate with the Building Regulations 2012; 'Approved Document B 2010' Section 16 - Vehicle Access.
Movement and Connections Access	The design should be accessible to existing public transport routes and mitigate any significant transport impacts	Opportunities to improve the quality of the pedestrian cut through to the bus stop on Rhigos Road shall be considered 2 sheltered cycle spaces and a shower room shall be provided to the workshop/store building. Vehicle parking shall be adequate for workers and visitors to the site and shall include a fully accessible space for a disabled worker or visitor, and be proximate to buildings they serve.

Analysis Component	Design Principle	Hirwaun Principle
Landscape/ Environmental suitability	Public spaces adjacent to the development shall not experience a reduction in lighting unless necessary to protect identified habitats or other sensitive receptors.	Consideration should be given to improving lighting along the perimeter of the Power Generation Plant site to Main Avenue and the pedestrian cut through to the bus stops at Rhigos Road. External lighting should be of a specification and angle that reduces trespass.
Landscape/ Environmental suitability	Retain and reinforce boundary tree planting where trees are found to be of good/retainable quality. The design shall take into account the provision of robust fencing around the site to ensure safety of the site	The design of perimeter security fencing and its alignment inside boundary structure planting shall provide a 'soft' edge to the industrial development, and connect with adjacent trees and vegetation. Amenity planting shall be used to enhance the character of the industrial estate. Natural surveillance shall be facilitated through the location of the gatehouse and the use of chain link or weld mesh fence where safe to do so, in preference to solid hedge or wall. Trees should be maintained/selected to have a canopy no lower than around 1.8m to allow some short / angled views in and out of the site whilst acting as screening to taller and more distant structures within the site.
Landscape/ Environmental suitability	Minimise impacts on existing habitats and species within the site	The design of landscape planting should enhance the area's biodiversity through: the retention of existing woodland; the planting of belts of trees to increase the amount of woodland in the area; the reinstatement of planting where possible and appropriate; and careful management of soils. A dedicated structure shall be created for bats to roost in, in the west part of the site, with trees planted nearby and lighting avoided. 35 bat boxes and 30 bird boxes shall also be installed on retained vegetation around the PGP compound and in woodland to the north within Watt Power's ownership.

Analysis Component	Design Principle	Hirwaun Principle
Landscape/ Environmental suitability	The layout and landscaping shall be designed to minimise all aspects of water usage where operationally appropriate, thus process, sanitation and irrigation water usage.	There shall be no increase in impermeable built area of the site. Existing drainage provision shall be reused or repaired as necessary. Water tanks shall be designed to minimise visual clutter in views. The design of the site shall include the strategic placement of soil bunds and design considerations for access roads in order to avoid funnelling surface water or affecting surface water quality off site.