



Pengarnddu Service Reservoir

Design and Access Statement

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1 Introduction

This Design and Access Statement (DAS) has been prepared on behalf of Welsh Water (WW) in support of the planning application for the New Service Reservoir and associated works at Pengarnddu Service Reservoir, Merthyr Tydfil (referred to hereafter as “the Scheme”).

This document explains how the objectives of good design have been considered from the outset of the development process.

Specifically, those matters that must be addressed by a DAS are set out in the Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 within Paragraph 9(4) as follows:

A design and access statement must –

- (a) explain the design principles and concepts that have been applied to the development;
- (b) demonstrate the steps taken to appraise the context of the development and how the design of the development takes that context into account;
- (c) explain the policy or approach adopted as to access, and how policies relating to access in the development plan have been taken into account; and
- (d) explain how any specific issues which might affect access to the development have been addressed.

1.1 Scheme Description

An increase in the storage capacity of the existing Pengarnddu Service Reservoir (PSRv) is required to address a regulatory notice served by the Drinking Water Inspectorate (DWI). The carrying out of a manned internal inspection is also required to address the outstanding requirements of a notice served by the DWI in 2010.

The chosen solution to address both of the DWI's requirements is to construct a new 9ML (operational capacity) 2-cell Reservoir (approximately 61m x 50m) with abutting embankment and one-story concrete valve house adjacent to the existing Pengarnddu Service Reservoir. This New Service Reservoir (NSR) will provide the required additional storage capacity required and will enable a manned internal inspection of the existing PSRv to be carried out.

The existing boundary of PSRv will be extended to include the NSR, extension to existing access road, and footpaths that will be provided. Both the additional land and the land within the existing boundary of the PRSv site (referred to hereafter as “the Site”) will be enclosed with secure fencing.

1.2 Planning Policy Context

1.2.1 Planning Policy Wales

PPW and the National Development Framework (NDF) form the national policy framework for the development.

PPW was adopted in December in 2018 and provides the planning policy guidance at a national level. PPW sets out the Governments planning policies for Wales. Its primary objective is “to

ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales.”

PPW is made up of 5 principles, all of which seek to deliver this objective.

PPW policies which are relevant to this proposal are contained and discussed in Table 1.1 below.

Table 1.1: Relevant PPW Policies.

Policy	Description	Relevance to proposal
Chapter 2 - People and Places: Achieving Well-being Through Placemaking	PPW Chapter 2 sets out the need for planning policies, proposals and decision to promote sustainable development and support the well-being of people and communities across Wales. It also sets out the Key Planning Principles that should be followed to achieve the right development in the right place, including: • Making best use of resources – <i>“The proximity principle must be applied to ensure problems are solved locally rather than passing them on to other places of future generations. This will ensure the use of land and other resources is sustainable in the long term.”</i>; and • Maximising environmental protection and limiting environmental impact – Natural, historic and cultural assets must be protected, promoted, conserved and enhanced.	The delivery of the Scheme will enable WW to address requirements from the Drinking Water Inspectorate (DWI) to both increase the storage capacity of PSRv and to undertake an internal inspection of the existing SRv. WW are seeking to address the DWI's requirements through the delivery of the proposed Scheme to ensure that PRSv can continue to provide the required storage capacity for the area it serves. WW are seeking to address this requirement as soon as possible to avoid a delay in the delivery of the Scheme becoming problematic in the future. The design of the Scheme has sought to protect local natural and historic assets by minimising impacts and delivering appropriate mitigation.
Chapter 3 - Strategic and Spatial Choices	PPW Chapter 3 sets out how good design can be achieved through an inclusive processes and early collective consideration of placemaking issues at the outset. It emphasizes how good design can help to ensure high environmental quality, and how landscape and green infrastructure considerations are an integral part to the design process. It also sets out how the special characteristics of an area should be central to the design of a development as the layout, form, scale and visual appearance of a proposed development are important planning considerations.	The impacts of the Scheme upon landscape and visual amenity, ecology, and the historic environment were all considered throughout the design of the Scheme to ensure the proposed Scheme delivers a high-quality design that compliments the characteristics of the local area. Negative impacts from the delivery of the Scheme have been minimised as far as practicable and appropriate mitigation has been proposed where necessary.
Chapter 6 - Distinctive and Natural Places	PPW Chapter 6 sets out the strategy for preventing the loss of natural features that contribute to a place's identity. It is stated that: <i>“Desired Distinctive and Natural outcomes will be based on sustaining and creating places in which:</i> • <i>The role which landscapes, the historic environment, habitats and biodiversity, the characteristics of coastal, rural, or urban environments play in contributing to Distinctive and Natural places are identified, understood, valued, protected and enhanced.”</i> The Chapter sets out Welsh Governments specific objectives for the historic environment, including: • Protecting areas of the register of historic landscapes in Wales.	An Ecological Impact Assessment (EcIA) (ref: B10237-123532-XX-XX-RP-NB-DH108) was undertaken to assess the impact of the Scheme upon local ecology. The EcIA concluded that the proposed management of the habitats within the new Welsh Water boundary will enhance the ecological value of the Site by allowing the grassland to flower in places. The grassland will also provide additional habitat for ground nesting birds, reptiles and terrestrial invertebrates. A Landscape and Visual impact Assessment (LVIA) (ref: B10237-123532-ZZ-XX-RP-LA-DH0100) has been undertaken to assess the visual impact of the works upon the local landscape. This assessment concluded that the Scheme responds to its local context and would result in minor alteration to local landscape character and views overall.

The Chapter recognises that Common Land is a finite resource and should not be developed unnecessarily. The Chapter sets out the role the planning system plays in ensuring that the infrastructure on which communities and businesses depend is adequate to accommodate proposed development. It states the need for effective forward planning between water and sewerage companies and planning authorities, and how planning authorities and infrastructure must work together to achieve the most sustainable outcomes.

The Scheme is within the boundary of Merthyr Tydfil Landscape of Outstanding Historic Interest. An Assessment of the Significance of the Impact of Development on Historic Landscape (ASIDHOL2) (ref: B10237-123532-XX-XX-RP-YA-DH0107) has been undertaken to assess the impacts of the Scheme upon the Historic Character Areas (HCA's) that comprise this registered historic landscape. The ASIDHOL2 sets out the mitigation that will be delivered to ensure the delivery of the Scheme supports the conservation of the local historic environment.

WW recognises that Common Land is a finite resource, and as set out at section 1.3 of this Planning Statement, a large area of land will be provided to replace the Common Land that will be purchased and developed upon as part of the proposed Scheme.

The proposed Scheme seeks to deliver necessary improvements to existing essential infrastructure works on behalf of WW. The delivery of these works will ensure the ongoing provision of adequate water supply for the areas governed by MTCBC that PSRv serves.

1.2.2 Technical Advice Note (TAN)12 Design, 2016

Detailed guidance on the objectives of good design are provided within TAN 12.

The objectives of good design are set out as follows:-

Access

- Ensuring ease of access for all

Character

- Sustaining or enhancing local character
- Promoting legible development
- Promoting a successful relationship between public and private space
- Promoting quality, choice and variety
- Promoting innovative design

Community Safety

- Ensuring attractive, safe public spaces
- Security through natural surveillance

Environmental Sustainability

- Achieving efficient use and protection of natural resources
- Enhancing biodiversity
- Designing for change

Movement

- Promoting sustainable means of travel

The Service reservoir has been designed to blend in with the existing surroundings at the site and the design appreciates, respects and responds to the local context and the character of the site.

1.2.3 The Merthyr Tydfil Replacement Local Development Plan (LDP)

The Merthyr Tydfil Replacement Local Development Plan (LDP) 2016-2031 provides the local planning policy framework for the area and was adopted in January 2020. The relevant policies are discussed in table 1.2.

Table 1.2: Relevant LDP Policies.

Policy	Description	Relevance to proposal
Policy SW4 – Settlement boundaries	Policy SW4 encourages development within urban areas and supports the re-use of previously developed land. The policy states that development outside of defined settlement boundaries will not be permitted unless it: Is for the provision of public utilities, infrastructure or waste management facilities that cannot reasonably be located elsewhere.	There is not an appropriate site within a settlement boundary at which an alternative scheme that successfully delivers the Scheme objectives can be delivered. As the Scheme is for the provision of essential improvement works to public utilities and cannot be reasonably located elsewhere, its delivery complies with Policy SW4.
Policy SW11 – Sustainable Design and Placemaking	Policy SW11 sets out the need for development to contribute to the creation of attractive and sustainable place through high quality, sustainable and inclusive design. The policy states that where appropriate new development will be required to: Not result in an unacceptable impact on local amenity, loss of light or privacy, or visual impact, and incorporate a good standard of landscape design.	The impacts of the Scheme upon local amenity have been considered throughout its design. Landscape design has been incorporated into the Scheme, and the visual impact of the Scheme has been assessed through a Landscape and Visual Impact Assessment (LVIA) (ref: B10237-123532-ZZ-XX-RP-LA-DH0100). The LVIA concluded that the proposed development responds to its context through careful siting and design to allow the proposals to be well integrated with the site locality. It is considered that the delivery of the Scheme would result in minor alteration to local landscape character and views overall.
Policy CW1 – Historic Environment	Policy CW1 emphasizes the need for historic environment assets to be conserved and enhanced. The policy sets out how development affecting undesignated historic environment assets should have regard to their special character and archaeological importance.	The Scheme is located within the boundary of an undesignated Merthyr Tydfil Landscape of Outstanding Historic Interest, which is comprised of a number of Historic Character Areas (HCAs). An Assessment of the Significance of the Impact of Development on Historic Landscape (ASIDHOL2) (ref: B10237-123532-XX-XX-RP-YA-DH0107) has been undertaken to assess the impacts of the Scheme upon HCA's. The ASIDHOL2 sets out the mitigation that will be delivered to ensure the delivery of the Scheme supports the conservation of the local historic environment.
Policy EnW1 – Nature Conservation and Ecosystem Resilience	Policy EnW1 sets out the requirement for development proposals to promote the resilience of ecosystems, and in particular, maintain and enhance biodiversity interests.	An Ecological Impact Assessment (EclA) (ref: B10237-123532-XX-XX-RP-NB-DH108) was undertaken to assess the impact of the Scheme upon local ecology. The EclA concluded that the proposed management of the habitats within the new Welsh Water boundary will enhance the ecological value of the Site by allowing the grassland to flower. The grassland will also provide additional habitat for ground nesting birds, reptiles and terrestrial invertebrates.

Policy EnW3 – Regionally Important Geological Site, Sites of Importance for Nature Conservation, Local Nature Reserves and Priority Habitat Species	Policy EnW3 states that development proposal likely to have an adverse impact on Regionally Important Geological Sites, Sites of Importance for Nature Conservation, Local Nature Reserves, or Priority Habitats and Species will only be permitted where it can be demonstrated that: • The development maintains and where possible enhances biodiversity and geodiversity interests.	The site is partially within the Blaenmorlais Site of Importance for Nature Conservation (SINC). The impacts of the delivery of the Scheme upon the SINC were assessed as part of the EclA (ref: B10237-123532-XX-XX-RP-NB-DH108) that was undertaken to assess the impact of the Scheme upon local ecology. The EclA concluded that the need for the development outweighs the conservation value of the Blaenmorlais SINC in its current condition, and that the proposed management of new habitats that will be created at the site will enhance its ecological value.
Policy EnW4 – Environmental Protection	Policy EnW4 sets out the need for development proposals to demonstrate that their delivery will not result in an unacceptable impact on people, residential amenity and / or the environment from either: • Pollution of land, surface water, ground water and the air; • Land contamination; • Hazardous substances; • Land stability; • Noise, vibration, dust, odour nuisance and light pollution; or • Any other identified risk to public health and safety.	The impacts listed at Policy EnW4 are only anticipated to occur during the construction phase of the Scheme. Appropriate mitigation is proposed to reduce the impacts of the construction phase on local amenity. An overview of the proposed mitigation is set out at section 5.8 of this document. The Contract Management Plan (CMP) (ref: BIMS 02-08.01DCWW CMP Rev A) submitted in support of this application provides full details of all mitigation that will be delivered during the construction phase.
Policy EnW5 – Landscape Protection	Policy EnW5 states that development proposals will be permitted where it can be satisfactorily demonstrated that: • It would not cause unacceptable harm to the character and quality of the landscape setting of the County Borough; • There is no satisfactory alternative and the benefits associated with the development can be demonstrated to outweigh the harm.	A Landscape and Visual impact Assessment (LVIA) (ref: B10237-123532-ZZ-XX-RP-LA-DH0100) has been undertaken to assess the visual impact of the works upon the local landscape. This assessment concluded that the Scheme responds to its local context and would result in minor alteration to local landscape character and views overall. As stated previously within this table, the use of an alternative site for the proposed Scheme is not possible.
Policy EcW10 – Sustainably Supplying Materials	Policy EcW10 sets out the importance of safeguarding mineral resources and favouring proposals which promote the sustainable use of minerals and encourage the use of secondary and recycled resources.	Throughout the construction of the proposed Scheme material excavated from site will be reused where possible.
Policy EcW13 – Minerals Safeguarding	Policy EcW13 sets out when new development proposals will be permitted in an area of known mineral resource, which includes: • Prior extraction would have an unacceptable impact on environmental or amenity considerations.	The proposed Scheme is located in an area where a safeguarded mineral (sandstone) is present. It is considered that due to the impacts on local amenity that the prior extraction of sandstone would be unacceptable, and therefore the proposed Scheme is considered to accord with Policy EcW13.

1.2.4 Supplementary Planning Guidance

Consideration has also been given to the context and guidance set out with the following Supplementary Planning Guidance (SPG).

Sustainable Design

Chapter 7: Water Conservation and Sustainable Drainage of the Sustainable Design SPG sets out the importance management of water resources and dealing with flood risk.

The delivery of the Scheme supports the SPG's aspiration to achieve long-term sustainable management of water resources. The Scheme does not increase the risk of flooding at the Site or its surrounding areas.

Nature and Development

The Nature and Development SPG sets out the importance of biodiversity, survey requirements, and how the impacts of development upon protected species, designated sites and habitats must be assessed and taken into consideration.

The site is partially within the Blaenmorlais Site of Importance for Nature Conservation (SINC). The impacts of the delivery of the Scheme upon the SINC were assessed as part of the EclA (ref: B10237-123532-XX-XX-RP-NB-DH108) that was undertaken to assess the impact of the Scheme upon local ecology.

The EclA concluded that the need for the development outweighs the conservation value of the Blaenmorlais SINC in its current condition, and that the proposed management of new habitats that will be created at the site will enhance its ecological value.

2 Site Description

2.1 Context of the Development

The Site is located at Pengarnddu, an area to the North East of Merthyr Tydfil that predominately consists of industrial land uses. The Site is adjacent to Pengarnddu Industrial Estate to the East and is North of a retail park. The land adjacent to the Sites to its North and West is Common Land. The Brecon Beacons National Park is located to the North.

The Site contains land within the boundary of the PSRV and Common Land. It is located at national grid reference SO 07500 08900. The location of the Site is displayed at the Location Plan (ref: B10237-123532-ZZ-XX-PL-ZA-PN0067) submitted as part of this application.

2.2 Existing Site Access

Access to the existing site is via a private access track connected to the unnamed road through Pengarnddu Industrial Estate, CF48 2TA. It is located at national grid reference SO 07651 08770. The location of the private access track is shown on the Location Plan (ref: B10237-123532-ZZ-XX-PL-ZA-PN0067) submitted as part of this application.

3 Proposed Development

3.1 Need for the Scheme

Following a loss of supply event in February/March 2018, the Drinking Water Inspectorate (DWI) served regulatory notice to WW for the provision of additional 9ML storage at the site. As expansion of the existing SRv is not possible, construction of the Scheme is necessary in order for WW to meet this requirement.

Construction of the Scheme will also enable WW to meet the outstanding requirements of a DWI notice served in 2010 which required the existing SRv to be by-passed, internally inspected and cleaned. A by-pass has been installed and cleaning and review has taken place by a Remotely Operated Vehicle, no manned inspection has been possible due to the criticality of the existing SRv within the supply network. The construction of the Scheme will enable the outstanding internal inspection to take place by providing the additional storage capacity required to allow the existing SRv to be drained for inspection.

3.2 Proposed Scheme

3.2.1 Objectives of the Scheme

The principle project objective of the Scheme is to enable the requirements of the two previously mentioned DWI notices to be fully addressed by WW.

3.2.2 Optioneering

The suitability of several design options was assessed as part of the optioneering process. The proposed Scheme was selected due to the following factors:

- Pengarnddu is a strategically good location in the network to provide additional storage due to the multiple locations it supplies;
- Although the two alternative sites that were considered are located next to existing water mains, they would require significant works to connect to the existing network, whereas PSRv has an existing connection;
- There is insufficient space for upgrade works of the pumping station at the Pontsticill Water Treatment Works (the WTW that supplies Pengarnddu).

3.2.3 Design Principles and Concepts

Table 3.1 below outlines the design principles and concepts for the proposed development.

Table 3.1: Design Principles and Concepts.

Subject	Comments
Site layout and positioning of the SRv	The position of the proposed SRv has been selected based on the following constraints: ○ Land ownership – the entire SRv structure must be situated within the Welsh Water land ownership boundary (ref: B10237-123532-ZZ-XX-DR-ZA-PN0067). ○ Water levels – the proposed and existing SRvs are to operate in a parallel supply arrangement. Therefore, the operational top and bottom water levels of the proposed SRv must be equal to the top and bottom water levels of the existing SRv. ○ Topography – the SRv has been positioned to minimise the depth of excavation required during construction. This mitigates the health and safety risks associated with the construction phase. Limiting the depth of the excavation reduces the volume of excavation required which lessens the disruption to the existing landscape.

Subject	Comments
	The existing site is supplied from pumped mains entering along the northern boundary of the site. The existing gravity supply mains exit the site in the south east corner. The valve house has therefore been designed to be positioned on the southern edge of the proposed SRv to reduce the depths of excavation required for connecting the outlet pipework from the proposed SRv into the existing supply network. As the valve house is positioned on the southern edge the extension to the existing access track is proposed as the solution which has the least impact on the site landscape whilst providing safe vehicular access for operational, maintenance and emergency scenarios.
Material selection	The proposed SRv is to be constructed with pre-cast concrete panels and in-situ concrete pours to connect the panels. The use of pre-cast concrete reduces the volume of concrete required for the structure and is considered a more sustainable approach as it contains a lower volume of embodied carbon as a result. The proposed SRv will be partially buried to minimise visual impact, reduce temperature variations of the stored water, and provide security to the walls of the structure. Site excavated material will be used to form the grass covered embankments. This will reduce the waste generated from the development and therefore the traffic movements reducing the carbon impact. The roof of proposed SRv is to be covered in gravel to aid the surface water drainage from the roof to prevent unnecessary loading due to surface water ponding. Kiosks are to be Glass Reinforced Plastic (GRP) coloured green in response to the vegetation within the landscape and to match the existing kiosks present on the site.
Site access	The existing site's entrance is utilised in the chosen solution to provide access to the site. Access within the site boundary from the entrance to the proposed SRv is via the existing access track and an access road extension. The extension is required to provide access for site operator's with vehicular access during inspection, maintenance and emergency procedures. A new parking area is proposed to provide safety parking for vehicles during operational, inspection, maintenance and emergency procedures.
One storey valve house	The design has been developed to reduce the number of one storey valve houses from two to one. This has eliminated the need for a new footpath to the second valve house. The valve house will provide operational access to the valves on the inlet and outlet pipework allowing each cell of the Reservoir to be isolated for maintenance and cleaning. The valve house will also include sampling equipment.
Landscaping & Visual Impact	During the siting and design process there has been due consideration for landscape and visual amenity. The proposed development would largely comprise covered infrastructure, with careful profiling and seeding of surrounding earthwork to integrate the proposals with the contextual open, moorland landscape. The roof of the proposed SRv is to be covered in gravel to aid the surface water drainage from the roof to prevent unnecessary loading due to surface water ponding. Whilst the gravel would form a recessive element and would not be readily noticeable where it occurs in distant views. Kiosks are to be coloured green in response to the vegetation within the landscape. A site boundary fence is required to provide a level of site security. Industrial looking metal palisade fence at the site perimeter should be avoided, instead new fencing would comprise of more visually permeable green wire mesh to limit the intrusion within the landscape and visual amenity. Full details of the landscape and visual impact implications of the proposed development have been considered through a Landscaping and Visual Impact Assessment (ref: B10237-123532-ZZ-XX-RP-LA-DH0100).
Assessment of the Significance of the Impact of Development on Historic Landscape	The design of the proposed SRv seeks to extend hard surfacing only to extend existing provisions and are kept to the minimum needed for functionality. Full details of the Significance of the Impact of the Development on Historic Landscape refer to the ASIDOHL2 (ref: B10237-123532-XX-XX-RP-YA-DH0107).
Planting & Vegetation	Areas of existing grassland which are disturbed by construction activities are to be sown with a grassland and wildflower mix which has been designed to mirror the existing site's grassland.

Subject	Comments
	Full details of the grassland and wildflower mix are shown on the Landscaping and Planting General Arrangement (ref: B10237-123532-XX-XX-DR-LA-DI9003).

3.2.4 The Proposed Scheme

The proposed development at PSRv is to construct a new 2-cell reservoir and associated works for use alongside the existing SRv.

The proposed Scheme will consist of the following components:

- 9ML (operational capacity) 2-cell Reservoir (61m x 50m);
- New overflow pipework;
- One storey concrete valve house;
- GRP motor control centre kiosk;
- GRP pumping station kiosk;
- Footpaths;
- Extension of the site access road; and
- Secure fencing.

The proposed development has been designed to tie in with the context of the existing site. The proposed SRv will be partially buried in the same style as the existing SRv. The proposed SRv's roof will be covered with gravel which will match the existing SRv. The proposed kiosks will be GRP coloured green to match the existing kiosks on site. Areas requiring reinstatement will be sewn with a grassland and wildflower mix which is similar to the grass present on the existing site. The surface finish to the extension of the access track will be similar to the surface finish of the existing site access track.

Details of the key components are set out at Table 3.2 below.

Table 3.2: Key Component Details.

Component	Details
9ML 2-cell Reservoir	The new 9ML 2-cell Reservoir will be of concrete construction and will be partially buried into the landscape. The excavated material will be used to form grass covered embankments that will cover the sides of the reservoir and will be profiled into the existing landscape. The reservoir roof will be covered with a gravel layer to aid drainage.
New overflow pipework	A new buried overflow pipe is required as a safety measure in the event the water level inside the Reservoir rises above its normal Operational Top Water Level.
One storey concrete valve house	The new valve house will be of concrete construction and connected to the new Reservoir. The valve house will provide operational access to the valves on the inlet and outlet pipework allowing each cell of the Reservoir to be isolated for maintenance and cleaning. The valve house will also include sampling equipment.
Footpaths	New footpaths will be constructed to provide site operatives access to chambers across the site during sampling and maintenance activities.
Site access road	The existing macadam site access road will be extended to allow vehicular access to the new Reservoir for activities including maintenance, inspections and tinkering.
Secure Fencing	The new security fencing will surround the new proposed site boundary. The fencing will be 1.8m tall Weldmesh fencing.

3.2.5 Proposed Site Access

Access to the proposed SRv will be via an extension to the existing private access track connected to the unnamed road through Pengarnddu Industrial Estate, CF48 2TA. It is located at national grid reference SO 07651 08770.

The junction between the existing private access track and unnamed road through Pengarnddu Industrial Estate will be unchanged. As such it is considered that the proposed development would not have an inconsequential impact on the local road network and would not result in unacceptable traffic conditions.

Maintenance visits post construction are considered to have a negligible impact on local highway movements.

Mobility impaired access to the site is not considered to be necessary as the site is not open to the general public and operational visits would take place intermittently.

4 Conclusion

To conclude, the proposed Scheme addresses the requirements of both regulatory notices that the DWI has served upon WW. The Scheme will provide an additional 9ML storage at the site and will enable inspection of the existing SRv.

Where possible the design of the Scheme has strived to eliminate and minimise impacts. Where this has not been possible, appropriate mitigation has been proposed. The proposals are considered to be policy compliant and this document addresses the requirements of the DAS.

