ARUP

Dŵr Cymru Welsh Water

Pont-y-felin Lane New Inn Nature Based Solution

Water Environment Regulations Compliance Assessment

Reference: B16789-102503-XX-XX-RP-NA-EI6704

P1 | 24/02/2023

Job number 275292

Ove Arup & Partners Limited
4 Pierhead Street
Capital Waterside
Cardiff
CF10 4QP
United Kingdom
arup.com

ARUP

Document Verification

Project title	Pont-y-felin Lane New Inn Nature Based Solution
Document title	Water Environment Regulations Compliance Assessment
Job number	275292-00
Document ref	B16789-102503-XX-XX-RP-NA-EI6704
File reference	4-00

Revision	**Date**	**Filename**			
P1	24/02/2023	**Description**	Water Environment Regulations Compliance Assessment		
			Prepared by	**Checked by**	**Approved by**
		Name	Bethan Follis	Rhodri Thomas	Rowena Ekermawi
		Signature			
		Filename			
		Description			
			Prepared by	**Checked by**	**Approved by**
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	**Checked by**	**Approved by**
		Name			
		Signature			

Issue Document Verification with Document ✓

Contents

1.	Introduction	1
1.1	Project Background	1
1.2	Purpose of this report	1
1.3	Supporting information	1
2.	Legislative Context	2
3.	Assessment Methodology	3
3.1	Scope of the assessment	3
4.	The Site	4
4.1	Location	4
4.2	Geology	4
4.3	Topography	4
4.4	Climate	5
4.5	Land use	5
4.6	Ecology and biodiversity	5
4.7	The watercourse	5
5.	Proposed Scheme	6
5.1	Scope	6
5.2	Mitigation	6
6.	Baseline (Screening) Assessment	8
6.1	Overview	8
6.2	Relevant WER waterbodies	8
6.3	Afon Lwyd - below Mon and Brecon Canal	8
7.	Scoping Assessment	9
7.1	Overview	9
7.2	Construction impact assessment	10
7.3	Operational (permanent) impact assessment	11
8.	Conclusions	12

Tables

Table 1: Summary of the status of the Afon Lwyd - below Mon and Brecon Canal waterbody 8

Table 2: Potential effects of the proposed project construction on the status and objectives of the Afon Lwyd waterbody. 10

Table 3: Potential effects of the proposed project on the status and objectives of the Afon Lwyd waterbody. 11

Figures

Figure 1. Site Location of the Pont-y-felin site, New Inn. 4

Figure 2: Ecological status classification process (Source: Environment Agency (2015) A-15

Figure 3: Groundwater body status classification (Source: UKTAG (2012)) A-17

Appendices

Appendix A A-13
Water Environment Regulations Background Information A-13
A.1 Water Environment Regulations Background A-14

Appendix B B-23
General Arrangement B-23

1. Introduction

1.1 Project Background

This report comprises a Water Environment Regulations (WER) Compliance Assessment report prepared by Arup on behalf of Dŵr Cymru Welsh Water (DCWW) to support works associated with consenting of the proposed works at Pont-y-felin Lane New Inn Nature Based Solution.

Pont-y-felin Lane combined sewer overflow (CSO) is located within New Inn, Pontypool and sits within the Ponthir sewer catchment, and discharges into the Afon Lwyd. Pont-y-felin Lane CSO has been identified as spilling more frequently than designed. A Nature Based solution (NBS) comprising reedbeds and a constructed wetland has been selected as the most appropriate and effective solution to improve the treatment of CSO discharges, thereby improving the quality of water entering the Afon Lwyd

1.2 Purpose of this report

This assessment identifies the potential effects of the proposed scheme on the current status and status objectives of water bodies present at the site. The key objectives of the assessment are to:

- identify the relevant water bodies that may be affected by the proposed scheme and collate the available baseline information.
- identify relevant scheme components with the potential to affect the water bodies at the site, together with any embedded mitigation measures integrated into the current design.
- undertake a preliminary scoping assessment to identify the baseline condition at the site and the likely impacts of the proposed scheme on the current status and status objectives of the relevant waterbodies (including identification of any additional mitigation requirements).
- identify any risks of non-compliance with waterbody objectives and associated requirements for further detailed impact assessment and/or mitigation design; and
- identify potential enhancement opportunities to support the delivery of waterbody objectives.

The report summarises the proposed scheme and the assessment methodology and results. The assessment has been undertaken in accordance with relevant guidance (see Appendix A) and has involved a desk-based study using readily available NRW baseline information and existing available site visit information.

The WER assessment comprises a ‘living document’ and will be reviewed and updated as necessary in liaison with the Natural Resources Wales (NRW) to support the final construction consents and approvals process.

1.3 Supporting information

Other relevant environmental baseline and impact assessment reports produced to date to support the proposed scheme are listed below and are cross-referenced as part of this assessment:

- Environmental Checklists and Constraints Plans
- Ecological Impact Assessment
- Geotechnical Summary
- Solutions Report (B16789-102503-XX-XX-RP-TA-DH6701)
- Environmental Modelling Report (B16789-102503-XX-XX-RP-TA-DH6700)

2. Legislative Context

The Water Environment (Water Framework Directive) (England and Wales) Regulations (amended 2017) is currently the largest and most influential piece of UK legislation for the water environment and transposes the Water Framework Directive (WFD) into English and Welsh law. NRW is the competent authority responsible for delivering the requirements of the WFD (as transposed) in Wales.

The legislation takes an integrated approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems.

Under the WER, water bodies are the basic management units and are defined as all or part of a river system or aquifer. These water bodies form part of a larger River Basin District (RBD), for which River Basin Management Plans (RBMPs) are developed and environmental objectives are set. These RBMPs are produced every six years, in accordance with the river basin management planning cycle.

The WER requires classification of the current condition of water bodies. This is referred to as their 'status' or, for artificial or heavily modified water bodies, their 'potential'. The WER also requires the setting of a series of objectives for maintaining or improving conditions so that water bodies reach and/or maintain at least 'Good' overall status or potential. These overall Environmental Objectives are to:

- Prevent the deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters.
- Aim to achieve at least 'Good' status for all water bodies by 2015. Where this has not been possible and is subject to the criteria set out in the Directive, aim to achieve Good status by 2021 or 2027.
- Meet the requirements of WER Protected Areas.
- Promote sustainable use of water as a natural resource.
- Conserve habitats and species that depend directly on water.
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment.
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants.
- Contribute to mitigating the effects of floods and droughts.

All new (and on-going) activities in the water environment need to be guided by the requirements of the WER. This includes ensuring that no changes occur that causes a deterioration of current status of a water body or prevents the achievement of the future status objectives of a water body.

Further details regarding the water body status classification process, the requirements of WER Compliance Assessments, and relevant guidance is provided in Appendix A of this report.

3. Assessment Methodology

3.1 Scope of the assessment

Assessments typically comprise a stepped process undertaken in parallel with the design development for a proposed scheme. This includes the following key steps:

- Screening assessment to determine which waterbodies are at risk from the proposals.
- Scoping assessment to consider potential impacts upon quality elements against the scheme proposals.
- Detailed impact assessment (not required for this project); and
- Application of Article 4.7 / Regulation 19 (not required for this project).

These key process steps are described in Appendix A2 of this report.

This report comprises an updated screening and scoping assessment to support the planning submission for the proposed scheme. The assessment is based on currently available site investigation and the latest design information, which has been developed with input from fluvial geomorphologists and aquatic ecologists, and in consultation with NRW.

The spatial scope of the assessment includes all designated surface water and groundwater bodies potentially affected by the proposed scheme. The assessment considers the potential impacts of the proposed scheme on the relevant quality elements associated with the water bodies affected, at the water body scale.

The assessment focuses on the permanent impacts of the proposed scheme. Temporary impacts are not considered to result in a deterioration in WER status and so have not been considered within the assessment in accordance with current guidance. In this sense, impacts are not considered to result in a deterioration of the status if the water body:

- is only impacted for a short time period.
- is likely to recover within a short time period.
- is likely to recover without the need for any restoration measures.

3.2 Data sources

The following datasets and resources are readily available online and have been collated to support this assessment:

- Cycle 2 River Basin Management Plan (RBMP), Severn River Basin District (see https://www.gov.uk/government/publications/severn-river-basin-district-river-basin-management-plan)
- Severn Cycle 3 RBMP 2021 water body status classification and status objectives data (taken from the NRW Rivers and Waterbodies Map https://waterwatchwales.naturalresourceswales.gov.uk/en/)
- WER Protected Area data (taken from NRW Water Watch Wales).
- The British Geological Society Interactive Map (see https://mapapps.bgs.ac.uk/geologyofbritain/home.html).
- Designated Site information (see https://magic.defra.gov.uk/MagicMap.aspx).

4. The Site

4.1 Location

The site is located off Pont-y-felin Lane, New Inn, Pontypool, NGR: ST3026999067, Post Code: NP4 0QF.

Figure 1. Site Location of the Pont-y-felin site, New Inn.

4.2 Geology

The British Geological Survey (BGS) 1:50,000 scale mapping indicates that the site located on alluvium deposits of Quaternary age, comprising clay silt, sand and gravel. The underlying bedrock is indicated to comprise Raglan Mudstone Formation. This group comprises red mudstones and silty mudstones with mixed calcretes and sandstones, and conformably overlies the Downton Castle Sandstone formation. The mudstone units have relatively low permeability but this is overlain by the Townsend Tuff bed and Bishop's Frome Limestone, which are higher permeability units

The bedrock lithology is overlain by superficial deposits of alluvium, comprising mixed sand and gravel. Both the bedrock and superficial deposits are classified as Secondary A aquifers, which are defined as permeable layers capable of supporting water supplies at a local rather than strategic scale. They may also form an important source of base flow to rivers. The hydrogeological mapping further classifies the site area as being within a low productivity aquifer, with limited groundwater.

4.3 Topography

The site is located on an elevation varying between 89.6m AOD and 91.8m AOD, The relatively flat nature of the area makes the site optimal for the nature-based solution.

4.4 Climate

Annual rainfall in the area is 1,200.1 - 1,400mm Seasonally Adjusted Annual Rate (SAAR).

4.5 Land use

The site is a green amenity space for the local population providing a space for recreational activities, such as walking. The site is currently used recreationally, and as such footpaths are present across the site. A public right of way (PRoW) (footpath) runs through the west of the site (north- south).The site is bordered to the east by residential properties, including a residential area extending to the southeast and south of the site.

4.6 Ecology and biodiversity

4.6.1 Species and Habitats

The Species and habitats on site are described in detail in the Ecological Impact Assessment (EcIA) Several protected species surveys have also been undertaken, refer to EcIA for details.

Japanese knotweed and three-cornered garlic (*Allium triquetrum*), both Schedule 9 invasive non-native species, were identified on Site, the former within the broadleaved parkland to the west of the site, bordering the Afon Lwyd, and present as saplings in grassland to the southeast. Three cornered garlic was recorded in broadleaved woodland in the south-eastern extent of the site. Refer to the EcIA for further detail.

4.6.2 Designated Sites

The site location is in proximity to several designated sites:

River Usk / Afon Wysg Special Area of Conservation (SAC) lies 7.20km east of the site. The site is primarily designated for its Annex II species including sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), twaite shad (*Alosa fallax*), Atlantic salmon (*Salmo salar*), bullhead (*Cottus gobio*) and otter (*Lutra lutra*), with allis shad (*Alosa alosa*) also present as a qualifying species, though not a primary reason for selection of the site. Habitat comprising water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation are also noted to be a qualifying feature of the site, though not a primary reason for its selection.

Llandegfedd Reservoir Site of Special Scientific Interest (SSSI) lies 1.4km east. This reservoir is the largest inland open water habitat in the county and is one of the three regionally important overwintering wildfowl refuges in Wales, further noted for this in the LPD. The site is particularly important for the overall numbers and variety of wintering wildfowl, with large numbers of wigeon (*Mareca penelope*), pochard (*Aythya ferina*) and mallard (*Anas platyrhynchos*). Other notable species include goosander (*Mergus merganser*), teal (*Anas crecca*) and goldeneye (*Bucephala clangula*). The area around the reservoir includes grassland, important for feeding and roosting wildfowl, woodland and scrub.

4.7 The watercourse

The proposed works are located adjacent to a main river (Afon Lwyd). The associated WER River waterbody is Afon Lwyd - below Mon and Brecon Canal (GB109056032911). It is classified under the WER (Cycle 3, 2021) as Moderate quality. The Afon Lwyd bounds the site to the west and a small stream bounds the site to the south, which feeds into the Afon Lwyd. The Afon Lywd flows from its source northwest of Blaenavon , joining the river Usk at Caerleon, which subsequently flows into the Bristol channel to the south of Newport. Further details on the WER status of the water body and the baseline geomorphological and aquatic habitat condition of the watercourse within the site extent are provided in Section 6.

5. Proposed Scheme

5.1 Scope

The proposed works comprise a Nature Based Solution (NBS) scheme to treat storm overflow sewage that would otherwise discharge to the environment from the existing Pont-y-felin Lane CSO. The aim is for the NBS to treat this effluent to an improved standard before discharging to the Afon Llwyd via the upgraded CSO.

The solution aims to consider the context of the site and to provide maximum benefit to the community and the environment (see appendix B). A primary NBS will be designed to take flows directly from a new screening chamber for the first stage of treatment. Provisionally, about 95% of the spill flow will be directed through the reedbed. The effluent from primary treatment will be treated to a level so it does not impact the river WER status. The flow will then discharge through the existing CSO outfall into the river.

Elements of the scope been proposed to include:

- A new screening chamber and associated infrastructure, such as fenced compound/electricity upgrade/kiosk;
- New flow split chamber;
- New pipework;
- New reedbed and integrated constructed wetland;
- New access roads;
- New placemaking elements. such as paths, plazas, play spaces and gardens; and
- New biodiversity enhancements.

5.1.1 Construction and temporary works

Temporary works requirements are to be confirmed during detailed design. Provisionally it is expected that the site compound will be in the field south of the site. The proposals demonstrate a single vehicle access point to the southwestern boundary of the site, connecting to Pont-y-felin Lane.

5.2 Mitigation

5.2.1 Pollution Control

Adequate pollution control measures will be adopted in line with GPP 5 to minimise the risk of silt pollution to nearby watercourses during the activities. This will involve the application of appropriate measures, where necessary, to avoid or control silt runoff. For example, this will include:

- Topsoil stripped and stockpiled on site,
- surplus material sealed and silt mitigation measures implemented,

The topography of the site does now allow for run off.

5.2.2 Spillages

A pollution risk assessment will be carried out for the proposed site ahead of activities, considering both the storage and transportation of materials used. This would identify potentially hazardous materials or activities and assess the probability and magnitude of potentially harmful effects. From this, a pollution incident response plan (see GPP 21) would be compiled to identify the specific measures needed to reduce the likelihood of a spillage happening, and to minimise the impact of any spills that may occur.

5.2.3 Biosecurity

Good biosecurity practices are vital for preventing the spread of invasive non-native species (INNS) and pathogens such as waterborne fish diseases. Measures should be adopted to minimise the risk of construction activities leading to the spread of invasive non-native species or pathogens.

To avoid the spread of invasive species the following measures should be adhered to, and detailed within the Contractors method statements:

- Contractor's Ecologist to undertake toolbox talks for any INNS prior to works starting. Toolbox talks are to be signed by contractor on site.
- Ensure all site teams are briefed in Check, Clean Dry procedure and will be made aware of areas on site where INNS are known to be present; and
- Avoid working in areas where INNS are present. Where this is not possible, appropriate biosecurity measures are to be adopted.

6. Baseline (Screening) Assessment

6.1 Overview

A baseline assessment has been undertaken to identify the relevant water bodies affected by the proposed scheme and to collate latest available baseline data, to inform a scoping assessment of the likely effects of the scheme on WER status and objectives.

6.2 Relevant WER waterbodies

The proposed scheme is located within the Usk management catchment. The WER waterbody of relevance is Afon Lwyd - below Mon and Brecon Canal.

The WER status, status objectives and programme of measures derived by NRW for water bodies located within this RBD are outlined within the current Cycle 2 Severn RBMP. It should be noted that the draft Cycle 3 RBMPs are currently under consultation, however Cycle 3 (2021) RBMP data is available via Water Watch Wales and has been used for this screening assessment.

The site also overlies the "SE Valleys Eastern Devonian Old Red Sandstone Ground water body". The vertical and lateral extent of the proposed works is limited and is unlikely to affect the underlying groundwater.

6.3 Afon Lwyd - below Mon and Brecon Canal

The Afon Lwyd - below Mon and Brecon Canal originates at Blaenavon, flowing downstream before joining at the confluence with River Usk at Caerleon. The watercourse is not designated as heavily modified.

Table 1: Summary of the status of the Afon Lwyd - below Mon and Brecon Canal waterbody

Waterbody	Description, notes or more information
Name	Afon Lwyd - below Mon and Brecon Canal
ID	GB109056032911
Area (Waterbody length)	22.37 km
Ecological status Fish DO pH Temperature	Moderate Moderate High High High
Chemical status	Moderate
Protected areas within 5km	Llandegfedd Reservoir Site of Special Scientific Interest (SSSI) lies 1.4km East
Reason(s) for not achieving Good status	Barriers to fish migration, urbanisation

7. Scoping Assessment

7.1 Overview

A scoping assessment has been undertaken to establish the likely impacts of the proposed scheme on the WER status elements of the waterbodies present at the site. This assessment has considered relevant mitigation measures embedded within the latest design for the proposed scheme.

Impacts have been considered with regard to the risk of the proposed scheme:

- causing a deterioration in current status of the water body; and/or
- preventing the future achievement of water body status objectives.

The assessment process for determining the potential risk of status deterioration uses the following rating system to assign the magnitude of the likely effect anticipated on each of the quality elements of the affected water bodies:

- Beneficial: beneficial effect of a scale sufficient to increase status class for the quality element at water body scale.
- Minor beneficial: minor/localised beneficial effect resulting in a localised improvement but insufficient to increase status class for the quality element at water body scale.
- No change: no measurable change to (or effect on) status class for the quality element at water body scale.
- Minor adverse: minor localised adverse effect when balanced against mitigation included in the design – insufficient to affect status class for the quality element at water body scale.
- Moderate adverse: an adverse effect is possible when balanced against mitigation included in the design – the extent of effect is uncertain, and there remains a potential to affect status class for the quality element at water body scale. Additional mitigation and residual effects need to be considered.
- Major adverse: adverse effect of sufficient scale to impact on status class for the quality element at a water body scale (certain). Additional mitigation or re-design required to avoid non-compliance.

Any adverse effect rating would qualify the relevant WER status element/receptor to be taken forward to the detailed assessment stage. This scoping assessment also assesses WER compliance risks.

7.2 Construction impact assessment

Table 2: Potential effects of the proposed project construction on the status and objectives of the Afon Lywd waterbody.

Activity	Potential impact and mitigation	Likely magnitude of effect	Compliance risk – does the activity result in deterioration of current status?	Compliance risk – does the activity prevent achievement of Good status/potential in the future?
Works adjacent to the Afon Lwyd. No in-river works are proposed.	**Potential impact:** Works are proposed within the floodplain of the Afon Lwyd and therefore pose a risk of pollution to the watercourse. Pollution could be caused by accidental spillage or sediment runoff. **Mitigation:** Contractor to implement suitable mitigation measures to manage the generation of sediment runoff and reduce the likelihood of spillage.	No change: no measurable change to (or effect on) status class for the quality element at water body scale.	No deterioration to current WER waterbody status anticipated.	No prevention of the waterbody achieving GEP anticipated.

7.3 Operational (permanent) impact assessment

Table 3: Potential effects of the proposed project on the status and objectives of the Afon Lwyd waterbody.

Activity	Potential impact and mitigation	Likely magnitude of effect	Compliance risk – does the activity result in deterioration of current status?	Compliance risk – does the activity prevent achievement of Good status/potential in the future?
Operation of the NBS to improve the water quality of CSO spills before reaching the Afon Lwyd.	**Potential impact:** The operation of the constructed wetland system is intended to significantly improve the quality of water discharged into the Afon Lwyd. This will benefit ecological quality elements downstream of the discharge point, within the Afon Lwyd - below Mon and Brecon Canal waterbody. This action will help to address one of the RNAGs for the waterbody. Recent analysis shows that with current design parameters and pollutant concentrations requires at the end of the NBS means the solution has no impact against WER Status Good.	Minor beneficial: localised improvement but insufficient to increase status class for the quality element at water body scale.	No deterioration to current WER waterbody status anticipated.	No prevention of the waterbody achieving GEP anticipated.

8. Conclusions

The proposed works are not anticipated to cause a deterioration in the current status of the river waterbodies present or prevent the future achievement of the water bodies' GEP status objectives. Once in operation, the Scheme will result in a minor benefit to the water quality of the Afon Lwyd.

Accordingly, the scheme is compliant with the objectives of the WER and no additional mitigation measures are considered necessary.

The works are not anticipated to fundamentally impact the nature of the waterbody as reflected in this assessment. Works are not anticipated to take place within the river, and pollution measures will be in place for any runoff. Additionally, the scheme driver is to reduce pollution from the CSO into the Afon Lwyd.

This assessment is a 'live document' and will be reviewed in liaison with NRW as part of the consenting process for the works.

Appendix A

Water Environment Regulations Background Information

A.1 Water Environment Regulations Background

A.1.1 Determination of WER Status

A.1.1.1 Introduction

Surface water bodies and groundwater bodies are defined within WER legislation. There are three types of surface water body, as follows:

- natural water bodies.
- heavily modified water bodies (HMWBs).
- artificial water bodies (AWBs).

The Overall Status of natural surface water bodies is determined on the basis of their Ecological Status and Chemical Status. The overall status of heavily modified and artificial water bodies is classified based on their ecological potential and chemical status. The overall status of groundwater bodies is determined on the basis of their Quantitative Status and Chemical Status.

Groundwater bodies are defined within WER legislation as Groundwater Management Units (GWMU) and Water Resource Management Units (WRMU), and their status is determined on the basis of quantitative and chemical sub-elements.

The means by which these determinations are made for both surface water and ground water bodies is described in this section.

A.1.1.2 Surface water bodies

A.1.1.2.1 Ecological status

Ecological Status is defined by the overall quality of the structure and functioning of aquatic ecosystems associated with surface waters, i.e. the condition of the watercourse. This is assigned on a scale of high, good, moderate, poor or bad, and on the basis of four classification elements or ‘tests’, as follows:

- Biological - this test is designed to assess the status indicated by a biological quality element such as fish, invertebrates, macrophytes or phytobenthos (diatoms). The biological quality elements can influence an overall water body status from bad through to high. It is also important to note that the presence of invasive species prevents a water body from achieving high status when all other elements attain high.
- Physicochemical - this test is designed to assess the status indicated by physicochemical quality elements such as dissolved oxygen, phosphorus and ammonia, against environmental standards. The physicochemical quality elements can only influence an overall water body status from moderate through to high.
- Specific pollutants - this test is designed to assess compliance with environmental standards for concentrations of specific pollutants, such as zinc, cypermethrin or arsenic. As with the physicochemical test, the specific pollutant assessment can only influence an overall water body status from moderate through to high; and
- Hydromorphology - for natural surface water bodies this test is undertaken by the EA during classification when the biological and physicochemical tests indicate that a water body may be of high Overall Status. It specifically assesses hydromorphological quality elements such as water flow, sediment composition and movement, continuity, and structure of the habitat

against reference or 'largely undisturbed' conditions. If the hydromorphological quality elements do not support high Ecological Status, then the status of the water body is limited to good Overall Status. Hydromorphological assessments are used to determine 'high' Overall Status only and are not used to drive a water body status class below good. The 'does not support good' classification should be reported for the purposes of identifying water bodies which fail the flow test.

The worst-case classification is assigned as the overall surface water body status, in a 'one-out all-out' system. This system is summarised below:

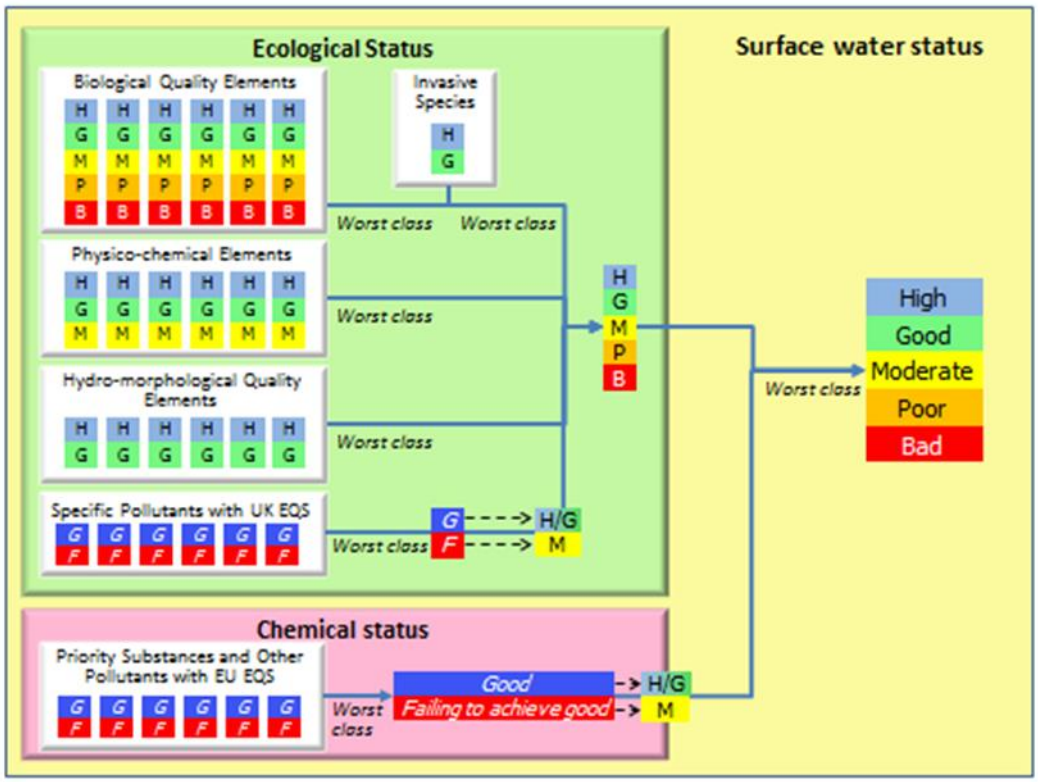

Figure 2: Ecological status classification process (Source: Environment Agency (2015)

A.1.1.2.2 Chemical status

Chemical Status is defined by compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances, in accordance with the Environmental Quality Standards Directive (2008/105/EC). This is assigned on a scale of good or fail.

Surface water bodies are only monitored for priority substances where there are known discharges of these pollutants; otherwise surface water bodies are reported as being of good Chemical Status.

A.1.1.2.3 Ecological potential for heavily modified (and artificial) water bodies

Ecological Potential is assigned to AWB (such as reservoirs and canals), or natural water bodies which, as a result of physical alterations by human activity, are substantially changed in character. The latter are termed HMWB. The term 'ecological potential' is used to classify AWBs and HMWBs as it may be impossible for these water bodies to achieve good Ecological Status (GES) because of their creation or modification for a specific use, such as navigation, water supply or flood protection. The Ecological Potential of an AWB or HMWB represents the degree to which the quality of the water body approaches the optimum condition it could achieve given its artificial or heavily modified state.

AWB and HMWB are subject to an additional set of rules that need to be implemented prior to running the one-out-all-out process. These rules determine which biological quality elements should be used in the water body Ecological Potential classification. Under normal circumstances, AWB and HMWB are classified according to an assessment of mitigation measures, which defines good Ecological Potential (GEP) in water bodies where all applicable mitigation is in place, and moderate ecological potential in water bodies where some or all relevant mitigation is missing. However, to prevent AWB and HMWB being incorrectly classified as good potential in situations where all mitigation is in place, but other pressures are causing an impact (e.g. nutrient enrichment or pollution from toxic substances), the methodology adopted in the UK additionally considers biological indicators providing they are not sensitive to the heavily modified nature of the water body.

AWB and HMWB hydromorphological elements are assessed using a three-stage process, firstly looking at flow, then mitigation measures and biological quality elements.

Flow conditions are assessed initially on a fail or pass basis to determine which of the biological and physicochemical quality elements should be used in the classification of Ecological Potential.

Where the flow conditions are unaffected by the physical modification (flow conditions pass), the water body Ecological Potential is determined by the worst of either the mitigation measures assessment, or any element that is not sensitive to the modified nature of the water body.

Where the flow conditions are significantly impacted by the physical modification (flow conditions fail), the water body Ecological Potential is determined by the worst of any of the mitigation measures assessments or the assessment of biological quality elements, physicochemical quality elements or specific pollutants.

Where a water body is designated as artificial or heavily modified for water resources usage, either solely or jointly with other uses, the flow condition is assumed to be good (pass).

A.1.1.3 Groundwater bodies

Under the WER, groundwater body Overall Status is classified on the basis of Quantitative Status and Chemical Status. The groundwater bodies are separated into GWMU and WRMU. GWMU are sub-divisions of the groundwater to aid the resource assessment process. WRMU are sub-divisions according to the water resource availability and the management of water.

The worst-case classification dictates the Overall Status, via a ‘one-out all-out’ system. This system is summarised below:

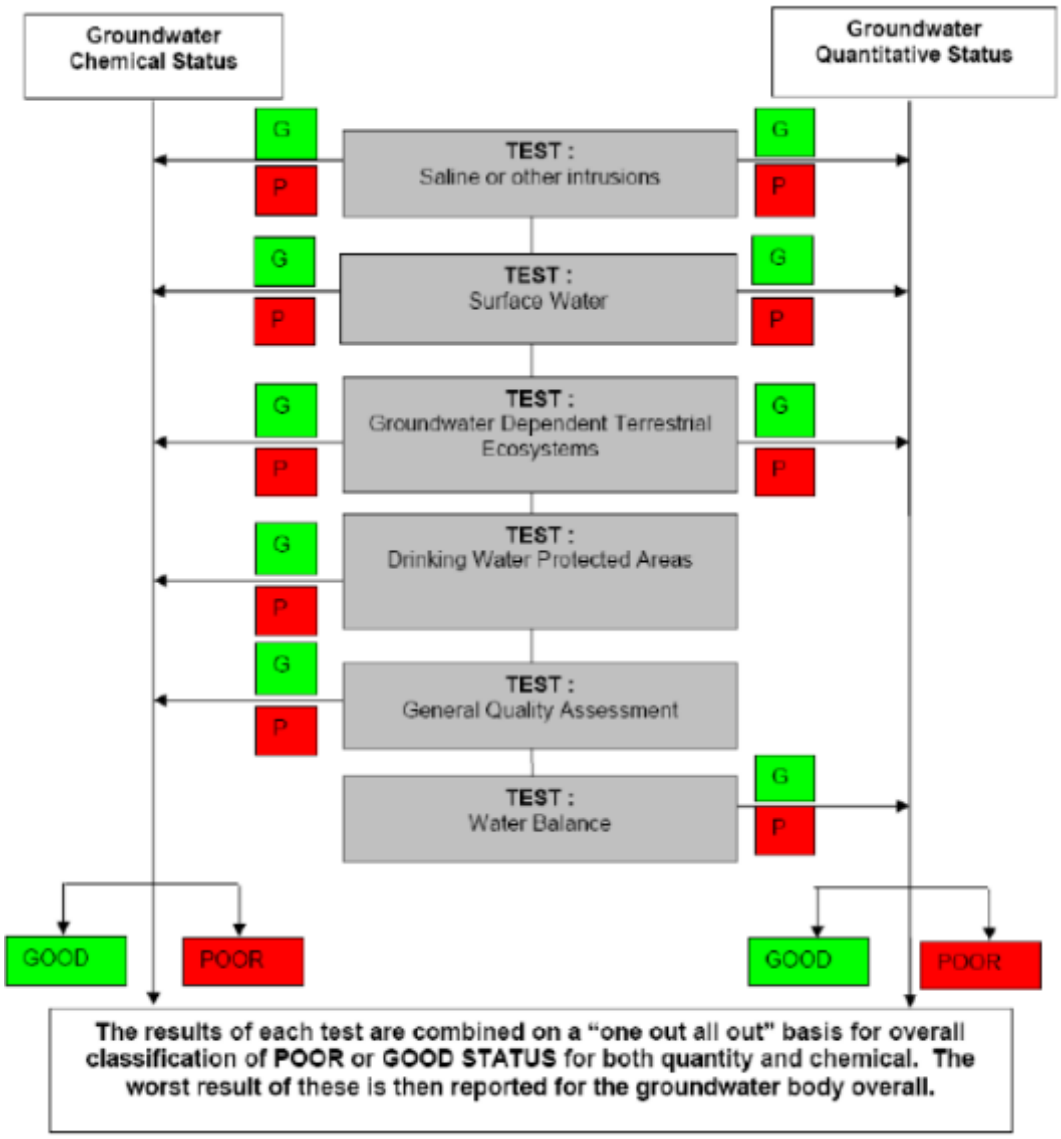

Figure 3: Groundwater body status classification (Source: UKTAG (2012))

A.1.1.3.1 Quantitative status

Quantitative Status is defined by the quantity of groundwater available as base flow to watercourses and water-dependent ecosystems and as 'resource' available for use as drinking water and other consumptive purposes. It is assigned on a scale of good or poor, and on the basis of four classification elements or 'tests' as follows:

- saline or other intrusions - this test is designed to identify groundwater bodies where the intrusion of poor quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.
- surface water - this test is designed to identify groundwater bodies where groundwater abstraction is leading to a significant diminution of the Ecological Status of associated surface water bodies.

- Groundwater Dependent Terrestrial Ecosystems (GWDTE) - this test is designed to identify groundwater bodies where groundwater abstraction is leading to significant damage to associated GWDTE; and
- water balance - this test is designed to identify groundwater bodies where groundwater abstraction exceeds the 'available groundwater resource', defined as the rate of overall recharge to the groundwater body itself less the rate of flow required to meet the ecological needs of associated surface water bodies and GWDTE.

A.1.1.3.2 Chemical status

Chemical Status is defined by the concentrations of a range of key pollutants, by the quality of groundwater feeding into watercourses and water-dependent ecosystems and by the quality of groundwater available for drinking water purposes. This is assigned on a scale of good or poor, and on the basis of five classifications elements or 'tests', as follows:

- saline or other intrusions - this test is designed to identify groundwater bodies where the intrusion of poor quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.
- surface water - this test is designed to identify groundwater bodies where groundwater is leading to a significant diminution of the Chemical Status of associated surface water bodies.
- GWDTE - this test is designed to identify groundwater bodies where groundwater is leading to significant damage to associated GWDTE.
- Drinking Water Protected Areas (DrWPA) - this test is designed to identify groundwater bodies failing to meet the DrWPA objectives defined in Article 7 of the WER or at risk of failing in the future. The aim is no deterioration in quality of waters for human consumption, and
- general quality assessment - this test is designed to identify groundwater bodies where widespread deterioration in quality has, or will, compromise the strategic use of groundwater. The aim is no significant impairment of human use of groundwater and no significant environmental risk from pollutants across a groundwater body. Status is assessed primarily using data collected from the EA monitoring network; therefore, the scale of assessment means that groundwater status is mainly influenced by larger scale effects such as significant abstraction or widespread diffuse pollution.

A.1.1.4 Environmental standards

Under the WER, a range of environmental standards and condition limits are applied in order to help the classification of water body status and the setting of status objectives via the RBMP process. These environmental standards define the range of environmental conditions that support "healthy" aquatic life. For instance, standards are set for the composition of biological communities, the physicochemical water quality parameters, the concentration of pollutants, and the level of flows in rivers (as described above).

These standards inform the EA on the implementation of the RBMP process, including the identification of measures required to support the achievement of the GES / GEP objectives, as well as underpinning efforts to protect the water environment by helping to regulate activities that could cause adverse impacts.

A.1.2 WER Assessment requirements for new developments

To ensure compliance with the WER, decision makers must consider whether proposals for new developments have the potential to:

- cause a deterioration of a water body from its current status or potential.
- prevent future attainment of good status or potential where not already achieved.
- impact on protected or priority species and habitats; and/or
- provide opportunities to improve the water environment.

A ruling by the European Union Court of Justice on 1 July 2015 has significant implications for projects that may impact water bodies, namely:

- consent for development must not be granted by an authorising authority – unless a derogation is granted - where the project may cause a deterioration in the status of a body of surface water or where it jeopardises the attainment of good Ecological Status or of good Ecological Potential and good Chemical Status by the date laid down in the Directive.
- that deterioration of the status of the relevant body of surface water includes a fall by one class of any element of the quality elements within the meaning of Annex V of the WER even if the fall does not result in a fall of the classification of the body of surface water as a whole: and
- if the quality element is already in the lowest class, any deterioration of that element represents deterioration of status within the meaning of Article 4(1)(a)(i).

A.1.2.1 Guidance

Whilst there is no established methodology for assessing compliance with WER legislation, the WER Compliance Assessment will be based upon expert judgement, established best practice and consultation with NRW and will be undertaken in accordance with relevant NRW guidance.

A.2 WER Assessment Process

A.2.1 Overview

WER Compliance Assessment is undertaken as an iterative, stepped process, which typically includes the following:

- Step 1: Screening assessment.
- Step 2: Scoping assessment.
- Step 3: Detailed impact assessment (where required); and
- Step 4: Application of Regulation 19 (where applicable).

These key process steps are described in further detail in the following sections. Consultation with regulatory authority should be undertaken to share the findings of each step, where necessary/applicable.

A.2.2 Screening assessment

The key objective of the initial baseline screening assessment is to identify the relevant WER surface water and groundwater bodies (including any undesignated tributary watercourses) potentially affected by the proposed development and to establish their baseline condition.

The water body baseline condition of relevant water bodies has been identified via desk-top assessment, utilising readily available information and environmental, asset and operations data obtained from relevant stakeholders.

WER baseline datasets have been obtained from the NRW's Water Watch Wales website. This includes:

- RBMP Cycle 3 current status and status objectives data.
- WER Protected Areas data.
- Reasons for to achieving good status (RNAG) data.
- Measures data.

The latest 2021 Cycle 3 WER water body status data has been used to inform the assessment. These data are considered to provide the current best estimate of status and the formal baseline against which the NRW will assess compliance with the 'no deterioration' objective. Where baseline data is limited, professional judgement has been used in the assessment and a precautionary approach taken with regard to screening.

The relevant WER water bodies present within the potential zone of influence of the proposed development are taken through to the subsequent preliminary assessment (scoping) stage.

A.2.3 Scoping assessment

The objective of the scoping assessment is to establish the relevant likely effects of the proposed development on the WER status elements of the relevant WER surface water and groundwater bodies. This includes identification of potential impact types and any relevant mitigation measures embedded within the design of proposed development at this stage.

The scoping assessment considers both the beneficial and adverse effects of the relevant elements of the proposed development and applies a risk-based method in line with existing EA and NRW guidance.

Effects are considered with regard to the risk of the proposed development causing a deterioration in current status and/or a failure to achieve status objectives. The assessment identifies those scheme components / impacts that pose a risk current status or status objectives and thus may require more detailed impact assessment.

The scoping assessment therefore comprises two parts, as follows:

- likely effects on current status or potential, involving:
    - identification of relevant scheme components with potential to impact upon water body status.
    - identification of likely potential impact and magnitude of effects of the relevant scheme components on the current status of the water body (taking account of any 'embedded' mitigation; and
    - identification of potential risks of deterioration in current status and associated requirements for additional mitigation and/or further detailed assessment.
- likely effects on status objectives, involving:
    - scoping of the relevant scheme components to identify where the proposed development may pose a risk of worsening existing pressures responsible for current status failures (RNAGs) and/or prevent the implementation of measures identified by the NRW to address existing status failures; and
    - scoping of relevant scheme components against any available NRW HMWB/ AWB 'mitigation measure assessment' outputs, in order to identify where the proposed development may pose a potential risk of inhibiting the implementation of measures derived to mitigate the impacts of existing physical modifications and operational regimes to support the achievement of good Ecological Potential objectives.

A.2.4 Detailed impact assessment

Where deemed required, the objective of the detailed impact assessment is to establish the nature and anticipated magnitude of the effects of relevant elements of the proposed development on the WER quality elements of the surface water and groundwater bodies affected. These effects are considered in terms of the potential for deterioration of current status and/or the prevention of status objectives. This detailed assessment may be based on targeted baseline surveys, monitoring or modelling assessments completed at the impact sites.

As with the scoping assessment stage, the detailed impact assessment is therefore comprised of two key parts, as follows:

- assessment of effects on current status of quality element; and
- assessment of effects on status objectives, with regards to any water body RNAG or measures/actions identified as potentially being at risk from the proposed development under the preceding preliminary (scoping) assessment. This is done via expert judgement and consultation with the NRW, based on the currently available information.

Where significant effects are identified with regard to the risk of status deterioration and/or the prevention of status objectives, the assessment should identify 'further mitigation' required in order to avoid and/or minimise risks and the residual effects on quality elements at the water body scale.

The detailed impact assessment will also identify if Article 4.7 tests need to be prepared for affected water bodies, where a residual risk to status deterioration and/or prevention of future status objectives has been identified.

A detailed impact assessment has not been deemed required for the proposed development, based on the information available at this stage.

A.2.5 Regulation 19 assessment

Article 4.7 of the WER states that Member States will not be in breach of the Directive when failure to meet its environmental objectives is the result of either new modifications to the physical characteristics of a water body or as a result of new human sustainable development, on the proviso that the modifications or new development proposed are compliant with the four key conditions listed below. In doing so, Article 4.7 (and Regulation 19 of the WER Regulations in England and Wales) provides a means whereby a derogation for a proposed modification or sustainable development may be granted. Accordingly, where a residual risk to status deterioration and/or prevention of future status objectives is identified, a 'Regulation 19 assessment' (formally referred to as an 'Article 4.7 assessment') needs to be prepared for the affected water body or water bodies. To demonstrate that it meets the four following conditions:

1. all practicable steps have been taken to mitigate the adverse impact on the status of the water body.
2. the reasons for the modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development; and
3. the beneficial objectives served by the modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.
4. the reasons for the modifications or alterations are clearly identified to the Natural Resources Wales, so that they can be specifically set out and explained in the relevant RBMP (as required under Article 13).

A Regulation 19 assessment is not deemed required for the proposed scheme as no risks of non-compliance with WER objectives have been identified.

Appendix B

General Arrangement

A1

N

New Panteg Rugby Football Club

Approximate location of amphibian and reptile hibernacula located at high point of site, away from flood events and close to mature existing vegetation

+500mm raised ground to assist with water shedding

LAP Play Space

Bird Boxes - proposed along western boundary

Wetland
-secondary treatment (fenced)

Reedbed - primary treatment

Maintenance Track - access to primary treatment - reedbed

Turning Head - allowing access to compound

Compound

For 'Compound' information refer to B16789-102503-01-XX-DR-TA-PN0204 'Compound Layout' and "- PN0205 'Compound Elevations'

Seating area

Observation Deck

Wetland
-secondary treatment (open)

Diverted PRoW Footpath

Afon Llwyd

Vehicular Access Track

Outdoor Classroom

Sensory Raised Walkway

Balance Play

+200mm

+300mm

Parking Provision - for occasional maintenance requierments. Not delineated on ground, shown for information only

Bird Boxes - proposed along western boundary

Section of existing trees proposed to be removed to allow temporary works and replaced with like for like native mature trees. Tree loss to be minimised and to turn out on site. None of the trees removed to be of notable arboricultural value

Boardwalk +300mm above existing ground level

Parking Provision - for seasonal food vending businesses, school use and display / events. No permanent fixings associated

Afon Close

Pont-Y-Felin Ln

PROW 421 30/1

A-A

B-B

0 5 10 20 Metres

Scale 1:500

LEGEND

Site Boundary

Hard Landscape

- PT1 Paving Type 1: access track self-binding gravel natural / buff colour - vehicular loading
- PT2 Paving Type 2: self-binding gravel natural / buff colour - pedestrian paths
- PT3 Paving Type 3: chipping laid tarmacadam buff colour aggregate chips >10mm
- PT4 Paving Type 4: plastic matrix reinforced grass seed mix - Terram Bodpave 40 or similar approved by Landscape Architect
- PT5 Paving Type 5: rubber grass mat system- playground company 'Safer System' or similar approved by Landscape Architect
- PT6 Paving Type 6: timber effect recycled plastic decking for boardwalk

Boundary Types

- BT1 Boundary Type 1: timber 3-bar fence 1.2m(h) - 'stock wire roll' to lower 0.5m
- GTx Gate Type 1: secure locked timber 5-bar double width gate 1.2m(h) x 6m(w) - vehicular access
  Gate Type 2: secure locked timber 5-bar single width gate 3m(w) - vehicular access
  Gate Type 3: pedestrian access gate 1.2m(h) x 0.9m(w) - long handle latch opening
  Gate Type 4: stile - 3-bar, 2-step timber
  Gate Type 5: Mobility Kissing Gate 1.2m(h) x 2.3m (total width) 1.13m leaf width & depth 1.25m

Street Furniture

- FT1 Furniture Type 1: natural log bench
- FT2 Furniture Type 2: sculptural point of interest - land art items reflecting history of the site
- Natural Play Features
- Play Features -balance and climb play equipment
- Wetland Observation Platform - timber effect recycled plastic deck
- Post-Mounted Insect Hotel - miscellaneous material construction with varied habitat types
- Litter Bin

SOFT LANDSCAPE

- Existing Tree(s) - to be retained
- G/Txx Existing Tree(s) - to be removed for arboricultural reasons (See Arboricultural Impact Assessment)
- G/Txx Existing Tree(s) - to be removed for development proposals
- Existing Tree(s) - to be removed for Temporary Works access
- Proposed Tree Planting
- SP1 Proposed Native Hedgerow - indicative height 4-5m at 10-15 years
- SP2 Wildflower Meadow Seeding
- SP3 Species Rich Grassland -hard wearing seed mix, improved existing condition where possible
- SP4 Species Rich Grassland -wet soils wildflower seed mix
- SP5 Wetland - secondary treatment -planting species to be approved by treatment specialist
- SP6 Reedbed - primary treatment -detail and specification by treatment specialist

This drawing should be read in conjunction with the following listed drawings:

- B16789-102503-01-XX-DR-CA-PN0001 Site Location Plan
- B16789-102503-01-XX-DR-CA-PN0202 Existing Site Plan
- B16789-102503-01-XX-DR-TA-PN0204 Proposed Compound Layout Plan
- B16789-102503-01-XX-DR-CA-PN0205 Compound Elevations
- B16789-102503-01-XX-DR-CA-PN0206 Site Drainage Plan
- B16789-102503-01-XX-DR-LA-PN0008 Landscape Section A-A
- B16789-102503-01-XX-DR-LA-PN0009 Landscape Section B-B

NOTES ABOUT STATUTORY UTILITY PROVIDERS RETURNS

1. THE POSITIONS OF THE EXISTING SERVICES ON THIS DRAWING HAVE BEEN INTERPRETED FROM INFORMATION RECEIVED FROM THE STATUTORY LOCAL AUTHORITIES.
2. THIS DRAWING IS DIAGRAMMATIC AND HAS BEEN PREPARED AS AN OVERVIEW TO DETERMINE THE ROUTES OF SERVICES. IT IS NOT DEFINITIVE AND THE SITE TEAM MUST REFER TO THE ORIGINAL RECORDS FOR FULL DETAILS AND TO CONFIRM THE LOCATIONS OF EXISTING SERVICES ON SITE PRIOR TO THE WORKS BEING UNDERTAKEN.
3. THE SITE TEAM SHOULD ANTICIPATE ADDITIONAL SERVICES CONNECTING TO THE PROPERTIES AND / OR STREET FURNITURE SUCH AS LAMPPOSTS THAT ARE NOT GENERALLY COVERED BY THE RETURNS FROM INDIVIDUAL STATUTORY AUTHORITIES
4. EXACT LOCATION OF UTILITIES SHOULD BE CONFIRMED ON SITE.

Rev.	Description	Drawn	Chkd.	Appd.	Issue Date
P1	Initial Planning Issue	JS	OM	BO	03.02.23

Capital Delivery Alliance
Cynghrair Cyflawni Cyfalaf

Ty Awen, Spooner Close, Coed Kernew, Newport, NP108FZ

Project Name.
PONT Y FELIN NEW INN NATURE-BASED SOLUTIONS

Drawing Title.
GENERAL ARRANGEMENT

Suitability.	Suitability Code.
FOR INFORMATION	S2
Internal Project Number. 275292	Scale. 1:500 @ A1
	Rev. P1

Drawing Number.
B16789-102503-01-XX-DR-LA-PN0203