

Skewen Flood Alleviation Scheme

Water Framework Directive Assessment
Neath Port Talbot Council

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1. Introduction

Atkins was commissioned by Neath Port Talbot Council (NPTC) to develop proposals for a flood alleviation scheme for Caenant Terrace in Skewen, Wales, known as the Skewen Flood Alleviation Scheme (herein referred to as the Scheme). The Scheme will comprise of several phases, with the aim to reduce risks associated with surface water and watercourse flooding in Skewen; this report will focus solely on the proposed works for the construction of a new overflow structure (adjacent to the existing weir) on the Tennant Canal.

The Tennant Canal is an 8-mile canal that runs from Port Tennant, Swansea to Aberdulais Basin where it meets the Neath Canal. The canal is of importance for nature conservation. Aside from the water of the canal itself, additional wetland habitats include a fen and a small area of wet woodland. The site is known to be used by otter and is of importance to a variety of bird species such as kingfisher, sedge warbler, peregrine and kestrel.

This document presents the Water Framework Directive (WFD) compliance assessment for the Scheme. The aims of the document are to:

- Provide background information on the WFD legislation and the proposed works;
- Provide a high-level baseline understanding of the affected water bodies in the context of the WFD;
- Provide an assessment of the potential for the proposed works to cause deterioration in the WFD status of any waterbody directly or indirectly affected by the works; and
- Provide an assessment of the potential impacts on waterbody improvement measures and the ability to meet WFD objectives, as well as to suggest control measures where necessary.

Structure and Content of this Report

The structure of this report and a summary of the contents and steps undertaken to complete each section are detailed in Table 1-1.

Table 1-1 - WFD Assessment Report Structure

Chapter	Title	Content and Steps
1	Introduction	Introduces the purpose of the Scheme and the context of its location.
2	Methodology	Describes the legislative context to the assessment and the overall approach, including guidance used and data sources.
3	Proposed Works and Programme	Sets out the outline description of the activities that will be carried out at each Scheme stage, including construction, operation and decommissioning.
4	Screening	Identification of the activities described in Chapter 3 that may impact on the quality elements of WFD waterbodies; and identification of water bodies that are relevant to the Scheme.
5	Scoping	Presentation of the baseline conditions for the relevant quality elements of each water body screened in for assessment, and consideration of the potential risk of deterioration from Scheme activities screened in.
6	Assessment	Detailed examination of and commentary on the risks identified at Scoping, and their potential to result in deterioration of any quality elements. This step includes potential measures that may be used to avoid or reduce the potential magnitude or scale of any effects. The assessment includes consideration of effects on WFD Protected Areas.
7	Conclusion	A summary of the conclusions drawn by the WFD Assessment.

1.1. Scheme Location

The Scheme is linear and covers approximately 1.3km, beginning at Caenant Terrace to the west, centred on grid reference SS7268097520 and culminates at the confluence of the Tennant Canal and River Clydach to the east of Neath Abbey (grid reference SS7386597293) (hereafter referred to as the Site. The Site includes additional areas of land proposed for drainage connections, to the centre of the Site along Drummau Road and to the south-east along the Tennant Canal. The Site boundary is shown in Figure 1-1.

The Site consists of a heavily populated residential area, with the A4320 (New Road) to the north, which is flanked by shops and the B4290 (Old Road) between the residential area and the industrial estate to the south leading to the Tennant canal.

The Scheme will comprise of five key linked elements to reduce the risk of flooding to Skewen. An illustrative plan of the Scheme showing the key elements is provided in Figure 1-1 and Appendix A.



1.2. Environment

An Ecological Impact Assessment (EclA) has been undertaken in 2023¹ to ascertain whether there are any key ecological receptors in relation to the proposals and any recommendations for mitigation and enhancement in relation to the potential impacts.

The ecological impact assessment concluded that there are no designated sites in the proposed site and no designated sites would be directly affected with respect to habitats. A desk-based study has been undertaken in order to identify whether the site is located within or in proximity to any statutory designated heritage assets. Information has been sourced from the Historic Wales website²

The proposals would result in permanent loss of habitats including hard standing, amenity grassland, dense/scattered scrub and scattered trees which are of negligible nature conservation value. Without mitigation, the Scheme has the potential to have slight adverse impacts on bats, badger hedgehog, otter, reptiles, amphibians, breeding birds and invertebrates. There is potential for invasive non-native species (INNS) to be directly affected by the works.

During the operation phase, the Scheme will be subject to maintenance to ensure the drainage scheme continues to work effectively. The maintenance of the Scheme is not anticipated to give rise to any significant ecological impacts.

¹ TACP (2023) Caenant Terrace Ecological Impact Assessment

² <https://historic-wales-rcahmw.hub.arcgis.com/>

2. Methodology

2.1. The Water Framework Directive – Legislative Background

The Water Framework Directive 2000/60/EC is a European Directive fully transposed into UK law following Brexit. Its purpose is to establish a framework for the protection and improvement of inland surface waterbodies, estuaries, coastal waters and groundwater. The framework for delivering the WFD is through River Basin Management Planning, which requires surface waterbodies to achieve both Good Chemical Status (GCS) and Good Ecological Status (GES), and for groundwater bodies to achieve both Good Chemical Status (GCS) and Good Quantitative Status (GQS). The River Basin Management Plans (RBMPs) outline the actions required to enable natural waterbodies to achieve this. Artificial and Heavily Modified Water Bodies (AHMWB) are surface waterbodies that may be prevented from reaching GES due to the modifications necessary to maintain their function for essential human uses, such as flood defence, navigation or drinking water supply. They are, however, required to achieve Good Ecological Potential (GEP), through the implementation of a series of mitigation measures outlined in the RBMP. The background to the WFD and required assessments is set out in Figure 2-1. Although the UK is no longer part of the EU, the aims and requirements of the WFD are part of UK legislation and a WFD assessment is a requirement for this Scheme.

New activities and Schemes that affect the water environment may adversely impact biological, hydromorphological, physicochemical and/or chemical quality elements (WFD quality elements), leading to a deterioration in waterbody status. They may also render proposed improvement measures ineffective, leading to the waterbody failing to meet its WFD objectives for GES/GEP. Under the WFD, activities and Schemes must not cause deterioration in waterbody status or prevent a waterbody from meeting GES/GEP by invalidating improvement measures. A summary of key WFD objectives is presented in Figure 2-1.

In addition to protecting and improving waterbodies, the WFD also requires that a register of 'Protected Areas' is developed, which are "all areas lying within each river basin district which have been designated as requiring special protection under specific Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water". In the UK, these Protected Areas are:

- Areas with water-dependent habitats that are protected under the Conservation of Habitats and Species Regulations 2017, and (by Government policy) under the Ramsar Convention;
- Drinking Water Protected Areas;
- Shellfish Waters;
- Bathing Waters;
- Nutrient Sensitive Areas.

The potential impacts of new activities and Schemes on these WFD Protected Areas must also be considered in order to ensure compliance with the overall requirements of the WFD.

WFD Objectives

The WFD is a European Directive which sets out a strategic planning process for the purposes of managing, protecting and improving the water environment. The main objectives of the WFD are to:

- Prevent 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 waters by 2015 (2021 or 2027) where fully justified within an extended deadline under Article 4.4;
- Promote sustainable use of water;
- 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; and
- Help reduce the effects of floods and droughts.

Natural Resources Wales are responsible for implementing the WFD in Wales, with the Environment Agency having joint responsibility for cross-border areas. They monitor, advise and manage many aspects of the water environment through regulating discharges, abstractions and processing environmental permits and licences. Natural Resources Wales and the Environment Agency are committed to implement environmental improvements by reducing the physical impacts of flood risk management activities within artificial or heavily modified water bodies.

WFD Classification

The WFD classification for a defined water body is produced by the assessment of a wide variety of different 'elements' which includes:

- '*biological elements*' such as fish, invertebrates, Phytobenthos (which includes plants, macro-algae, phytoplankton);
- '*supporting elements*' that include chemical measurements such as ammonia, dissolved oxygen, pH, phosphate, copper, zinc and temperature; and
- '*supporting conditions*' (sometimes referred to as hydromorphology) that assess the physical attributes of the water body such as 'quantity and dynamics of flow' and 'morphology'.

The assessment given for each element is also accompanied by a measure of certainty in the result. The status classification is published in the RBMP and provides a baseline condition against which compliance and future improvements can be measured.

WFD Compliance

There are three key objectives against which the impacts of proposed works on a water body need to be assessed to determine compliance with the overarching objectives of the WFD:

- Objective 1: The Scheme will not cause a deterioration in any element of water body classification.
- Objective 2: The Scheme will not prevent the WFD status objectives from being reached within the water body or other downstream water bodies.
- Objective 3: The Scheme will contribute to the delivery of the relevant WFD objectives. In this case, it will be what contribution the scheme can make towards the water body reaching its objective GEP through planned RBMP mitigation measures.

Objective 1 and Objective 2 must be met to avoid infringement of the WFD. The delivery of the third objective is central to the implementation of the WFD, where it can be supported through its operational activities. If it is considered that the Scheme is likely to cause deterioration in water body status or prevent a water body from meeting its ecological objectives, then an assessment would be made against the conditions listed in Article 4.7 of the WFD. Article 4.7 can be invoked if; 'new modifications' are of overriding public interest and/or the environmental and social benefits of achieving the WFD objectives are outweighed by the benefits of the new modifications to human health, safety and sustainable development; there are no significantly better environmental options that are technically feasible or not disproportionately costly; and all practicable steps for mitigation have been taken.

Figure 2-1 - Background to WFD Assessments

2.2. Approach to the WFD Assessment

Natural Resources Wales (NRW) is the lead authority for the implementation of the Water Framework Directive (WFD) in Wales, whereas, the Environment Agency (EA) is the lead authority for the WFD in England. The EA has developed guidance to support carrying out WFD assessments - 'Water Framework Directive assessment for a flood risk activity' published on www.gov.uk. This guidance can be utilised in WFD assessments in Wales when applying for a flood risk activity permit (FRAP) for a specified type of activity on or near a main river. This guidance requires you to demonstrate that your activity supports the objectives of your local River Basin Management Plan (RBMP). In the case of this Scheme, a FRAP is not required as the works are in a location where a marine licence is required. NRW guidance is that a WFD assessment is required for all marine licence applications.

A three-staged process to this WFD Assessment has been undertaken, comprising:

- Screening – to exclude any activities that do not need to go through the scoping or impact assessment stages;
- Scoping – to identify the receptors that are potentially at risk from the proposed activity and need impact assessment; and
- Impact assessment – considers the potential impacts of the proposed activity, identifies ways to avoid or minimise impacts, and shows if the activity may cause deterioration or jeopardise the waterbody achieving good status.

This WFD assessment also considers all activities, including each relevant stage (e.g. construction, operation and decommissioning), and that all waterbodies that could both directly and indirectly be affected by the activities are included.

2.2.1. Data Sources

A number of surveys and assessments have been carried out to inform the development of the Scheme. Where relevant, the details of these have been used to inform this WFD assessment. Online sources of information have also been used. The key data sources that have informed this assessment are:

- Current WFD status classification data from the Water Watch Wales Map (Natural Resource Wales 2021)³
Western Wales River Basin Management Plan 2021-2027 Summary (Natural Resource Wales, 2022)⁴
- Wales Water Body Objectives and measures update 2017 (Natural Resources Wales, 2017).

³ <https://waterwatchwales.naturalresourceswales.gov.uk/en/>

⁴ Natural Resource Wales (2022) Western Wales River Basin Management Plan 2021 – 2027 Summary. Available online at: https://naturalresourceswales.gov.uk/media/695227/western-wales-rbmp-2021_2027-summary.pdf [Accessed 04/08/2028]

3. Proposed Works and Programme

3.1. Proposed Scheme Overview

The location of the works is spread over several different areas of the Site as noted below:

- Caenant Terrace.
- Drummau Road.
- Whitegates Court.
- Old Road.
- Mineral Railway Crossing.
- Outfall into Tennant Canal
- Overflow weir from Tennant Canal into River Clydach.

An overview of the proposed Skewen Flood Alleviation Scheme is shown in Figure 1-1.

It should be noted that the works includes a surface water connection at Drummau Road from the Coal Authority as part of their Goshen Park Minewater Remediation Scheme, works for which have been completed. This is a combined section of the works with NPTC. The Scheme is required to mitigate flooding to properties along Caenant Terrace and the wider Skewen areas noted above. For this report, only the works for the outfall into Tennant Canal are discussed as this is the only part of the works for which a marine licence is required.

The works will involve construction of a new overflow structure (adjacent to the existing weir) on the Tennant Canal. The purpose of the overflow is to discharge water from the canal and into the River Clydach in a flood event. The proposed arrangement of the overflow is shown in Figure3-1 and Appendix A. The individual aspects of the works for the overflow structure are detailed in section 3.2.

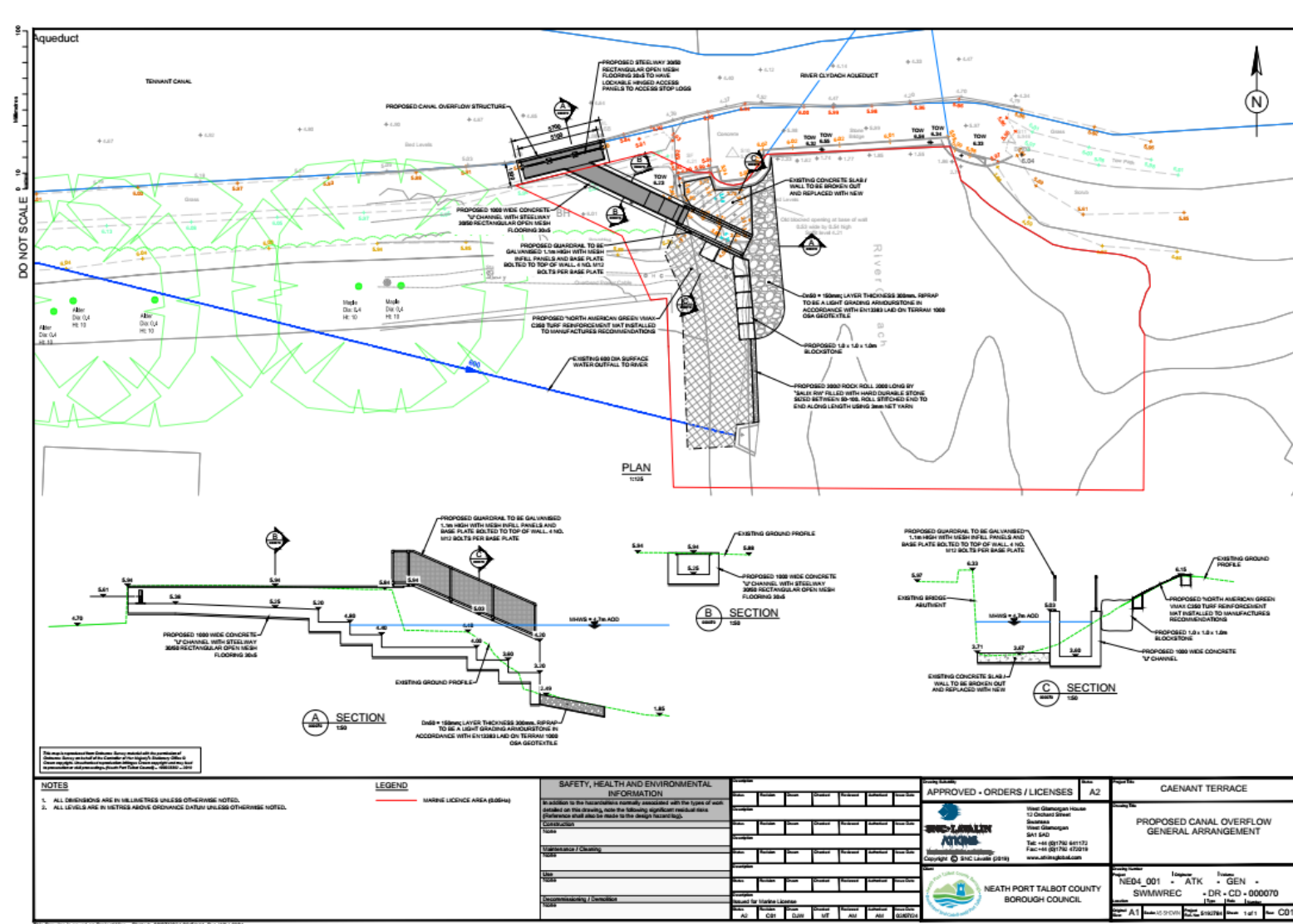


Figure 3-1 - Proposed Arrangement for the overflow structure

3.2. Proposed Works and Methodology

The anticipated methodology for this section of the works are detailed below:

Works required: The works will involve construction of a new overflow weir structure (adjacent to the existing weir) on the Tennant Canal. This will discharge flood flows to the River Clydach.

Reason needed: The structure is needed to discharge flood water from the Tennant canal and into the River Clydach in a flood event.

Plant required: Wheeled dumper, wheeled JCB, tracked excavator, excavator with a grab to place blockstone, excavator with sheet piling attachment, small tools such as drills and disc cutters. Concrete pumps and skips. Pumps and settlement tanks.

Method for works: The individual aspects of the works for the overflow structure are detailed below:

1. Construct a reinforced concrete overflow structure, 5.7m long x 1.5m wide adjacent to the existing weir structure (Clydach Aquaduct on Tennant, reference 82339). This will be buried in the tow path of the Tennant Canal and allow flood flows to discharge to the River Clydach. The reinforced concrete structure will be constructed insitu with materials transported along the canal tow path. The steel reinforcement and timber formwork will be constructed by hand. The concrete will then be pumped and placed within the sealed formwork from the canal tow path.
2. The insitu reinforced concrete weir will be fabricated from reinforced steel. This will be constructed by hand in the excavation. Steel bars will be carried by hand and fixed by hand. Once the steelwork is fixed together timber formwork will be constructed around the steelwork. This should be constructed by hand but there will be a need to lift some of the heavy materials and formwork into the excavation by an excavator.
3. Once temporary timber formwork is in place this will be infilled with concrete. The concrete will be delivered to site via a concrete wagon. The concrete will then be transported in smaller loads along the canal towpath or pumped from the wagon into the timber formwork. This reduces the risk of a machinery working near the existing bridge.
4. A reinforced concrete stepped cascade will also be constructed from the overflow structure to the banks of the River Clydach. The same techniques noted above will be used.
5. A blockstone training wall will be constructed to support the existing ground downstream of the overflow structure. This blockstone will be placed using an excavator with a grab.
6. North American Green turf reinforcement and rock rolls will be installed on the river banks and in the river channel to reduce erosion due to flood flows. The materials will be lifted with an excavator and fixed by hand.
7. The works are also likely to require rock rip rap at the base of the river channel to reduce bank erosion. The materials will be lifted by an excavator from the land and placed at low water.
8. The works will take place on the banks of the River Clydach and on the canal tow path. It is not envisaged that any plant, equipment or vessels will be sat within the River Clydach. However, for the erosion protection works at the base of the structure and river these will need to be placed by an excavator (from the land).
9. Access to the location of the works will be along the canal tow path and potentially through the grounds of the Neath Abbey using the existing access point.
10. No scaffolding will be used in the River Clydach watercourse for these works.
11. An excavator will be required to excavate the existing ground for the new overflow structure. A dumper will be used to take the material off site.

12. Concrete repairs and repointing of the existing weir structure are likely to be required to maintain the overall integrity and to block up the existing weir when the new is operational.
13. Access will be over the canal bridge (Bridge South of Abbey reference 11834) or could potentially be through the grounds on Neath Abbey to allow concrete to be pumped over the canal.
14. Due to access reasons the work sequence is likely to start on the banks of the river first and then work towards the structure on the canal.
15. The works will not affect navigation or marking.

Reinstatement of surfaces: The excavation will be backfilled with the same material excavated. The existing surfaces will be reinstated with stone and grass as existing. The overflow weir will be surfaced with metal mesh flooring to allow pedestrians to walk along the tow path once works are complete.

Other relevant information: The plant and equipment used will be wheeled or tracked to reduce the risk of damaged to the existing surface of the structures.

Photos: As of the existing site features are as follows.

3.2.1. Photos of existing features



Photo 1: Access bridge over Tennant Canal to Towpath (Bridge South of Abbey reference 11834)



Photo 2: Access route along canal towpath to existing spillway/weir



Photo 3: Existing spillway/weir from Tennant Canal to River Clydach (Clydach Aquaduct on Tennant, reference 82339)



Photo 4: Location of proposed overflow weir adjacent to existing



Photo 5: Location of new overflow weir and discharge to River Clydach

3.3. Site Access and Construction Methods

3.3.1. Site Access

Access to the site will be via Monastery Road and then along the canal footpath. There may also be the requirement to use the access at Neath Abbey. All works will take place out of the water channel, however, there will be a need to place scour protection in the river at low tide. Therefore, plant will be required on the banks to construct these works, but plant will not sit within the River Clydach.

3.3.2. Site Compound and Storage areas for materials

The site compound is proposed to be located in an existing yard off the B4290 (Old Road) (see Figure 3-2). This is gated and fenced off. This location is away from any of the existing watercourses.

The site compound will be used to store construction materials, plant and machinery, site offices and basic welfare facilities (self-contained kitchen/toilets) for the contractors. The site compound will also contain a bunded storage area for diesel and fuels and all refuelling of plant will take place in the site compound. All fuels will be stored and handled in accordance with best practice procedures.

On completion, the site compound will be removed following construction activities and the area will be returned to its existing condition.

All materials for this Scheme, including the site compound units, will be delivered to site by road.

The site compound area for storage of the main plant is envisaged to be at the location shown in Figure 3-2, with plant and materials being transported from here to the Scheme location.



Figure 3-2 - Site Compound location

3.3.3. Plant and equipment

No vessels are required for the works and all work will be undertaken using land-based machinery. The works are proposed to take place from the river banks and out of the water. However, for the scour protection works in the river this will require the placement of materials at low tide. It will also require the area in the river to be temporary bunding off with blockstone and the use of ton bags or sand bags to keep the area dry to complete this aspect of the works. This will require over pumping to complete this aspect of the works to keep the area dry. The over pumping will require the use of settlement tanks.

Typical plant that will be used to construct these works are shown below.



Figure 3-3 - Tracked excavator



Figure 3-4 - Wheeled JCB



Figure 3-5 - Wheeled dumper

3.3.4. Outline Construction Programme

A construction programme from a contractor is not available at present as a contractor has not yet been appointed to carry out the works. It is expected that the works will take about six months, but this is dependent on the time of year, weather and tidal state at the time.

The anticipated duration of all Scheme works is approximately 12 months. Works are planned to start December 2025, however this is dependent on funding for the scheme.

All construction activities will be limited to daytime hours (for example, 7:30am to 6:00pm from Monday to Friday, and from 8:00am to 1:00pm on Saturdays, or similar). There will be no work on Sundays, over Christmas, New Year, Easter public holidays and Bank Holidays. There will be no night time working.

3.4. Operation and maintenance

Operation of the works will commence as soon as the works are completed. The outfall itself is self operating in that the weir will overflow from the canal and into the River Clydach at times of flood. There are no mechanical aspects involved with the weir that require operating.

No further works are expected once the site is in operation. Once established, the Scheme will be owned and managed by NPTC.

The weir includes provision for temporary stop logs to be installed to maintain the structure. NPTC will install stop logs during low flow periods to hold back water in the canal which will allow the overflow structure to be cleared / repaired as required.

3.5. Decommissioning

No decommissioning works are planned as part of the Scheme. Therefore, there are no potential pathways for impacts associated with decommissioning, and they have not been considered as part of the assessment.

4. Screening

4.1. Screening of WFD Water Bodies

This screening exercise was completed to identify waterbodies that are relevant to the Skewen Flood Alleviation Scheme. A study boundary also known as zone of influence was set for the screening, which was the Scheme area, plus (for surface waters) one waterbody upstream and downstream of the Scheme. For groundwater, only immediately underlying groundwater bodies are included in the screening, as individual groundwater bodies are designated as “hydraulically coherent” systems that do not have interactions with other groundwater bodies.

Skewen is in the Western Wales River Basin District (RBD) and the management strategies for the District are stated in the Western Wales RBMP. The first RBMP was published in 2009 and set out the management plan for the first six years 2009-2015. The plan was updated in 2015 to cover the second period 2015-2021 and will be updated again in 2027, and so on. The purpose of the RBMP is to protect and improve the water environment for the wider benefits to people and wildlife – to achieve ‘Good’ status. The majority of baseline data in the study area was obtained from NRW’s Water Watch Wales (Natural Resources Wales, 2020).

NRW’s 2018 Cycle 2³ interim classification data provides the most consistent and up to date information for all waterbodies in Wales. Therefore, this data has been used to provide most of the baseline information on the status of waterbodies. However, due to the lack of information and/or to understand the wider pressures and reasons for not achieving ‘Good’ status, where applicable, information may have been supplemented with data from the Western Wales RBMP and/or the more up to date draft consultation data.

4.1.1. Surface Water Bodies

The following surface water bodies are classified as in the zone of influence:

- Tennant Canal (ID: GB71010013) – watercourse flows in the Site boundary.
- Clydach – headwaters to conf with River Neath (ID: GB110058026390) – watercourse flows in the Site boundary.
- Neath Estuary (ID: GB541005800700) – watercourse transition from river to estuary is in the Site boundary.
- Neath Canal (ID: GB71010012) – located approximately 950 m east of the Site.
- Neath - conf with Nedd Fechan and Mellte to TL (ID: GB110058032430) - located approximately 1.4 km east of the Site.

Tennant Canal, Clydach headwaters to conf with River Neath, and Neath Estuary all flow in and are adjacent to the Site boundary, with works for the Proposed Scheme potentially having a direct impact on these waterbodies. Therefore, these waterbodies have been **screened in** for further assessment.

The Neath Canal and Neath – conf with Need Fechan and Mellte to TL waterbodies are both located outside of the Site boundary and footprint of the Scheme. Due to their location and distance from the nearest discharge of both water courses, and due to the scale of the works taking place, they have both been **screened out** from further assessment.

4.1.2. Groundwater Bodies

The groundwater body underlying Skewen is the Swansea Carboniferous Coal Measures (ID: GB41002G20100). It covers an area of 758.38km². Under the Western Wales RBD, this groundwater body forms part of a Drinking Water Protected Area (DWPA). Swansea Carboniferous Coal Measures groundwater body has been assessed as 'Poor'. The RBMP determined some of the following sources that can impact on groundwater bodies not being able to achieve 'Good' status as:

- Unregulated discharges e.g. from abandoned mines, leaking subsurface sewers; and
- Pollution from rural areas e.g. excessive use of nutrients such as nitrates.

All ground penetrating works will be undertaken landward at a depth that is unlikely to impact the groundwater body. Furthermore, no modifications to the riverbed e.g. excavations, are taking place that will provide a hydrological connection to the groundwater. Therefore, the Swansea Carboniferous Coal Measures has been **screened out** from further assessment.

4.1.3. Screening summary

The following WFD water bodies have been screened in for further assessment and are detailed in Table 4-1.

- Tennant Canal (ID: GB71010013) – watercourse flows in the Site boundary.
- Clydach – headwaters to conf with River Neath (ID: GB110058026390) – watercourse flows in the Site boundary.
- Neath Estuary (ID: GB541005800700) – watercourse transition from river to estuary is in the Site boundary.

Table 4-1 - Summary of WFD Classification for Screened Surface Water Bodies (Natural Resources Wales, 2021)

Name	Type	Hydromorphological designation	Waterbody ID	Length (km)	Protected Area Designation	Overall Status Cycle 1	Overall Status Cycle 2	Overall Status Cycle 3	Overall Status Objective
Tennant Canal	Canal	Artificial	GB71010013	Unknown	None	Moderate	Moderate	Moderate	Good by 2027
Clydach – headwaters to confluence with River Neath	River	Natural	GB110058026390	Unknown	None	Moderate	Moderate	Moderate	Good by 2027
Neath Estuary	Transitional	Heavily Modified	GB541005800700	Unknown	None	Good	Moderate	Moderate	Good by 2027

5. Scoping

5.1. Waterbody Baseline Data

5.1.1. Tennant Canal

A summary of the baseline classification for Tennant Canal is provided in Table 4-1 with more detail on the WFD status provided in Table 5-1. Based on the 2021 Cycle 3 data, Tennant Canal overall WFD classification is 'moderate' with ecological status also classified as 'moderate'. No specific elements driving the ecological status have been determined. In the previous cycle (2018 Interim Classification, the Tennant Canal was not assessed individually, but with the Neath Canal (WBID GB71010012)

Table 5-1 - WFD Status – Tennant Canal

Waterbody: – Tennant Canal		
Overall status: Moderate		
Ecological status: Moderate		
Chemical status: High		
Mitigation measures: Not Yet Assessed		
Biological quality elements:	Physiochemical quality elements:	Hydromorphological supporting elements:
Fish: Not Assessed	Temperature: Not Assessed	Hydrological Regime: Not Assessed
Invertebrates: Not Assessed	pH: Not Assessed	Morphology: Not Assessed
Macroalgae: Not Assessed	Dissolved oxygen: Not Assessed	HMWB: No
Phytoplankton: Not Assessed	Dissolved Inorganic Not Assessed	AWB : Yes
	All metal assessed: Not Assessed	

5.1.2. Clydach – headwaters to conf with River Neath

A summary of the baseline classification for Clydach – headwaters to conf with River Neath is provided in Table 4-1 with more detail on the WFD status provided in Table 5-2. Based on the 2021 Cycle 3 data, Clydach – headwaters to conf with River Neath overall WFD classification is 'moderate' with ecological status also classified as 'moderate'. Fish have been determined as the elements driving the ecological status.

Table 5-2 - WFD Status - Clydach – headwaters to conf with River Neath.

Waterbody: – Clydach – headwaters to conf with River Neath.		
Overall status: Moderate		
Ecological status: Moderate		
Chemical status: High		
Mitigation measures: Not Yet Assessed		
Biological quality elements:	Physiochemical quality elements:	Hydromorphological supporting elements:
Fish: Moderate	Temperature: High	Hydrological Regime: High
Invertebrates: High	pH: High	Morphology: Not High
Macroalgae: Not Assessed	Dissolved oxygen: High	HMWB: No
Phytoplankton: Not Assessed	Dissolved Inorganic: Not Assessed	AWB: No
	All metal assessed: Not Assessed	

5.1.3. Neath Estuary

A summary of the baseline classification for Neath Estuary is provided in Table 4-1 with more detail on the WFD status provided in Table 5-3. Based on the 2021 Cycle 3 data, Neath Estuary overall WFD classification is 'moderate' with ecological status also classified as 'moderate'. The mitigation assessment have been determined as the elements driving the ecological status.

Table 5-3 - WFD Status - Neath Estuary

Waterbody: – Neath Estuary Overall status: Moderate Ecological status: Moderate Chemical status: High Mitigation measures: Assessed		
Biological quality elements:	Physico-chemical quality elements:	Hydromorphological supporting elements:
Fish: Not Assessed	Temperature: Not Assessed	Hydrological Regime: Not High
Invertebrates: High	pH: Not Assessed	Morphology: Not Assessed
Macroalgae: High	Dissolved oxygen: High	HMWB: Yes
Phytoplankton: Not Assessed	Dissolved Inorganic: Good	AWB: No
	All metal assessed: High	

5.1.4. Protected Areas and Sensitive Habitats

Tennant Canal, Clydach – headwaters to conf with River and Neath Estuary are not designated as a WFD protected area and no other WFD protected areas, which includes SACs, SPAs, Shellfish Waters, Bathing Waters and Coastal Sensitive Areas, are located within 2 km of the Scheme. No Sites of Special Scientific Interest (SSSIs) are located within 2 km of the Scheme.

5.2. Scoping of Scheme Activities

A Scoping exercise has been undertaken to identify the potential risks of each Scheme activity that has been screened in for further assessment to relevant WFD receptors. The Scoping process has followed the Clearing the Waters for All guidance, and has considered the risks of the Scheme activities during the construction stages (as screened in in Section **Error! Reference source not found.**) to the following receptors for surface water bodies only:

- Hydromorphology;
- Biology – habitats;
- Biology – fish;
- Water quality;
- Protected Areas; and
- Invasive non-native species (INNS).

Table 5-4 presents the summary results of the identified risks and receptors that have been taken forward to the assessment stage for the Tennant Canal waterbody.

Table 5-4 - Summary of Scoping for Tenant Canal

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	No	The waterbody is classified as an artificial waterbody, and therefore no impacts to hydromorphology of the waterbody is anticipated as a result of the works.
Biology: habitats	No	No sensitive habitats or habitats of importance are located near the works.
Biology: fish	No	Almost all the works will be carried out at low water and will take place in the river. They are unlikely to cause noise / vibration impacts to any fish in the Tenant Canal.
Water quality	No	All potential impacts to water quality will be reduced or mitigated through the use of good working methods and mitigation measures mentioned in Section 7.
Protected areas	No	No WFD protected areas are located within 2km of the site.
Invasive non-native species (INNS)	No	All impacts associated with INNS will be mitigated through the use of good working methods and mitigation measures mentioned in Section 7.

Table 5-5 presents the summary results of the identified risks and receptors that have been taken forward to the assessment stage for the Clydach – headwaters to conf with River waterbody.

Table 5-5 - Summary of Scoping for Tennant Canal, Clydach – headwaters to conf with River and Neath Estuary

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	The installation of hard structures for the Scheme has the potential to impact the hydromorphological regime of the waterbody.
Biology: habitats	No	No sensitive habitats or habitats of importance are located near the works.
Biology: fish	Yes	The installation of hard structures for the Scheme may cause noise and vibration impacts to local fish species of the River Clydach.
Water quality	No	All potential impacts to water quality will be reduced or mitigated through the use of good working methods and mitigation measures mentioned in Section 7.
Protected areas	No	No WFD protected areas are located within 2km of the site.
Invasive non-native species (INNS)	No	All impacts associated with INNS will be mitigated through the use of good working methods and mitigation measures mentioned in Section 7.

Table 5-6 presents the summary results of the identified risks and receptors that have been taken forward to the assessment stage for the Neath Estuary waterbody.

Table 5-6 - Summary of Scoping for Neath Estuary

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	No	The installation of hard structures for the Scheme are very small scale and outside the waterbody. There is no potential to impact hydromorphology.
Biology: habitats	No	No sensitive habitats or habitats of importance are located near the works.
Biology: fish	No	Almost all the works will be carried out at low water and will take place in the river and outside of the Neath Estuary waterbody. They are unlikely to cause noise / vibration impacts to any fish in the Neath Estuary.
Water quality	No	All potential impacts to water quality will be reduced or mitigated through the use of good working methods and mitigation measures mentioned in Section 7.
Protected areas	No	No WFD protected areas are located within 2km of the site.
Invasive non-native species (INNS)	No	All impacts associated with INNS will be mitigated through the use of good working methods and mitigation measures mentioned in Section 7.

Based on the above Scoping assessments of the waterbodies, the following receptors of the Tennant Canal, Clydach – headwaters to conf with River and Neath Estuary have been taken forward for assessment in the following section:

- Hydromorphology;
- Biology – fish;

6. WFD Assessment

6.1. Hydromorphology

Works for the Proposed Scheme involve the installation of a reinforced concrete overflow structure, adjacent to the existing weir structure, and disturbance to the riverbank to install turf reinforcement, blockstone and rockroll. Minor repairs and works to block up the existing structure will also take place.

The installation of hard structures could affect the morphology of the river channel and/or reduce flow levels. The scale of the works and the size of the structures being installed (5.7m long x 1.5m wide plus a reinforced concrete stepped cascade from the overflow structure to the river) are very small and will only result in minor changes in the immediate vicinity of the structure, at most. These changes are not significant and would not affect the hydromorphology of the waterbody.

The proposed Scheme will not result in any deterioration to hydromorphological supporting elements. The proposal is deemed to be COMPLIANT with this WFD quality element.

6.2. Biology: Fish

The installation of a reinforced concrete overflow structure and turf reinforcement, blockstone and rockroll along the riverbank has the potential to cause disturbance impacts to local fish species.

The scale and method of works, with the majority of works taking place out of the water column and or at low tide, mean that any potential risks to fish are very small and localise to the immediate vicinity of the structure, at most. Standard good practice methods of works for working in or near to water will be applied. Any impacts will not be significant and will not affect fish populations of the waterbody.

The proposed Scheme will not result in any deterioration to biological supporting elements. The proposal is deemed to be COMPLIANT with this WFD quality element.

7. Good Working Methods and Mitigation Measures

- Works will be carried out during daylight hours (it is anticipated that all construction activities will be limited to daytime hours (for example, 7:30am to 6:00pm from Monday to Friday, and from 8:00am to 1:00pm on Saturdays). This will avoid the need for artificial lighting that could disturb fish;
- Site compounds, materials and equipment will be appropriately secured and fenced off, away from surface waterbodies. The site compound is expected to be some distance from the construction area as noted above. Access to the location of the works will be along the canal tow path;
- The Scheme will make use of well-maintained equipment and plant to minimise potential for fuel/oil and chemical leaks. Plant and machinery will be switched off when not in use;
- The works will take place on the banks of the River Clydach and on the canal tow path. It is not envisaged that any plant, equipment or vessels will be sat in the River Clydach. No scaffolding will be used in the River Clydach watercourse for these works;
- All equipment and materials used will following the 'Check, Clean, Dry' guidance prior to their arrival on Site, and on removal from Site to prevent the spread of INNS; and
- The proposed works will strictly follow the Pollution Prevention Guidelines (PPGs)/ Guidance on Pollution Prevention (GPPs) and the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites.

8. Conclusion

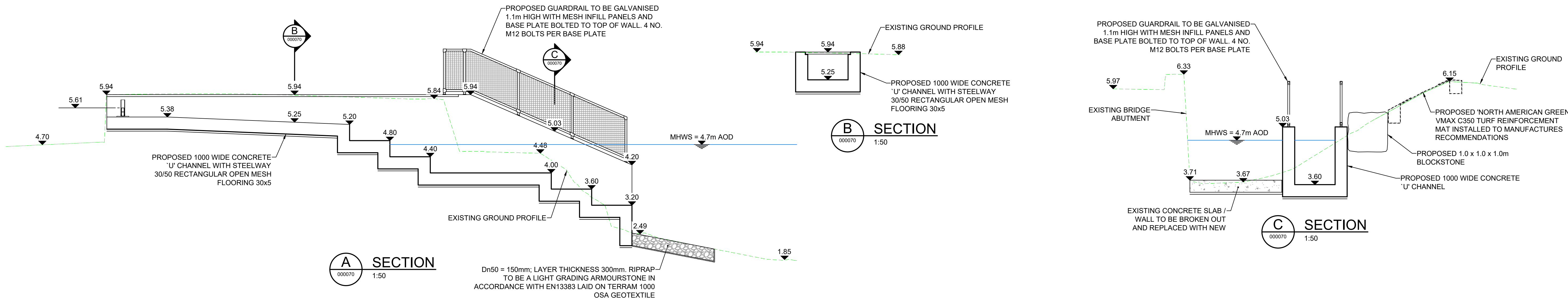
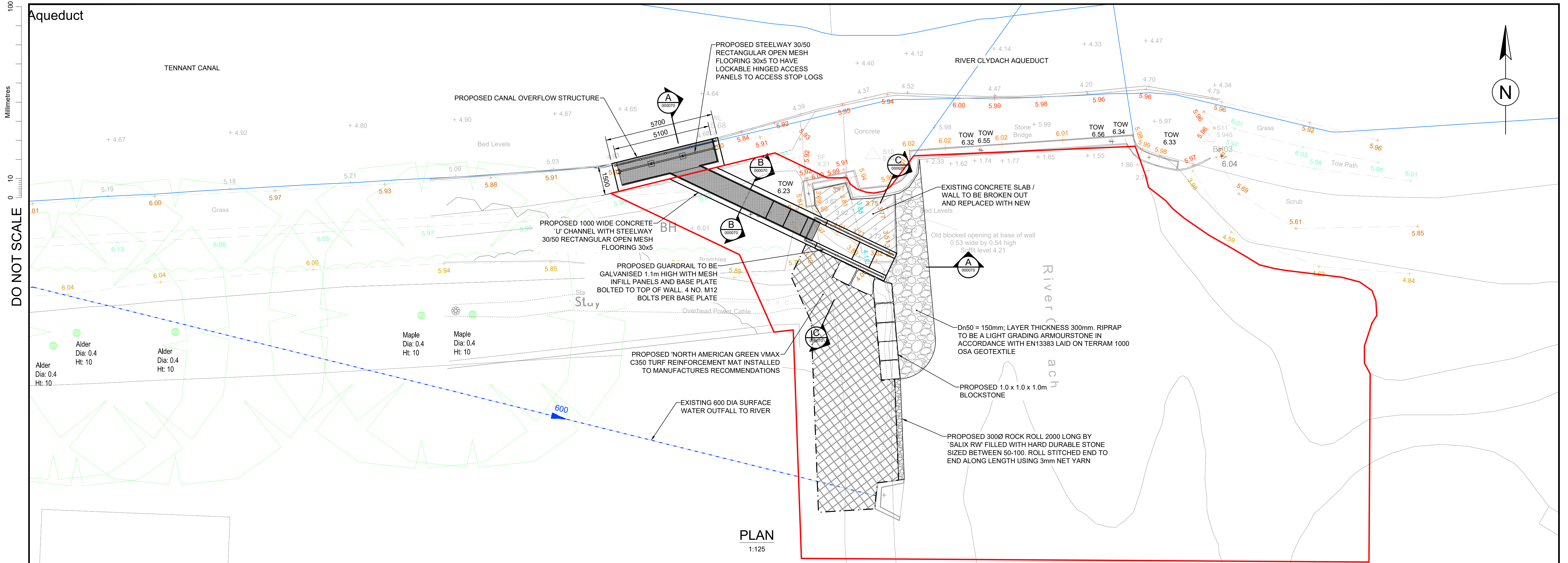
This document presents a WFD assessment of the proposed works Supporting Documentation for Marine Licence Application for Skewen. against the biological, physiochemical and hydromorphological quality elements of the Tennant Canal; Clydach – headwaters to confluence with River; and Neath Estuary waterbodies, and the quantitative and chemical quality elements of the Swansea Carboniferous Coal Measures groundwater body.

The main considerations for this waterbody were the potential hydromorphological and disturbance impacts to fish from the installation of a reinforced concrete overflow structure adjacent to the existing weir structure, and disturbance to the riverbank to install turf reinforcement, blockstone and rockroll. However, these impacts were determined to be insignificant at a waterbody scale. Once the works are complete the water will discharge into the River Clydach/ Neath Estuary as before. Therefore, this assessment has determined that any changes to water quality elements would not be significant from baseline conditions and would provide an overall benefit to local communities.

All of the works for the Proposed Scheme will be undertaken during daytime hours, avoiding the requirement for artificial lighting which may disturb migratory fish species. The risk of pollution events and spillages from imported material and plant machinery, as well as suitable access and egress routes will be mitigated through contracting licensed suppliers, good planning, best practice working measures, including the Pollution Prevention Guidelines (PPG)/ Guidance for Pollution Prevention (GPPs) and management through the Construction Environmental Management Plan (CEMP). Liaison with NRW will continue throughout the application process to ensure that all practicable mitigation measures are implemented during the works.

Based on the information available and considering the control measures which will be employed throughout the works, the Scheme will not result in any deterioration to the supporting elements of any of the water bodies. Therefore, the Scheme will not result in deterioration to any WFD quality elements of the Tennant Canal, Clydach – headwaters to conf with River and Neath Estuary waterbodies and is deemed to be COMPLIANT.

Appendix A. Scheme Drawings



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NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.

LEGEND

MARINE LICENCE AREA (0.05Ha)

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
None

Maintenance / Cleaning
None

Use
None

Decommissioning / Demolition
None

Description						
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