Capital Delivery Alliance
Cynghrair Cyflawni Cyfalaf

Cardigan (Lower Town)

Habitats Regulations Assessment

Appropriate Assessment

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Contents

Welsh Water Integrity Test

Dwr Cymru Welsh Water is a competent authority under the Conservation of Habitats and Species Regulations 2017 (as amended) (hereafter referred to as the Habitats Regulations). It is required to undertake an appropriate assessment of the implications of its plan or project that is considered to have potential impact on a designated Special Area of Conservation, or a Special Protection Area, or a Ramsar site.

Welsh Water hereby confirms that the assessment and this report has been produced by Arup on behalf of Welsh Water for the Cardigan (Lower Town). Arup is an appointed partner of Welsh Water's Capital Delivery Alliance.

Welsh Water confirms that it has acknowledged the finding of the assessment and authorised the issue of the report.

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Date: 26th May 2020

Executive Summary

Welsh Water are proposing to upgrade part of the sewer network in Cardigan to relieve flooding of residential properties in the Lower Town area.

The existing combined sewer outfall (CSO), is at a level below the high tide level of the River Teifi, which runs through Cardigan. Therefore, the CSO becomes tide-locked and unable to discharge when tides are high during storm events, which leads to the flooding of residential properties with sewage.

The proposed solution is to build another CSO close to the existing one, with a new rising main pipe that will discharge into the River Teifi, approximately 160m downstream of the existing discharge point. The new CSO will act as a relief and will only discharge when the existing CSO is not able to. This will allow the screened discharge to spill into the river rather than flooding uncontrollably.

The new discharge point will be into the River Teifi, which is designated as a Special Area of Conservation (SAC). The River Teifi SAC is designated for riparian habitats, otter (*Lutra lutra*) and fish species, including Atlantic salmon (*Salmo salar*) and three lamprey species. There are also three other SACs within 10km of the proposed scheme:

- Cardigan Bay / Bae Ceredigion SAC – 3.2km north-west of the site;
- West Wales Marine / Gorllewin Cymru Forol SAC – 3.9km north-west of the site; and
- North Pembrokeshire Woodlands / Coedydd Gogledd Sir Benfro SAC – 7.9km south-west of the site.

This report considered the potential effects and impact pathways of the proposed works on the qualifying features of the designated sites. North Pembrokeshire Woodlands SAC was screened out of further assessment due to the large distance from the proposed works and lack of in-combination effects of other projects.

The potential effects include habitat loss, habitat fragmentation, restriction to species movement, direct injury/mortality and reduction in habitat quality & mortality caused by pollution.

The River Teifi SAC, Cardigan Bay SAC and West Wales Marine SAC were considered further in an Appropriate Assessment. Mitigation measures were taken into consideration as were potential in-combination effects on the SACs from other projects.

It is concluded that with the inclusion of mitigation measures, there are likely to be no adverse effects on the integrity of the three SACs from the project.

1 Introduction

Ove Arup and Partners Ltd (Arup) has been commissioned by Welsh Water (WW) to submit a report containing information to inform a Habitats Regulation Assessment (HRA) in compliance with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended); hereafter referred to as the 'Habitats Regulations'.

Upgrades are required to the sewer network in Cardigan, Ceredigion, to address flooding issues to residential properties (see Appendix B for Proposed Works Drawings). A new Combined Sewer Outfall (CSO) is proposed at SN 17894 46030, which will discharge at SN17847 45908 and a new rising main within the highway will connect the two. The majority of the site comprises roads within Cardigan town with residential and commercial buildings adjacent.

The proposed outfall will discharge into the River Teifi Special Area of Conservation (SAC). The scheme is also within 10km of Cardigan Bay SAC, West Wales Marine SAC and North Pembrokeshire Woodlands SAC.

1.1 Purpose of this Report

This document has been prepared by Arup on behalf of WW, as the Competent Authority under the Habitat Regulations, to document the assessment of the project proposal in relation to the potential for effects on European Sites as required by Regulation 63(1) of the Habitats Regulations. Appendix A provides an overview of the Habitats Regulations Assessment process.

This document is to be submitted to Natural Resources Wales (NRW) as the statutory advisor for designated nature conservation sites in Wales to formally request their views on the assessment under Regulation 76 of the Habitats Regulations, and specifically whether they can concur with the conclusions.

1.2 Structure of this Report

This report uses the following structure:

- Section 2 provides information on the proposed works (the 'project') including the environmental baseline and a description of the development;
- Section 3 provides information on the data and methodology used in the assessment;
- Section 4 provides information on the European Sites that are considered within the assessment and details the potential effects of the proposed works (Screening Assessment);
- Section 5 provides the Appropriate Assessment of the likelihood of significant effects occurring taking into account mitigation measures and the residual effects;
- Section 6 provides proposals for monitoring; and
- Section 7 provides a summary and conclusions.

2 Project Description

2.1 Site Description

Proposed works include the installation of a new CSO at the junction of Morgan's Street and St Mary's Street, which is currently a car parking area bordered by a planter. The rising main will then run within the highway west and south along Morgan's Street and Carrier's Lane, where it will discharge into the River Teifi from an existing slipway off of The Strand.

2.2 Project Description

WW are proposing to carry out works to the sewer network in Cardigan to relieve rainfall induced sewer flooding affecting 36 properties in the Lower Town area.

The properties are located in a flat, low-lying area of the town, to the north-west of Cardigan Bridge. The area is characterised by terraced houses and narrow streets. The town has been built along the banks of the River Teifi, with properties constructed at low level, in close proximity to the watercourse.

The river opens into an estuary after passing through the town, before flowing into the sea at Poppit Sands some 5km downstream. The river is susceptible to tidal influence up to a distance of 2km upstream of the town. There are currently no flood defences within the town, which results in tidal flooding in Lower Cardigan.

There is an existing St Mary's Street CSO, which has a weir level which is lower than the average high tide. As such, it becomes tide locked during most high tide events, a twice daily occurrence. If a storm occurs during such a period, the CSO is unable to spill and flooding can occur within properties.

The existing CSO is consented to discharge at 53.7l/s and is predicted to spill 157 times per annum, with a spill volume of 67,611m^3. The CSO should spill more, however it becomes tide locked, thus preventing it from spilling and it is this flow which emerges as flooding within the catchment. The proposed relief CSO pumping station will operate when St Mary's Street CSO is unable to operate due to tide locking of the outfall.

The network is currently restricted by pumping station SPS 2 (see Figure 1 below). This pumps 54l/s, in line with the consent at St Mary's St CSO.

Once flow in the system exceeds 54l/s, it will back up to St Mary's St CSO initially. If this CSO is not tide locked, it will discharge. If it is tide-locked, flows will continue to back up in the network, along Pwllhai and St Mary's Street, to the new relief CSO, from where discharge flows will be pumped to a new outfall point, approximately 160m downstream of the existing St Mary's Street CSO discharge point.

Flows rates expected from St Mary's Street relief CSO will be in the region of 180-374l/s. A new discharge consent will be applied for, for which this HRA report can be used in support of. It should be noted that the discharge to the River Teifi will be from either of the two CSOs.

The spill volume will reduce slightly to 66,051m^3 per annum with implementation of the proposed design. The proposed relief CSO pumping station is expected to operate approximately 44 times per year with a total annual volume of 9,664m^3.

The additional measured discharge volume that will result following implementation of the proposed solution, therefore equates to 8,104m^3. This is volume which would manifest as flooding in the network, the majority of which would eventually be discharged by the CSO or into the watercourse as storm flows recede. The proposed solution therefore aims to prevent sewer flooding whilst causing no net increase in discharge to the watercourse. Additionally, the flows which are discharged by the new pumping station will be controlled and screened.

The proposed works summarised in Figure 1 below and shown on the Drawings included within Appendix B.

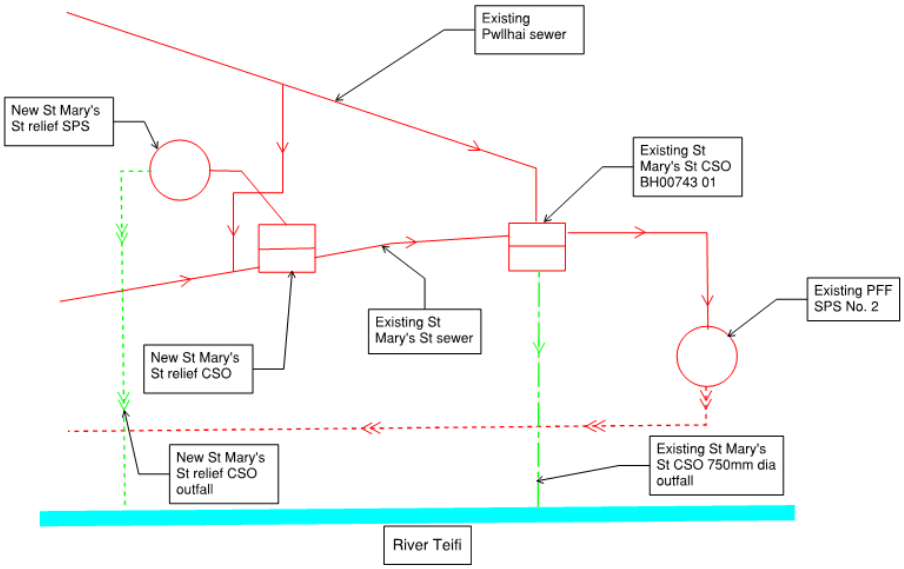


Figure 1: Outline of proposed solution

2.3 Environmental Baseline

An environmental constraints plan (Appendix C) identifies the sensitive sites within 10km of the proposed works. These sites are described in detail in Section 4.

Local Biodiversity Records were provided by Aderyn on 22nd April 2020. The records included protected and priority species[1] up to 2km from the proposed works and included details of local designations such as Local Wildlife Sites, Local Nature Reserves and Ancient Woodland Sites.

The proposed works are on the boundary of the Afon Teifi (Teifi Estuary Woodland and Marshes) Site of Special Scientific Interest (SSSI). The Afon Teifi (Teifi Estuary Woodland and Marshes) SSSI is of special interest for a range of river types and associated riverside habitats; flowering plants; bryophytes; otter; Cetti's warbler (*Cettia cetti*); bottlenose dolphin (*Tursiops truncatus*); brown hairstreak (*Thecla betulae*); fish; dragonflies and a variety of other invertebrates as well as both breeding and wintering bird communities and for geomorphological features at Cenarth and Cors Caron.

Coed Mor National Nature Reserve (NNR) is situated approximately 1.6km to the south east and upstream of the proposed works area. Teifi Marshes Wildlife Trust Reserve is approximately 400m east and upstream of the works. There are 16 areas of Ancient Woodland within 2km of the proposed works, the closest of which is a restored ancient woodland site, approximately 500m north.

Records of the following species/species groups were returned: otter, bats, birds, reptiles, common toad (*Bufo bufo*), common frog (*Rana temporaria*), palmate newt (*Lissotriton helvetica*), west European hedgehog (*Erinaceus europaeus*), red squirrel (*Sciurus vulgaris*) and Section 7 invertebrates, including brown hairstreak.

[1] EU and UK legally protected species under the Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act 1981 (as amended); and species present on the Species of Principal Importance in Wales list in response to Section 7 of the Environment (Wales) Act 2016 (known as Section 7 species).

An Extended Phase 1 Habitat Survey was carried out on 28th April 2020, which is included in Appendix D - Extended Phase 1 Habitat Survey Plans.

The majority of the site comprised roads and residential buildings in Cardigan town. There was one area of ornamental planting comprising introduced trees and shrubs. The river bank on site was reinforced with a stone wall. Marginal vegetation was present and comprised reed sweet-grass (*Glyceria maxima*), ribwort plantain (*Plantago lancolata*), dock (*Rumex* sp.) and hemlock water dropwort (*Oenanthe crocata*). By the bridge over the River Teifi there was a small area of scrubby vegetation. Butterfly bush (*Buddleia davidii*), oxeye daisy (*Leucanthemum vulgare*) and red valerian (*Centranthus ruber*) were present here and a single immature lime tree (*Tilia* sp.) and sycamore (*Acer pseudoplatanus*) saplings were also present.

The ornamental planting on site was considered suitable for supporting nesting birds. Although no signs of otter were observed, the river was considered suitable for supporting the species. It is considered unlikely that otter will use the site for holts/resting due to the river bank on site (and at least 100m up- and downstream) having a stone wall, but they may commute or forage on site. The opposite river bank is also a stone wall.

No evidence of invasive non-native species was identified during the Extended Phase 1 Habitat Survey.

3 Guidance and Methodology

This section sets out the guidance and evidence base used in assessing the potential effects of the project.

3.1 Guidance and Policy

This information has been informed by the following guidance and policy documents:

- Planning Policy Wales - Technical Advice Note (TAN) 5: Nature Conservation and Planning[2]; and
- Tyldesley & Chapman, 2019. The Habitats Regulations Assessment Handbook, May 2019 Edition, UK: DTA Publications Limited.

This guidance is intended to improve understanding of how projects are regulated under the Habitats Directive. This guidance draws on experience throughout Britain and on case law in Britain and Europe.

3.2 Desk Study Information

In addition to the guidance noted above, the following sources were used to gather information on the European Protected Sites:

- Natural Resources Wales (NRW) website;
- MAGIC (Multi-Agency Geographic Information for the Countryside) website[3];
- Joint Nature Conservation Committee (JNCC); and
- Aderyn biodiversity data.

Information on the interest features of European Sites has been obtained from the information provided on the Joint Nature Conservation Committee (JNCC) website and Natural Resources Wales (NRW) website. In particular the Core Management Plans for European Sites, and Regulation 37 information containing advice on European Sites were obtained and have been used to inform this assessment.

These documents provide the main elements of NRW's management plan for European Sites along with the Conservation Objectives for the features. The features will be considered to be in Favourable Conservation Status only when the conservation objectives are being met. These objectives therefore provide an indication of the type of effects which could affect the features of European Site. An effect which could affect the ability of a site or feature to meet its objective could be considered to be an adverse effect on the integrity of the European Site concerned.

3.3 Habitats Regulations Assessment Methodology

In order to understand the potential implications for European Sites from the proposed project it is necessary to identify those sites that are located close to the project or are linked by pathways such as hydrological connections.

All European Sites and European Marine Sites within 10km of the project were identified using Geographic Information System data from datasets downloaded from the JNCC, MAGIC and NRW.

[2] Welsh Government. (2009). Planning Policy Wales - Technical Advice Note 5: Nature Conservation and Planning. Cardiff: Welsh Government.
[3] MAGIC. (2014). Magic interactive Mapping Application. http://www.magic.gov.uk/MagicMap.aspx [accessed: 20/04/2020].

3.3.1 Understanding qualifying interests and conservation objectives

For each of the sites identified the features were established and the conservation objectives for each feature were obtained. Information was also sought to understand the potential vulnerability of the features to any effects that might arise from the proposed project.

3.3.2 Identification of the potential effects of the project

Any potential pathways for effect on European Sites resulting from the proposed development were identified prior to consideration of best practice procedures (e.g. Guidelines for Pollution Prevention and CIRIA guidance) or the integration of any mitigation measures in accordance with current case law.

3.3.3 Identification of plans or projects considered for in-combination effects

An 'in-combination' assessment is required where the project may have an effect on a European Site, but on its own the effects would not be significant. The potential effects of the project should be considered in-combination with other plans or projects that similarly may have an effect, but where on their own those effects would not be significant. The combined effects may therefore become significant.

Details of other plans and projects which are currently proposed or consented within the vicinity of the European Sites identified were obtained from the local planning authority website to inform the in-combination assessment of the proposed project. Welsh Water also track all committed schemes and their potential to impact European designated sites and this data has been used to inform the in-combination assessment.

3.3.4 Consideration of the significance of potential effects

The significance of potential effects was assessed in the absence of avoidance or other mitigation measures. The assessment has been made with awareness of the conservation objectives for the features of the European Sites, although as stated in the relevant guidance the assessment of the project against the conservation objectives is not required until the Appropriate Assessment stage of the HRA process.

In the assessment of the significance of effects, professional judgement was applied using the following criteria, as often insufficient information about the elements and interests is available:

- The vulnerability / sensitivity of the receiving environment / features of interest;
- When the risk of effects are likely to occur (e.g. construction and / or operation);
- The likely geographical extent of the effects; and
- Likelihood of significant effects (e.g. those above negligible in magnitude) occurring based on previous experience with similar elements, where available.

Professional judgement was used in the carrying out this work where professional guidance was not available. Where there was not enough information about the risk of qualifying interests being present, or of the risk of effects, the assessment used the precautionary principle[4] to inform the judgement. The

[4] The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU. EU (2000) Communication from the commission on the precautionary principle, COM1, Brussels: Commission of the European Communities.

precautionary principle has been applied to ensure that any assessment errs on the side of caution, without being overly cautious. This principle means that the conservation objectives should prevail where there is uncertainty or that harmful effects will be assumed in the absence of evidence to the contrary.

4 Screening Exercise

4.1 Identification of Sites

The European Sites identified within 10km of the proposed works are as follows (distances and direction are measured as a straight line from the proposed site to the European designated site):

- River Teifi / Afon Teifi SAC – immediately south of the site;
- Cardigan Bay / Bae Ceredigion SAC – 3.2km north-west of the site;
- West Wales Marine / Gorllewin Cymru Forol SAC – 3.9km west of the site; and
- North Pembrokeshire Woodlands / Coedydd Gogledd Sir Benfro SAC – 7.9km south-west of the site.

The Environmental Constraints Plan contained within Appendix C shows the location of the project in relation to the identified European Sites.

4.2 Screening Tables

The following tables document the screening exercise for each of the identified European sites to assess if the project, alone or in combination with other projects, will have an impact on the designated sites.

Table 1: Screening Assessment for River Teifi SAC

European Site Name and Status	River Teifi / Afon Teifi SAC (UK0012670)	
Distance of Project from the European Site	Immediately south of the site.	
Description of the European Site **Source:** *https://sac.jncc.gov.uk/site/UK0012670*		
Key Qualifying Features		
Annex I habitats or species	Annex I habitats that are a primary reason for selection of this site	Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation.
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site.	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea.*
Annex II habitat or species	Annex II species that are a primary reason for selection of this site	Brook lamprey (*Lampetra planeri*); River lamprey (*Lampetra fluviatilis*); Atlantic salmon; Bullhead (*Cottus gobio*); Otter; and Floating water-plantain (*Luronium natans*).
	Annex II species present as a qualifying feature, but not a primary reason for site selection.	Sea lamprey (*Petromyzon marinus*).
Management of the Site **Source:** *https://naturalresources.wales/media/670702/Afon%20Teifi%20%20River%20Teifi%20Management%20Plan.pdf*		
Conservation Objectives/Vision of the Site	The Afon Teifi/River Teifi SAC will be maintained or, where necessary, restored to high ecological status, including its largely unmodified and undisturbed physical character, so that all of its special features are able to sustain themselves in the long-term as part of a naturally functioning ecosystem. Allowing the natural processes of erosion and deposition to operate without undue interference and maintaining or restoring connectivity maintains the physical river habitat, which forms the foundation for this ecosystem. The quality and quantity of water, including natural flow variability, and the quality of adjacent habitats will be maintained or restored to a level necessary to maintain the features in favourable condition for the foreseeable future.	
Conservation Status and Site Condition (text from Management Plan above)		
Species/Habitat	Status and Vulnerabilities	
Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation.	Conservation Status: Favourable Although this feature was previously reported as unfavourable, baseline survey and monitoring work carried out has provided new information to support an assessment of favourable for this feature. The Ranunculion feature is widely distributed across the Teifi and many of its tributaries.	

	Adverse factors may include elevated nutrient levels, shading or altered flow and/or sediment regimes. It is possible that reaches with slightly elevated nutrient levels and/or regulated flows may have a higher cover of the feature than under natural conditions, though species composition may also be affected. Species indicative of unfavourable condition for this feature e.g. filamentous algae associated with eutrophication and invasive non-native species, should be maintained or restored below an acceptable threshold level, indicative of high ecological status within the SAC.
Brook and River lamprey	Conservation Status: Unfavourable Brook/river lamprey monitoring undertaken in 2004 showed the overall catchment mean ammocoete did not meet the target and thus the catchment was considered to be in unfavourable condition. Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger 34 tributaries. Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Fish stocking can adversely affect population dynamics through competition, predation, introduction of disease and alteration of population genetics. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >10cm depth in a range of water depths (0.2 to 1.5m). Sea and river lamprey tend to spawn in deeper water than brook lamprey. Nursery habitat consists of open-structured, aerated, silty and sandy substrates between 2 and 40cm depth generally in shallow (<0.5m) slack-water channel margins.
Sea lamprey	Conservation Status: Unfavourable Sea lamprey monitoring undertaken in 2004 failed to find juvenile sea lamprey at any sites either on the main river Teifi or any of the tributaries. Therefore the Afon Teifi SAC failed the target threshold, and targets for spawning site & ammocoete distribution. Migrating adult sea lamprey, spawning adults and dead individuals are reported from the lower reaches of the Teifi each year, regularly occurring as far upstream as Henllan. Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Fish stocking can adversely affect population dynamics through competition, predation, introduction of disease and alteration of population genetics. The extent and quality of suitable sea lamprey habitat must be maintained. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >10cm depth in a range of water depths (0.2 to 1.5m). Sea and river lamprey tend to spawn in deeper water than brook lamprey. Nursery habitat consists of open-structured, aerated, silty and sandy substrates between 2 and 40cm depth generally in shallow (<0.5m) slack-water channel margins.
Atlantic salmon	Conservation Status: Unfavourable The Conservation Limit for adult run size has been exceeded in nine out of the past ten years, but for juvenile population densities, around 50% of the surveys carried out between 1995-2005 produced densities at a level to cause concern. The current unfavourable status therefore results from a precautionary assessment of juvenile

	distribution and abundance and also the presence of adverse factors, in particular the potential for flow depletion and localised water quality failures. Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Current consents for discharges entering, or likely to impact upon the site should be monitored, reviewed and altered if necessary. Salmon migration can be affected by acoustic barriers and by high sediment loads, which can originate from a number of sources including construction works. Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Fish stocking can adversely affect population dynamics through competition, predation, introduction of disease and alteration of population genetics. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg and fry survival. Clean substrate free from excessive siltation should predominate at suitable spawning sites. Spawning habitat is defined as stable coarse substrate without an armoured layer, in the pebble to cobble size range (16-256 mm) but with the majority being <150 mm. Water depth during the spawning and incubation periods should be 15-75 cm. Fry habitat is indicated by water of <20 cm deep and a gravel/pebble/cobble substrate. Parr habitat is indicated by water 20-40 cm deep and similar substrate. Holding areas are defined as pools of at least 1.5 m depth, with cover from features such as undercut banks, vegetation, submerged objects and surface turbulence. Coarse woody debris should not be removed from rivers as it plays a significant role in the formation of new gravel beds, and provides cover for fish and a source of food for invertebrates.
Bullhead	Conservation Status: Unfavourable The current unfavourable status results from the presence of adverse factors, in particular flow depletion and localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Fish stocking can adversely affect population dynamics through competition, predation, introduction of disease and alteration of population genetics. Elevated levels of fines can interfere with egg and fry survival. Spawning habitat is defined as unsilted coarse (gravel/pebble/cobble) dominated substrate: males guard sticky eggs on the underside of stones. Larger stones on a hard substrate providing clear spaces between the stream bed and the underside of pebbles/cobbles are therefore important.
Otter	Conservation Status: Favourable Survey information shows that otters are widely distributed in the Teifi catchment. While the breeding population on the Teifi is not currently considered to be limited by the availability of suitable breeding sites, there is some uncertainty over the number of breeding territories which the SAC is capable of supporting given near-natural levels of prey abundance. The decline in eel populations may be having an adverse effect on the population of otters on the Teifi. Road and bridge improvement

	schemes within the catchment should take appropriate measures towards achievement of the safe movement and dispersal of individuals around the SAC, which is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. Pollution of rivers with toxic chemicals, such as PCBs, was one of the major factors identified in the widespread decline of otters during the last century. There should be no increase in pollutants potentially toxic to otters.
Floating water-plantain	Conservation Status: Favourable Floating water-plantain populations are known to be present in the main river reaches through and downstream of Cors Caron and in each of the Teifi Pools. Adverse factors may include elevated nutrient levels, artificial regulation of water levels ('draw-down') in the reservoirs, altered river flow and/or sediment regimes, and shading. Species indicative of unfavourable condition for this feature e.g. filamentous algae associated with eutrophication, invasive non-native species, should be maintained or restored below an acceptable threshold level, indicative of high ecological status within the SAC.
Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*	Conservation Status: Favourable Stands of this upland lake plant community are present in each of the Teifi Pools. Adverse factors may include elevated nutrient levels, artificial regulation of water levels ('draw-down') in the reservoirs and poaching of exposed lake shores by livestock during periods of low water levels. Species indicative of unfavourable condition for this feature e.g. filamentous algae associated with eutrophication, invasive non-native species, should be maintained or restored below an acceptable threshold level, indicative of high ecological status within the SAC.

Screening

Is the Project Directly connected with or necessary to the management of the site for nature conservation?	No

Qualifying Feature	**Potential Effects**	**Pathway for Effect during**	
		Construction	**Operation**
Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation.	• habitat loss; • habitat quality reduction due to pollution within the river.	This feature is only present in Units 2-6 of the SAC, where Unit 2 is "Teifi between Llechryd & Llandysul, including tributaries". The proposed works are approximately 7km downstream of Llechryd. Given the works are localised and there is a large distance between the works and the feature it is considered there is no realistic	This feature is only present in Units 2-6 of the SAC, where Unit 2 is "Teifi between Llechryd & Llandysul, including tributaries". The proposed works are approximately 7km downstream of Llechryd. Given the works are localised and there is a large distance between the works and the feature it is considered there is no realistic

		pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
Brook and River lamprey	• habitat loss; • habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river.	These features may be present in Unit 1 (where the works are proposed). The distribution of these species is poorly known. Although ammocoete stages of lamprey species use silt, they are typically found in freshwater and not below the tidal limit, so it is not considered that they will be impacted by the proposed works.[5] However, there is the potential for SIGNIFICANT EFFECTS upon adult brook and river lamprey.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Sea lamprey	• habitat loss; • habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river.	This feature is a key species in Unit 1. It migrates through Unit 1 and spawns in Unit 2. Although ammocoete stages of lamprey species use silt, they are typically found in freshwater and not below the tidal limit, so it is not considered that they will be impacted by the proposed works.[5] However, there is the potential for SIGNIFICANT EFFECTS upon adult sea lamprey.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Atlantic salmon	• habitat loss;	This feature is a key species in Unit 1. It	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be

[5] Maitland PS (2003). Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5. English Nature, Peterborough.

	• habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river.	migrates through Unit 1 and spawns in Units 2-6. Therefore, there is the potential for SIGNIFICANT EFFECTS upon adult Atlantic Salmon.	as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Bullhead	• habitat loss; • habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river.	This feature may be present in Unit 1, but is not considered likely to be present in the vicinity of the proposed works as the river here lacks suitable substrate/sheltered areas for bullhead[6]. Given the works are localised and it is considered that there is no highly suitable habitat for this feature, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	This feature may be present in Unit 1, but is not considered likely to be present in the vicinity of the proposed works as the river here lacks suitable substrate/sheltered areas for bullhead. Given the works are localised and it is considered that there is no suitable habitat for this feature, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
Otter	• habitat loss; • habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river.	This feature is a key species in Unit 1. Otter will use the river in the vicinity of the proposed works for foraging, commuting and breeding. Therefore, there is the potential for SIGNIFICANT EFFECTS upon otter.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Floating water-plantain	• habitat loss;	This feature is only present in Units 4, 5 & 7, where Unit 4 is “Teifi between Llanybydder &	This feature is only present in Units 4, 5 & 7, where Unit 4 is “Teifi between Llanybydder &

[6] Tomlinson ML & Perrow MR (2003). Ecology of the Bullhead. Conserving Natura 2000 Rivers Ecology Series No. 4. English Nature, Peterborough.

	• habitat quality reduction due to pollution within the river.	Cors Caron, including tributaries." The proposed works are over 30km downstream of Llanybydder. Given the works are localised and there is a large distance between the works and the feature it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	Cors Caron, including tributaries." The proposed works are over 30km downstream of Llanybydder. Given the works are localised and there is a large distance between the works and the feature it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*	• habitat loss; • habitat quality reduction due to pollution within the river.	This feature is only present in Unit 7 (Teifi Pools). The proposed works are over 60km downstream of the Teifi Pools. Given the works are localised and there is a large distance between the works and the feature it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	This feature is only present in Unit 7 (Teifi Pools). The proposed works are over 60km downstream of the Teifi Pools. Given the works are localised and there is a large distance between the works and the feature it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
In Combination Projects			
Welsh Water Projects:			
Project Name: Llechryd Water Treatment Works **Distance from the Welsh Water Project:** 4.5km south-east. **Description of project:** Demolition of the existing Old Reservoir House and construction of a new Water Pumping Station (WPS) (both within the Llechryd Water Treatment Works (WTW) site) with below ground installation pipeline connections to the proposed new trunk main. The proposed Development will also involve works to the existing Low Lift WPS. **Effects on SAC:** In 2016, the proposal was assessed as not likely to have a significant effect upon the features of the Afon Teifi / River Teifi SAC. Considering this project alongside the project covered by this report, the predicted effects as Llechryd will not work in-combination to elevate the no likely significant effect predicted above to a significant level.			
Cardigan Planning Applications:			
Application reference: A200316 **Date of decision and status:** 16/04/2020, In progress, conditions partially discharged **Distance from the Welsh Water Project:** 150m south-west **Description of project:** Discharge of condition 4 (Written Scheme Historic Environment) from listed building consent A190263 at Bridge Warehouse **Effects on SAC:** Not considered likely			

Application reference: A200322 **Date of decision and status:** 09/04/2020, In progress **Distance from the Welsh Water Project:** 200m north-west **Description of project:** Display of signage at HSBC **Effects on SAC:** Not considered likely
Application reference: A200292 **Date of decision and status:** 30/03/2020, Decision issued, approved **Distance from the Welsh Water Project:** 300m north-west **Description of project:** Discharge of condition 7 (details of proposed fascia board and installation) from planning permission A200044 at Cardigan Guildhall Market. **Effects on SAC:** Not considered likely
Application reference: A200042 **Date of decision and status:** 17/03/2020, Decision issued, approved subject to conditions **Distance from the Welsh Water Project:** 300m north-west **Description of project:** Variation of condition 2 of planning permission A190027 revised plans at Cardigan Guildhall Market **Effects on SAC:** Not considered likely
Application reference: A200043 **Date of decision and status:** 25/02/2020, Decision issued, full planning **Distance from the Welsh Water Project:** 200m north **Description of project:** Replacement of windows and doors on 8-9 Black Lions Mews High Street **Effects on SAC:** Not considered likely
Application reference: A200044 **Date of decision and status:** 20/03/2020, Decision issued, approved subject to conditions **Distance from the Welsh Water Project:** 300m north-west **Description of project:** Variation of condition of planning permission A190028 revised plans at Cardigan Guildhall Market **Effects on SAC:** Not considered likely
Application reference: A190924 **Date of decision and status:** 20/12/2019, Decision issued, advertisement consent **Distance from the Welsh Water Project:** 150m north-west **Description of project:** Internally illuminated fascia & projecting sign at Specsavers **Effects on SAC:** Not considered likely
Application reference: A190866 **Date of decision and status:** 04/12/2019, Decision issued, conditions fully discharged **Distance from the Welsh Water Project:** 200m north-west **Description of project:** Discharge of Condition 4 of planning permission A180465 (Brick & Ridge Tile) at Quay Street. **Effects on SAC:** Not considered likely
Application reference: A190863 **Date of decision and status:** 18/03/2019, Decision issued, approved subject to conditions **Distance from the Welsh Water Project:** 280m west **Description of project:** Utilise existing crevice of Quay Wall for surface water outflow in association with the approved residential development on land at Quay Street and Market Lane (A180465) **Effects on SAC:** Not considered likely
Application reference: A190865 **Date of decision and status:** 04/12/2019, Decision issued, conditions fully discharged **Distance from the Welsh Water Project:** 280m west

Description of project: Discharge of condition 3 of planning permission A180465 (slate) on land at Quay Street and Market Lane **Effects on SAC:** Not considered likely
Application reference: A190867 **Date of decision and status:** 03/02/2020, Decision issued, approved **Distance from the Welsh Water Project:** 280m west **Description of project:** Discharge of Condition 9 of planning permission A180465 (Surface Water System) on land at Quay Street and Market Lane **Effects on SAC:** Not considered likely
Conclusion of Screening Exercise
The River Teifi SAC has been screened in for appropriate assessment due to the potential pathway for effect during construction from its proximity to the proposed works. The other projects in proximity have been assessed as not likely to have a significant effect upon the designated site. For the purposes of this assessment it is concluded that in the absence of mitigation (as confirmed by People over Wind & Sweetman v. Coillte[7]) where pathways for effects are present as part of a proposed project, these are considered to have the potential to have a significant effect on the site and therefore an appropriate assessment of the implications for the European site in view of its conservation objectives is required.

[7] People over Wind & Sweetman v. Coillte Teoranta (Case C323 / 17) European Court of Justice, 12th April 2018.

Table 2: Screening Assessment for Cardigan Bay SAC

European Site Name and Status	Cardigan Bay / Bae Ceredigion SAC (UK0012712)	
Distance of Project from the European Site	3.2km north-west of the site.	
Description of the European Site **Source:** *https://sac.jncc.gov.uk/site/UK0012712*		
Key Qualifying Features		
Annex I habitats or species	Annex I habitats that are a primary reason for selection of this site	No Annex I species or habitat that qualify for the primary reason for selection.
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site.	Sandbanks which are slightly covered by sea water all the time; Reefs; and Submerged or partially submerged sea caves.
Annex II habitat or species	Annex II species that are a primary reason for selection of this site	Bottlenose dolphin.
	Annex II species present as a qualifying feature, but not a primary reason for site selection.	Sea lamprey; River lamprey; and Grey seal (*Halichoerus grypus*).
Management of the Site **Source:** *https://www.naturalresources.wales/media/673505/Cardigan%20Bay%20R33%20Feb%202009.pdf*		
Conservation Objectives/Vision of the Site	The vision for the Cardigan Bay Special Area of Conservation (SAC) is one of a high quality marine environment, where the protected habitats and species of the site are in a condition as good as or better than when the site was selected; where human activities co-exist in harmony with the habitats and species of the site and where use of the marine environment is undertaken sustainably.	
Conservation Status and Site Condition (text from Management Plan above)		
Species/Habitat	Status and Vulnerabilities	
Sandbanks which are slightly covered by sea water all the time	The sandbanks of Cardigan Bay SAC are largely low-lying and most abundant in the east of the site, to the north and west of New Quay. There is no known evidence of modification of exposure of the sandbanks to wave action or tidal streams or any changes in orientation as a result of human activity however the microtopography may have been modified by demersal fishing gear. Sandbank structure has not been modified by sediment extraction within the site but dredge spoil disposal may have influenced the quality. The sediment composition has been modified such that there are raised levels of metals, particularly lead, due to historical mining activity. Mine waste waters enter the bay via river catchments, the Ystwyth and Rheidol being particularly significant.	
Reefs	Cardigan Bay SAC supports both rocky and biogenic reef types. Its rocky reefs are widespread and in the subtidal form a mosaic with areas of sand and gravel. Reefs in the bay consist largely of boulder, cobble and pebble, but along the beaches and just	

	offshore there are occasional areas of bedrock. Biogenic reefs of the honeycomb worm *Sabellaria alveolata* are common in the intertidal and shallow subtidal environment, particularly in the northeast of the site. Indications are that subtidal reefs of the closely related species *Sabellaria spinulosa* may also be present. There are limited localised anthropogenic influences on turbidity as a consequence of discharges (from sewage treatment works and local industry) and more pervasive influences as a consequence of land use influenced runoff, including farming practice and urban development. The physiological health and reproductive capability of some species is inferred as potentially modified in areas of contaminant elevation and a variety of population dynamics have been, and continue to be, degraded by fishing activity. Species populations in sea caves are exposed to nutrients and contaminants in groundwater seeps strongly influenced by agricultural or other management practices on overlying land surfaces.
Submerged or partially submerged sea caves	Intertidal sea-caves are distributed widely throughout the site and are common wherever there are suitable geological exposures. The general distribution is generally well known but is poorly documented or mapped. The majority of caves are found towards the south-western end of the site, but are present almost anywhere where there are sea cliffs of relatively hard rock. Discarded and accidentally misplaced artificial materials are present in some sea caves. Lost and discarded fishing gear and persistent rubbish form a physical hazard to many species, particularly grey seals and other vertebrate species, and some are a source of chemical contamination. The variation in cave structure and hydrodynamics tends to both retain and flush out chemical contamination, including hydrocarbons, depending on exposure to water and air movements.
Bottlenose dolphin	The population of bottlenose dolphin in the SAC is small and vulnerable and apart from the 2001-07 estimate is below the IUCN's value of 250 for a critically endangered population. It is also well below the guideline minimum for a viable population size of 500 individuals for both marine and terrestrial mammals. There are various potential human causes for inhibition of calf production and survival, e.g. pollutant burdens or modification of prey availability, but there is no evidence to suggest calf production is currently significantly modified by human action. Pollution is a real threat to the health of the Cardigan Bay dolphins and their environment. That 15 bottlenose dolphins were found to have levels of PCBs over 80mg/kg, which is well over the 17mg/kg threshold for adverse effects, was considered of great concern.
Sea lamprey	There is no contemporary data for marine waters but sea lampreys have been seen within Aberaeron Harbour ascending the River Aeron. The most recent surveys of the Teifi catchment found no sea lamprey. These fish use the waters of the Cardigan Bay SAC as part of their migratory route. Lampreys are also likely to use the coastal waters of Cardigan Bay SAC during the non-breeding stages of their lifecycle. Water column contaminants are a threat to physiological health, but water quality is assumed to be sufficiently high in open coastal waters.
River lamprey	River lampreys were present but numbers were not sufficiently high to record the populations conservation status as favourable. The large catchment of the River Teifi is of high conservation value for spawning river lamprey and is notified as a SAC in its own right. These fish use the waters of the Cardigan Bay SAC as part of their migratory route. Lampreys are also likely to use the coastal waters of Cardigan Bay SAC during the non-breeding stages of their lifecycle.

	Water column contaminants are a threat to physiological health, but water quality is assumed to be sufficiently high in open coastal waters.
Grey seal	The south-west Wales population forms around 4% of the UK population or about 3.5% European population. Following several decades of irregular but substantial population increase, the population size (measured as pup production) slowed or possibly stabilized in the late 1990s to the early 2000s. Artificially introduced hazards and reductions in the natural quality and suitability the grey seal habitat include: the presence and persistence of artificial inert or toxic materials contamination of prey, decrease in seclusion because of noise and visual disturbance and competition with human activities for space causes displacement, collision, noise and visual disturbance resulting in increased density dependent pressure on preferred sites, exposure to disease and increased stress rendering animals susceptible to the effects of normally dormant endemic viral diseases. There are occasional, often unattributable, anecdotal reports of seals being shot or accidentally captured and drowned in fishing gear; the magnitude or importance of such deaths to population dynamics are unknown.

Screening	
Is the Project Directly connected with or necessary to the management of the site for nature conservation?	No

Qualifying Feature	**Potential Effects**	**Pathway for Effect during**	
		Construction	**Operation**
Sandbanks which are slightly covered by sea water all the time	• habitat quality reduction due to pollution within the river.	Habitats are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Reefs	• habitat quality reduction due to pollution within the river.	Habitats are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being

			screened and controlled.
Submerged or partially submerged sea caves	• habitat quality reduction due to pollution within the river. .	Habitats are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Bottlenose dolphin	• habitat quality reduction due to pollution within the river.	Species are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon the downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
Sea lamprey	• habitat quality reduction due to pollution within the river.	Species are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon the downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
River lamprey	• habitat quality reduction due to pollution within the river.	Species are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon the downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill

			volume and all discharges being screened and controlled.
Grey seal	• habitat quality reduction due to pollution within the river.	Species are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon the downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
In Combination Projects			
As above in Table 1.			
Conclusion of Screening Exercise			
The Cardigan Bay SAC has been screened in for appropriate assessment due to the potential pathway for effect during construction from its proximity to the proposed works. The other projects in proximity have been assessed as not likely to have a significant effect upon the designated site. For the purposes of this assessment it is concluded that in the absence of mitigation (as confirmed by People over Wind & Sweetman v. Coillte7) where pathways for effects are present as part of a proposed project, these are considered to have the potential to have a significant effect on the site and therefore an appropriate assessment of the implications for the European site in view of its conservation objectives is required.			

Table 3: Screening Assessment for West Wales Marine SAC

European Site Name and Status	West Wales Marine / Gorllewin Cymru Forol SAC (UK0030397)	
Distance of Project from the European Site	3.9km west of the site.	
Description of the European Site **Source:** *https://sac.jncc.gov.uk/site/UK0030397*		
Key Qualifying Features		
Annex I habitats or species	Annex I habitats that are a primary reason for selection of this site	No Annex I habitats that qualify for the primary reason for selection.
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site.	No Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site.
Annex II habitat or species	Annex II species that are a primary reason for selection of this site	Harbour porpoise (*Phocoena phocoena*).
	Annex II species present as a qualifying feature, but not a primary reason for site selection.	No Annex II species present as a qualifying feature, but not a primary reason for site selection.
Management of the Site **Source:** A management plan does not currently exist.		
Conservation Objectives/Vision of the Site	The conservation objectives for the West Wales Marine SAC are to ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters.	
Conservation Status and Site Condition (text from description of the European Site above)		
Species/Habitat	Status and Vulnerabilities	
Harbour porpoise	In the context of natural change, FCS be achieved by ensuring that: 1. Harbour porpoise is a viable component of the site; 2. There is no significant disturbance of the species; and 3. The condition of supporting habitats and processes, and the availability of prey is maintained.	
Screening		
Is the Project Directly connected with or necessary to the management of the site for nature conservation?	No	
Qualifying Feature	**Potential Effects**	**Pathway for Effect during**

		Construction	Operation
Harbour porpoise	• habitat quality reduction due to pollution within the river.	Species are present downstream of the proposed works, which are within the tidal reach of the river. Therefore, there is the potential for SIGNIFICANT EFFECTS upon the downstream habitats.	NO LIKELY SIGNIFICANT EFFECT – discharge rates will be as previous. Only the existing or the new outfall will discharge at one time. Possible minor water quality improvement due to slight reduction in spill volume and all discharges being screened and controlled.
In Combination Projects			
As above in Table 1.			
Conclusion of Screening Exercise			
The West Wales Marine SAC has been screened in for appropriate assessment due to the potential pathway for effect during construction from its proximity to the proposed works. The other projects in proximity have been assessed as not likely to have a significant effect upon the designated site. For the purposes of this assessment it is concluded that in the absence of mitigation (as confirmed by People over Wind & Sweetman v. Coillte[7]) where pathways for effects are present as part of a proposed project, these are considered to have the potential to have a significant effect on the site and therefore an appropriate assessment of the implications for the European site in view of its conservation objectives is required.			

Table 4: Screening Assessment for North Pembrokeshire Woods SAC

European Site Name and Status	North Pembrokeshire Woodlands / Coedydd Gogledd Sir Benfro SAC (UK0030227)	
Distance of Project from the European Site	7.9km south-west of the site.	
Description of the European Site **Source:** *https://sac.jncc.gov.uk/site/UK0030227*		
Key Qualifying Features		
Annex I habitats or species	Annex I habitats that are a primary reason for selection of this site	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site.	Alluvial forests with alder *Alnus glutinosa* and ash *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*).
Annex II habitat or species	Annex II species that are a primary reason for selection of this site	Barbastelle (*Barbastella barbastellus*).
	Annex II species present as a qualifying feature, but not a primary reason for site selection.	No Annex II species present as a qualifying feature, but not a primary reason for site selection.
Management of the Site **Source:** *https://www.naturalresources.wales/media/673097/N%20Pembs%20Wdlds-MC%20English.pdf*		
Conservation Objectives/Vision of the Site	The site will be covered by sustainable woodland consisting of locally native, broadleaved species, with oak (*Quercus* spp.) prominent in the canopy. Veteran trees (i.e. old trees that are starting to decay) of particular importance for species, including lichens, fungi and invertebrate animals, will be retained where possible. The woodland floor will be carpeted with a variety of woodland plants. The rare barbastelle bat will continue to thrive. The shrub layer here will include fruiting hazel (*Corylus avellana*), holly (*Ilex aquifolium*), hawthorn (*Crataegus monogyna*) and rowan (*Sorbus auquparia*) for dormice to feed on, along with regenerating canopy species. Dyffryn Gwaun will support species-rich marshy grassland as well as alluvial woodland, with species such as the marsh fritillary butterfly (*Euphydryas aurinia*). At Cwm Bach, Sychpant, there will be a mosaic of acid grassland and woodland with a wide assemblage of butterflies. The variety and abundance of lichens will be maintained or increase in the long-term.	
Conservation Status and Site Condition (text from Management Plan above)		
Species/Habitat	Status and Vulnerabilities	
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.	Conservation status: Generally unfavourable but recovering. This is primarily due to historical factors: the woodlands are relatively even-aged, with a fairly closed canopy, as a result of felling during the two world wars. This in turn affects the diversity of the shrub and field layers, the abundance of shrubs and the amount of natural regeneration. Many of the management units are already recovering in these respects, but it could be decades before the performance indicators are satisfied.	

Alluvial forests with alder and ash (*Alno-Padion, Alnion incanae, Salicion albae*).	The site is in favourable condition but faces two main threats: drying out and invasive species. The main threat is of drying out in places, not from natural processes but from introduced drainage, where drains have been dug in the past allowing species of drier habitats (notably bramble and ash to take over. There is a risk of drier woodland communities taking over from the alluvial woodland in these areas. Japanese knotweed is present in places along the Afon Gwaun and occasionally spreads as pieces of the plant get washed along the river.
Barbastelle	The condition of the woodland for barbastelles was monitored in March 2006 and the woodland was found to be in favourable condition. The bats themselves were monitored by in July, August and September 2005 and were found to be in favourable condition. There is enough felling and natural tree-fall to ensure that there are adequate canopy gaps for a well-developed shrub layer (especially holly) and regenerating trees to ensure that there will be a supply of suitable roost sites into the future. One threat to the barbastelle feature is that around half of the roosting sites and the majority of the foraging areas lie outside the SSSI and SAC boundaries, as the boundaries were drawn up before the bats were discovered. These areas are not currently protected by any management agreements. There is at present a very real risk of inappropriate land management damaging roosts and foraging areas outside the SSSI.

Screening			
Is the Project Directly connected with or necessary to the management of the site for nature conservation?	No		
Qualifying Feature	**Potential Effects**	**Pathway for Effect during**	
		Construction	**Operation**
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.	• habitat quality reduction due to pollution within the river.	Given the works are localised, there is a large distance between the works and the SAC and that there is no hydrological connection between the works and the SAC, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	Given the works are localised, there is a large distance between the works and the SAC and that there is no hydrological connection between the works and the SAC, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
Alluvial forests with alder and ash (*Alno-Padion, Alnion incanae,*	• habitat quality reduction due to pollution within the river.	Given the works are localised, there is a large distance between the works and the SAC and that	Given the works are localised, there is a large distance between the works and the SAC and that there is no

Salicion albae).		there is no hydrological connection between the works and the SAC, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	hydrological connection between the works and the SAC, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
Barbastelle	• habitat loss; • habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river.	Given the works are localised, there is a large distance between the works and the SAC and that there is no functional habitat connection between the works and the SAC, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.	Given the works are localised, there is a large distance between the works and the SAC and that there is no functional habitat connection between the works and the SAC, it is considered there is no realistic pathway for effect. NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable.
In Combination Projects			
As above in Table 1.			
Conclusion of Screening Exercise			
The North Pembrokeshire Woodlands SAC has been screened out of the assessment. The designated site and its features have been screened out of this assessment due to distance of the proposed works from these sites and the absence of identified pathways and suitable habitats. Significant effects on the European site are unlikely during either construction or operation. The other projects in proximity have been assessed as not likely to have a significant effect upon the designated site. Welsh Water will seek confirmation from Natural Resources Wales that the HRA assessment will not progress beyond Stage 1 (Screening) process; and that under Regulation 76 of the Habitats Regulations 2017, confirmation is provided that the project will not significantly affect the European site.			

5 Appropriate Assessment

Where the screening assessment has identified a potential impact pathway which may have a significant effect this has been further investigated to assess whether the scale or magnitude of the impact is likely to cause an adverse effect on the integrity of the European site.

In making this decision the identification of any residual affects after the application of mitigation measures has been considered. The precautionary principle is applied where effects may be uncertain.

Table 5: Appropriate Assessment of the River Teifi SAC, Cardigan Bay SAC & West Wales Marine SAC

River Teifi SAC	
Potential Effects	Brook, river & sea lamprey, Atlantic salmon and otter may be affected by: • habitat loss; • habitat fragmentation and physical restrictions to species movements; • noise and vibration disturbance; • direct mortality / injury; and • habitat quality reduction & mortality due to pollution within the river. Sandbanks which are slightly covered by sea water all the time, Reefs, Submerged or partially submerged sea caves, Bottlenose dolphin, Grey seal and Harbour porpoise may be affected by: • habitat quality reduction & mortality due to pollution within the river.
Proposed Mitigation Measures	• The works are proposed to take place in September 2020. This will avoid the summer shad (April-June) and sea lamprey (May-June) migration periods[5] and the Atlantic salmon (Nov-Dec)[8] and river lamprey (Oct-Dec) [5] migration periods. • Works will only take place during daylight hours, which will avoid disturbance to otter and potentially migratory fish utilising the river at night. • A Marine Licence will be in place prior to works starting. • A pre-construction survey for otter will be undertaken prior to construction to confirm the absence of any resting sites within 30m of the proposed works. A check for invasive non-native species will also be carried out. • A designated ecologist will be available for advice and to attend site if necessary. • A toolbox talk from a suitably qualified ecologist will be given on the mitigation provided for otter and fish species. • If otter are seen within the area of works, work will cease immediately and the ecologist be contacted to provide advice. Work will only recommence once the ecologist is content that the otter has moved away from the area and the works

[8] Hendry K & Cragg-Hine D (2003). Ecology of the Atlantic Salmon. Conserving Natura 2000 Rivers Ecology Series No.7.English Nature, Peterborough.

	would not pose any risk to the health and wellbeing of the animals. The same shall apply if fish species are seen to be in distress in/close to the works area. • All plant will be inspected for leaks prior to accessing the foreshore to help prevent any pollution incidents. • All plant, machinery and equipment used in the works must be power washed prior to and following their use on site to remove all sediment and organic matter with particular emphasis on tyres, tracks and wheel arches. • All equipment will be washed at the main compound, away from the watercourse. • All plant will use bio-degradable oil. • Equipment to be stored on designated drip trays/bunded areas. • All refuelling of plant will be carried out in the designated area in the site compound, away from all watercourses. No refuelling will take place at the worksite. • All fuels and chemicals will be kept to minimum on site and secured in either bunded bowsers or on suitable drip trays. • Thoroughly wash all external clothing and clean footwear and all equipment, tools etc used in the construction and associated works and allow time to dry. All sediment and organic matter must be removed. • Plant shall be taken to the working area via the temporary access and large items such as dumpers and excavators will remain within the traffic management on The Strand, away from the watercourse, when not in use. • At the end of every shift all loose materials and tools will be removed from the tidal area to prevent washing out into the estuary and the working area left secured. All plant will be removed to the main site compound. • Construction of the discharge chamber will be carried out at low tide periods. • The works will take place above water level. • The works will proceed after the weather forecast has been checked and there is no heavy rain expected. • In the area marked out a sand bag bund will be created by lifting in several jumbo bags to form a perimeter bund adjacent to the water's edge. These bags and infill materials will be cleaned and washed prior to use. The bund will not encroach on the existing watercourse. The bags will stay in place until the works are complete. • Whilst the chamber and associated works are being constructed an oil absorbent boom and silt curtain will sit within the bund to minimise the risk of pollution from the construction activities. • The ground water level is expected to be lower than construction formation level. However, if encountered it will be pumped via a settlement tank into an adjacent sewer in agreement with DCWW or if suitable back into the water course.

	• Surface water run-off from the excavated area is not expected, but if encountered the surface water will be channelled into the sump area where it will be pumped via a settlement tank, to the existing surface water gullies. • To minimise the potential for surface water run-off, the working corridor will be kept to an absolute minimum. • The spoil will be loaded into a dumper positioned behind the excavator, the dumper will then take the spoil to the main compound so that it can be bunded appropriately to be re-used for reinstatement or surplus removed from site. • A micro silica marine grade concrete shall be used to help prevent alkaline leachate and provide increased scour and washout protection. A specific concrete wash out location will be created on site for the cleaning of plant and delivery lorries to prevent contamination of the ground.
Residual Effects	It is considered that with the inclusion of the proposed mitigation measures, the proposed works will result in no adverse effects upon the integrity of the River Teifi SAC, the Cardigan Bay SAC or the West Wales Marine SAC.
In-combination Assessment	The other projects identified within proximity of this project are not considered likely to have any adverse effects upon the SACs and therefore there are no in-combination effects.
Conclusion	With the inclusion of the mitigation measures outlined above, it is concluded that the proposed development is unlikely to give rise to an adverse effect on the integrity of the River Teifi SAC, the Cardigan Bay SAC or the West Wales Marine SAC. Furthermore, the improvement works will provide minor positive water quality benefits in the long-term. Welsh Water will seek confirmation from Natural Resources Wales that under Regulation 76 of the Habitat Regulations, confirmation is provided that the project will not adversely affect the integrity of any European site.

6 Proposals for Monitoring

6.1 Pre-construction Monitoring

Pre-construction checks are to be carried out for otter and invasive non-native species in advance of works commencing.

If the programme is delayed and more than two years have elapsed since the surveys were undertaken to inform this assessment further monitoring will be undertaken to provide up to date information on the presence of the European site features and other protected species.

6.2 Monitoring During Construction

The contractor instructed to complete these works is to incorporate all recommended mitigation from this HRA into relevant method statements. An ecologist will be on hand to provide advice and attend site during works, as necessary. If otter holts or invasive non-native species are found during the pre-construction check, then further bespoke mitigation will be required, in addition to that stated within this report.

6.3 Post-Construction Monitoring

With the inclusion of the mitigation measures outlined and the conclusion that there will not be an adverse effect on the integrity of the assessed European Sites, post-construction monitoring is not required. However, as stated above, this advice will be updated, if necessary, following the pre-construction checks.

If any unforeseen significant impacts arise during construction, contrary to the conclusions of this report, post-construction monitoring should be undertaken, in agreement with the relevant statutory environmental bodies.

7 Conclusion

The project aims to stop sewage flooding in central Cardigan due to the existing CSO becoming unable to discharge at high tide. The additional proposed CSO will act as a relief point and allow the discharge to take place via a new outfall and thus prevent properties from flooding and prevent unscreened sewage from entering the River Teifi.

Three European designated sites may be impacted the proposed works: the River Teifi SAC, the Cardigan Bay SAC and the West Wales Marine SAC.

A number of qualifying species for these designated sites have the potential to be impacted from the proposed works, including marine habitats, marine mammals, otter and fish species.

A potential pathway for effect exists from pollution, habitat loss and severance, and disturbance in the form of visual, noise and vibration effects.

Mitigation is proposed to remove the impact from construction activities to ensure no residual effects on the features of the designated sites.

The mitigation measures, subject to the results of the planned pre-construction surveys for otter and invasive species, are considered sufficient to ensure that the construction of the proposed development, either alone or in-combination, does not give rise to any adverse effects on the integrity of the European Sites.

8 Appendices

A HRA Process
B Proposed Works Drawings
C European Designated Sites
D Extended Phase 1 Habitat Plan

Appendix A – HRA Process

HRA Process

Regulation 63 of the Habitats Regulations requires a competent authority to undertake an 'appropriate assessment' of any plan or project (alone or in-combination with other plans and projects) which is likely to have a significant effect on the features or a European Site, unless the project is directly connected with the management of the site. In light of the conclusions of the assessment, the competent authority may proceed with or consent to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site. European Sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). UK Government policy requires proposed SACs and SPAs to be treated as European Sites along with wetlands designated under the Convention on Wetlands of International Importance (Ramsar Sites).

All plans and projects should identify any possible effects early in the plan / project making process and then either alter the plan / project to avoid them or introduce mitigation measures to the point where no adverse effects remain. The 'competent authority' shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site or sites concerned. In coming to a conclusion the Competent Authority must consult with the Statutory Nature Conservation Organisation (Natural Resources Wales) and have regard to their comments. They may also consult the general public if considered appropriate.

The assessment of a project under the Habitats Regulations can be split into four sections as shown in Figure 1.

Stage 1 is the assessment of the likelihood of a plan or project having a significant effect on the features of a European site. This is the trigger for the need for an Appropriate Assessment as set out in Regulation 63(1). The Appropriate Assessment (Stage 2) is the detailed consideration of the potential effects of the plan or project in relation to the conservation objectives for the features of the European Site(s) to determine if there is likely to be an adverse effect on the integrity of the site (i.e. an effect that would compromise the site meeting its conservation objectives). Providing it can be demonstrated that with appropriate mitigation measures the plan or project would not give rise to an adverse effect on the integrity of a European Site, the plan or project can proceed.

Where this cannot be demonstrated or there is uncertainty, the assessment would then need to consider if there were any other alternatives to the plan or project (Stage 3) that would not give rise to adverse effects on the integrity of the European Site. If there are no alternatives, Stage 4 would then consider if there are any Imperative Reasons of Overriding Public Interest (IROPI), only at this stage can Compensatory Measures be considered. It is very unusual for plans for projects to be considered in Stages 3 or 4.

Inclusion of Mitigation

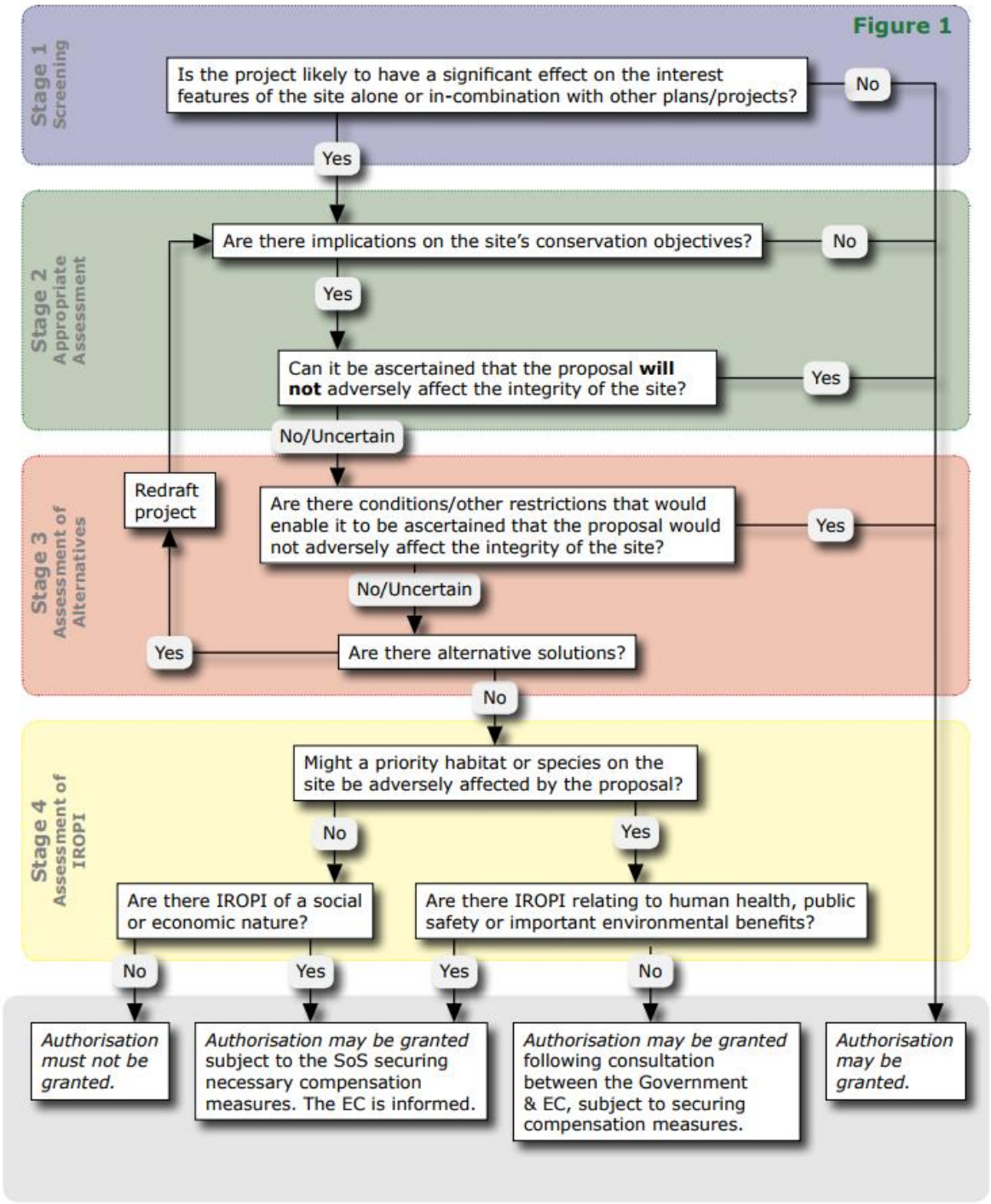
With regards to recent case law (People Over Wind and Sweetman v Coillte Teoranta (Case C-323/17) the inclusion of plainly established and uncontroversial mitigation during Stage 1 is no longer considered appropriate.

Mitigation, as considered by the Centre Européen de Coopération Juridique (CECJ) in regard to the case law, is interpreted to mean measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned.

Consequently, the new ruling requires competent authorities to, at the HRA screening stage, distinguish clearly between impact mitigation measures specifically designed to avoid or reduce harmful impacts on the

European site, and those which are not related to the integrity of the European site. The competent authority is then required to ignore the former in the Stage 1 screening process. Where avoidance and mitigation are applicable these measures are required to be addressed during the Stage 2 Appropriate Assessment.

Figure 1: Copied from The Planning Inspectorate, 2013. Habitat Regulations Assessment for nationally significant infrastructure projects. Version 4, January.



Appendix B – Proposed Works Drawings

Appendix C – European Sites Plan

Appendix D – Extended Phase 1 Habitat Plan