Habitats Regulation Assessment

Vale of Glamorgan County Council

Leckwith Quay – Hybrid Planning Application

2020/01218/HYB

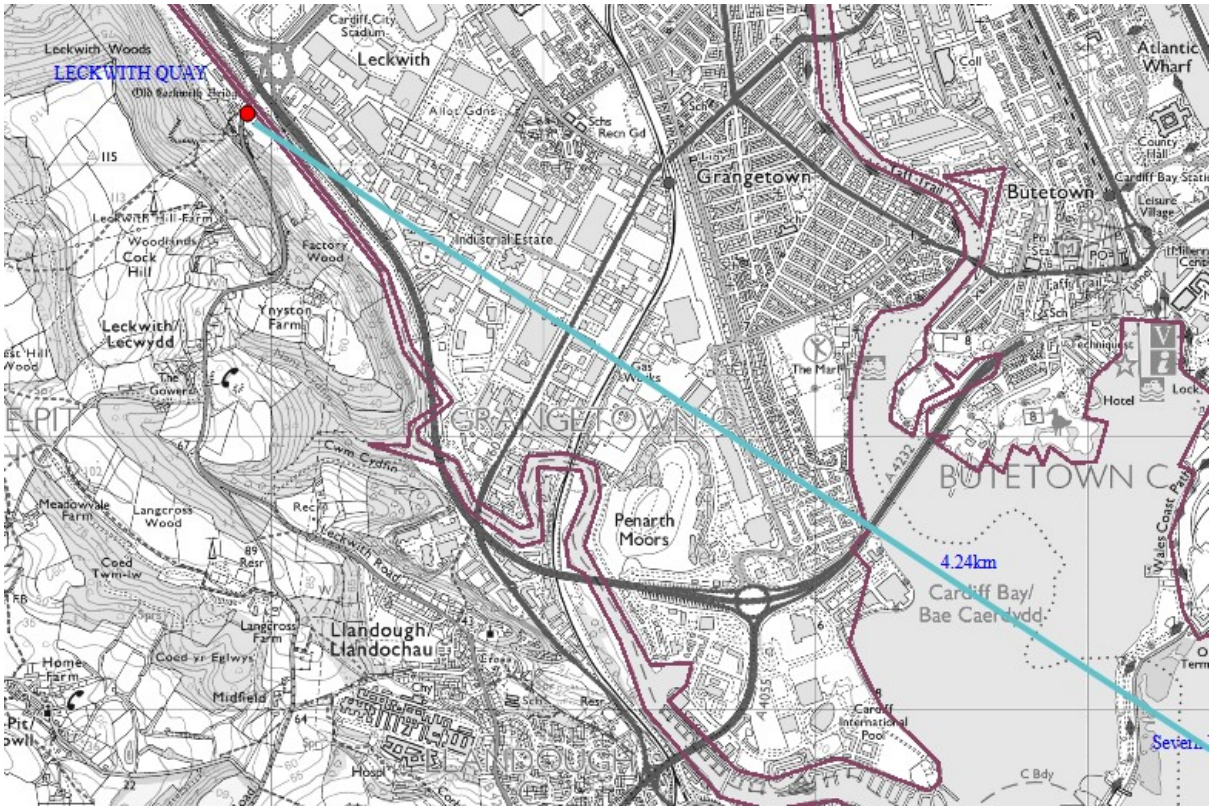
May 2021

Planning Application: Hybrid planning application for residential development for up to 250 dwellings (submitted in OUTLINE), associated highway and bridge improvement / realignment works (submitted in FULL). Development involves the demolition of all buildings on site and of the existing B4267 Leckwith Road Bridge

Application Number: 2020/1218/HYB

Location: Leckwith Quay, Leckwith, Vale of Glamorgan and Cardiff, South Wales

Location Plan: showing relationship to international designation
(from magic.defra.gov.uk)



International nature conservation site: Severn Estuary / Môr Hafren Special Area of Conservation (SAC); Severn Estuary Special Protection Area (SPA)

***Description of* proposal:**
The application site extends to 7.7ha and straddles the border between the administrative boundaries of the Vale of Glamorgan (to the west) and Cardiff (to the east). The land is known as Leckwith Yard/Works. It is located to the west of the River Ely and is contained within the Vale of Glamorgan.
The site is made up of two plateaux either side of the bridge which are both largely cleared and levelled. The land is currently used for commercial and industrial uses comprising a number of buildings and hard standing areas. The site is located adjacent to the River Ely and the Grangetown-Ely Link Road which runs along the north-eastern boundary of the site. To the south and west large areas of woodland, comprising Leckwith Wood and Factory Woods, border the site.
The development proposals seek to redevelop the existing brownfield site for residential uses (up to 250 units) comprising a mix of houses and apartments with associated public open space, landscaping and parking areas. The proposals include the realignment of the existing B4267 Leckwith Road link and a new bridge crossing of the River Ely.

Date Habitat Regulation Assessment undertaken: December 2020 – March 2021.

1. Summary

1.1 This is a record of the assessment under Article 6 of the Habitats Directive (Council directive 92/43/EEC). The planning application is not directly connected with or necessary to the management of the site therefore the application shall be screened to determine whether it will have a significant impact on the Severn Estuary / Môr Hafren SAC. If the assessment through the screening stage (Article 6(3)) concludes that the plan is likely to impact the internationally designated site then an appropriate assessment (Article 6(4)) shall be undertaken. This assessment shall then judge the impact the plan will have on the conservation site and identify avoidance, mitigation or compensation measures to ensure the integrity of the site is maintained.

1.2 Natural Resources Wales were consulted under Regulation 48(3) on 30th March 2021 and their representations, to which this authority has had regard, are attached at Appendix 5. The conclusions of this appropriate assessment are in accordance with the advice and recommendations of Natural Resources Wales.

1.3 The Severn Estuary / Môr Hafren has been designated as a Special Area of Conservation (see plan in Appendix 2 for details of the site boundary) due to the presence of protected species – Sea Lamprey, *Petromyzon marinus,* River Lamprey*, Lampetra fluviatilis and* Twaite Shad*, Alosa fallax*. All three species are anadromous – requiring freshwater as part of their life cycle.

1.4 Leckwith Quay is approximately 4 kilometres from the Severn Estuary / Môr Hafren SAC and is directly connected to it by the River Ely. Because of this direct connection and the site being within 5km of an SAC/SPA then Natural Resources Wales have asked for a Habitats Regulations Assessment to be undertaken. The approach will take a precautionary stance.

2. Screening.

2.1 This stage will seek to identify the likely significant effects of the plan on the SAC. The first stage is to identify sites of European designation within the Authority's boundary and at a precautionary 15km length from the authority's boundary. These sites can be viewed in figure 1.1.

2.2 The European Sites in and within a 15km boundary of Leckwith Quay include;

- Severn Estuary - SPA (UK9015022) ; SAC (UK0013030) & RAMSAR (UK11081)
- Cardiff Beech Woods SAC (UK0030109)

2.3 The cumulative impact on other European sites will be taken into account. Cardiff Beech Woods are considered not to have a significant impact from the planning application. The distance from Leckwith Quay to Cardiff Beech Woods SAC which is in a different catchment area (River Taff) is considered sound reasoning for this site to be screened out of the assessment stage at this point.

2.3.1 The Leckwith development does however, have the potential to directly impact on the Severn Estuary SPA and therefore also has the potential to have an effect on the Severn Estuary, designated as a RAMSAR, Special Area of Conservation (SAC) and Special Protection Area (SPA). It is important to note that the RAMSAR designation is an internationally designated site and not specifically under European designation, therefore this significance test and appropriate assessment is focused on the SAC and SPA designations.

3. The Severn Estuary SAC and SPA and its qualifying features:

3.1 The Severn Estuary was designated as an SAC in 2007 on the basis that it supports occurrences of habitat types and species listed in Annexes I and II respectively of the Habitats Directive that are considered important in a European context and meeting the criteria in Annex III of the Directive.

Feature name	Scientific term	EU Code
Annex I habitat types		
SAC interest feature 1: **Estuaries**	Estuaries	1130
SAC interest feature 2: **Subtidal sandbanks**	Sandbanks which are slightly covered by seawater all the time	1110
SAC interest feature 3: **Intertidal mudflats and sandflats**	Mudflats and sandflats not covered by seawater at low tide	1140
SAC interest feature 4: **Atlantic salt meadows**	Atlantic salt meadows (*Glauco puccinellietalia maritimae)*	1330
SAC interest feature 5: **Reefs**	Reefs	1170
Annex II species		
SAC interest feature 6: **River lamprey**	*Lampetra fluviatilis*	1099
SAC interest feature 7: **Sea lamprey**	*Petromyzon marinus*	1095
SAC interest feature 8: **Twaite shad**	*Alosa fallax*	1103

3.2 River Lamprey, Sea Lamprey and Twaite Shad are all species that use rivers as part of their life cycles.

The River Lamprey spawns in freshwater but completes its life cycle in sea water (anadramous). There are records of River Lamprey in the River Ely which is adjacent to this development.

The Sea Lamprey again enters rivers to spawn preferring a rocky or pebbly substrate. There are records of Sea Lamprey in Cardiff Bay.

The Twaite Shad enters river systems between April and June to spawn at night in deep pools. It is certainly found in the River Usk and the River Wye. There is one record for this species in the hectad covering the application site. However, the record is from 1975 and is pre Cardiff Bay Barrage and can probably now be discounted.

3.3 The Severn Estuary was classified as a Special Protection Area on 13 July 1995. The qualifying interest features of the Severn Estuary SPA are shown below. Since designation there have been changes in bird numbers in relation to the qualifying thresholds, which have themselves changed. The data represented in the table below relates to the review in 2006/7 except for population numbers.

The qualifying interest features and supporting habitats of the Severn Estuary SPA.					
Internationally important populations of regularly occurring Annex 1 species [under Article 4.1 of the EU Birds Directive].					
SPA Interest Feature No:	**Species**	**Population[1]**	**Location**	**Habitat**	**Notes**
1	Bewicks Swan; *Cygnus columbianus bewickii*	289 birds 4.1% GB 1.7% NW Europe	Slimbridge, Gloucestershire	Intertidal mudflats and sandflats, Saltmarsh	Over-wintering
Internationally important populations of regularly occurring migratory bird species [under Article 4.2 of the EU Birds Directive].					
2	European white-fronted goose ; *Anser albifrons albifrons*	3,002 birds 50% UK 1% NW Europe	Slimbridge, Gloucestershire	Intertidal mudflats and sandflats Saltmarsh Hard substrate habitats	Over-wintering
3	Dunlin; *Calidris alpina alpina*	41,683 birds 2.9% East Atlantic flyway	All along SE Wales coast		
4	Redshank; *Tringa totanus*	2,013 birds 1.3% East Atlantic flyway	All along SE Wales coast, occasional breeding		
5	Shelduck; *Tadorna tadorna*	2,892 birds 1.2% NW Europe	All along SE Wales coast, occasional breeding		
6	Gadwall; *Anas strepera*	330 birds 2.8% NW Europe	From Aberthaw to Welsh border		

[1] 5 year peak mean – 1988 - 1993

7	**Internationally important assemblage of waterfowl** (wildfowl & waders) [under Article 4.2 of the EU Birds Directive].				
	Bewicks Swan; *Cygnus columbianus bewickii*	See above	See above	Intertidal mudflats and sandflats Saltmarsh Hard substrate habitats	Over-wintering The wintering waterfowl assemblage includes all regularly occurring waterfowl. Species that qualify as a listed component of the assemblage include all the internationally important regularly occurring migratory species as well as the Annex 1 wintering species. The list also includes species present in nationally important numbers or species whose populations exceed 2,000 individuals In the Natura 2000 form it is stated that the area regularly supports 84,317 waterfowl in winter.
	European white-fronted goose ; *Anser albifrons albifrons*	See above	See above		
	Dunlin; *Calidris alpina alpina*	See above	See above		
	Redshank; *Tringa totanus*	See above	See above		
	Shelduck; *Tadorna tadorna*	See above	See above		
	Gadwall; *Anas strepera*	See above	See above		
	Wigeon; *Anas penelope*	3,977 birds 1.6% GB	All along SE Wales coast		
	Grey plover; *Pluvialis squatarola*	781 birds 1% GB	All along SE Wales coast		
	Shoveler; *Anas clypeata*	No data	All along SE Wales coast, concentrations at Cardiff Bay & Gwent Levels		
	Teal; *Anas crecca*	1,998 birds 2.0% GB			
	Pintail; *Anas acuta*	523 birds 2.1% GB	All along SE Wales coast, concentrations at Cardiff Bay & Gwent Levels		
	Tufted duck; *Aythya fuligula*	913 birds			
	Curlew; *Numenius arquata*	3,096 birds 3.4% GB			
	Whimbrel; *Numenius phaeopus*	246 birds 4.9% GB			
	Lapwing; *Vanellus vanellus*	No data			
	Mallard; *Anas platyrhynchos*	No data			

4.0 Scoping

4.1 In this section the potential impact of the development on the features of the Severn Estuary/Môr Hafren SAC and SPA will be analysed.

4.2 The impacts can be direct or indirect. So for those species that have been identified as using the River Ely there could be a direct impact from the application site on the river. The table below sets out the environmental conditions for those three species and how they are affected by environmental impacts in general

Qualifying feature	Key environmental conditions	Potential impacts
Twaite Shad (*Alosa Fallax*)	• water quality • water flow • disturbance • access	• Pollutants, siltation • Fluctuations in flow • Vibration – piling • Obstruction
River Lamprey (*Lampetra Fluviatilis*) Sea Lamprey (*Petromyzon Marinus*)	• water quality • water flow • disturbance • access	• Pollutants, siltation, • Fluctuations in flow • Vibration – piling • Obstruction

4.3 Because the site is adjacent to the River Ely which feeds directly into the Severn Estuary/Môr Hafren SAC/SPA then any substances entering the River Ely from the site during or after construction could have an indirect effect on the SAC/SPA.

4.4 There will be two phases which need to be considered. One is during demolition and construction and the other is on completion and subsequent operation and occupation.

4.5 The table below sets out the possible impacts arising from the plan and whether they will have a significant effect upon the Severn Estuary/Môr Hafren, Special Area of Conservation / Special Protection Area. Where there is a significant effect on the protected site an Appropriate Assessment will be undertaken in order to determine whether the impact from the plan in-combination with other projects and plans will have a significant effect. Where a significant effect is still evident avoidance and mitigation measures will be considered. A conclusion as to whether the plan together with the proposed avoidance and mitigation measures will neutralise the potential significant effect will be made.

Scoping Table.

4.6

Site	Qualifying features	Conservation objectives of the SAC	Key environmental conditions to support site integrity	Possible impacts arising from the plan	Is there a risk of significant effect?
Severn Estuary/Môr Hafren Special Area of Conservation (SAC)	• Twaite shad (*Alosa fallax*) • River Lamprey (*Lampetra fluviatilis*) • Sea Lamprey (*petromyzon marinus*)	*(Conservation Objectives can be viewed in detail in Appendix 3 of this report)* Favourable Conservation Status (FSC) • FSC 1 • FSC 2 • FSC 3 • FSC 4 Feature Conditions (FC) • FC 1 • FC 2 • FC 3 Factors affecting the feature (FA) • FA 1 • FA 2 (i) • FA 2(ii)	**CONSTRUCTION PHASE**		
			Water Quality	• Disturbance of sediments • Release of and or disturbance of contaminants	**Yes**
			Water Flow	• Fluctuations in flow	**Yes**
			Disturbance	• Vibration, piling.	**Yes**
			OPERATIONAL PHASE		
			Water Quality	• Disturbance of sediments • Release of contaminants/ pollutants	**Yes**
			Water Flow	• Variation on normal level of water flow	**Yes**

Significant Effect No Significant Effect

Site	Qualifying features	Conservation objectives of the cSAC	Key environmental conditions to support site integrity	Possible impacts arising from the plan	Is there a risk of significant effect?
Severn Estuary SAC & SPA	• Estuaries • Subtidal sandbanks • Intertidal mudflats and sandflats • Atlantic salt meadows (*Glauco puccinelliet alia maritimae)* • Reefs • River lamprey (*Lampetra fluviatilis)* • Sea lamprey (*Petromyzo n marinus)* • Twaite shad (*Allosa fallax)*	*(Conservation Objectives for the SAC and SPA can be viewed in detail in Appendix 3 of this report)*	Water Quality	• Disturbance of sediments • Release of and or disturbance of contaminants	**Yes**
			Water Flow	• Water level • Fluctuations in flow	**Yes**

Significant Effect No Significant Effect

Possible impacts from other trends the 'in combination effect':

5.1 The significance test must also take into account other relevant plans and projects and the cumulative affect from these plans and projects. Even if the plan on its own is not thought to have a significant effect on the European site, the potential in combination effect with other relevant plans and projects must be taken into account. Those relevant plans and projects include those which have been completed, approved yet uncompleted or not yet proposed.

5.2 Those relevant plans and projects which are thought to have the potential to significantly affect the SAC in combination with the plan include:

Plan/Project Title	Possible Impacts arising from plan/project	Is there a risk of 'in combination' effects?	Possible avoidance/mitigation measures	Is there a significant effect after the implication of avoidance/mitigation measures?
Local Flood Risk Management Strategy – Vale of Glamorgan Council 2013	Ely Moors/Ely Lower medium priority for Flood Impact and Investigation – River Ely. Michaelston and Llandough communities are low priority.	**No**	Controls over timing and mechanisms to deal with abstraction and water flows e.g NRW licensing	**No**
Planning Application for employment, training & hotel at Hensol, off Junction 34 M4 roundabout	Additional run off from development. Increased flow from hard surfacing e.g. car parking, roofs - potential increased flow and possible pollution	**Yes**	Proposals will be assessed and relevant conditions put in place - assessment of planning application can address this through introduction of appropriate planning conditions e.g. suitable introduction of SuDs.	**No**
Climate Change	Water Flow and Levels and Frequency, impact on flood defences	**Yes**	Relevant mechanisms in place e.g. licenses from NRW	**No**

Appropriate Assessment.

6.1 An Appropriate Assessment has been undertaken because the test of significance found that Severn Estuary/Môr Hafren SPA and SAC could be significantly affected.

6.2 A comprehensive set of measures are required in order to minimise the potential effects on the SAC/SPA and these are detailed in the table below.

Site	Qualifying features	Conservation objectives of the SAC	Key environmental conditions to support site integrity	Possible impacts arising from the plan	Is there a risk of significant effect?	Measures to avoid adverse impacts	Is there a significant effect after the implementation of avoidance measures?
Severn Estuary /Môr Hafren Special Area of Conservation (SAC)	• Twaite shad (*Alosa fallax*); • River Lamprey (*Lampetra fluviatilis*); • Sea Lamprey (*petromyzon marinus*);	*(Conservation Objectives can be viewed in detail in Appendix 1of this report)* Favourable Conservation Status (FSC) • FSC 1 • FSC 2 • FSC 3 • FSC 4 Feature Conditions (FC) • FC 1 • FC 2 • FC 3 Factors affecting the feature (FA) • FA 1 • FA 2 (i) • FA 2(ii)	**CONSTRUCTION PHASE**				
			Water Quality	• Disturbance of sediments • Release of and or disturbance to contaminants	**Yes**	• Implementation of pollution prevention strategy. • Long term management of water quality to be agreed.	**No** **No**
			Water Flow	• Variation on normal level of water flow	**Yes**	• On-site water management • Agree any in course structures in advance with NRW	**No** **No**
			Disturbance	• Vibration, piling, in river construction	**Yes**	• Avoid sensitive periods (fish migration – April to July)	**No**

Site	Qualifying features	Conservation objectives of the SAC	Key environmental conditions to support site integrity	Possible impacts arising from the plan	Is there a risk of significant effect?	Measures to avoid adverse impacts	Is there a significant effect after the implementation of avoidance measures?
			OPERATIONAL PHASE				
			Water Quality	• Disturbance of sediments • Release of contaminants / pollutants	**Yes**	• Implementation of pollution prevention strategy. • Long term management of water quality to be agreed. • Avoid maintenance and management regimes at sensitive periods. • Any licenses and management plans required to be agreed through relevant bodies e.g. NRW • Provision of attenuation ponds in excess of any maximum capacity from accidental spills on the B4267	**No**
			Water Flow	• Variation on normal level of water flow	**Yes**	• Abstraction, if required, will be dealt with through the relevant NRW controls	**No**
			Disturbance	• Increased human disturbance	**Yes**	• Maintain undisturbed access along boundaries through permanent fencing and or planting	**No**

Conclusions

7.1 The Appropriate Assessment has concluded that the development has the potential to have a significant effect on the integrity of the site. Therefore the imposition of conditions or restrictions on the way the proposal is to be carried out has been considered and it is ascertained that the following possible conditions and/ or restrictions would avoid adverse affects on the integrity of the site.

7.2 These conditions and restrictions that are deemed necessary for the proposed plan to avoid significant impact on the site identified from the assessment are set out in the table below:

Measures to avoid adverse impacts
• Provision and implementation of pollution prevention strategy. • Attenuation ponds implemented capable of holding more than the maximum legal limits of HGV tankers to prevent spills entering River Ely from new road bridge and the new realigned road. • Long term management of water quality to be agreed. • Avoid sensitive periods of fish migration which are features of the SPA / SAC • Avoid maintenance and management regimes at sensitive periods. • Any in river course structures to be agreed in advance with NRW in terms of construction and timing • Any extraction of water from channel to be agreed in advance with NRW • Toolkit talks to all construction staff – main contractors and sub-contractors • Maintain undisturbed access along boundaries of the River Ely through permanent fencing and/or planting • Provide opportunities in channel for better access for otters along the River Ely • Any Riverside walkways to be set back from edge • SUDS schemes should have provision for holding accidental spills before entering water courses.
In Combination Avoidance and Mitigation measures:
• Existing and new planning approvals in the Ely Valley will seek to control environmental issues through the introduction of appropriate planning conditions e.g. controlled quality of inert material, suitable introduction of Sustainable Drainage System.

7.3 The Supplementary Planning Guidance (SPG) provides clear guidance as to the requirements facing the proposed development on the site, Chapter 3. Developers must comply with the legislative and policy framework as set out in the SPG, particular attention must be drawn to the Habitats Directive (Council directive 92/43/EEC). All proposals will be judged against the SPG, the Vale of Glamorgan Local Development Plan and other relevant Planning Guidance. The SPG sets the requirement for information which will need to be included in the determination process. Additionally, information may be required and requested on all processes, which will have significant impact on the SAC.

Appendix 1

Extracts from Natural England & the Countryside Council for Wales' advice given under Regulation 33(2)(a) of the Conservation (Natural Habitats, &c.) Regulations 1994, as amended for the Severn Estuary / Môr Hafren Special Area of Conservation (SAC) and Special Protection Area (SPA) 2009

4.1.6 SAC interest feature 6 : River lamprey *Lampetra fluviatilis*

The conservation objective for the river lamprey *Lampetra fluviatilis* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes[1], each of the following conditions are met:

i. the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
ii. the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;
iii. the abundance of prey species[2] forming the river lamprey's food resource within the estuary, is maintained.
iv. Toxic contaminants in the water column[3] and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms 1 - 3 above is explained in section 4.1.6.1.

Note : The river lamprey population of the Severn depends on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species' lifecycle and therefore the Severn Estuary river lamprey feature can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC river lamprey feature are also met in full and there is a continued recorded presence of this species in the River Severn.

4.1.6.1 Explanatory information for the river lamprey *Lampetra fluviatilis* conservation objective

1 Natural processes in respect of the SAC fish features
River lamprey population:

The size of the population is subject to non-anthropogenic factors relating to natural fluctuations of external factors such as food / host availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats
The general meaning of 'natural processes' with respect to the supporting habitats of river lamprey within the estuary is explained in **section 4.1.1.1**

2 Prey species
Sea trout *Salmo trutta*, shad *Alosa fallax/Alosa alosa*, herring *Clupea harengu*s, sprat *Sprattus sprattu*s, flounder *Platichthys flesu*s and small gadoids such as whiting *Merlangius merlangu*s and pout *Trisopterus luscu*s are all potential prey species for the river lamprey found within the Severn Estuary (Bird 2008).

3 Water column
Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.1.7 SAC interest feature 7: The conservation objective for sea lamprey *Petromyzon marinus*

The conservation objective for the sea lamprey *Petromyzon marinus* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes[1], each of the following conditions are met:

i. the migratory passage of both adult and juvenile sea lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
ii. the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term;
iii. the abundance of prey species[2] forming the sea lamprey's food resource within the estuary, is maintained.
iv. Toxic contaminants in the water column[3] and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms 1-3 above is explained in **section 4.1.7.1**.

Note: The sea lamprey population of the Severn depends on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species' lifecycle and therefore the Severn Estuary sea lamprey feature can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC sea lamprey shad feature are also met in full and there is a continued recorded presence of this species in the River Severn.

4.1.7.1 Explanatory information for the sea lamprey *Petromyzon marinus* conservation objective

1 Natural processes in respect of the SAC fish features

Sea lamprey population:

The size of the population is subject to non anthropogenic factors relating to natural fluctuations of external factors such as food / host availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats:

The general meaning of 'natural processes' with respect to the supporting habitats of sea lamprey within the estuary is explained in **section 4.1.1.1**.

2 Prey species

Eel *Anguilla anguilla*, cod *Gadus morhua*, and haddock *Melanogrammus aeglefinus* are all potential prey species for the sea lamprey found within the Severn Estuary (Bird 2008)

3 Water column

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.1.8 SAC interest feature 8: The conservation objective for twaite shad *Alosa fallax*

The conservation objective for the twaite Shad *Alosa fallax* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes[1], each of the following conditions are met:

i. the migratory passage of both adult and juvenile twaite shad through the Severn Estuary between the Bristol Channel and their spawning rivers is not obstructed or impeded by physical barriers, changes in flows or poor water quality;
ii. the size of the twaite shad population within the Severn Estuary and the rivers draining into it is at least maintained and is at a level that is sustainable in the long term.
iii. the abundance of prey species[2] forming the twaite shad's food resource within the estuary, in particular at the salt wedge[3], is maintained.
iv. Toxic contaminants in the water column[4] and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms 1- 4 above is explained in **section 4.1.8.1**.

Note: The twaite shad population of the Severn depends on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species' lifecycle and therefore the Severn Estuary twaite shad feature can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC twaite shad feature are also met in full and there is a continued recorded presence of this species in the River Severn.

4.1.8.1 Explanatory information for the Twaite shad *Alosa fallax* conservation objective

1 Natural processes in respect of the SAC fish features

Twaite shad population:

The size of the population is subject to non-anthropogenic factors relating to natural fluctuations of external factors such as food availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats:

The general meaning of 'natural processes' with respect to the supporting habitats of twaite shad within the estuary is explained in **section 4.1.1.1**.

2 Prey species

Small crustaceans, especially mysids and copepods, small fish, especially sprats and anchovies, and fish eggs (Maitland, P.S. & Hatton-Ellis 2003).

3 Salt wedge

This the area within the estuary where fresh and saline water meet and where the abundance of prey species is particularly important to the twaite shad population. The actual position varies according to the state of the tide and volume of freshwater input to the estuary.

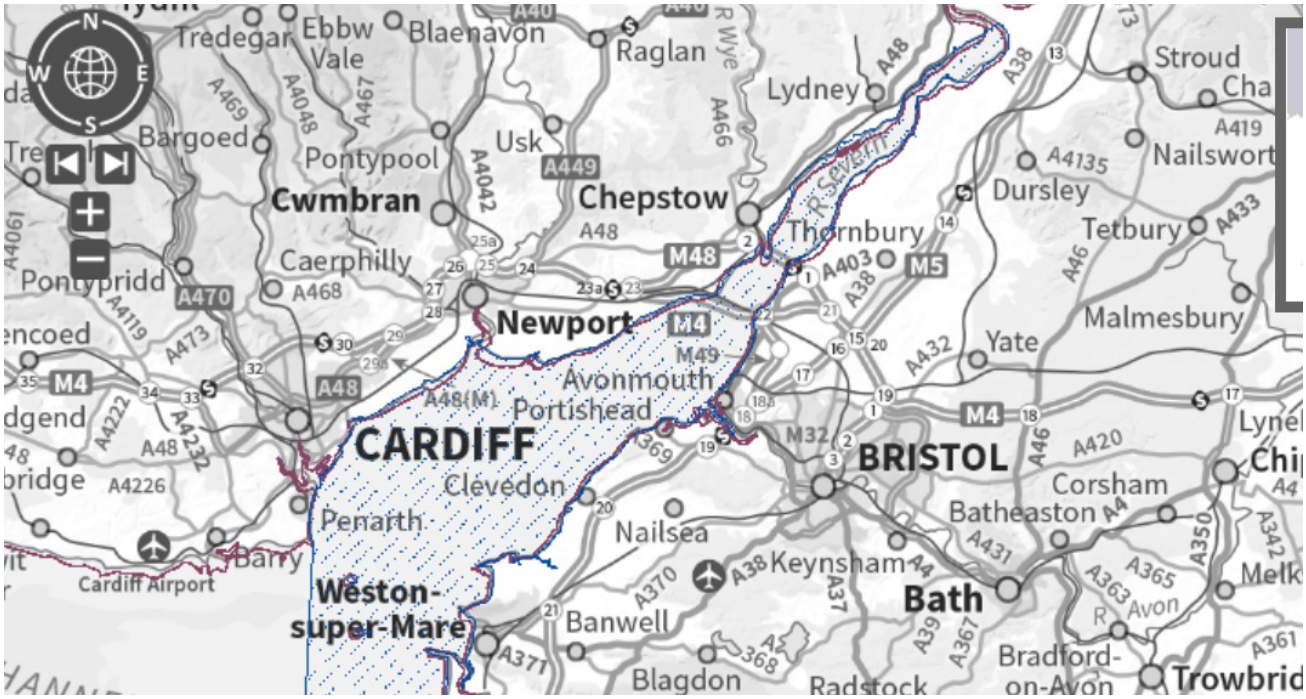
4 **Water column**

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

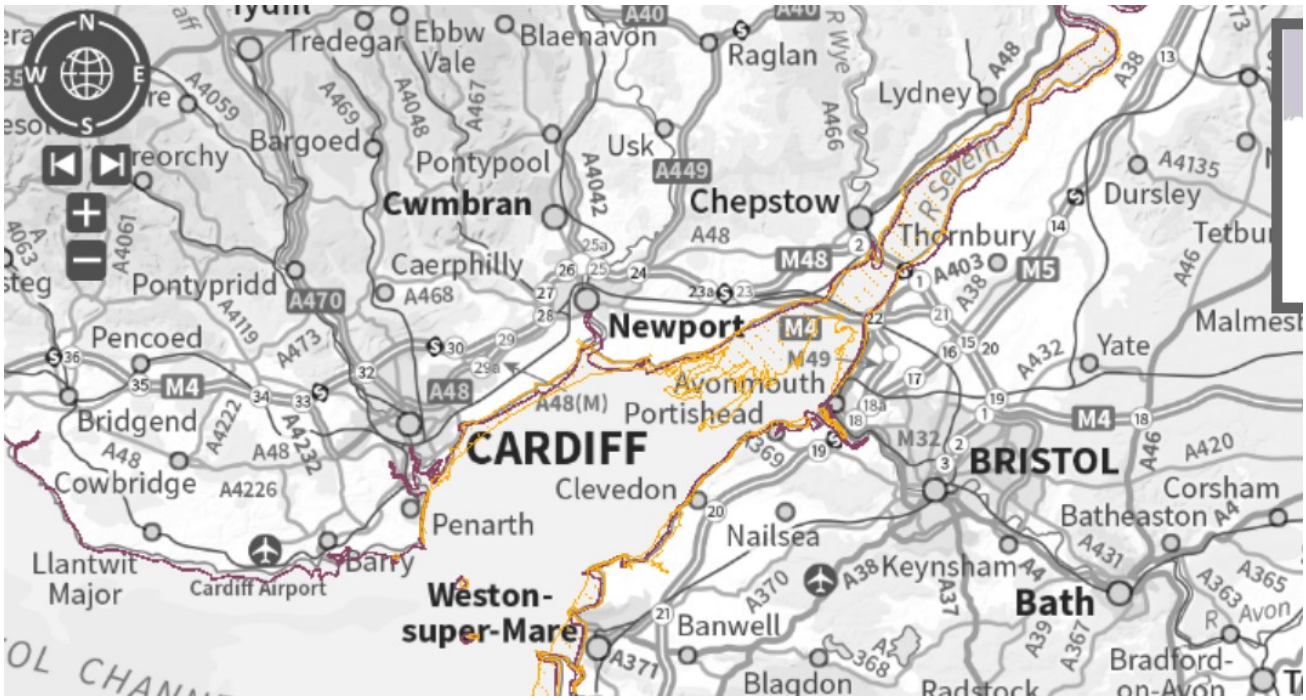
Appendix 2

Site boundaries

Special Areas for Conservation – Severn Estuary / Môr Hafren



Special Protection Areas – Severn Estaury / Môr Hafren



(extracted from https://magic.defra.gov.uk/MagicMap.aspx)

Appendix 3

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

a. Outline of the legal context and purpose of conservation objectives.

Conservation objectives are required by the 1992 'Habitats' Directive (92/43/EEC). The aim of the Habitats Directives is the maintenance, or where appropriate the restoration of the 'favourable conservation status' of habitats and species features for which SACs and SPAs are designated.

In the broadest terms, 'favourable conservation status' means a feature is in satisfactory condition and all the things needed to keep it that way are in place for the foreseeable future. CCW considers that the concept of favourable conservation status provides a practical and legally robust basis for conservation objectives for Natura 2000 and Ramsar sites.

Achieving these objectives requires appropriate management and the control of factors that may cause deterioration of habitats or significant disturbance to species.

As well as the overall function of communication, Conservation objectives have a number of specific roles:

Conservation planning and management.

The conservation objectives guide management of sites, to maintain or restore the habitats and species in favourable condition.

Assessing plans and projects.

Article 6(3) of the 'Habitats' Directive requires appropriate assessment of proposed plans and projects against a site's conservation objectives. Subject to certain exceptions, plans or projects may not proceed unless it is established that they will not adversely affect the integrity of sites. This role for testing plans and projects also applies to the review of existing decisions and consents.

Monitoring and reporting.

The conservation objectives provide the basis for assessing the condition of a feature and the status of factors that affect it. CCW uses 'performance indicators' within the conservation objectives, as the basis for monitoring and reporting. Performance indicators are selected to provide useful information about the condition of a feature and the factors that affect it.

The conservation objectives in this document reflect CCW's current information and understanding of the site and its features and their importance in an international context. The conservation objectives are subject to review by CCW in light of new knowledge.

b. Format of the conservation objectives

There is one conservation objective for each feature listed in part 3. Each conservation objective is a composite statement representing a site-specific description of what is considered to be the favourable conservation status of the feature. These statements apply to a whole feature as it occurs within the whole plan area, although section 3.2 sets out their relevance to individual management units.

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

As a result of the general practice developed and agreed within the UK Conservation Agencies, conservation objectives include performance indicators, the selection of which should be informed by JNCC guidance on Common Standards Monitoring1.

There is a critical need for clarity over the role of performance indicators within the conservation objectives. **A conservation objective, because it includes the vision for the feature, has meaning and substance independently of the performance indicators, and is more than the sum of the performance indicators**. The performance indicators are simply what make the conservation objectives measurable, and are thus part of, not a substitute for, the conservation objectives. Any feature attribute identified in the performance indicators should be represented in the vision for the feature, but not all elements of the vision for the feature will necessarily have corresponding performance indicators.

As well as describing the aspirations for the condition of the feature, the Vision section of each conservation objective contains a statement that the factors necessary to maintain those desired conditions are under control. Subject to technical, practical and resource constraints, factors which have an important influence on the condition of the feature are identified in the performance indicators.

Not all the Conservation Objectives for the SAC and SPA are listed here – just for Estuaries.

4.1 Conservation objectives for the Severn Estuary / Môr Hafren SAC

The protection and management of the SAC in accordance with Article 6 of the Habitats Directive, including in particular the consideration of plans and projects under Article 6(3) and 6(4), should be carried out in view of the conservation objectives in this section.

4.1.1 SAC interest feature 1: Estuaries

The conservation objective for the "estuaries" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes[1], each of the following conditions are met

i. the total extent of the estuary[2] is maintained;

ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained;

iii. the characteristic range and relative proportions of sediment sizes and sediment budget[3] within the site is maintained;

iv. the extent, variety and spatial distribution[4] of estuarine habitat communities[5] within the site is maintained[6];

v. the extent, variety, spatial distribution[4] and community composition of hard substrate habitats and their notable communities[5(v)] is maintained;

vi. the abundance of the notable estuarine species assemblages[7] is maintained or increased;

vii. the physico-chemical characteristics[8] of the water column[9] support the ecological objectives described above;

viii. Toxic contaminants in water column[9] and sediment are below levels which would pose a risk to the ecological objectives described above.

ix. Airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above

For Sea Lamprey, River Lamprey and Twaite Shad see Appendix 1.

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1 Web link: http://www.jncc.gov.uk/page-2199

Table 8 – Favourable condition table for the "estuaries" feature of the Severn Estuary SAC (part)						
Ref	**SAC Interest Feature**	**Sub-feature**	**Attribute**	**Measure**	**Target**	**Comments**
A12	***SAC interest feature 1:*** **Estuaries**	Hard substrate habitats and their notable communities	**Community composition** *(extent, variety, spatial distribution and community composition of notable communities - section 4.1.1.v of the conservation objectives)*	Assessment of community quality through survey of species composition (presence of typical species) within the notable communities measured periodically	No decline in community quality due to changes in species composition or loss of typical species from an established baseline *Baseline to be established :* *Data to be used : CCW and English Nature Intertidal Biotope Surveys 2006 and future surveys*	Different associations of plants, animals and their habitat are an important structural and functional aspect of the feature. Changes in the communities present within an area of a particular type may indicate long-term changes in physical conditions at the site. Typical species of the notable communities to be determined.
A13		Notable estuarine species assemblages : **Assemblage of fish species**	**Abundance** *(abundance of notable estuarine species assemblages - section 4.1.1.vi of the conservation objectives)*	Numbers of species and population estimates	No significant reduction in overall diversity of species or in individual populations against an established baseline *Baseline to be established :* *Data to be used : Environment Agency and relevant Sea Fisheries Committee data*	Loss of notable communities may indicate long term changes in the physical conditions of the estuaries interest feature or individual subfeatures. **Assemblage of fish species:** (Refer to section 4.1.1 note 7) • Migratory species (see also section of this table which relates to the river lamprey, sea lamprey and twaite shad features) • Estuarine species • Marine species • Freshwater species

Table 13 – Favourable condition table for the "river lamprey" and "sea lamprey" features of the Severn Estuary SAC						
Ref	**SAC Interest Feature**	**Sub-feature**	**Attribute**	**Measure**	**Target**	**Comments**
F1	***SAC interest feature 5:*** **River lamprey** ***Lampetra fluviatilis*** **and** ***SAC interest feature 6:*** **Sea lamprey** ***Petromyzon marinus***		**Migratory access (Barriers to migration)** *(migratory passage not impeded - sections 4.1.6.i and 4.1.7.i of the conservation objectives)*	**Water quality** measured regularly throughout the reporting cycle in the Bristol Channel, Severn Estuary, River Wye SAC, River Usk SAC and River Severn. *(see also Table 8, lines A17-20 relating to general water quality requirements for the estuary feature (and dependant sub features)*	Water quality is sufficient to support migratory passage. Levels (for temperature, salinity, turbidity, pH, and dissolved oxygen) should comply with targets established under the EA Review of Consents and the Water Framework Directive. *Baseline is water quality sampling data collected by the Environment Agency*	Significant variation in these physico-chemical parameters may act as barriers to migration. For example, the timing, duration and consistency of their upstream migration are believed to be closely related to temperature changes as well as pheromone triggers from the juveniles during periods of high water flow. Peak migration usually coincides with river temperatures that remain above 10°C and continues until temperatures reach 18°C. Dissolved oxygen can also be significantly reduced in stretches receiving significant BOD inputs, or through the re-suspension of organic rich sediments. Toxic contaminants may act as a barrier to migration. Environmental Quality Standards (EQSs) are set for dangerous substances as defined under the Dangerous Substances Directive
F2				**Water flows** measured regularly throughout the reporting cycle (frequency to be determined) in the River Wye SAC, River Usk SAC and River Severn	Flows from the river into the estuary must be sufficient to allow migration. *Baseline is water flow sampling data collected by the Environment Agency provides a baseline. Severe low flow conditions that affect these species yet to be defined*	
F3				**Physical barriers** Mapping and quantification of potential obstructions in relation to height, type and water depth below obstruction once during the reporting cycle.	No artificial barriers significantly impairing, adults from reaching existing and historical spawning grounds, or juveniles from moving downstream. *Baseline is the Environment Agency data on structures and flood defences*	Dams, navigation and other weirs may prevent lamprey from reaching their spawning grounds. In particular, sea lamprey is known to be poor at ascending obstacles.

Table 14 – Favourable condition table for the "Twaite shad" feature of the Severn Estuary						
Ref	**SAC Interest Feature**	**Sub-feature**	**Attribute**	**Measure**	**Target**	**Comments**
G1	***SAC interest feature 7:*** **Twaite shad (*Alosa fallax*)**		**Migratory access (Barriers to migration)** *(migratory passage not impeded - section 4.1.8.i of the conservation objectives)*	**Water quality** measured regularly throughout the reporting cycle in the Bristol Channel, Severn Estuary, River Wye SAC, River Usk SAC and River Severn. *(see also Table 8 line A 17-20 relating to general water quality requirements for the estuary feature (and dependant sub features)*	Water quality is sufficient to support migratory passage. Levels (for temperature, salinity, turbidity, pH, and dissolved oxygen) should comply with targets established under the EA Review of Consents and the Water Framework Directive. *Baseline is water quality sampling data collected by the Environment Agency*	Significant variation in these physico-chemical parameters may act as barriers to migration. For example, the timing, duration and consistency of their upstream migration are believed to be closely related to temperature changes. Peak migration usually coincides with river temperatures that remain above 10ₒC and continues until temperatures reach 18ₒC. Dissolved oxygen can also be significantly reduced in stretches receiving significant BOD inputs, or through the resuspension of organic rich sediments Toxic contaminants may act as a barrier to migration. Environmental Quality Standards (EQSs) are set for dangerous substances as defined under the Dangerous Substances Directive or Government Policy for freshwater and marine environments.
G2				**Water flows** measured regularly throughout the reporting cycle (frequency to be determined) in the River Wye SAC, River Usk SAC and River Severn *(see also Table 8 line A3 relating to general tidal and water flow requirements for the estuary feature (and dependant sub features)*	Flows from the river into the estuary must be sufficient to allow migration *Baseline is water flow sampling data collected by the Environment Agency provides a baseline. Severe low flow conditions that affect these species yet to be defined*	
G3				**Physical barriers** Mapping and quantification of potential obstructions in relation to height, type and water depth below obstruction once during the reporting cycle.	No artificial barriers significantly impairing, adults from reaching existing and historical spawning grounds, or juveniles from moving downstream. *Baseline is Environment Agency data on structures and flood defences*	Dams, navigation and other weirs may prevent shad reaching their spawning grounds. In particular, shad are known to be poor at ascending obstacles.

Appendix 4

The following text relates to the Core Management Plan including conservation objectives for River Wye / Afon Gwy Special Area of Conservation (SAC) produced by Natural Resources Wales in 2008 and updated in 2017[2].
Whilst the River Ely is not designated the same principles should apply as the site is similarly connected to the River Severn/Môr Hafren SAC/SPA.

The ecological status of the water course is a major determinant of favourable conservation status for all features. The required conservation objective for the water course is defined below.

4.1 Conservation Objective for the water course

- The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary.

- The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure.

- Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC.

- All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change.

- Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed.

- The river plan form and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided.

- Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers.

- Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified.

- Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered.

[2] https://documentcloud.adobe.com/link/review?uri=urn:aaid:scds:US:886c03e3-667c-43a8-8b0a-fda68c78209d

Appendix 5

Natural Resources Wales response dated 19th April 2021

Thank you for consulting us on the HRA, dated March 2021 submitted in support of the above application.

We have reviewed the document agree with the conclusions of the HRA.

With relation to the query about the exact location of a Thwaite shad record, we have checked our records and do not believe that there are any shad in the Bay or in the rivers Taff and Ely. We consider this may be an error or pre barrage.

We are satisfied that the concerns under requirement 4 of our letter dated 8 December 2020, reference CAS-129806-T4T9 have now been addressed.

Our advice on requirements 1 and 2, and the conditions set out in that letter remains unchanged.

If you have any queries on the above, please do not hesitate to contact me.

Kind Regards
Claire McCorkindale

Tîm Cynllunio Datblygu / Development Planning Team
Cyfoeth Naturiol Cymru / Natural Resources Wales