Christchurch Bay & Harbour FCERM Strategy

Habitats Regulation Assessment Screening and Appropriate Assessment

Bournemouth, Christchurch and Poole (BCP) Council and New Forest District Council (NFDC)

Project number: 60656006

March 2024

DRAFT

Delivering a better world

Quality information

Habitat Regulations Assessment Screening:

Prepared by	Checked by	Verified by	Approved by
Isla Hoffman Heap Senior Ecologist Lisa Rigby Principal Ecologist	Ben Taylor Principal Consultant	Dr James Riley Technical Director, Ecology and Habitats Regulations Assessment	Ben Taylor Principal Consultant Jonathan Short Technical Director, Coastal

Revision History

Revision	Revision date	Details	Authorized	Name	Position
01	19/05/23	Draft for review	BT	Ben Taylor	Principal Consultant
02	10/10/2023	Updated following comments from Natural England	JCAS	Jon Short	Technical Director
03	16/10/2023	Updated following review	JCAS	Jon Short	Technical Director
04	12/03/2024	Update for council / LPRG approval	BT	Ben Taylor	Principal Consultant

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

Bournemouth, Christchurch and Poole (BCP) Council and New Forest District Council (NFDC)

Prepared by:

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 310200
aecom.com

Table of Contents

Contents

Figures

Tables

1. Introduction

1.1 Overview

AECOM has been commissioned by Bournemouth, Christchurch and Poole (BCP) Council to develop a Flood and Coastal Erosion Risk Management (FCERM) Strategy for the coastal frontage at Christchurch Bay & Harbour (herein referred to as 'The Strategy'). The Strategy extent is the coastal frontage between Hengistbury Head (immediately to the east of Hengistbury Head Long Groyne) and the landward (western) end of Hurst Spit. Within Christchurch Harbour, the Strategy extent is to Tuckton Bridge on the River Stour and Knapp Mill on the River Avon (see Figure 1-1).

Figure 1-1: Map of Strategy area

The aim of The Strategy is to provide an integrated plan for the Christchurch Bay & Harbour frontage, delivering sustainable and long-term management for coastal flood and erosion risks over the next 100 years. The Strategy is being developed collaboratively by AECOM, and the Project Board consisting of officers of BCP Council, New Forest District Council (NFDC) and the Environment Agency (EA).

The options appraisal for The Strategy has been undertaken across a spatial framework comprised of six Strategy Management Zones (SMZs) and eighteen smaller Option Development Units (ODUs). A map showing the SMZ locations is shown in Figure 1-2 and maps showing the ODUs are in shown in Appendix A.

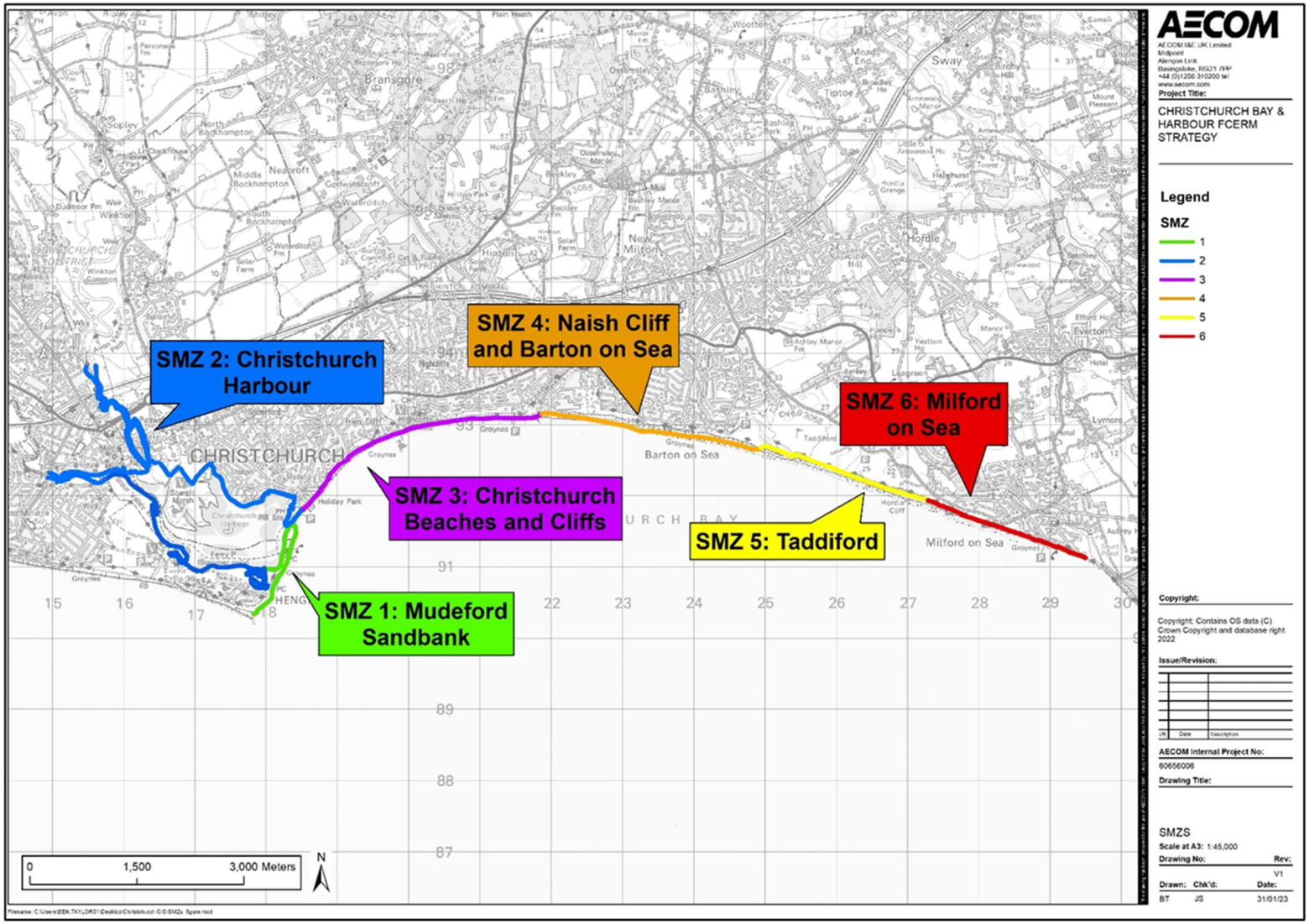

Figure 1-2: SMZ locations

1.2 This Report

This report provides details of the Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment that has been undertaken to support the appraisal of Strategic Options.

This report has the following key sections:

1) Introduction
2) Overview of the Strategy Leading Options
3) HRA Screening
4) HRA Appropriate Assessment
5) In Combination Assessment
6) Conclusions and Recommendations
7) References
8) Appendices

2. Leading Options

AECOM's Leading Options Report (LOR) for the strategy has been produced. This provides more detailed and specific proposals for each ODU, covering the entire frontage of Christchurch Bay & Harbour.

For each ODU a National Economic leading option has been identified by following the Environment Agency's Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG, 2020). In some circumstances, the National Economic leading option may not be preferable for local decision makers and/or stakeholders and in these situations, a Local Aspirational leading option has also been identified. Throughout the HRA process, a view was taken as to whether the National Economic leading option or Local Aspirational leading option would have the greatest impact on European sites (sites within the scope of HRA). The assessment was based on the worst-case option but if the alternative was materially better for European sites that was flagged.

Table 2-1 below provides a summary of the leading options proposed for each ODU.

Table 2-1: Summary of the Leading Options proposed for each ODU, including detail on structures or interventions and additional information relevant to HRA

ODU	Location	Approach	Detail of structures / interventions	Additional Information (e.g., habitat creation)	Management Intent
Strategy Management Zone 1					
ODU 1	Hengistbury Head East (SZ17949042)	National Economic leading option – Do minimum	Involves undertaking reactive small-scale maintenance of the existing defences in this unit. This would typically take the form of patch and repair maintenance whereby localised damage to the defence is repaired on an ad-hoc basis.	None identified	This option is likely to extend the service life of the existing defences but only by a relatively small period of time (i.e., 5-10 years) but over time the defences would fail.
		Local Aspirational leading option - Managed realignment.	Involves maintaining the existing defences at the toe of the cliff and beach through proactive maintenance and refurbishments.	Beach recycling would also be undertaken to help sustain beach levels in this location, providing support to the linear defences to help reduce the amount of maintenance required.	Aiming to control and reduce the amount of rate of erosion relative to an undefended scenario.
ODU 2	Mudeford Sandbank (SZ18289100)	National Economic leading option – Do Minimum	Involves undertaking reactive small-scale maintenance of the existing defences in this unit. This would typically take the form of patch and repair maintenance whereby localised damage to the defence is repaired on an ad-hoc basis.	None identified	This option is likely to extend the service life of the existing defences but only by a relatively small period of time (i.e., 5-10 years) but over time the defences would fail.
		Local Aspirational leading option – Maintain with Adaptation.	In epochs 1 and 2 - ongoing repair and capital refurbishment of the existing seawall, rock groynes and rock revetment. In epoch 3, as sea level rise increases, it is likely that a beach nourishment capital scheme would be required to sustain beach levels in line with sea level rise. Also property level protection to the permanent properties on the Sandbank to reduce flood risk.	Beach recycling activities on the Sandbank would be continued to ensure beach levels are sustained and the risk of breaching is reduced Holding the Sandbank in position would reduce the risk of rollback into the harbour. This would help ensure the Sandbank did not move significant distances into the Saltmarsh habitat behind the Sandbank and avoid any impacts associated with this process.	The Maintain with Adaptation option would aim to sustain the FCERM service of the Sandbank, reducing the risk of widespread morphological changes as well as the erosion risk and flood risk.

ODU	Location	Approach	Detail of structures / interventions	Additional Information (e.g., habitat creation)	Management Intent
Strategy Management Zone 2					
ODU 3	Christchurch Harbour South (SZ16489153)	National Economic leading option - Adaptation/ Resilience Option A.	It does not include any erosion defences. Property level protection defence measures are proposed	As part of this option, it is recommended that opportunities for saltmarsh restoration / creation are explored. Erosion could occur at the access road to Hengistbury Head and Wick wasteland historic landfill site in the future.	Provide some property level protection to the properties from flooding through local resilience measures.
		Local Aspirational leading option - Adaptation/ Resilience Option C.	Includes the same Property Level Protection measures as Adaptation / Resilience A, but also includes localised erosion defences and defence maintenance.	As part of this option, it is also recommended that opportunities for saltmarsh restoration / creation are explored.	As above but would also provide erosion protection to the road access to Hengistbury Head as well as the Wick historic landfill site.
ODU 4	Wick (SZ15389227)	National Economic leading option - Sustain Option C.	Raising and lengthening the existing flood defence embankment over time to keep pace with sea level rise.	There would be no capital refurbishments or upgrades to the existing frontline quay wall. Initial patch-repair work would be undertaken during epoch 1 but in epoch 2 the wall would be expected to fail, potentially resulting in the erosion of the historic landfill site to the north of Wick Lane.	To defend the vast majority of properties in the unit from flood risk
		Local Aspirational leading option - Sustain Option B	Raising and lengthening the embankment as above, but also involves undertaking repeat capital refurbishments of the existing quay wall in the west part of the unit	Would not involve raising the crest level of the quay wall and therefore over time there would be increased flood risk to the historic landfill site, with a potential for leaching to occur. But erosion risk of the historic landfill would be reduced.	To ensure the defence is kept in place over time and to prevent erosion of the historic landfill site behind.

ODU	Location	Approach	Detail of structures / interventions	Additional Information (e.g., habitat creation)	Management Intent
ODU 5	Willow Drive and the Quomps (SZ15659230)	National Economic leading option – Improve D-F options.	Involves upgrading the defences over time achieved through raising and lengthening the defences in a series of interventions.	Each option would reduce the chance of the quay wall in east part of the unit failing and exposing historic landfill material, potentially leading to a positive impact to land, soil and water resources.	To improve the standard of protection against flooding and ensure the existing quay walls / defence are kept in place over time and to prevent erosion of the historic landfill site behind.
		Local Aspirational leading option - Improve A-C options	Involves upgrading the defences constructed to a 2123 Standard of Protection (SoP).		
ODU 6	River Avon West Bank (SZ16319233)	National Economic leading option – Adaptation / Resilience Option	Involves implementing property level protection.	In addition to the property level protection, this option would also involve maintenance of the existing quay walls in the south part of the unit.	To provide defence against shallow flooding
ODU 7	Rossiters Quay (SZ16219262)	National Economic leading option – Improve Option A	Involves constructing new flood defences and then raising them over time. It is likely that a combination of new frontline quay walls and upgraded setback defences would be required.	Space for new defences is more restricted in this unit relative to elsewhere in the Strategy frontage.	The option would defend the concentration of properties either side of Bridge Street.
ODU 8	**River Avon East Bank**	**Full appraisal of options not undertaken as part of the Strategy**			
ODU 9	Stanpit (SZ16359259)	National Economic leading option - Sustain Option A	Involves constructing new flood / erosion defences and then lengthening / raising them over time. This is likely to be a mixture of defence types including slope armouring and setback floodwalls / embankments	Work should be undertaken as part of this option to investigate opportunities to enhance / restore the saltmarsh habitat in the future, such as for example by placing dredged material in the saltmarsh area to encourage accretion. Other options for saltmarsh restoration such as seeding / planting / fencing could also be explored.	To reduce flood and erosion risk to properties, public spaces and historic landfill.
ODU 10	Mudeford (SZ17729185)	National Economic leading option - Improve Option A	Involves constructing new flood defences (likely in the form of a quay wall with a raised floodwall). Likely to be a mixture of defence types including crest raising, new sheet pile / quay walls and deployable defences.	New defences may also be required along the lower sections of the River Mude and Bure Brook.	To reduce the flood and erosion risk.

ODU	Location	Approach	Detail of structures / interventions	Additional Information (e.g., habitat creation)	Management Intent
				ODU 10 recommends exploring options for restoring / enhancing saltmarsh habitat in the future.	
ODU 11	Mudeford Quay (SZ18289160)	National Economic leading option – Do Minimum	Involves undertaking reactive small scale maintenance to the existing quay wall and setback defences in this unit. This would typically take the form of patch and repair maintenance whereby localised damage to the defence is repaired on an ad-hoc basis.		This option is likely to extend the service life of the existing defences but only by a relatively small period of time.
		Local Aspirational Option - Adaptation / Resilience	Involves a series of capital refurbishments to the existing defences over time, as required based on the condition and deterioration of the defences. In addition provide property level protection to reduce flood risk to individual properties.		To maintain the existing quay walls and also involve providing property level protection.
Strategy Management Zone 3					
ODU 12	Avon Beach and Friars Cliff (SZ19099244)	National Economic leading option - Improve Option A	Involves refurbishing / upgrading the existing linear defences (seawall and rock revetment). Large scale beach nourishment. Localised property level protection defences at Mudeford Road.	There are a number of environmental designations in the vicinity (including an SAC and Local Nature Reserve), with the cliffs at the eastern end of the unit being designated as a SSSI.	To increase the beach levels and provide upgraded linear defences and beach control structures in order to minimise the probability of any land / cliff erosion from occurring in the future. Manage localised flood risk to a small number of properties.
		Local Aspirational Option - Improve Option C	Similar to Improve A but would involve additional investment into raising the seawall and promenade area at the back of the beach along its full length as part of broader public realm improvements.		
ODU 13	Highcliffe	National Economic leading option - Improve Option C	Involves using Beach Nourishment to defend the toe of the cliff.	There are a number of environmental designations in the vicinity (including an	To minimise the amount of cliff erosion in the future by refurbishing the existing

ODU	Location	Approach	Detail of structures / interventions	Additional Information (e.g., habitat creation)	Management Intent
	(SZ20869303)		New defences would be constructed at the eastern end of the unit to prevent outflanking and existing hard defences would be maintained / refurbished.	SAC) and the cliffs are designated as a SSSI due to their geological importance.	defences and using soft engineering solutions.
		Local Aspirational Option - Improve Option A	Similar to the Improve C option but would involve undertaking the major beach nourishment scheme in epoch 2 rather than in epoch 3.		
Strategy Management Zone 4					
ODU 14	Naish Cliff and Barton on Sea (SZ23929285)	National Economic leading option - Managed Realignment A	Involves the following initial interventions: Construction of a rock revetment at the toe of the cliff beneath Marine Drive West. Refurbishment / upgrade of the existing rock revetment at the toe of the cliff Installation of new cliff stabilisation / drainage	The full length of the unit is fronted by a marine SPA designation.	To significantly slow the rate of cliff top erosion and reduce rates of toe erosion. Some erosion would still occur but in a controlled manner.
Strategy Management Zone 5					
ODU 15	Barton on Sea to Hordle Cliff (SZ26209226)	National Economic leading option – Do Nothing	No maintenance of FCERM assets or defences is undertaken and beach management is not undertaken.		With the Do Nothing scenario, the cliffs would continue to erode over time, likely increasing in pace in response to sea level rise.
Strategy Management Zone 6					
ODU 16	Cliff Road (SZ27519180)	National Economic leading option - Managed Realignment C	Involves the following interventions: Beach nourishment along the full frontage	The full length of the unit is fronted by a marine SPA designation	

ODU	Location	Approach	Detail of structures / interventions	Additional Information (e.g., habitat creation)	Management Intent
			Construction of a local strong point (likely rock armour) Successive beach nourishment interventions in epochs 2 and 3 to sustain the beach levels		To control the rate of cliff erosion and transition the coastline position into a more sustainable position over time.
		Local Aspirational Option - either Managed Realignment A or Managed Realignment B	Follows the same overall approach as Managed Realignment C. However, the first capital intervention would be much sooner.		
ODU 17	Rook Cliff (SZ28489150)	National Economic leading option - Improve C	Involves upgrading the defences at the cliff toe. In addition beach control structures such as groynes would be constructed to help retain beach material.		To minimise the amount of erosion to Rook Cliff
		Local Aspirational Option - either Improve A or Improve B	Follows the same overall approach as Improve C. However, the first capital intervention would be much sooner.		
ODU 18	Milford on Sea Frontage (SZ29109125)	National Economic leading option – Improve A	Involves large scale beach nourishment, seawall upgrade and construction of new groynes. Construction of a setback defence at the eastern end of Milford on Sea.		To improve beach levels in this location to improve the protection provided to the toe of the defences and to reduce flood risk.

3. Habitats Regulations Assessment Screening

This section covers the Habitats Regulations Assessment (HRA) screening.

3.1 Record of Screening for Likely Significant Effects

This is a record of the screening for likely significant effects required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) in respect of the permission, plan or project (PPP) detailed in Section 1 for the following relevant site(s):

- Dorset Heaths SAC
- Dorset Heathlands SPA
- River Avon SAC
- Avon Valley SPA / Ramsar
- Solent & Southampton Water SPA / Ramsar
- Solent Maritime SAC
- Solent and Dorset Coast SPA (Marine Components GB)

Version: ***1 (DRAFT), 19/05/2023***

This record was sent to Natural England for consultation. Natural England provided comments on the Record of Screening for Likely Significant Effects on 11/08/23 and the current (October 2023) version of the report takes account of those comments. An Appropriate Assessment has also been included in this report.

Permission, plan or project details

Type of PPP: Flood and Coastal Erosion Risk Management (FCERM) Strategy

Environment Agency reference: TBC (this is the Authority Scheme Reference number)

National grid reference: Approximate central grid references for each ODU are provided in Table 2-1.

Site/project name or reference: Christchurch Bay & Harbour FCERM Strategy

3.2 Description of Proposal

A description of the proposal is found in sections 1 and 2 of this report. Further details can be found in the Christchurch Bay and Harbour FCERM Strategy Leading Options Report (AECOM, 2023).

3.3 Map(s) showing ODU Locations and European Sites

Figure 3-1 and Figure 3-2 below show the ODU locations and the European sites.

Figure 3-1: ODU 1-11 and European sites

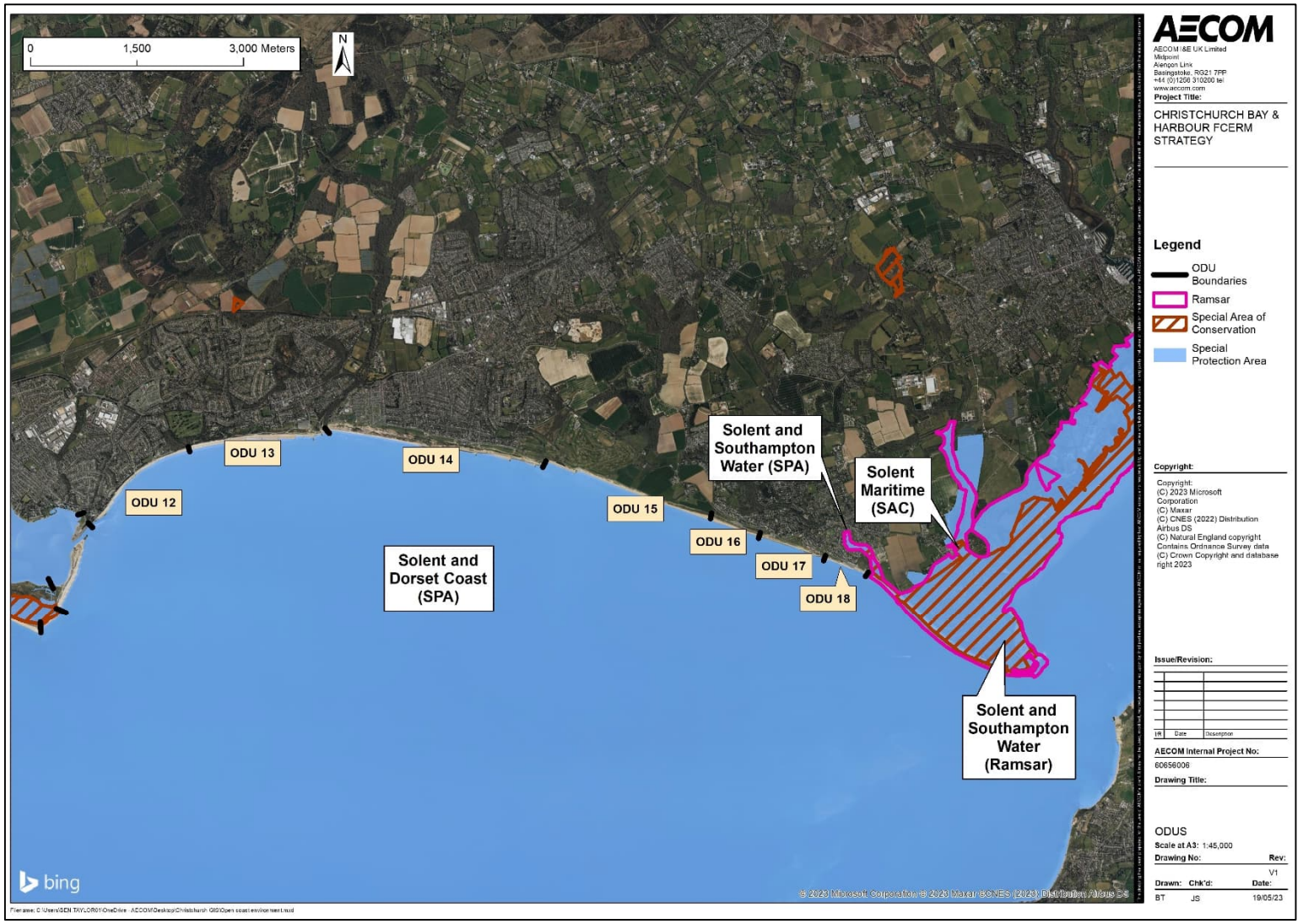

Figure 3-2: ODU 12-18 and European sites

3.4 European Sites Requiring Assessment

Table 3-1 below identifies the European sites requiring assessment. This is based on the screening criteria the Environment Agency consider appropriate to identify possible significant risk. It should be noted that not all of the qualifying features listed are present in the co-located parts of the European sites.

Table 3-1: European sites requiring assessment

European site	Complete list of qualifying features
Dorset Heaths SAC	Annex I habitats: • Northern Atlantic wet heaths with *Erica tetralix* • European dry heaths • Depressions on peat substrates of the *Rhynchosporion* • *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils Molinion caeruleae • Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* • Alkaline fens • Old acidophilous oak woods with *Quercus robur* on sandy plains Annex II species: • Southern damselfly *Coenagrion mercuriale* • Great crested newt *Triturus cristatus*
Dorset Heathlands SPA	Under Article 4.1 of the Directive (79/409/EEC): *In any season:* • Hen harrier *Circus cyaneus* (Non-breeding) • Merlin *Falco columbarius* (Non-breeding) • European nightjar *Caprimulgus europaeus* (Breeding) • Woodlark *Lullula arborea* (Breeding) • Dartford warbler *Sylvia undata* (Breeding)
River Avon SAC	Annex I habitats: • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Annex II species: • *Desmoulin's whorl snail Vertigo moulinsiana* • Sea lamprey *Petromyzon marinus* • Brook lamprey *Lampetra planeri* • Atlantic salmon *Salmo salar* • Bullhead *Cottus gobio*
Avon Valley SPA	• Bewick's swan *Columbianus bewickii* • Gadwall *Anas strepera*
Avon Valley Ramsar	<u>Ramsar criterion 1:</u> The site shows a greater range of habitats than any other chalk river in Britain, including fen, mire, lowland wet grassland and small areas of woodland. <u>Ramsar criterion 2:</u> The site supports a diverse assemblage of wetland flora and fauna including several nationally rare species. <u>Ramsar criterion 6:</u> Species / populations with peak counts in winter occurring at levels of international importance: Gadwall *Anas strepera* Northern pintail A*nas acuta* Black-tailed godwit *Limosa limosa islandica*
Solent & Southampton Water SPA	Qualifying species: • Dark-bellied brent goose *Branta bernicla* • Eurasian teal *Anas crecca*

European site	Complete list of qualifying features
	• Ringed plover *Charadrius hiaticula* • Black-tailed godwit *Limosa limosa islandica* • Mediterranean gull *Larus melanocephalus* • Sandwich tern *Sterna sandvicensis* • Roseate tern *Sterna dougallii* • Common tern *Sterna hirundo* • Little tern *Sterna albifrons* • Waterbird assemblage
Solent & Southampton Water Ramsar	Ramsar criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland, and rocky boulder reefs. Ramsar criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 51,343 waterfowl (5 year peak mean 1998/99-2002/2003) Ramsar criterion 6: Species/populations occurring at levels of international importance: • Black-tailed godwit, *Limosa limosa islandica* • Dark-bellied brent goose, *Branta berniclabernicla* • Eurasian teal, *Anas crecca*
Solent Maritime SAC	Annex I habitats: • Estuaries • *Spartina* swards *Spartinion maritimae* • Atlantic salt meadows *Glauco-Puccinellietalia* maritimae • Sandbanks which are slightly covered by sea water all the time • Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons (*Priority feature) • Annual vegetation of drift lines • Perennial vegetation of stony banks • *Salicornia* and other annuals colonising mud and sand • Shifting dunes along the shoreline with *Ammophila arenaria* (“white dunes”) Annex II species: • Desmoulin’s whorl snail *Vertigo moulinsiana*
Solent and Dorset Coast SPA (Marine Components GB)	Qualifying species: • Foraging Sandwich tern *Sterna sandvicensis* • Foraging Little tern *Sternula albifrons* • Foraging Common tern *Sterna hirundo*

* Priority natural habitat/priority species

Feature information sourced from Natural England.

Dorset Heathlands Ramsar was also considered; however, this site was scoped out as it is inland and approximately 1.6km away from the River Avon tidal limit, therefore no pathway exists to this European site.

3.5 Conservation Objectives

The screening for likely significant effects (and appropriate assessment, if required) will consider the implications of the proposal in view of the site's conservation objectives. The conservation objectives are shown in Table 3-2 to Table 3-10 overleaf.

Table 3-2: Dorset Heaths SAC conservation objectives

Site name: Dorset Heaths SAC	**Version: 3**	**Date: 27th November 2018**

Natural England state the conservation objectives for this SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change, are as follows:

"Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Qualifying Features:

- H4010. Northern Atlantic wet heaths with *Erica tetralix*; Wet heathland with cross-leaved heath
- H4030. European dry heaths
- H6410. *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); Purple moor-grass meadows
- H7150. Depressions on peat substrates of the *Rhynchosporion*; Depressions on peat substrates
- H7210. Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae;* Calcium-rich fen dominated by great fen sedge (saw sedge)*
- H7230. Alkaline fens; Calcium-rich springwater-fed fens
- H9190. Old acidophilous oak woods with *Quercus robur* on sandy plains; Dry oak-dominated woodland
- S1044. *Coenagrion mercuriale*; Southern damselfly
- S1166. *Triturus cristatus*; Great crested newt"

* *denotes a priority natural habitat or species*."

Table 3-3: Dorset Heathlands SPA conservation objectives

Site name: Dorset Heathlands SPA	**Version: 3**	**Date: 21 February 2019**

Natural England state the conservation objectives for this SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change, are as follows:

"Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Qualifying Features:

- A082 *Circus cyaneus*; Hen harrier (Non-breeding)
- A098 *Falco columbarius*; Merlin (Non-breeding)
- A224 *Caprimulgus europaeus*; European nightjar (Breeding)
- A246 *Lullula arborea*; Woodlark (Breeding)
- A302 *Sylvia undata*; Dartford warbler (Breeding)

Table 3-4: River Avon SAC conservation objectives

Site name: River Avon SAC Version: 3 Date: 27 November 2018
Natural England state the conservation objectives for this SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change, are as follows: "Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site. Qualifying Features: • H3260. Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation; Rivers with floating vegetation often dominated by water-crowfoot • S1016. *Vertigo moulinsiana*; Desmoulin`s whorl snail • S1095. *Petromyzon marinus*; Sea lamprey • S1096. *Lampetra planeri*; Brook lamprey • S1106. *Salmo salar*; Atlantic salmon • S1163. *Cottus gobio;* Bullhead."

Table 3-5: Avon Valley SPA conservation objectives

Site name: Avon Valley SPA Version: 3 Date: 21ST February 2019
Natural England state the conservation objectives for this SPA and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change, are as follows: "Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site. Qualifying Features: • A037 *Cygnus columbianus bewickii*; Bewick's swan (Non-breeding) • A051 *Anas strepera*; Gadwall (Non-breeding)."

Table 3-6: Avon Valley Ramsar conservation objectives

Site name: Avon Valley Ramsar **Version: N/A** **Date: N/A**
Ramsar sites are not set formal conservation objectives. However, since there is considerable overlap between the interest features of the SPA and the interest features of the Ramsar site, the objectives for this Ramsar site are taken to be similar to those for the Avon Valley SPA described above.

Table 3-7: Solent and Southampton Water SPA conservation objectives

Site name: Solent & Southampton Water SPA Version: 3 Date: 21ST February 2019
Natural England state the conservation objectives for this SPA and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change, are as follows: "Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site. Qualifying Features: • A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding) • A052 *Anas crecca;* Eurasian teal (Non-breeding) • A137 *Charadrius hiaticula*; Ringed plover (Non-breeding) • A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding) • A176 *Larus melanocephalus*; Mediterranean gull (Breeding) • A191 *Sterna sandvicensis*; Sandwich tern (Breeding) • A192 *Sterna dougallii*; Roseate tern (Breeding) • A193 *Sterna hirundo;* Common tern (Breeding) • A195 *Sterna albifrons;* Little tern (Breeding) • Waterbird assemblage"

Table 3-8: Solent and Southampton Water Ramsar conservation objectives

Site name: Solent & Southampton Water Ramsar **Version: N/A** **Date: N/A**
Ramsar sites are not set formal conservation objectives. However, since there is considerable overlap between the interest features of the SPA and the interest features of the Ramsar site, the objectives for this Ramsar site are taken to be similar to those for the Solent & Southampton Water SPA described above.

Table 3-9: Solent Maritime SAC conservation objectives

Site name: Solent Maritime SAC **Version: 3** **Date: 27 November 2018**
Natural England state the conservation objectives for this SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change, are as follows: "Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site. Qualifying Features: • H1110. Sandbanks which are slightly covered by sea water all the time • H1130. Estuaries • H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats • H1150. Coastal lagoons* • H1210. Annual vegetation of drift lines • H1220. Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves • H1310. *Salicornia* and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand • H1320. Spartina swards (*Spartinion maritimae*); Cord-grass swards • H1330. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) • H2120. Shifting dunes along the shoreline with Ammophila arenaria ("white dunes"); Shifting dunes with marram • S1016. *Vertigo moulinsiana;* Desmoulin`s whorl snail"

Table 3-10: Solent and Dorset Coast SPA (Marine Component GB) conservation objectives

Site name: Solent and Dorset Coast SPA (Marine Component GB) Version: 3 Date: 27 November 2020
Natural England state the conservation objectives for this SPA and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change, are as follows: "Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site. Qualifying Features: • A191 *Sterna sandvicensis*; Sandwich tern (Breeding) • A193 *Sterna hirundo;* Common tern (Breeding) • A195 *Sternula albifrons*; Little tern (Breeding)

3.6 Screening Tables

3.6.1 HRA Stage 1 Screening Table

The following table (Table 3-11) lists all the pressures for which the qualifying features for each designated site are noted as being “sensitive” or have “insufficient evidence” in the Advice on Operations in relation to “COASTAL DEVELOPMENT AND FLOOD AND EROSION RISK MANAGEMENT SCHEMES (operation)”; and provides assessment of the potential for likely significant effect for the management approach set out in the FCERM alone and in combination.

Within this document or the Strategy, ODU 8 has not been assessed or had options developed. A full assessment of ODU 8 will be undertaken by the Environment Agency under a separate project.

Table 3-11: HRA Stage 1 Screening Table

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Dorset Heaths SAC				
Habitat loss	Northern Atlantic wet heaths *Molinia* meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly Great crested newt	ODU 1	**Yes** **ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure and will not result in direct habitat loss or loss of great crested newt terrestrial habitat due to the construction / maintenance of the defences. The National Economic option would involve continued erosion which could ultimately threaten the SAC and thus it is screened in for Appropriate Assessment. It is noted that the Local Aspiration includes managed realignment which would significantly reduce erosion compared to the National Economic option and ensure that the rate of erosion does not progress at a speed that could threaten the long-term success of Hengistbury Head Long Groyne or the integrity of Mudeford Sandbank. It would thus also prevent the future significant erosion of the SAC. **If the Local**	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effects reached.	
		ODU 2	**No** Although the southernmost groyne of **ODU 2** is immediately adjacent to the SAC, the SAC is at a higher level (at the top of a cliff) with a slope and strip of sand between it and the groyne. This option involves works to existing structures and beach nourishment activities. This will not result in habitat loss of the SAC or loss of great crested newt terrestrial habitat.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**Yes** **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head). A review of aerial photography and Priority Habitats on www.magic.defra.gov.uk does not show any of the qualifying habitats to be present in the vicinity of this frontage, or habitats suitable for use by great crested newts. Whilst the National leading option provides for localised property intervention, erosion of the natural verge	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			could occur as new erosion defences would not be constructed. The option identifies that erosion of a disused landfill site could occur, and this could also result in the loss of designated habitats. The National leading option cannot be screened out from resulting in a likely significant effect of the SAC, due to the potential loss of habitat from future erosion as the natural verge erodes over time. It is noted that the Local Aspiration option is similar to the National leading option assessed within this document; however, it also includes new defences which would prevent the future erosion of the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18.	**No** All of these options are located away from the SAC (the closest being ODU 11 located c.0.9km from the SAC) and cannot result in habitat loss, nor are they within an unobstructed 250m radius for mobile great crested newt.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 1	**No**	**No**

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Changes in physical regime	Northern Atlantic wet heaths Molinia meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly Great crested newt		The options in **ODU 1** involves works to an existing structure within the existing footprint of the structure which will not result in changes in physical regime due to the construction / maintenance of the defences.	There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** Although the southern-most groyne of **ODU 2** is immediately adjacent to the SAC, the SAC is at a higher elevation. This option involves works to existing structures and beach nourishment activities. This will not result in changes in physical regime of the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**No** Although **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head), these options will not result in a change to the physical regime of the SAC given it is inland.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c. 0.9km from the SAC) and cannot result in changes to the physical regime of the SAC, nor are they within an unobstructed 250m radius for mobile great crested newt.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Physical damage		ODU 1	**Yes**	**Yes**

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Northern Atlantic wet heaths *Molinia* meadows Depressions on peat substrates Calcareous fens Alkaline fens		**ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in direct physical damage due to the construction / maintenance of the defences. However with both the National Economic and Local Aspirational options there is potential for cliff erosion to occur which could result in physical damage of the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effects reached**.	A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)
		ODU 2	**No** Although the southern-most groyne of **ODU 2** is immediately adjacent to the SAC, the SAC is at a higher elevation. This option involves works to existing structures and beach nourishment activities. This will not result in physical damage to the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU3	**Yes**	**Yes**

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			ODU 3 lies immediately adjacent to the SAC (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, erosion of the natural verge could occur as new erosion defences would not be constructed. The option identifies that erosion of the shoreline and a disused landfill site could occur, which could result in physical changes to the SAC. The National leading option cannot be screened out from resulting in a likely significant effect of the SAC, due to potential physical changes to the SAC resulting from future erosion. It is noted that the Local Aspiration Option is similar to that assessed within this document; however, it also includes new erosion defences which would prevent the future erosion of the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c. 0.9km from the SAC) and cannot result in physical damage to the SAC habitats.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes in turbidity	Northern Atlantic wet heaths *Molinia* meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly Great crested newt	ODU 1	**No** **ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in direct changes to the physical state of the designation due to the construction / maintenance of the defences.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	Although the southern-most groyne of **ODU 2** is immediately adjacent to the SAC, the SAC is at a higher elevation than the ODU. This option involves works to existing structures and beach nourishment activities. This will not result in changes in turbidity.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 3	**No** **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head) however there is no hydrological connection between ODU3 and the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c. 0.9km from the SAC) and cannot result in changes in turbidity of the SAC habitats.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Habitats and community simplification	Northern Atlantic wet heaths *Molinia* meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly Great crested newt	ODU 1	**Yes** **ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in simplification of the habitats within the SAC. However with both the National Economic and Local Aspirational options there is potential for cliff erosion to occur which could result in simplification of the habitats within the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact**	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			pathway could be screened out and a conclusion of no likely significant effects reached.	
		ODU 2	**No** Although the southern-most groyne of **ODU 2** is immediately adjacent to the SAC, the SAC is at a higher elevation. This option involves works to existing structures and beach nourishment activities. This will not result in changes to the habitats or communities of the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**Yes** **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, erosion of the natural verge could occur as new erosion defences would not be constructed. The option identifies that erosion of the shoreline and a disused landfill site could occur, which could result in simplification of habitats and communities within the SAC. The National leading option cannot be screened out from resulting in a likely	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			significant effect of the SAC, due to potential in simplification of habitats and communities of the SAC resulting from future erosion. It is noted that the Local Aspiration Option is similar to that assessed within this document, however it also provides for new erosion defences which would prevent the future erosion of the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c. 0.9km from the SAC) and cannot result in changes in the habitats and/ or communities of the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Disturbance (noise, visual presence)	Southern damselfly	ODU 1, ODU 2, ODU 3	**No** **ODU 1** option involves works to an existing structure outside the SAC and will not result in disturbance to southern damselfly as the structure is unsuitable habitat. Also, the SAC is at a higher elevation than the works and not within or adjacent to suitable Southern damselfly habitat.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			ODU 2 option involves works to existing structures and beach nourishment activities outside the SAC and will not result in disturbance to southern damselfly as the structure is not located within or in proximity to suitable habitat. Also, the SAC is at a higher elevation than the works. Although a section of **ODU 3** lies adjacent to the SAC (the access road to Hengistbury Head), the national economic option provides for property level interventions. No defence works are to take place along the ODU frontage. The Local Aspirational Option would involve localised erosion defences but these would be outside of the SAC designation and would not be expected to lead to disturbance to the Southern damselfly.	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c.0.9km from the SAC) and cannot result in disturbance.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Competition from non-native species	Northern Atlantic	ODU 1, ODU 2, ODU 3	**No** **ODU 1** option involves works to an existing structure outside the SAC and	**No** There are no linking impact pathways present, and as such in

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	wet heaths *Molinia* meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly		will not result in the introduction of non-native species to the SAC. **ODU 2** option involves works to an existing structures and beach nourishment activities outside the SAC. Although a section of **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head). This option provides for property level interventions. No defence work is to take place along the ODU frontage and as such there are no opportunities for the introduction of non-native invasive species. The Local Aspirational Option includes erosion defences adjacent to the access road but this is outside of the SAC designation. Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17,	**No** All of these options are located away from the SAC (the closest being ODU 11 located c.0.9km from the SAC and will	**No** There are no linking impact pathways present, and as such in combination assessment is not

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 18	not result in competition from invasive species. Further, under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	required.
Changes to flow and velocity regime and improved drainage	Northern Atlantic wet heaths Molinia meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly Great crested newt	ODU 1	**No** **ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to the flow and velocity regime or drainage.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** **ODU 2** option involves works to existing structures and beach nourishment activities outside the SAC and will not result in freshwater hydrological changes to water flow or velocity. Also, the SAC is at a higher elevation than the works.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**No** Although **ODU 3** lies immediately	**No** There are no linking impact

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			adjacent to the SAC (the access road to Hengistbury Head), it does not have a flow or velocity regime that is connected with the coast. It is noted that the Local Aspiration Option is similar to that assessed within this document, however it also includes new defences which would prevent the future erosion of the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC(the closest being ODU 11 located c.0.9km from the SAC) and cannot result in changes to flow and velocity regime and improved drainage as no hydrological connection.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Reduced surface water flooding	Northern Atlantic wet heaths *Molinia* meadows Depressions on peat	ODU 1	**No ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	substrates Calcareous fens Alkaline fens Southern damselfly Great crested newt		changes to the flow and velocity regime or drainage.	
		ODU 2	**No** **ODU 2** option involves works to existing structures and beach nourishment activities outside the SAC and will not result in reduced surface water flooding as the SAC is at a higher elevation than the works.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**Yes** **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, erosion of the natural verge could occur as new erosion defences would not be constructed. The option identifies that erosion of the shoreline and a disused landfill site could occur, which could result in reduced surface water flooding within the SAC. The National leading option cannot be screened out from resulting in a likely significant effect of the SAC, due to potential reduced surface water flooding of the SAC resulting from future erosion. It is noted that the Local Aspiration	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			Option is similar to that assessed within this document, however it also provides for new defences which would prevent the future erosion of the SAC. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c.0.9km from the SAC) and cannot result in reduced surface water flooding as no hydrological connection.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes to water chemistry	Northern Atlantic wet heaths *Molinia* meadows Depressions on peat substrates Calcareous fens Alkaline fens Southern damselfly	ODU 1	**No** **ODU 1** is located immediately adjacent to the SAC. The SAC is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to water chemistry.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** **ODU 2** option involves works to existing structures and beach nourishment activities outside the SAC and will not result in changes to water quality. Also,	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Great crested newt		the SAC is at a higher elevation than the works.	
		ODU 3	**No** **ODU 3** lies immediately adjacent to the SAC (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, erosion of the natural verge could occur as new erosion defences would not be constructed. The option identifies that erosion of the shoreline and a disused landfill site could occur, however there is no hydrological connection to the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SAC (the closest being ODU 11 located c.0.9km from the SAC) and cannot result in changes in water chemistry as no hydrological connection.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Dorset Heathlands SPA				
Habitat loss	**<u>Birds</u>** Hen harrier Merlin	ODU 1	**Yes** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Supporting habitat Coastal marshes Fenland Reedbeds		within the existing footprint of the structure which will not result in habitat loss of the SPA. The National Economic option would involve continued erosion which could ultimately threaten the SPA and thus it is screened in for Appropriate Assessment. It is noted that the Local Aspiration includes managed realignment which would significantly reduce erosion compared to the National Economic option and ensure that the rate of erosion does not progress at a speed that could threaten the long-term success of Hengistbury Head Long Groyne or the integrity of Mudeford Sandbank. It would thus also prevent the future significant erosion of the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effects reached**.	
		ODU 2	**No** Although the southernmost groyne of **ODU 2** is immediately adjacent to the SPA, the SPA is at a higher level with a slope and strip of sand between it and the groyne. This option involves works to	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			existing structures and beach nourishment activities. This will not result in habitat loss.	
		ODU 3	**Yes** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, it does not include erosion defences which could result in habitat loss within the SPA and potentially functionally linked land surrounding the SPA. The National leading option cannot be screened out from resulting in a likely significant effect of the SPA, due to potential habitat loss of the SPA and supporting habitats resulting from future erosion. It is noted that the National leading option identifies that 'opportunities for saltmarsh restoration / creation are explored', which is positive. It is also noted that the Local Aspiration Option is similar to that assessed within this document, however, it also provides	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			for the new erosion defences which would prevent the future erosion of the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA (the closest being ODU 11 located c.0.9km from the SPA) and will not result in the loss of supporting habitat types.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes in physical regime	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**No** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to the physical regime of the SPA. Also, none of these supporting features are present within the SPA.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** Although the southern-most groyne of **ODU 2** is immediately adjacent to the SPA, the SPA is at a higher elevation. This option involves works to existing	**No** There are no linking impact pathways present, and as such in combination assessment is not required

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			structures and beach nourishment activities outside the SPA. This will not result in changes in physical regime of the SPA.	
		ODU 3	**No** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head), these options will not result in a change to the physical regime of the SPA. . It is noted that the National leading option identifies that 'opportunities for saltmarsh restoration / creation are explored', which is positive. It is also noted that the Local Aspiration Option is similar to that assessed within this document, however it also provides for new erosion defences which would prevent the future erosion of the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in changes to the physical regime of the SPA.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Physical damage	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**Yes** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in physical damage to the SPA. However with both the National Economic and Local Aspirational options there is potential for cliff erosion to occur which could potentially lead to physical damage to the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway**	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)
		ODU 2	**No** **ODU 2** option involves works to an existing structures and beach nourishment activities outside the SPA and will not result in physical damage to SPA supporting habitats provided any access via the SPA is restricted to existing hardstanding.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU3	**Yes** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury	**Yes** A likely significant effect exists from this leading option alone

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			Head). Whilst the National leading option provides for localised property intervention, it does not include erosion defences and erosion could therefore occur, which could result physical changes to the SPA. This implies that habitat loss and thus physical damage could also occur within the SPA supporting habitats that surround the SPA site itself. The National leading option cannot be screened out from resulting in a likely significant effect of the SPA, due to potential physical changes to the SPA and supporting habitats resulting from potential future erosion. It is noted that the National leading option identifies that 'opportunities for saltmarsh restoration / creation are explored', which is positive. It is also noted that the Local Aspiration Option is similar to that assessed within this document, however it also provides for new erosion defences which would prevent the future erosion of the SPA. **If the Local Aspiration Option was selected as the preferred option, then**	(and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in physical damage to supporting habitat types.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Turbidity	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**No** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to the turbidity of the SPA.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** Although the southern-most groyne of **ODU 2** is immediately adjacent to the SPA, the SPA is at a higher elevation. This option involves works to existing structures and beach nourishment activities outside the SPA. This will not result in changes in turbidity.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU3	**No** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head) however there is no hydrological connection between ODU3 and the SPA.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in changes in the turbidity of supporting habitat types.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Habitats and community simplification	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**Yes** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in habitat simplification. However with both the National Economic and Local Aspirational options there is potential for cliff erosion to occur which could potentially result in habitat simplification within the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant**	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			effects reached.	
		ODU 2	**No** Although the southern-most groyne of **ODU 2** is immediately adjacent to the SPA, the SPA is at a higher elevation. This option involves works to existing structures and beach nourishment activities. This will not result in changes to the habitats or communities of the SPA.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**Yes** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, it does not provide for erosion defences and erosion could occur. As such there is also potential for the surrounding supporting habitats to be lost, which could result in simplification of habitats and communities within the SPA. The National leading option cannot be screened out from resulting in a likely significant effect of the SPA, due to potential in simplification of habitats and communities of the SPA resulting from	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			potential future erosion. It is noted that the National leading option identifies that 'opportunities for saltmarsh restoration / creation are explored', which is positive. It is also noted that the Local Aspiration Option is similar to that assessed within this document, however it also provides for new erosion defences which would prevent the future erosion of the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in the simplification of habitats and communities.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Disturbance (noise, visual)	**Birds** Hen harrier Merlin	ODU 1, ODU 2	**No** Although **ODU 1** is immediately adjacent to the SPA it is at a higher elevation than the works. Works are confined to the beach area which is unsuitable for nesting and foraging. The area is also very popular with tourists, presenting an existing level of visual and noise disturbance.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			ODU 2 option involves works to existing structures and beach nourishment activities outside the SPA. Works are confined to the beach area which is unsuitable for nesting and foraging. The area is also very popular with tourists, presenting an existing level of visual and noise disturbance. Also, the SPA is at a higher elevation than the works.	
		ODU 3	**Yes** The National Economic option provides for property level interventions. No defence works are to take place along the ODU frontage and disturbance / noise would not be expected. However the Local Aspirational Option would involve localised erosion defences adjacent to the SPA and there is potential to disturb the over-wintering Hen harrier and Merlin species.	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in the disturbance of qualifying features.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Competition from non-native species	**Supporting habitat**	ODU 1, ODU 2, ODU 3	**No** Option for ODU1 and ODU2 involves works to an existing structure outside the SPA and will not result in the introduction of non-native species to the supporting	**No** There are no linking impact pathways present, and as such in combination assessment is not

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Coastal marshes Fenland Reedbeds		habitats of the SPA. **No** Option for ODU1 and ODU2 involves works to an existing structures and beach nourishment activities outside the SPA. Although a section of **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head), works will not result in the spread of non-native invasive species provided any access is restricted to existing hardstanding. The Local Aspirational Option would involve localised erosion defences but these would be outside of the SPA designation. Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in competition from invasive species. Further, under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	
Changes to flow & velocity regime	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**No** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to flow and velocity regime.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** ODU 2 option involves works to existing structures and beach nourishment activities outside the SPA and will not result in changes to water flow or velocity. Also, the SPA is at a higher elevation than the works.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**No** Although a section of **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head), it does not have a flow or velocity regime that is connected with the coast.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17,	**No** All of these options are located away from the SPA and cannot result in	**No** There are no linking impact pathways present, and as such in

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 18	changes to flow and velocity regime and improved drainage as no hydrological connection.	combination assessment is not required.
Reduced surface water flooding	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**No** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to surface water flooding.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** **ODU 2** option involves works to existing structures and beach nourishment activities outside the SPA and will not result in reduced surface water flooding. Also, the SPA is at a higher elevation than the works.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**Yes** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, it does not provide for new erosion defences and erosion could occur. This implies that erosion could	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects).

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			also occur of the supporting habitats that surround the SPA. These changes to habitats as a result of erosion could result in reduced surface water flooding within the SPA and supporting habitats. The National leading option cannot be screened out from resulting in a likely significant effect of the SPA, due to potential reduced surface water flooding of the SPA resulting from potential future erosion. It is noted that the National leading option identifies that 'opportunities for saltmarsh restoration / creation are explored', which is positive. It is also noted that the Local Aspiration Option is similar to that assessed within this document, however it also provides for new erosion defences which would prevent the future erosion of the SPA. **If the Local Aspiration Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no likely significant effect be drawn.**	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17,	**No** All of these options are located away from the SPA and cannot result in reduced surface water flooding as no	**No** There are no linking impact pathways present, and as such in combination assessment is not

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 18	hydrological connection.	required.
Changes to water chemistry	**Birds** Hen harrier Merlin **Supporting habitat** Coastal marshes Fenland Reedbeds	ODU 1	**No** **ODU 1** is located immediately adjacent to the SPA. The SPA is located at a higher level at the top of a cliff with a slope and strip of sand between it and the existing rock revetment and gabions. This option involves works to an existing structure within the existing footprint of the structure which will not result in changes to water chemistry.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 2	**No** **ODU 2** option involves works to existing structures and beach nourishment activities outside the SPA and will not result in changes to water quality of supporting habitats. Also, the SPA is at a higher elevation than the works.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 3	**No** **ODU 3** lies immediately adjacent to the SPA (the access road to Hengistbury Head). Whilst the National leading option provides for localised property intervention, it does not provide for new erosion defences. The option identifies that erosion of a disused landfill located within the SPA could occur, however	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			there is no hydrological connection to the SPA.	
		ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and cannot result in changes in water chemistry as no hydrological connection.	**No** There are no linking impact pathways present, and as such in combination assessment is not required**.**
River Avon SAC				
Habitat loss	Water courses of plain to montane levels Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in habitat loss within the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SAC, works will only take place within the footprint of the existing defences. There will therefore be no habitat loss. While the ODU 6 boundary extends north of the bypass to Knapp Mill, the Strategy is only considering options south of the bypass (options north of the bypass being a separate Environment Agency project). There are no proposals to defend the common land south of the bypass.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 7	**Yes** Located immediately adjacent to the SAC. These Options provide for the construction of new defences. There is a	**Yes** Potential for likely significant effects should footprint of the works extend to within the SAC.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			possibility of works being undertaken within the SAC which could result in habitat loss. Project level HRA required as details become available.	Project level HRA required as details become available.
Changes in physical regime	Water courses of plain to montane levels Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in changes to the physical regime within the SAC	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SAC, works will take place within the footprint of existing defences. There will therefore be no changes to the physical regime. While the ODU 6 boundary extends north of the bypass to Knapp Mill, the Strategy is only considering options south of the bypass (options north of the bypass being a separate Environment Agency project). There are no proposals to defend the common land south of the bypass.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 7	**Yes** Located immediately adjacent to the SAC. These Options provide for the construction of new defences. There is a possibility of works being within the SAC and these new structures affecting the	**Yes** Potential for likely significant effects should footprint of the works extend to within the SAC. Project level HRA required as

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			physical regime. Project level HRA required as details become available.	details become available.
Physical damage	Water courses of plain to montane levels Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in physical damage to the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SAC, works will take place within the footprint of existing defences. There will therefore be no physical damage to the SAC. While the ODU 6 boundary extends north of the bypass to Knapp Mill, the Strategy is only considering options south of the bypass (options north of the bypass being a separate Environment Agency project). There are no proposals to defend the common land south of the bypass.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 7	**Yes** Located immediately adjacent to the SAC. These Options provide for the construction of new defences. There is a possibility of works being within the SAC and construction of these new structures may cause physical damage to the SAC. Project level HRA required as details	**Yes** Potential for likely significant effects should footprint of the works extend to within the SAC. Project level HRA required as details become available.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			become available.	
Turbidity	Water courses of plain to montane levels Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in changes in turbidity to the SAC. Moreover, they are below the upper tidal limit of the River Avon therefore turbidity will already be fairly high due to tidal movements.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU7, ODU 9	**Yes** These options are immediately adjacent to the SAC. Although works will take place within the footprint of existing defences and in locations below the upper tidal limit of the River Avon where turbidity will already be fairly high due to tidal movements, any changes in turbidity could affect the migratory features of the SAC.	**Yes** Potential for likely significant effects on the migratory features of the SAC. Project level HRA required as details become available.
Habitat/community simplification	Water courses of plain to montane	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17,	**No** These options are set away from the SAC and will not result in the simplification of SAC habitats and/ or	**No** There are no linking impact pathways present, and as such in combination assessment is not

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	levels Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 18	communities.	required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SAC, works will take place within the footprint of existing defences. There will therefore be no simplification of SAC habitats and/ or communities.	
		ODU 7	**Yes** Located immediately adjacent to the SAC. These Options provide for the construction of new defences There is a possibility of works being within the SAC which could involve habitat loss and lead to habitat/ community simplification in these areas. Project level HRA required as details become available.	**Yes** Potential for likely significant effects should footprint of the works extend to within the SAC. Project level HRA required as details become available.
Disturbance (noise and vibration)	Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in disturbance of qualifying features.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**Yes** Immediately adjacent to the SAC and although works involve improving existing structures, dependent on the exact location and extent of works, there is a possibility of works resulting in	**Yes** Potential for likely significant effects. Project level HRA required as details become available.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			construction noise and vibration. When exposed to increased amounts of noise for longer periods, fish can experience stress, loss of hearing and various changes to their behaviours[1]. Project level HRA required as details become available.	
		ODU 7	**Yes** Immediately adjacent to the SAC and involves the construction of new structures. There is a possibility of works being within the SAC which could result in construction noise and vibration. Project level HRA required as details become available.	**Yes** Potential for likely significant effects. Project level HRA required as details become available.
Competition from non-native species	Water courses of plain to montane levels Desmoulin's whorl snail Brook lamprey	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in competition from non-native species. Further, under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

[1] https://www.sustainability-times.com/environmental-protection/noise-pollution-harms-fish-in-various-ways-scientists-say/#:~:text=When%20exposed%20to%20increased%20amounts,of%20noise%20pollution%20on%20fish.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Bullhead		realistic linking impact pathway.	
		ODU 6, ODU 9	**No** Although immediately adjacent to the SAC, works will take place within the footprint of existing defences. This will not lead to competition from non-native species. Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 7	**No** Although immediately adjacent to the SAC and involves the construction of new structures, this will not lead to competition from non-native species. Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes to flow &	Water courses of plain to montane	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17,	**No** These options are set away from the SAC and will not result in changes to	**No** There are no linking impact pathways present, and as such in

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
velocity regime	levels Desmoulin's whorl snail Sea lamprey Brook lamprey Atlantic salmon Bullhead	ODU 18	water flow and velocity regime.	combination assessment is not required.
		ODU 6, ODU 9	**No** Located immediately adjacent to the SAC, works will take place within the footprint of existing defences. This will not lead to changes to water flow and velocity regime.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 7	**Yes** Immediately adjacent to the SAC and involves the construction of new structures. Depending on the exact location and type of works, this option could lead to changes to water flow and velocity regime. Project level HRA required as details become available.	**Yes** Potential for likely significant effects. Project level HRA required as details become available.
Changes to water chemistry	Water courses of plain to montane levels Desmoulin's whorl snail Sea lamprey Brook lamprey	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SAC and will not result in changes to water flow and velocity regime.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SAC, works will take place within the footprint of existing defences in locations below the upper tidal limit of the River Avon therefore the likelihood of causing changes in water chemistry are fairly low	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Atlantic salmon		due to tidal movements.	
	Bullhead	ODU 7	**No** Although immediately adjacent to the SAC and involving the construction of new structures, works are in locations below the upper tidal limit of the River Avon therefore the likelihood of causing changes in water chemistry are fairly low due to tidal movements.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Avon Valley SPA / Ramsar				
Habitat loss	**<u>Birds</u>** Bewick's swan Gadwall Northern pintail Black-tailed godwit **<u>Supporting habitat</u>** Coastal Wetlands	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** All of these options are located away from the SPA and will not result in the loss of supporting habitat types.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SPA, works will take place within the footprint of existing defences and will not result in the loss of supporting habitat types. While the ODU 6 boundary extends north of the bypass to Knapp Mill, the Strategy is only considering options south of the bypass (options north of the bypass being a separate Environment Agency project). There are no proposals to defend the common land	

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Freshwater		south of the bypass.	
		ODU 7	**Yes** Located immediately adjacent to the SPA. These Options provide for the construction of new defences. There is a possibility of works being undertaken within the SPA which could result in habitat loss. Project level HRA required as details become available.	**Yes** Potential for likely significant effects should footprint of the works extend to within the SPA. Project level HRA required as details become available.
Changes in physical regime	**Birds** Bewick's swan Gadwall Northern pintail Black-tailed godwit **Supporting habitat** Coastal Wetlands Freshwater	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SPA and will not result in changes to the physical regime within the SPA.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SPA, works will take place within the footprint of existing defences. There will therefore be no changes to the physical regime of the SPA or supporting habitats. While the ODU 6 boundary extends north of the bypass to Knapp Mill, the Strategy is only considering options south of the bypass (options north of the bypass being a separate Environment Agency project). There are no proposals to defend the common land south of the bypass.	

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 7	**Yes** Located immediately adjacent to the SPA. These Options provide for the construction of new defences. There is a possibility of works being undertaken within the SPA which could result in changes to the physical regime. Project level HRA required as details become available.	**Yes** Potential for likely significant effects should footprint of the works extend to within the SPA. Project level HRA required as details become available.
Physical damage	**<u>Supporting habitat</u>** Coastal Wetlands Freshwater	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SPA and will not result in physical damage to SPA supporting habitats.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SPA, works will take place within the footprint of existing defences and will not result in physical damage to SPA supporting habitats.	
		ODU 7	**Yes** Located immediately adjacent to the SPA. These Options provide for the construction of new defences. There is a possibility of works being undertaken within the SPA which could result in physical damage to supporting habitat. Project level HRA required as details	**Yes** Potential for likely significant effects should footprint of the works extend to within the SPA. Project level HRA required as details become available.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			become available.	
Turbidity	**Birds** Bewick's swan Gadwall Northern pintail Black-tailed godwit **Supporting habitat** Wetlands Freshwater	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SPA and will not result in changes in turbidity to SPA supporting habitats which could affect qualifying features' ability to feed. Moreover, they are below the upper tidal limit of the River Avon therefore turbidity will already be fairly high due to tidal movements.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 7, ODU 9	**Yes** These options are immediately adjacent to the SPA. Although works will take place within the footprint of existing defences and in locations below the upper tidal limit of the River Avon where turbidity will already be fairly high due to tidal movements, any changes in turbidity could affect the features of the SPA/ Ramsar.	**Yes** Potential for likely significant effects on the features of the SPA/ Ramsar. Project level HRA required as details become available.
Habitat/community	**Birds**	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17,	**No** These options are set away from the SPA and will not result in the	**No** There are no linking impact pathways present, and as such in

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
simplification	Bewick's swan Gadwall Northern pintail Black-tailed godwit **Supporting habitat** Coastal Wetlands Freshwater	ODU 18	simplification of SPA supporting habitats and/ or communities.	combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SPA, works will take place within the footprint of existing defences. There will therefore be no simplification of SPA supporting habitats and/ or communities.	
		ODU 7	**Yes** Located immediately adjacent to the SPA. This Option provides for the construction of new defences. There is a possibility of works being undertaken within the SPA which could result in simplification of supporting habitat. Project level HRA required as details become available.	**Yes** Potential for likely significant effects should footprint of the works extend to within the SPA. Project level HRA required as details become available.
Disturbance (noise, visual)	**Birds** Bewick's swan Gadwall Northern pintail Black-tailed godwit	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SPA and will not result in disturbance of qualifying features.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 7, ODU 9	**No** Although immediately adjacent to the SPA, the area is built up and includes an active marina. It is highly likely that, should SPA qualifying features be present here, they will be habituated to disturbance.	

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Changes to flow & velocity regime	**Supporting habitat** Coastal Wetlands Freshwater	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SPA and will not result in changes to water flow and velocity regime within supporting habitats.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 9	**No** Although immediately adjacent to the SPA, works will take place within the footprint of existing defences. This will not lead to changes to water flow and velocity regime of supporting habitats.	
		ODU 7	**Yes** Immediately adjacent to the SPA and involves the construction of new structures. These new structures could lead to changes to water flow and velocity regime of supporting habitats.	**Yes** Potential for likely significant effects. Project level HRA required as details become available.
Reduced surface water flooding	**Supporting habitat** Wetlands Freshwater	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** These options are set away from the SPA and will not result in reduced surface water flooding of supporting habitats.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 7, ODU 9	**No** Although adjacent to the SPA, review of aerial photography and www.magic.defra.gov.uk shows that this supporting habitat is not present in the area of the works.	
Changes to water		ODU 4, ODU 5, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16,	**No** These options are set away from the	**No** There are no linking impact

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
chemistry	**Supporting habitat** Wetlands Freshwater	ODU 17, ODU 18	SPA and will not result in changes to water chemistry of supporting habitats.	pathways present, and as such in combination assessment is not required.
		ODU 6, ODU 7, ODU 9	**No** Although immediately adjacent to the SPA, works are in locations below the tidal limit of the River Avon therefore the likelihood of causing changes in water chemistry are fairly low due to tidal mixing.	
Solent & Southampton Water SPA				
Habitat loss	**Birds** Dark-bellied brent goose Eurasian teal Ringed plover Black-tailed godwit Sandwich tern Roseate tern Common tern Little tern	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17 ODU 16 and 17 are within approximately 1 km of the SPA, with ODU 18 being adjacent to the SPA at its closest point.	**No** The leading options in ODU 16 and 17 options are not expected to result in direct habitat loss within the SPA or loss of functionally linked land. Although within the foraging distances of several qualifying features, review of aerial photography and www.magic.defra.gov.uk does not show suitable supporting habitat in this area with the exception of ODU15, where functionally-linked habitat lies landwards of the ODU according to the Solent Waders and Brent Goose protocol (Solent Waders & Brent Goose Strategy – coastal bird conservation, waders and brent geese data and mapping (wordpress.com)). The leading option here is Do Nothing so cliff erosion could affect these fields. However, the small	**No** Within ODU17 the existing rock revetment is itself identified as low-use functionally-linked habitat on the Solent Waders and Brent Goose protocol. Therefore, any improvement or repair of this structure will enable it to continue to serve as functionally-linked habitat. The remaining ODU's are beyond the maximum foraging distances of the qualifying features, with the exception of terns who feed offshore. **No** – There are no linking impact pathways present, and as such in combination assessment is not

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Waterbird assemblage **<u>Supporting habitat</u>** Estuaries Saltmarshes Floodplain meadows Shingle beaches		extent of erosion relative to the large extent of the fields would not materially affect the ability of those fields to continue to function. The western-most end of ODU16 abuts the south-eastern corner of a parcel of landwards functionally-linked land (parcel NF135F in the Solent Waders and Brent Goose protocol). However, Managed Realignment in this ODU would consist of beach nourishment and cliff stabilisation or maintenance of existing defences with the intent here being to control / limit the amount of erosion. The ODU is at the foot of the cliff approximately 17m lower than the parcel of functionally-linked land. Therefore, no significant effect on the functionally-linked land would be expected.	required.
		ODU 18	**Yes** The leading options in ODU 18 would involve construction adjacent to the SPA designation (setback defences adjacent to Sturt Pond).	**Yes** Potential for likely significant effects in terms of habitat loss. Project level HRA required as details become available.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Changes in physical regime	**Supporting habitat** Estuaries Saltmarshes Floodplain meadows Shingle beaches	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15,	**No** There will be no changes in the physical regime of the supporting habitats within the SPA or functionally linked land.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU 16, ODU 17, ODU 18	**Yes** These are the closest options with interventions and are within approximately 1 km of the SPA, with ODU 18 being immediately adjacent to the SPA.	**Yes** There is the potential to cause changes in the physical regime of the supporting habitats within the SPA or functionally linked land. Project level HRA required as details become available.
Physical damage	**Supporting habitat** Estuaries Saltmarshes Floodplain meadows Shingle beaches	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17	**No** The closest options with interventions are ODU 16 and 17 which are within approximately 1 km of the SPA. These options will not result in physical damage to the habitats within the SPA or of functionally linked land. Although within the foraging distances of several qualifying features, review of aerial photography and www.magic.defra.gov.uk does not show suitable supporting habitat in this area. These ODU's are beyond the maximum foraging distances of the qualifying features, with the exception of terns who feed offshore.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 18	**Yes** The leading options in ODU 18 would involve construction adjacent to the SPA designation (setback defences adjacent to Sturt Pond). There may not be sufficient space to avoid constructing in the designation and therefore the leading options may cause physical damage to the habitats within the SPA or of functionally linked land.	**Yes** Potential for likely significant effects in terms of physical damage. Project level HRA required as details become available.
Turbidity	**Birds** Dark-bellied brent goose Eurasian teal Ringed plover Black-tailed godwit Mediterranean gull Sandwich tern Roseate tern Common tern	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15.	**No** There is not expected to be a turbidity effect on the SPA/Ramsar as a result of these options.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Little tern Waterbird assemblage **<u>Supporting habitat</u>** Estuaries Saltmarshes Floodplain meadows			
		ODU 16, ODU 17, ODU 18	**Yes** ODU 16 and ODU 17are within 1 km of the SPA. The leading options in ODU 18 would involve construction adjacent to the SPA designation (setback defences adjacent to Sturt Pond). Construction activities may result in changes in turbidity which could affect the qualifying features' ability to feed.	**Yes** Potential for likely significant effects in terms of changes in turbidity. Project level HRA required as details become available.
Habitat/community simplification	**<u>Birds</u>** Dark-bellied brent goose Eurasian teal	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SPA. There will be no simplifications to communities or the supporting habitats within the SPA or functionally linked land. The proposed setback defence in ODU	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Ringed plover Black-tailed godwit Sandwich tern Roseate tern Common tern Little tern Waterbird assemblage **Supporting habitat** Estuaries Saltmarshes Floodplain meadows Shingle beaches		18 would likely be adjacent to the SPA designation in places but would not be expected to lead to habitat simplification.	
Disturbance (noise, visual)	**Birds** Dark-bellied brent	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15	**No** These ODUs are beyond the accepted buffer zone of 500 m for general noise and/or visual disturbance. Although within the foraging distances of	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	goose Eurasian teal Ringed plover Black-tailed godwit Mediterranean gull Sandwich tern Roseate tern Common tern Little tern Waterbird assemblage **<u>Supporting habitat</u>** Estuaries Saltmarshes Shingle beaches		several qualifying features, review of aerial photography and www.magic.defra.gov.uk does not show suitable supporting habitat in this area, with the exception of ODU15, where functionally-linked habitat lies landwards of the ODU according to the Solent Waders and Brent Goose protocol (Solent Waders & Brent Goose Strategy – coastal bird conservation, waders and brent geese data and mapping (wordpress.com)) but the leading option is Do Nothing.	
		ODU 16, ODU 17, ODU 18	**Yes** The western-most end of ODU16 abuts the south-eastern corner of a parcel of landwards functionally-linked land (parcel NF135F in the Solent Waders and Brent Goose protocol). Within ODU17 the existing rock revetment is itself identified as low-use functionally-linked habitat on the Solent Waders and Brent Goose protocol. This extent of ODU 18lies within the accepted buffer zone of 500 m for general noise and/or visual disturbance, likely being adjacent to the SPA/Ramsar	**Yes** Potential for likely significant effects exists both alone and in-combination with other plans and projects.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			at their closest. Works have the potential to cause noise and/ or visual disturbance to the qualifying features of the SPA.	
Competition from non-native species	**Supporting habitat** Estuaries Saltmarshes Floodplain meadows Shingle beaches	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SPA. Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes to flow & velocity regime	**Birds** Dark-bellied brent goose Eurasian teal Ringed plover Black-tailed godwit Sandwich tern	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SPA. There will be no changes to water flow or velocity to the supporting habitats within the SPA or functionally linked land. The proposed setback defence in ODU 18 would likely be adjacent to the SPA designation in places but would not be expected to lead to changes to flow and velocity regime.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Roseate tern Common tern Little tern Waterbird assemblage **Supporting habitat** Estuaries Saltmarshes Floodplain meadows			
Reduced surface water flooding	**Birds** Dark-bellied brent goose Eurasian teal Ringed plover Black-tailed godwit Waterbird	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SPA. There will be no reduction in surface water flooding of supporting habitats within the SPA or functionally linked land. The proposed setback defence in ODU 18 would likely be adjacent to the SPA designation in places but would not be expected to lead to changes in surface water flooding. .	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	assemblage **<u>Supporting habitat</u>** Floodplain meadows			
Changes to water chemistry	**<u>Birds</u>** Dark-bellied brent goose Eurasian teal Ringed plover Black-tailed godwit Waterbird assemblage **<u>Supporting habitat</u>** Estuaries Saltmarshes Floodplain meadows	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SPA. There will be no changes to the water chemistry of supporting habitats within the SPA or functionally linked land. The proposed setback defence in ODU 18 would likely be adjacent to the SPA designation in places but would not be expected to lead to changes in water chemistry. .	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Solent Maritime SAC				

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Habitat loss	Estuaries *Spartina* swards Atlantic salt meadows Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons (*Priority feature) Annual vegetation of drift lines Perennial vegetation of stony banks *Salicornia* and other annuals colonising mud and sand Shifting dunes along the shoreline Desmoulin's whorl	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17	**No** The closest options with interventions are ODU 16 and 17 which are within approximately 1 km of the SAC. None of these options will not result in direct habitat loss within the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	snail			
		ODU 18	**Yes** ODU 18 is approximately 50m away at its closest point. Smothering, siltation rate changes, changes in suspended solids, abrasion, and physical loss are all pressures which may affect the SAC habitats.	**Yes** Potential for likely significant effects exists both alone and in-combination with other plans and projects.
Changes in physical regime	Estuaries *Spartina* swards Atlantic salt meadows Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons (*Priority feature) Annual vegetation of drift lines Perennial vegetation	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15	**No** These options are well over 1km away. There will be no changes in the physical regime of the SAC habitats.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	of stony banks *Salicornia* and other annuals colonising mud and sand Shifting dunes along the shoreline Desmoulin's whorl snail			
		ODU 16, ODU 17, ODU 18	**Yes** These options are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. Saline lagoons, Atlantic salt meadows and other designated sediment types are sensitive to changes in accretion/siltation as well as erosion/scour which construction of structures in the local area may cause.	**Yes** Potential for likely significant effects exists both alone and in-combination with other plans and projects.
Physical damage	Estuaries *Spartina* swards Atlantic salt meadows Sandbanks which are slightly covered	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point.	**No** There are no linking impact pathways present, and as such in combination assessment is not required**.**

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons (*Priority feature) Annual vegetation of drift lines Perennial vegetation of stony banks *Salicornia* and other annuals colonising mud and sand Shifting dunes along the shoreline Desmoulin's whorl snail		The remaining ODU's are well over 1km away. There will be no physical damage to SAC habitats.	
Turbidity (changes in suspended solids)	Estuaries *Spartina* swards Atlantic salt meadows Sandbanks which	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons (*Priority feature) *Salicornia* and other annuals colonising mud and sand Shifting dunes along the shoreline Desmoulin's whorl snail		The remaining ODU's are well over 1km away. There will be no changes in the turbidity of SAC habitats.	
Habitat/community simplification	Estuaries *Spartina* swards Atlantic salt meadows Mudflats and sandflats not covered by seawater at low tide	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. The remaining ODU's are well over 1km away. There will be no habitat/ community simplification within the SAC.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
	Coastal lagoons (*Priority feature) Annual vegetation of drift lines Perennial vegetation of stony banks *Salicornia* and other annuals colonising mud and sand Shifting dunes along the shoreline Desmoulin's whorl snail			
Disturbance (noise, visual)	Desmoulin's whorl snail	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. Review of aerial photography and www.magic.defra.gov.uk shows the habitat in these areas to be sand and gravel, which is unsuitable for Desmoulin's whorl snail.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			The remaining ODU's are well over 1km away. There will be no disturbance to populations of Desmoulin's whorl snail.	
Competition from non-native species	Estuaries *Spartina* swards Atlantic salt meadows Mudflats and sandflats not covered by seawater at low tide Coastal lagoons (*Priority feature) Annual vegetation of drift lines Perennial vegetation of stony banks *Salicornia* and other annuals colonising mud and sand Shifting dunes along the shoreline Desmoulin's whorl snail	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. The remaining ODU's are well over 1km away. Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway. Standard biosecurity measures will also be in place to comply with invasive species legislation.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Changes to flow & velocity regime	Estuaries *Spartina* swards Atlantic salt meadows Coastal lagoons (*Priority feature) Desmoulin's whorl snail	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. The remaining ODU's are well over 1km away.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Reduced surface water flooding	Atlantic salt meadows Coastal lagoons (*Priority feature) Desmoulin's whorl snail	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. The remaining ODU's are well over 1km away.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes to water chemistry	Estuaries *Spartina* swards Atlantic salt meadows Desmoulin's whorl snail	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. The remaining ODU's are well over 1km away.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Solent and Dorset Coast SPA (Marine Components GB)				
Habitat loss	**Birds** Sandwich tern Little tern Common tern **Supporting habitats** Shingle beaches Shingle bars Rivers	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** For ODUs 1-11 and 13-16, although the entire frontage of all of these options is along the SPA they will not result in direct habitat loss within the SPA or loss of functionally linked land as review of aerial photography and www.magic.defra.gov.uk does not show suitable supporting habitat in these areas. The SPA is designated to protect tern foraging waters. Terns are plunge-diving fish-hunting species and the SPA covers a total area of nearly 89,000 hectares. While the intertidal zone, where deep enough to fish, is a preferred location for foraging terns, no works to any of these ODUs will affect the existence of an intertidal zone. ODU 12, 17 and ODU 18 could potentially result in loss of habitat and disturbance to breeding terns as upgrades to groynes in these units is partially located within the SPA. However, ODU 12, 17 and ODU 18 are located adjacent to the urban areas of Highcliffe / Milford-on-Sea, popular tourist destinations that are heavily used by beachgoers during the summer months (when terns could potentially be	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			using the stony shore habitats for breeding). Due to the high level of existing disturbance, the area associated with ODU 12, 17 and ODU 18 are not considered to be used by breeding terns. In addition, the breeding terns will forage out in the deep water away from the shoreline. As such there is no potential for linking impact pathways and no likely significant effects will result.	

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Changes in physical regime	**Supporting habitats** Shingle beaches Shingle bars Rivers	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 15	**No** There will be no changes in the physical regime of the supporting habitats within the SPA or functionally linked land.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
		ODU 12, ODU 13, ODU 14, ODU 16, ODU 17, ODU 18	**Yes** Works in these areas have the potential to change sediment dynamics which could result in changes to the physical regime of the shingle bars and beaches,	**Yes** Potential for likely significant effects exists both alone and in-combination with other plans and projects.

Physical damage	**Supporting habitats** Shingle beaches Shingle bars Rivers	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** Although the entire frontage of all of these options is along the SPA there is no way the works would affect cause physical damage in the SPA in a manner that would affect its value for foraging terns.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Turbidity	**Birds** Common Tern **Supporting habitat** River	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 15	**No** Although the entire frontage of all of these options is along the SPA there is no way the works would affect turbidity in the SPA in a manner that would affect its value for foraging terns, as turbidity in tidal areas is already high and studies have shown that turbidity does not negatively affect tern foraging success.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

		ODU 12, ODU 13, ODU 14, ODU 16, ODU 17, ODU 18	**Yes** Works have the potential to result in an increase in suspended solids which could affect the ability of the qualifying features to feed.	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Habitat/community simplification	**Birds** Sandwich tern Little tern Common tern **Supporting habitats** Shingle beaches Shingle bars Rivers	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** There is no way the works would result in habitat/community simplification in the SPA in a manner that would affect its value for foraging terns.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Disturbance (noise, visual)	**Birds** Sandwich tern Little tern Common tern **Supporting habitats** Shingle beaches Shingle bars Rivers	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**Yes** Tern species are vulnerable to above water noise and visual disturbance**.**	**Yes** A likely significant effect exists from this leading option alone (and thus in combination with other plans and projects)

Competition from non-native species	**Supporting habitats** Shingle beaches Shingle bars Rivers	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 11, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** Under the Wildlife & Countryside Act it is an offence to spread non-native invasive species listed under Schedule 9. As such standard biosecurity measures will be in place to comply with invasive species legislation and this will not be a realistic linking impact pathway.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
Changes to flow & velocity regime	**Birds** Common Tern **Supporting habitat** River	ODU 1, ODU 2, ODU 3, ODU 4, ODU 5, ODU 6, ODU 10, ODU 11, ODU 7, ODU 9, ODU 1, ODU 2, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** Although the entire frontage of all of these options is along the SPA there is no way the works would affect flow velocity and regime in the SPA in a manner that would affect its value for foraging terns.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
Changes to water chemistry	**Birds** Common Tern **Supporting habitat** River	ODU 1, ODU 2, ODU 5, ODU 6, ODU 7, ODU 9, ODU 10, ODU 12, ODU 13, ODU 14, ODU 15, ODU 16, ODU 17, ODU 18	**No** There is no way the works would affect water chemistry in the SPA in a manner that would affect its value for foraging terns.	**No** There are no linking impact pathways present, and as such in combination assessment is not required.
		ODU3, ODU 4, ODU 11	**Yes**	**Yes** A likely significant effect exists

Pressure Name	Qualifying features Sensitive to Pressure	ODU Reference	Likely significant effect alone - Yes or No	Likely significant effect in combination - Yes or No
			ODU 3, 4 and 11 lie immediately adjacent to the SPA. The National leading options in these areas do not include new erosion defences adjacent to the historic landfill sites. Therefore erosion of the historic landfill could occur when existing defences fail. This could result in water quality changes to the marine SPA. The National leading options in these locations therefore cannot be screened out from resulting in a likely significant effect of the SPA. It is noted that the Local Aspiration Options in these locations include either new erosion defences or ongoing maintenance of existing defences which would reduce the risk of erosion of the historic landfill sites. **If the Local Aspirational Options were delivered, then this impact pathway could be screened out from resulting in a likely significant effect.**	from this leading option alone (and thus in combination with other plans and projects)

3.6.2 In combination HRA assessment (further details)

The following plans are considered to have the potential to interact with the FCERM Strategy:

- Poole and Christchurch Bay Shoreline Management Plan 2 (SMP2), 2011
- South Devon and Dorset Shoreline Management Plan 2 (SMP2), 2011.
- North Solent Shoreline Management 2 (SMP2), 2011
- Christchurch and East Dorset Local Plan, 2014
- Jurassic Coast World Heritage Site Management Plan, 2020-2025
- Dorset Coast Strategy, 2011-2021
- Dorset AONB Management Plan, 2019-2024
- South Marine Plan, 2018
- South West River Basin Management Plan, 2015
- Dorset Coastal Pollution Clearance Plan, 2010
- Dorset Coastal Rock Fall and Landslide Protocol, 2013.

With regard to Poole and Christchurch Bay SMP2 (Royal Haskoning, 2011), the majority of the leading options in the FCERM Strategy are intended to deliver, and be in alignment with, the SMP. Even where they are not, the SMP policy will not be implemented simultaneously with the FCERM Strategy. Therefore, the only potential for 'in combination' effects with the SMP is from its policies for frontages outside the FCERM Strategy area, particularly where these could affect other parts of the Solent & Southampton Water SPA/Ramsar site and Solent & Dorset Coast SPA.

There is potential for a significant in combination effect with the North Solent SMP on Solent & Southampton Water SPA/Ramsar site that is located within the eastern extent of the FCERM Strategy area, such as through loss of functionally linked habitat. However, analysis in this HRA screening report has confirmed that there will be no meaningful impact on functionally-linked habitat for this SPA/Ramsar due to the FCERM Strategy. Therefore, no in combination effect with the North Solent SMP will actually arise. In regard to all the other plans listed above, it is considered that any-in combination effects would not be significant, as each plan contains policies that seek to protect and enhance biodiversity. This should therefore ensure that there are no significant effects on these sites. Moreover, no impacts have been dismissed in this HRA because the contribution of the FCERM Strategy is small, but only because there is no meaningful pathway of impact connecting to European sites.

3.6.3 Conclusions and what next (HRA Screening Assessment)

The Screening assessment undertaken of the Christchurch Bay and Harbour FCERM Strategy (on the options presented in Leading Options Report, May 2023) shown in section 3.6.1 HRA Stage 1 screening table of this report concluded that none of the leading ODU options could be screened out from having a linking impact pathway to a European designated site.

Options located at the ODUs shown in Table 3-12 could not be screened out from resulting in a likely significant effect. Therefore it is recommended that a Stage 2 assessment should be completed on these ODU options.

Table 3-12: ODUs with leading options that could not be screened out of the HRA

ODU Reference	European Protected Site	Pressure Name
ODU 1	Dorset Heaths SAC	Habitat loss, physical damage, habitats and community simplification,
	Dorset Heathlands SPA	Habitat loss, physical damage, habitats and community simplification,
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual)
ODU 2	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual)
ODU 3	Dorset Heaths SAC	Habitat loss, physical damage, habitats and community simplification,
	Dorset Heathlands SPA	Habitat loss, physical damage, habitats and community simplification,
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes to water chemistry
ODU 4	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes to water chemistry
ODU 5	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual)
ODU 6	River Avon SAC	Disturbance (noise and vibration)
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual)
ODU 7	River Avon SAC	Habitat loss, changes in physical regime, physical damage, changes in turbidity, habitat/community simplification, disturbance (noise and vibration), changes to flow & velocity regime
	Avon Valley SPA / Ramsar	Habitat loss, changes in physical regime, physical damage, changes in turbidity, habitat/community simplification, changes to flow & velocity regime
ODU 9	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual),
	River Avon SAC	Disturbance (noise and vibration)
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual),

ODU Reference	European Protected Site	Pressure Name
ODU 10	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual),
ODU 11	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes to water chemistry
ODU 12	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes in physical regime, changes in turbidity
ODU 13	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes in physical regime, changes in turbidity
ODU 14	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes in physical regime, changes in turbidity
ODU 15	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual)
ODU 16	Solent & Southampton Water SPA	Changes in physical regime, disturbance (noise, visual), changes in turbidity
	Solent Maritime SAC	Changes in physical regime
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes in physical regime, changes in turbidity
ODU 17	Solent & Southampton Water SPA	Changes in physical regime, disturbance (noise, visual), changes in turbidity.
	Solent Maritime SAC	Changes in physical regime
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes in physical regime, changes in turbidity
ODU 18	Solent & Southampton Water SPA	Habitat loss, changes in physical regime, physical damage, changes in turbidity, disturbance (noise, visual)
	Solent Maritime SAC	Habitat loss, changes in physical regime
	Solent and Dorset Coast SPA (Marine Components GB)	Disturbance (noise, visual), changes in physical regime, changes in turbidity

3.7 Information / Advice

This section summarises the information and / or advice requested / received during the screening.

Environment Agency internal advice and consultation (if applicable):

Not applicable.

Natural England information / advice (if applicable):

Natural England review of draft report. See Appendix B for Natural England advice on the screening report.

Third party advice (if applicable):

Not applicable.

3.8 Decision Regarding HRA

It has been decided to carry out an appropriate assessment because significant effects alone could not be screened out.

3.9 Consultation Regarding HRA

Date sent to Natural England for consultation: 23 May 2023

Date response received from Natural England: 11 August 2023

Natural England advice on the screening for likely significant effects (if applicable)

See Appendix B for Natural England advice on the screening report.

Do Natural England have concerns about the assessment? **|| Yes, Screening therefore updated in response to comments ||**

Do Natural England have concerns about the decision? **|| No, Natural England agree appropriate assessment is required ||**

Name of Natural England officer: Nick Squirrell

Job title: Conservation and Planning Senior Advisor

Date: 11/08/23

4. Appropriate Assessment

4.1 Introduction

Since it has not been possible to dismiss Likely Significant Effects from the Christchurch Bay and Harbour FCERM Strategy (on the options presented in Leading Options Report, May 2023) alone in relation to the following sites, an Appropriate Assessment is required:

- Dorset Heaths SAC
- Dorset Heathlands SPA
- Solent and Dorset Coast SPA (Marine Components GB)
- River Avon SAC
- Avon Valley SPA / Ramsar
- Solent Maritime SAC

4.2 Dorset Heaths SAC

The following ODU's are of significance to Dorset Heaths SAC - ODU 1 and ODU 3 with the pressures to be considered shown in Table 3-12 and discussed below.

Damage/ changes to habitats, habitat loss and community simplification

The National Economic Leading Option for ODU 1 is **Do Nothing, Do Minimum.** This option would result in continued cliff erosion, which would ultimately result in an adverse effect on the integrity of the SAC as more land is lost over time. Continued erosion sufficient to lead to significant habitat loss would go against the conservation objectives of the SAC.

The Local Option for ODU 1 is **Managed Realignment**. The Managed Realignment would help manage the rate of erosion of the cliff in the short, medium and long term to ensure that the rate of cliff erosion is minimised / controlled. It is noted that the Local Option for ODU 3 also provides for new erosion defences which would prevent the future erosion of the SAC. If the Local Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no adverse effect on the integrity of the SAC can be drawn.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SAC, and thus the integrity of the SAC, in terms of changes in damage to/ loss of habitats and community simplification provided the Local Options are adopted.

4.3 Dorset Heathlands SPA

The following ODU's are of significance to Dorset Heathlands SPA - ODU 1 and ODU 3 with the pressures to be considered shown in Table 3-12.

Damage/ changes to habitats, habitat loss and community simplification

The National Economic Leading Option for ODU 1 is **Do Nothing, Do Minimum.** This option would result in continued cliff erosion to an extent which would ultimately result in an adverse effect on the integrity of the SPA as more land, and therefore supporting habitat, is lost over time. Continued erosion sufficient to result in significant habitat loss would go against the conservation objectives of the SAC.

The Local Option for ODU 1 is **Managed Realignment.** The Managed Realignment would help manage the rate of erosion of the cliff in the short, medium and long term to ensure that the rate of cliff erosion is minimised / controlled. It is noted that the Local Option for ODU 3 also provides for new erosion defences which would prevent the future erosion of the SAC.

If the Local Option was selected as the preferred option, then this impact pathway could be screened out and a conclusion of no adverse effect on the integrity of the SAC can be drawn.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA, and thus the integrity of the SPA, in terms of changes in damage to/ loss of habitats and community simplification provided the Local Options are adopted.

Disturbance (noise, visual)

This pathway has been identified for ODU 3. The site is designated for its breeding and foraging hen harrier and merlin.

Studies across a range of species have shown that the effects from disturbance can be complex. Human activity can affect birds either directly (e.g. by eliciting flight responses) or indirectly (e.g. through damaging their habitat or reducing their fitness in less obvious ways e.g. stress). The most obvious direct effect is that of immediate mortality but human activity can also lead to much subtler behavioural (e.g. alterations in feeding behaviour, avoidance of certain areas and use of sub optimal areas etc.) and physiological changes (e.g. an increase in heart rate). While these are less noticeable, they might result in major population-level changes by altering the balance between immigration / birth and emigration / death[2].

Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and the time they spend responding to disturbance is time that is not spent feeding[3]. Disturbance therefore risks increasing energetic expenditure of birds while reducing their energetic intake, which can adversely affect the 'condition' and ultimately survival of the birds. Additionally, displacement of birds from one feeding site to others can increase the pressure on the resources available within the remaining sites, as they then must sustain a greater number of birds[4]. Moreover, the higher proportion of time a breeding bird spends away from its nest, the more likely it is that eggs will cool and the more vulnerable they, or any nestlings, are to predators.

Birds depend on meaningful sound to avoid dangers and will differentiate between meaningful sounds and background noise (Bowles 1995)[5]. They will also habituate to certain stimuli that carry no reinforcing consequences (Alcock 1993)[6]. Birds build up a higher tolerance to disturbance when this is regular in habit and pattern and when there is close access to cover, (Gabrielsen and Smith 1995)[7]. There are few studies into the tolerance of terns to noise disturbance. However, where there are studies of the tolerance of wading species and waterfowl it is evident that both noise and visual stimuli are assessed in conjunction with one another since response to noise alone is difficult to assess as may be confounded by responses to visual stimulus.

When establishing a baseline for noise tolerance, Wintermans (1991)[8] found that a noise level of 55dB did not affect roosting waders, and therefore could be used as a level at which no effect takes place (rather than a threshold where an effect begins). A later threshold level suggesting that noise should not exceed 70dB at the bird was developed (Cutts, Phelps & Burdon, 2009)[9]. However, this threshold takes into account neither the type of stimuli, nor the species of bird and can therefore only be used as a guide. A single sudden sound

[2] Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. *Scottish Natural Heritage*.
[3] Riddington, R. et al. 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* **43**:269-279
[4] Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* **12**: 67-72
[5] Bowles, A.E. (1995): Responses of wildlife to noise. Pp. 109–156 in Knight, R.L.; Gutzwiller, K.J. (Eds): Wildlife and recreationists. Coexistence through management and research. Island Press, Washington, DC, USA
[6] Alcock, J. (1993). Animal behavior: An evolutionary approach (5th ed.). Sinauer Associates.
[7] Gabrielson, G.W.; Smith, E.N. (1995): Physiological responses of wildlife to disturbance. Pp. 95–107 in Knight, R.L.; Gutzwiller, K.J. (Eds): Wildlife and recreationists. Coexistence through management and research. Island Press, Washington, DC, USA.
[8] Wintermans, G.J.M. (1991). De uitstralingseffecten van militaire geluidsproductie in de Marnewaard op het gedrag en de ecologie van wadvogels. RIN report 91/3, Texel: 60 pp.
[9] Cutts, N., Phelps, A and D. Burden (2009) Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance, Report to Humber UNCA. ZBB7107-F-2009. Institute of Estuarine and Coastal Studies. University of Hull.

will usually cause more disturbance than a regular or constant noise irrespective of the noise level, e.g. a dropped piece of scaffold at 65dB will cause a greater disturbance reaction than ongoing vibration piling at 80 dB.

Noise modelling cannot be undertaken until the scheme has been developed and construction plant and methodology devised in detail. Therefore, this assessment is based on what is likely to be the noisiest construction activity that might occur: sheet piling. AECOM historical monitoring data for vibratory sheet piling provides a range of L_{Amax} levels; from 78 to 104 dB at 10 m from the piling rig. The variation in measured levels is due to varying operating conditions as required by the activity. Vibratory piling rig is usually activated for intervals shorter than 5 seconds. While the piling rig is in operation the maximum sound levels are dominated by the sound from this. During other times the excavator engine (on which the piling rig is attached) emits a steady sound level of approx. 68 dB $L_{Amax.}$ According to BS5228 ref. C.3, item 17[10], piling activities are 86 dB at 10m from the rig. Based on the fact noise decays by 6 dB with every doubling of distance, noise levels would be below 70 dB at 70 m from the source.

In terms of visual disturbance, in 2022, NatureScot commissioned a literature review to identify distances at which disturbance could be caused by human related activities to a number of protected UK bird species present in Scotland during the breeding and nonbreeding seasons. The aim of the current report is to update disturbance distances for species presented in Ruddock and Whitfield (2007) as well as to provide disturbance distance information for a range of additional protected bird species that regularly feature in Environmental Impact Assessments (EIAs) but were not included in Ruddock and Whitfield (2007)[11].

All potential sources of human disturbance referenced in the literature were included in the review. Bird disturbance distances were recorded in a wide range of environments including inland sites (e.g. uplands, lowlands, inland waterbodies and streams), coastline (e.g. shoreline, intertidal areas and nearshore waters) as well as offshore areas (including islands and offshore waters). The literature was searched for disturbance distances that were measured in terms of Alert Distance (AD)[12], Flight Initiation Distance (FID)[13] and Minimum Approach Distance (MAD)[14], and for qualitative evidence on bird disturbance. The disturbance distances were collated into a Bird Disturbance Response (BDR) database for 65 bird species that were selected by NatureScot. This report provides an account for each species summarising: quantitative information available in terms of AD/FID and MAD, recommended protection buffer distances, the likely sensitivity of each species to human disturbance activities and the quality of information available[15].

Hen harrier is assessed to have a medium sensitivity to human disturbance. Quantitative studies measuring AD/FID are very limited for hen harrier, but the maximum FID value recorded for this species is 150m when approached by a helicopter during the breeding season; there are no records of AD/FID values during the nonbreeding season. A non-quantitative study suggests that hen harrier will stay at least 188m away from human habitation. Ruddock and Whitfield (2007) considered from expert opinion that the upper pedestrian disturbance distance limit for hen harrier during the breeding season is 500-750m. Hen harrier will nest at 200 to 300m from an operational wind turbine (Madders and Whitfield 2006) or closer (Ruddock and Whitfield, 2007).

In the UK, hen harrier is most likely to be disturbed at nest sites early on in the breeding season as well as at communal roosting areas and potentially foraging grounds during the non-breeding season. Depending

[10] BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Part 1: Noise. BSI Standards Publications.
[11] Ruddock, M. & Whitfield, D.P. (2007) A Review of Disturbance Distances in Selected Bird Species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.
[12] Alert Distance (AD) is defined as the distance at which a bird or group of birds starts to show alert behaviour (e.g. head up, alarm calling, staring at the source of disturbance, aggressive display, chicks startled, crouching or flattening on the nest etc) rather than sleeping, foraging or preening behaviour when approached by a disturbance agent (such as a person, or powerboat)
[13] Flight Initiation Distance (FID) is defined as the distance at which a bird or group of birds starts to escape (by walking away, running away, swimming away, taking flight, or diving) when approached by a disturbance agent (such as a person, or powerboat). This distance is assumed to reflect the trade-off between costs of escape (energetic costs of flight plus loss of food intake during the period of disturbance) and the risk associated with staying put (inferred predation risk)
[14] Minimum Approach Distance (MAD) is defined as the minimum distance at which humans should be separated from wildlife to avoid any disturbance to the behaviour of the wildlife. This distance should be such that the wildlife does not show an alert response to the presence of human activity and does not show flight initiation. Estimates of MAD can therefore be informed by measurement of AD and/or FID. MAD is commonly referred to as a buffer distance which can be determined by management, based on evidence from observed behaviour of birds.
[15] Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. Available at: NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species | NatureScot

on the level of habituation to disturbance, a buffer zone of 300-750m is suggested to protect both breeding and non-breeding hen harriers from pedestrian and aircraft disturbance, but habituation to disturbance influences the size of the buffer required and further studies on the impacts of human disturbance are required to help inform such decisions. A buffer zone at the lower end of this range may be sufficient to protect individuals that have some habituation to disturbance. For activities with a high potential for visual and audial disturbance (e.g. forestry operations), a larger buffer zone between 500-1000m may be necessary during the breeding period.

Merlin is assessed to have a medium sensitivity to human disturbance. Quantitative studies measuring AD/FID are very limited for merlin, but the maximum FID value recorded for this species in the USA is 180m when approached by a pedestrian and 85m when approached by a motorised vehicle during the nonbreeding season; there are no records of AD/FID values during the breeding season. Ruddock and Whitfield (2007) considered from expert opinion that the upper pedestrian disturbance distance limit for merlin during the breeding season is 300 to 500m.

Buffer zones to protect merlin from pedestrian disturbance during the breeding season in North America range from 125 to 400m. Buffer zones to protect breeding merlin from forestry operations in the UK range from 200 to 400m.

In the UK, merlin has the potential to be disturbed on breeding grounds as well as at roosting areas and foraging grounds during the nonbreeding season; this species is most likely to be disturbed in breeding territories early in the breeding season. Depending on the level of habituation to disturbance, a buffer zone of 300-500m (considered to be the upper disturbance limit estimated by expert opinion (Ruddock and Whitfield, 2007)) is suggested to protect nesting merlin and a buffer zone ≤200m is suggested to protect roosting and foraging birds during the nonbreeding season from pedestrian disturbance, but further studies on the impacts of human disturbance are required to help inform such decisions, especially during the nonbreeding season. A buffer zone at the lower end of this range may be sufficient to protect individuals that have some habituation to human presence.

The National Economic option provides for property level interventions. No defence works are to take place along the ODU frontage and disturbance / noise would not be expected. However the Local Aspirational Option would involve localised erosion defences adjacent to the SPA and there is potential to disturb the over-wintering hen harrier and Merlin species. In order to avoid adverse effects on these qualifying features it is recommended to time the works outside the over-wintering season i.e., carry out between April to the end of August, should the Local Option be taken forward.

4.4 Solent and Dorset Coast SPA (Marine Components GB)

The following ODU's are of significance to Solent and Dorset Coast SPA - ODU 1 – ODU 18 with the pressures to be considered shown in Table 3-12 and discussed below.

Disturbance (noise, visual)

This pathway has been identified for all ODUs. The site is designated for its colonies of breeding and foraging sandwich, common and little terns.

Background to noise and visual disturbance is discussed under 4.3 above.

Little tern is assessed to have a medium sensitivity to human disturbance at breeding colonies, although away from breeding grounds, sensitivity is considered to be low.[16] There are no AD/FID records available for little tern during the breeding season, but the maximum FID value recorded for least tern *Sternula antillarum* when approached by a pedestrian during the breeding season is 64m. Buffer zones between 100 and 200m have been proposed to protect least terns from pedestrian disturbance during the breeding season, a larger buffer between 200 to 300m is suggested to protect colony sites early in the season before birds are established. In the UK, little tern has the potential to be disturbed at breeding colonies. A minimum buffer

[16] https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance#Little+tern,+Sternula+albifrons

zone of 100m is suggested to protect little tern colonies from pedestrian disturbance, but this may need to be increased to 300m to avoid disturbance early in the breeding season (i.e. during egg laying).

Sandwich tern is assessed to have a high sensitivity to human disturbance at breeding colonies, although away from breeding grounds, sensitivity is considered to be low. There are a lack of disturbance studies recording AD/FID values for sandwich tern. However, non-quantitative studies suggest that buffer zones required to protect Sandwich terns during the breeding season may be similar to those required for other tern species. In the UK, sandwich tern has the potential to be disturbed at breeding colonies. From studies on other tern species, it is suggested that buffer zones around breeding colonies should not be less than 200m to protect from pedestrian disturbance.

Common tern is assessed to have a medium to high sensitivity to human disturbance at breeding colonies, although away from breeding grounds, sensitivity is likely to be low. The maximum FID value recorded for common tern is 400m when approached by a pedestrian during the breeding season, although the majority of recorded FID values are under 200m. When approached by a drone during the breeding season, the maximum FID value recorded is 122m. During the breeding season, buffer zones ranging between 100 and 400m have been proposed to protect common terns from pedestrian disturbance and a buffer zone of 100m has been proposed for motorised watercraft disturbance. In the UK, common tern has the potential to be disturbed at breeding colonies. A buffer zone between 200-400m is suggested to protect common tern colonies from pedestrian disturbance, although a larger buffer zone may be required if terns are not habituated to disturbance or if disturbance occurs early in the breeding season (i.e. during egg laying).

The Natural England Solent and Dorset Coast SPA Departmental Brief (2016)[17] provides the locations of the breeding tern colonies and estimates of foraging extents. The closest colony is approximately 1.9km from the nearest ODU, ODU 18. This far exceeds the noise and visual buffers discussed above, and it is therefore reasonable to conclude that implementation of the FCERM Strategy will not adversely affect breeding terns on the nest.

Of the five species of tern which regularly breed in Great Britain, little tern has the most limited foraging range from its nest colonies, but even for this species the mean range is 2.1km, meaning ODU 18 is on the outskirts of the foraging range for the nearest known colony.[18] For other tern species the frontage of ODU18 is one small part of a very large area available for foraging. With regard to disturbance to foraging terns, based on the 70 m distance at which noise would fall below 70 dB, and the foraging extent of the species, there is a slight overlap with the frontage of ODU 18 of 2.9 ha based on the nearest colony. The Solent and Dorset Coast SPA (Marine Components GB) covers an area of 88,980.5 ha, making this overlap spatially negligible (0.003% of the SPA). In terms of visual disturbance, the frontage of the FCERM Strategy is already heavily used by the public and it should also be noted that terns are primarily off-shore feeders[19]. While terns are actively foraging they are constantly moving over a wide area, and therefore are less susceptible to significant displacement (and consequently severe effects on colony survival) than when they are on the nest. If terns are displaced due to works on a section of frontage, they will have a considerable extent of other foraging habitat available within typical foraging distances from the nest (and closer to the nearest nest location) and would be able to return to the affected foraging area once the disturbing works had ceased.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the integrity of the Solent & Dorset Coast SPA, in terms of disturbance (noise, visual).

This decision will be re-examined at the scheme level once the details of construction methods and plant are identified and will be documented in the HRA for the planning application. At that time, if necessary, available mitigation measures such as avoiding the core of the breeding season and/or implementing standard noise control measures such as damping of plant and use of close-board noise fencing can be used to reinforce a conclusion of no adverse effect on integrity.

[17]:
[18] Natural England. 2016. Solent and Dorset Coast Departmental Brief. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/560622/solent-dorset-departmental-brief.pdf
[19] https://birdsoftheworld.org/bow/species/comter/cur/foodhabits

Changes in Turbidity

This pathway has been identified for the following ODUs – ODU 12, 13, 14, 16, 17 and 18.

Terns are visual hunters, using aerial plunge diving as foraging technique (Taylor, 1983[20]). While plunging from the air, they must continuously adjust their position and rate of descent to match the location of visually-located prey (Ainley, 1977[21]). Changes in turbidity affect the qualifying tern features vision when foraging for food. They therefore depend on the availability of fish in the top layer of the water column, as well as on the transparency of the water to locate their prey.

An increase of the turbidity of the water may have a negative impact on the 'catchability' of fish for visual hunters like terns. In turbid waters it may be more difficult for terns to locate their prey. If so, this may lead to an increased searching time for prey and the probability of a successful catch-attempt to decrease.

A reduction in the catchability of prey may lead to a shortage of food intake. However, the impact of catchability on the food intake of the birds and their chicks will depend strongly on the time available for foraging. If time is not limiting to make the amount of plunges needed to provide the chicks with sufficient food, there is no reason to assume that a reduction in catchability will lead to a reduction in the fitness of the birds. However, it is likely that turbidity not only decreases the catchability of prey, but also the searching time to locate the prey[22].

Apart from the suspended particulate matter (SPM) that is released during the coastal defence works, seawater always contains a certain background concentration of SPM. This background concentration is not constant, but fluctuates due to wave action, current velocities, tide and river discharges. Next to the SPM-concentration, phytoplankton concentrations also influence the transparency of seawater. The concentration of phytoplankton depends on the intensity of sunlight, the availability of nutrients and on the water transparency itself. The phytoplankton concentration (primary production) is limited by the light intensity of the water column. Therefore, there is a back-feeding mechanism between phytoplankton concentrations and the water transparency.

The relative contribution of the coastal defence activities to the turbidity of the water at a specific location will depend strongly on the background turbidity (SPM and phytoplankton), the distance to the ODU site and the time elapsed since finishing the work activities.

As discussed above, the only ODU which overlaps with the tern foraging areas identified in the Natural England Solent and Dorset Coast SPA Departmental Brief is ODU 18. The extent of this overlap is approximately 56.8 ha (i.e. this is the total amount of the identified foraging range along the ODU 18 frontage), which again, is negligible in terms of the relative size of the SPA.

For ODU 18 the Leading Option is the National Option (there is not a Local Option here) is referred to as **Improve A** involving a combination of beach nourishment, new groynes and upgraded seawall within epoch 1. A new setback floodwall is to be constructed in epoch 2. The most significant effect is likely to result from the construction of new groynes while the seabed adjusts to the presence of these structures as a result of the locally modified flow patterns.

The proposed beach nourishment is expected to involve the placement of predominantly shingle sized material at this location. The shingle will be transported towards the east although the majority of this is expected to be retained by the proposed new groynes. Whilst some of the shingle may bypass the groynes to reach Hurst Spit, there would be no associated impact on turbidity levels or coastal processes.

The setback floodwall introduced during epoch 2 to protect properties from flooding due to breaching of Hurst Spit and raised water levels within Sturt Pond will only have an effect during more extreme events. This will need to be investigated in more detail during subsequent design stages to understand potential effects under such conditions but for this high-level assessment it is assumed that any resulting increase in turbidity as the flood waters recede would be no different from the baseline condition.

[20] Taylor IR. Effect of wind on the foraging behaviour of common and sandwich terns. Ornis Scand. 1983;14:90–6.
[21] AINLEY, D.G. 1977. Feeding methods in seabirds: a comparison of polar and tropical communities in the eastern Pacific Ocean. In: Llano, G.A. (Ed.) Adaptations within Antarctic ecosystems. Houston, TX: Gulf Publishing Company. pp. 669–685.
[22] Van Kruchten, Y., Van der Hammen, T (2011) Case Study Sandwich Terns – a probabilistic analysis of the ecological effects of dredging. Report C055/11

Given the area of overlap and constantly changing levels of SPM it can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA, and thus on its integrity, in terms of turbidity as no change from baseline conditions is anticipated with the adoption of the Leading Options (National Option in 18).

Changes to Water Chemistry

This pathway has been identified for the following ODUs – ODU 3, 4 and 11.

Within ODU 3 the Local Option of **Adaptation / Resilience C** involves new erosion defences to protect the Wick historic landfill site and the access road to Hengistbury Head noting that the requirement to protect the landfill site will depend on the level of contamination present which is to be confirmed by further site investigation. Erosion defences for the landfill site are also expected to follow the alignment of the existing MHWS line, as indicated in Leading Options Report (AECOM, 2023). The completed works will not therefore affect conditions within the harbour.

Within ODU 4 the Local Option referred to as **Sustain B** involves extending/raising an existing setback flood defence embankment and refurbishment of the existing quay wall. It is envisaged that all construction work on the embankment and quay wall can be undertaken from the landside without the need for temporary works in the river. Refurbishment of the quay wall is important to avoid erosion of the historic landfill site which would otherwise lead to increased levels of contamination and turbidity within the river and harbour system. There will be no change from the baseline conditions.

The Local Option for ODU 11 is **Adaptation/Resilience** involving property level protection and maintenance of existing quay walls which would reduce the risk of erosion of the historic landfill sites.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA in terms of changes in water chemistry as no significant changes from baseline conditions is anticipated with the adoption of the Local Options.

Changes in Physical Regime

This pathway has been identified for the following ODUs – ODU 12, 13, 14, 16, 17 and 18.

The Local Option for ODU 12 is referred to as **Improve C** involving refurbishment of existing defences from epoch 1 followed by beach nourishment and new groynes from epoch 2 to be implemented across the whole of the ODU. The beach nourishment is assumed to involve the use of sand with a particle size distribution (PSD) that is consistent with the existing beach material. The construction of new groynes will help retain the beach material although a proportion of this will be lost over time, mostly as a result as storm activity and the associated draw-down of beach levels.

Due to the relatively coarse nature of the beach material it will have a relatively high fall velocity thus sediment transported offshore will rapidly settle onto the seabed within the bay and will not lead to increased turbidity levels within the upper water column. By ensuring the PSD of the new beach material matches the existing, the introduction of new beach control structures will reduce the losses relative to present-day conditions.

Any disturbance of sediment during construction of the new groynes will also be localised and temporary in nature. Work would need to be suspended during storm conditions so there would be no combined effect of these processes. Effects would be a localised and short duration increase in sediment disturbance during construction with a relative reduction in sediment loss during future storms due to new beach control structures.

The main difference between the ODU 13 Local Option and National Option is the difference in the timing of beach nourishment therefore these are effectively the same for this high-level assessment. There are already effective beach control structures within this ODU and therefore the main intervention associated with the Local Option referred to as Option A involves the construction of a new outflanking defence structure with beach nourishment from epoch 2. The new defence structure would be located to the north of the existing terminal groyne towards the back of the beach and would therefore have minimal effect on coastal processes but will help to maintain the integrity of existing defence structures during storm conditions.

Nourishment of the beach at Highcliffe will be required to maintain beach levels and replace material that is likely to be lost due to the influence of future climate change. This is expected to consist of both sand and shingle type material. The sand will be more mobile than the shingle although the existing groynes can be expected to retain a significant proportion of this material. However, some of the sand will be transported offshore during storm conditions and subsequently dispersed by the ambient tidal currents before depositing within the deeper waters of Christchurch Bay. The shingle material is expected to be largely retained by the groynes with small losses of approx. 10-20% due to transport eastwards along the coast.

Providing there are minimal fines within the beach nourishment material (i.e. sediment with a particle size of less than 63µm), there will be no detectable increase in turbidity levels or deposition within Christchurch Bay relative to baseline conditions.

The Leading Option in ODU 14 is a National Option (there is no Local Option in ODU 14) and is **Managed Realignment A** involving new toe defences and cliff drainage / stabilisation from epoch 1 to control the rate of cliff erosion. It is assumed that works to improve drainage and stabilise the cliffs will be undertaken from the top rather than the base of the cliff and will not therefore interfere with coastal processes.

Toe defences are likely to involve the placement of rock along the base of the cliff over a layer of geotextile fabric. Excavation of cliff material would need to be avoided since this could potentially de-stabilise the cliff. Similar protection already exists in the adjacent ODU 13 at Highcliffe where it functions well and it is assumed that the new toe defences would be at a similar position towards the back of the beach. The toe defences would therefore have a limited effect on hydrodynamic conditions (tidal currents and waves), except during storm conditions around high water. Consequently there would be little, if any, effect on coastal processes. In fact by suppressing cliff erosion, there would be a reduced risk of large sections of the cliff collapsing which has the potential to introduce large quantities of cliff material into the sea. Should the cliff material include a significant proportion of fines, this would create a large and persistent plume of sediment within Christchurch Bay that would increase turbidity levels well above background levels. Overall, there will be no change from baseline conditions and there is the potential positive effect of reduced risk of cliff erosion and associated increase in turbidity levels.

For ODU 16 the Local Option is referred to as **Managed Realignment A / Managed Realignment B** involving beach nourishment in combination with some form of protection along a section of the base of the cliff to form a so-called ‘strong point’ and help reduce the natural rate of erosion.

Nourishment of the beach will need to be undertaken using suitable material that does not provide a source of fines that would create persistent plumes with raised turbidity levels. Sand that matches the natural beach material should be used which will be drawn-down the beach slope during periods of storm wave activity. Whilst finer sand fractions can become suspended, this material will rapidly settle to the seabed once the storm has passed and will not therefore contribute to generally raised turbidity levels.

The strong point will provide a similar function as toe cliff defences, as proposed within ODU 14, although it will allow erosion processes to continue / the cliff line to move into a more sustainable position. Overall, there will be no change from baseline conditions and there is the potential positive effect of reduced risk of cliff erosion and associated increase in turbidity levels.

The Local Option for ODU 17 is referred to as **Improve A / B** includes upgrading of defences at the cliff toe and the construction of new beach control structures in combination with small-scale maintenance. No beach nourishment is planned although it is anticipated that material deposited within ODU 16 immediately to the west is likely to be transported eastwards along the coast and retained by the new structures. This is likely to be the most noticeable change in local coastal processes although this is effectively contained within the limits of the ODU.

The primary source of sediment disturbance is likely to be related to construction of the new beach control structures. However, any such effects will be short-term and highly localised while the seabed adjusts to modified flow patterns around the newly introduced obstructions. The seabed consists of predominantly sandy material that will have a relatively high fall velocity thus sediment concentrations close to the bed may be temporarily raised but there will be no measurable increase to background turbidity levels. Overall, there will be no significant change from baseline conditions with only minor, localised changes in the seabed levels around new structures.

ODU 18 has been discussed above.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA, and thus integrity of the SPA, in terms of changes in physical regime as no significant changes from baseline conditions is anticipated with the adoption of the Leading Options (Local Options in ODU 12, 13, 16 and 17 and National Options in ODU 14 and 18).

4.5 River Avon SAC

The following ODU's are of significance to the River Avon SAC - ODU 1 – ODU 6, 7 and 9 with the pressures to be considered shown in Table 3-12 and discussed below.

Damage/ changes to habitats, habitat loss and community simplification

This pathway has been identified for the following ODUs – ODU 7.

For ODU 7 the Leading Option is the National Economic Leading Option referred to as **Improve A** which involves the construction of new flood defences which may result in habitat damage/ loss. Existing defences consist of a frontline quay wall and setback embankments and this option involves upgraded raised defences along the alignment of the existing defences in this unit.

In this unit there is generally a lack of space to construct new defences and some limited encroachment into the designated areas in this location may be unavoidable. However this is uncertain and would need to be confirmed during concept / outline design as there is potential to use existing defence footprints / buildings as part of the defence system. Without direct encroachment there would still be construction in proximity to designated sites and therefore a minor negative impact could occur.

It should be noted that there are opportunities to implement localised managed retreat on some of the defences in parts of ODU 3 (on the opposite bank of the river) which could potentially offset any habitat loss effect due to works in ODU7 that might be caused by detailed defence footprint; this would avoid any net loss. This will therefore be kept under review (since the intervention that would cause potential habitat loss would not arise until Epoch 2) as Coastal Strategies (and their HRAs) must be reviewed every five years.

It is therefore concluded that the Coastal Strategy contains sufficient flexibility that an adverse effect on the integrity of the River Avon SAC can be avoided either through minimisation of defence footprint or ensuring MR for ODU3 ensures no net loss in the river channel.

Changes in turbidity

This pathway has been identified for the following ODUs – ODU 6, 7 and 9.

For ODU 6 the identified leading option is the National Option described as **Adaptation/Resilience** involving property level protection and maintenance of quay walls. This option involves minimal intervention and will therefore have negligible impact on physical processes within the fluvial/tidal system. It can be reasonably concluded that ODU 6 will not have any adverse effects on the qualifying features of the SAC in terms of changes in turbidity as no changes from baseline conditions is anticipated.

With ODU 7, any turbidity effects would be limited to the construction phase of the new quay wall when temporary works may partially obstruct natural river flows. Such effects will be limited in duration and may involve local changes to the river morphology which can be expected to recover after the removal of any temporary structures. Alternatively, careful timing of works and/ or suitable mitigation measures could be implemented, such as the use of temporary scour protection, to minimise the risk of any adverse effects.

ODU 9 includes the east bank of the River Avon and the north side of Christchurch Harbour. The flood defence options considered are generally more than 50m from the riverbank with the exception of a section of setback flood defence under the B3059 bridge crossing. Due to the distance from the river to the location of any proposed works, no further consideration is given to the potential impact of options within this ODU.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SAC in terms of changes in turbidity

provided works that will affect the river bed are undertaken at low tide and/ or short-term changes to river morphology can be avoided if suitable mitigation measures are implemented for ODU 7.

Disturbance (noise and vibration)

This pathway has been identified for the following ODUs – ODU 6, 7 and 9.

Sound is an essential communication channel for aquatic vertebrates (reviewed in Hawkins et al. 2015, Popper and Hawkins 2019). Thus, anything that interferes with the ability of animals to detect sounds of biological relevance to them has the potential to significantly impair survival of individuals and populations (Slabbekoorn et al. 2018). Importantly, some sounds produced by anthropogenic sources may also elicit behavioural responses and/or physiological effects that interfere with biological activities, such as feeding or spawning[23].

Fish produce underwater sounds through stridulation (rubbing together of body parts) and manipulation of the swimbladder, with the frequencies produced ranging from 50Hz to 5kHz and source levels of up to 140dB. While the importance of sounds produced by many fish is not fully understood, stridulatory noises are thought to be associated with alarm, whilst resonant swimbladder sounds may play a role in social communication. Noise and vibration from human activities (anthropogenic sources) are generally of mid-low frequency between 10 and 1000Hz. This overlaps with the sensitivity thresholds of many fish.

There have been multiple studies assessing the impacts of noise and vibration from, for example, piling on fish where the construction is instream, however very little has been looked at in terms of piling sound and vibration impacts from ground source into water. Hastings and Popper (2005) determined that the degree of damage to fish is not related directly to the distance of the fish from the pile, but to the received level and duration of the sound exposure. It is evident that sound affects different species to a differing degree.

Hawkins and Johnstone (1978) concluded that Atlantic salmon are unlikely to detect sounds originating in air, but that they are sensitive to substrate borne sounds. Salmon's hearing compared to carp and cod is poor due to a narrow frequency span meaning its power to discriminate signals is poor with low sensitivity. This is likely due to a lack of secondary hearing modifications linking the swim bladder to the auditory system. Atlantic salmon are known to detect low frequency acoustic stimuli below 380 Hz (Hawkins & Johnstone, 1978), coinciding with the dominant frequencies produced during impact piling operations - 100 Hz to 2 kHz (Bailey et al.,2010; Hawkins et al., 2015). Previous studies have found no clear evidence of a startle response from Atlantic salmon in relation to playback of individual hammer strikes (Harding et al. 2016). In a closely related species, the brown trout (*Salmo trutta*), no observable changes in behaviour were recorded from exposure to a real piling event (average noise level 134 re 1 µPa, peak) (Nedwell et al., 2003).

In ODU 6 the identified leading option is the National Option described as **Adaptation/Resilience** involving property level protection and maintenance of quay walls. This option involves minimal intervention.

As discussed above, for ODU 7, any effects on physical processes would be limited to the construction phase of the new quay wall when temporary works may partially obstruct natural river flows. Such effects will be limited in duration and may involve local changes to the river morphology which can be expected to recover after the removal of any temporary structures.

ODU 9 includes the east bank of the River Avon and the north side of Christchurch Harbour. The flood defence options considered are generally more than 50m from the riverbank with the exception of a section of setback flood defence under the B3059 bridge crossing. Due to the distance from the river to the location of any proposed works, no further consideration is given to the potential impact of options within this ODU.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SAC in terms of disturbance provided careful timing of works i.e., outside the spawning migration i.e., between July and October, are implemented for ODU 6 and ODU 7.

[23] Popper, A.N., L. Hice-Dunton, K.A. Williams, and E. Jenkins. 2021. Workgroup Report on Sound and Vibration Effects on Fishes and Aquatic Invertebrates for the State of the Science Workshop on Wildlife and Offshore Wind Energy 2020: Cumulative Impacts. Report to the New York State Energy Research and Development Authority (NYSERDA). Albany, NY. 20 pp. Available at https://www.nyetwg.com/2020-workgroups.

Changes to flow and velocity regime

This pathway has been identified for the following ODUs – ODU 7.

As discussed above, ODU 7 involves the construction of new flood defences. Existing defences consist of a frontline quay wall and setback embankments. Any effects on physical processes would be limited to the construction phase of the new quay wall when temporary works may partially obstruct natural river flows. Such effects will be limited in duration and may involve local changes to the river morphology which can be expected to recover after the removal of any temporary structures. Alternatively, suitable mitigation measures could be implemented, such as the use of temporary scour protection, to minimise the risk of any adverse effects.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SAC in terms of changes to flow and velocity regime would be minor, short-term changes to river morphology which would be avoided if suitable mitigation measures are implemented.

4.6 Avon Valley SPA/ Ramsar

The following ODU's are of significance to the Avon Valley SPA/ Ramsar - ODU 6, 7 and 9 with the pressures to be considered shown in Table 3-12 and discussed below.

Damage/ changes to habitats, habitat loss and community simplification

This pathway has been identified for the following ODUs – ODU 7.

ODU 7 is located immediately adjacent to the SPA/ Ramsar and the leading option includes the construction of new defences which may result in habitat damage/ loss. Existing defences consist of a frontline quay wall and setback embankments. The National Economic Leading Option referred to as **Improve A,** involves upgraded raised defences along the alignment of the existing defences in this unit.

In this unit there is generally a lack of space to construct new defences and some limited encroachment into the designated areas in this location may be unavoidable. However this is uncertain and would need to be confirmed during concept / outline design as there is potential to use existing defence footprints / buildings as part of the defence system. Without direct encroachment there would still be construction in proximity to designated sites and therefore minor negative impacts could occur.

Any effects on physical processes would be limited to the construction phase of the new quay wall when temporary works may partially obstruct natural river flows. Such effects will be limited in duration and may involve local changes to the river morphology which can be expected to recover after the removal of any temporary structures. Alternatively, suitable mitigation measures could be implemented, such as the use of temporary scour protection, to minimise the risk of any adverse effects.

It should be noted that there are opportunities to implement localised managed retreat on some of the defences in parts of ODU 3 (on the opposite bank of the river) which could potentially offset any habitat loss effect due to works in ODU7 that might be caused by the defence footprint; this would avoid any net loss. This will therefore be kept under review (since the intervention that would cause potential habitat loss would not arise until Epoch 2) as Coastal Strategies (and their HRAs) must be reviewed every five years.

It is therefore concluded that the Coastal Strategy contains sufficient flexibility that an adverse effect on the integrity of the River Avon SPA/ Ramsar can be avoided either through minimisation of defence footprint or ensuring MR for ODU3 ensures no net loss in the river channel.

Changes in turbidity

This pathway has been identified for the following ODUs – ODU 6, 7 and 9 and has been discussed under 4.5.

In addition to the points discussed under 4.5, it is important to consider the feeding habitats of the qualifying features. Over-wintering Bewick's swans feed in fields on leftover potatoes and grain. Pondweeds, roots and

soft grasses are also eaten. Gadwall and pintail are classed as dabbling ducks which typically feed in shallower water, feeding primarily along the surface by tipping head first to graze on aquatic plants, vegetation, larvae, and insects. Black-tailed godwits have long slender beaks, that they use to probe sand and mud for invertebrates. Any increase in turbidity is highly unlikely to have an adverse effect on the foraging abilities of these SPA/ Ramsar features.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA/ Ramsar in terms of changes in turbidity.

Changes to flow and velocity regime

This pathway has been identified for the following ODUs – ODU 7 and has been discussed under 4.5. The conclusion drawn for River Avon SAC also applies to Avon Valley SPA/ Ramsar.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA/ Ramsar in terms of changes to flow and velocity regime would be minor, short-term changes to river morphology which would be avoided if suitable mitigation measures are implemented.

4.7 Solent & Southampton Water SPA/Ramsar

The following ODU's are of significance to the Solent & Southampton SPA – ODU 16, 17 and 18, with the pressures to be considered shown in Table 3-12 and discussed below.

Habitat loss/ damage

In ODU 18 the National Economic Leading Option referred to as Improve A, would involve construction adjacent to the SPA designation (setback defences adjacent to Sturt Pond). With this setback defence it is unclear if there would be sufficient space to avoid constructing in the designation and therefore the leading option may cause habitat loss.

At this strategic stage of assessment, the exact defence alignments have not been identified. But for the proposed linear defences in this unit there is generally considered to be sufficient space available to construct outside of the SAC or within the footprint of the existing defences (although still in proximity to the designations). However, more work to confirm defence alignments is required during scheme appraisal which will reduce the uncertainty.

New groynes and setback defences could lead to some encroachment into the SPA designation, but the relative change compared to the footprint of the existing groynes in the SPA could be minimised and potentially entirely avoided with appropriate detailed design. One option to ensure sufficient space may be to build the setback defences at the end of people's gardens (on a small amount of garden land). This would need to be explored further at the scheme level where it would need to pass another HRA, particularly if works had a greater footprint.

The coastal structure is currently maintained by placing material onto the beach. The National Economic option will involve less ongoing maintenance and therefore less disturbance from this perspective.

It is considered that options are available to deliver the Leading Option without an adverse effect on the integrity of the SPA/Ramsar for the reasons discussed above, however it is recommended that a Project level HRA be carried out as details become available and defence alignments determined.

Changes in physical regime

This pathway has been identified for the following ODUs – ODU 16, 17 and 18 and has been discussed under 4.4.

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA/Ramsar in terms of changes in physical regime as no significant changes from baseline conditions is anticipated with the adoption of the Leading Options (Local Options in ODU 16 and 17 and National Option in ODU 18*).*

Changes in turbidity

This pathway has been identified for the following ODUs – ODU 16, 17 and 18 and has been discussed under 4.4.

Given the area of overlap and constantly changing levels of SPM it can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA/Ramsar in terms of turbidity as no change from baseline conditions is anticipated with the adoption of the Leading Options (Local Options in ODU 16 and 17 and National Option in ODU 18).

Disturbance (noise, visual)

This pathway has been identified for the following ODUs – ODU 16, 17 and 18

The sensitivities of tern species have been discussed under 4.4 and also applies to the Solent & Southampton Water SPA. However, the site is also designated for other species, including ringed plover which are assessed as having a high sensitivity to human disturbance[24].

The maximum FID value recorded for ringed plover when approached by a pedestrian is 100m during the breeding season and 162m during the nonbreeding season. However, as this species runs rather than flies away when disturbed, FID values are difficult to estimate. During the nonbreeding season, a buffer zone of 77m has been proposed to protect ringed plover against pedestrian disturbance, but for flocks of mixed waders containing more sensitive species (e.g. curlew), a buffer zone of 270m is suggested to protect winter roosts. In the UK, ringed plover has the potential to be disturbed on breeding grounds as well as on foraging and roosting grounds during the nonbreeding season; tolerance of human disturbance may be lower during the nonbreeding season. A buffer zone of 100-200m is suggested to protect nesting ringed plover and a buffer zone of 100-300m is suggested to protect foraging and roosting birds during the non-breeding season from pedestrian disturbance.

Black-tailed godwit is assessed to have a medium sensitivity to human disturbance. The maximum FID value recorded for black-tailed godwit when approached by a pedestrian is a mean of 95m during the breeding season and 150m during the nonbreeding season. A buffer zone from 50 to 75m has been suggested to protect black-tailed godwit from pedestrian disturbance during the nonbreeding season, although in flocks of mixed waders during the nonbreeding season containing more sensitive species, a 200m buffer zone may be required to protect against disturbance. In the UK, black-tailed godwit has the potential to be disturbed on breeding grounds as well as on foraging and roosting grounds during the non-breeding season. Depending on the level of habituation to disturbance, a buffer zone of 100-200m is suggested to protect both breeding and nonbreeding black-tailed godwit from pedestrian disturbance[25].

In the absence of mitigation it cannot be concluded that that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SPA/Ramsar site, or on the integrity of the Solent & Southampton Water SPA/Ramsar site, in terms of disturbance (noise, visual). It is therefore recommended that a Project level HRA be carried out to include mitigation measures such as, but not limited to, undertaking noisy works outside the core of the wintering season and/or implementing standard noise control measures such as damping of plant and use of close-board noise fencing (which would also screen works visually). With these standard control measures in place, a conclusion of no adverse effect on integrity can be reached.

4.8 Solent Maritime SAC

The following ODU's are of significance to the Solent Maritime SAC – ODU 16, 17 and 18, with the pressures to be considered shown in Table 3-12 and discussed below.

[24] NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species | NatureScot

[25] https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance#Black-tailed+godwit,+Limosa+limosa

Habitat loss

This pathway has been identified for the following ODUs – ODU 18.

The National Economic Leading Option referred to as **Improve A**, would involve construction adjacent to the SAC designation (setback defences adjacent to Sturt Pond). With this setback defence it is unclear if there would be sufficient space to avoid constructing in the designation and therefore the leading option may cause habitat loss.

At this strategic stage of assessment the exact defence alignments have not been identified. But for the proposed linear defences in this unit there is generally considered to be sufficient space available to construct outside of the SAC or within the footprint of the existing defences (although still in proximity to the designations). However, more work to confirm defence alignments is required during scheme appraisal which will reduce the uncertainty.

New groynes and setback defences could lead to some encroachment into the SAC designation, but the relative change compared to the footprint of the existing groynes in the SAC could be minimised and potentially entirely avoided with appropriate detailed design. One option to ensure sufficient space may be to build the setback defences at the end of people's gardens (on a small amount of garden land). This would need to be explored further at the scheme level where it would need to pass another HRA, particularly if works had a greater footprint.

The coastal structure is currently maintained by placing material onto the beach. The National Economic option will involve less ongoing maintenance and therefore less disturbance from this perspective.

It is considered that options are available to deliver the Leading Option without an adverse effect on the integrity of the SAC for the reasons discussed above, however it is recommended that a Project level HRA be carried out required as details become available.

Changes in physical regime

This pathway has been identified for the following ODUs – ODU 16, 17 and 18 and has been discussed under 4.4

It can be reasonably concluded that the Christchurch Bay and Harbour FCERM Strategy will not have any adverse effects on the qualifying features of the SAC in terms of changes in physical regime as no significant changes from baseline conditions is anticipated with the adoption of the Leading Options (Local Options in ODU 16 and 17 and National Option in ODU 18*).*

5. In-combination Assessment

Compliance with the Habitats and Species Regulations 2017 (as amended) requires development plans to assess whether they will have an adverse effect on a European site, either 'alone' or in-combination with other plans and projects. Other plans and projects adopted and consented in Christchurch, and the wider region, may contribute their own portions to relevant impact pathways, acting cumulatively with the pressures exerted by the FCERMS. The assessment of in-combination effects is most relevant regarding effects on European sites that are regarded as inconsequential 'alone'. The following plans and projects have the potential to act in-combination with and exacerbate some of the impacts associated with the FCERMS:

- Christchurch and East Dorset Local Plan. Part 1 – Core Strategy (adopted 2014)[26]
- Bournemouth Local Plan: Core Strategy (adopted 2012)[27]
- New Forest Local Plan 2016 – 2036. Part One: Planning Strategy (adopted 2020)[28]
- North Solent Shoreline Management Plan[29] (aims to balance the management of coastal flooding and erosion risk with the requirements regarding climate change and natural process and sets out coastal management approaches across large stretches of frontage – this SMP has been adopted and subjected to HRA as part of the statutory consenting process);
- Isle of Wight Shoreline Management Plan[30] (provides approaches for the management of coastal assets in relation to coastal flood and erosion risk with the aim to provide the greatest benefit for the environment, society and economy – this SMP has been adopted and subjected to HRA as part of the statutory consenting process);
- Poole and Christchurch Bays Shoreline Management Plan (SMP 2)[31] (covering the length of coast between Hurst Spit near Milford-On-Sea and Durlston Head near Swanage, including the harbours of Poole and Christchurch. This SMP has been adopted and subjected to HRA as part of the statutory consenting process). The Christchurch FCERM Strategy effectively further develops the SMP level commitments at a local level for Christchurch Bay;
- Durlston Head to Rame Head Shoreline Management Plan (SMP2)[32] (published when all member authorities between Durlston Head (near Swanage) and Rame Head (near Plymouth) formally signed up to the plan, and it was approved by DEFRA. This SMP has been adopted and subjected to HRA as part of the statutory consenting process)
- Poole Bay, Poole Harbour and Wareham Flood and Coastal Erosion Risk Management. Final Strategy. December 2014[33]. The main relevant activity is for Hengistbury Head to Sandbanks. The strategy is to upgrade the terminal groyne at Hengistbury Head and maintain the groynes that control beach erosion. Groynes along this frontage will be replaced, as necessary, and the beach will also need to be recharged periodically. The Hengistbury Head Long Groyne replacement works are due for completion shortly and therefore will not materially overlap with delivery of the Christchurch FCERM Strategy.
- Hengistbury Head Long Groyne works 2021-24 (part of a 17-year Beach Management Scheme to protect coastal frontages, making them more climate resilient. This project has been subjected to HRA which concluded no Adverse Effect on Site Integrity on any European

[26] https://www.dorsetcouncil.gov.uk/documents/35024/290487/Christchurch+and+East+Dorset+Adopted+Core+Strategy.pdf/9ce14f8d-e447-fed2-c665-f50b37748ca5

[27] https://www.bcpcouncil.gov.uk/Planning-and-building-control/Planning-policy/Current-Local-Plans/Bournemouth/Docs/Core-Strategy-1.pdf

[28] https://www.newforest.gov.uk/media/705/Local-Plan-Document-2016-2036/pdf/Local_Plan_2016-2036_Part_One_FINAL.pdf?m=637329191351130000

[29] Available at: https://www.northsolentsmp.co.uk/

[30] Available at: https://www.iow.gov.uk/azservices/documents/2782-D7-Isle-of-Wight-Shoreline-Management-Plan-2.pdf

[31] https://www.dorsetcouncil.gov.uk/-/shoreline-management-plans

[32] Ibid

[33] https://twobays.net/wp-content/uploads/2016/07/Poole-Bay-Poole-Harbour-and-Wareham-flood-and-coastal-erosion-risk-management-strategy-December-2014.compressed.pdf

designated site with mitigation measures in place[34]). Moreover, this project will be completed prior to any part of the Christchurch FCERM Strategy being delivered.

- Hurst Spit to Lymington Flood and Coastal Erosion Risk Management Strategy. The most relevant aspect of this strategy is to stabilise Hurst Spit which is east of Christchurch FCERM ODU18. However, the closest to the ODU 18 where works are likely to take place is on the spit at least 400m to the east. It is therefore unlikely that there would be any overlap in the SPA areas affected by works at Sturt Pond (ODU18) and those on Hurst Spit.
- Flood Defences – Poole Bridge to Hunger Hill (New infrastructure to ensure Poole town centre and the Old Town are protected from tidal flooding over the next 100 years and are resilient to climate change)

Regarding the impact pathways discussed in the AA there is no potential for in-combination effects. Given that all development proposals will be required to mitigate their own anticipated impacts, it is concluded that there will be no adverse effects of the FCERMS on the site integrity of the identified European sites in-combination with other plans and projects.

[34] https://planning.bournemouth.gov.uk/plandisp.aspx?recno=108347#

6. Conclusions and Recommendations

The AA in Chapter 4 appraised whether the FCERMS has the potential to result in adverse effects on the site integrity of the Dorset Heaths SAC, Dorset Heathlands SPA, Solent and Dorset Coast SPA (Marine Components), River Avon SAC, Avon Valley SPA/ Ramsar, Solent & Southampton Water SPA and Solent Maritime SAC. It specifically focussed on the following impact pathways for which LSEs could not be excluded in the HRA screening process:

- Habitat loss
- Changes in physical regime
- Physical damage
- Changes in turbidity
- Habitats and community simplification
- Changes to flow and velocity regime and improved drainage,
- Reduced surface water flooding
- Changes to water chemistry
- Disturbance (noise, visual)
- Disturbance (noise, vibration).

The in-combination assessment in Chapter 5 also appraised whether the FCERMS has the potential to result in adverse effects on the site integrity of the identified European sites 'in-combination' with other plans and projects, most notably the Hengistbury Head Long Groyne works.

The in-combination assessment concluded that, given that all development proposals will be required to mitigate their own anticipated impacts, there will be no adverse effects of the FCERMS on the site integrity of the identified European sites in-combination with other plans and projects.

Table 6-1 outlines recommendations for each ODU by European site in order to eliminate or significantly reduce the likelihood of adverse effects:

Table 6-1: Recommendations

European site	Recommendations
Dorset Heaths SAC	**ODU 1** - no adverse effects on the qualifying features of the SAC in terms of changes in damage to/ loss of habitats and community simplification with the **adoption of the Local Options**.
Dorset Heathlands SPA	**ODU 1** - no adverse effects on the qualifying features of the SAC in terms of changes in damage to/ loss of habitats and community simplification with the **adoption of the Local Options.**
	ODU 3 - in order to avoid adverse effects on hen harrier and merlin it is recommended to **time the works outside the over-wintering season should the Local Option be taken forward.**
Solent and Dorset Coast SPA (Marine Components GB)	**ODU 12, 13, 14, 16, 17 and 18** - no adverse effects on the qualifying features of the SPA in terms of turbidity, changes to water chemistry or changes in

European site	Recommendations
	physical regime as no change from baseline conditions is anticipated with the **adoption of the Leading Options.**
River Avon SAC	**ODU 7** – may result in habitat loss/ damage. It is envisaged that these impacts would be temporary and during construction **mitigation would need to be undertaken** to reduce temporary impacts on habitats. There will be numerous opportunities to review in the future so this will need keeping under review as Coastal Strategies need reviewing every five years and the impact won't arise until Epoch 2. Changes to flow and velocity regime would be minor, short-term changes to river morphology which would be avoided if suitable mitigation measures are implemented.
	ODU 6, 7 and 9 – careful timing of works required i.e**., any works affecting the river bed to be undertaken at low tide** and/ or short-term changes to river morphology can be avoided if suitable **mitigation measures are implemented for ODU 7**
Avon Valley SPA/ Ramsar	**ODU 7** - may result in habitat loss/ damage. It is envisaged that these impacts would be temporary and during construction **mitigation would need to be undertaken** to reduce temporary impacts on habitats. There will be numerous opportunities to review in the future so this will need keeping under review as Coastal Strategies need reviewing every five years and the impact won't arise until Epoch 2. Changes to flow and velocity regime would be minor, short-term changes to river morphology which would be avoided if suitable mitigation measures are implemented.
Solent & Southampton Water SPA	**ODU 16, 17, 18** - may result in habitat loss/ damage and disturbance (noise, visual). **Project level HRA required as details become available.** No adverse effects on the qualifying features of the SPA in terms of changes in physical regime and changes in turbidity as no significant changes from baseline conditions is anticipated with the **adoption of the Leading Options.**
Solent Maritime SAC	**ODU 18** - may result in habitat loss/ damage. **Project level HRA required as details become available**.

7. References

HRA Screening References:

Dorset Heaths SAC Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/5711678738006016

Dorset Heathlands SPA Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/5808199001178112

River Avon SAC Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/6048472272732160

Avon Valley SPA Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/5741820348727296

Avon Valley Ramsar RIS https://jncc.gov.uk/jncc-assets/RIS/UK11005.pdf

Solent & Southampton Water SPA Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/6567218288525312

Solent & Southampton Water Ramsar RIS https://jncc.gov.uk/jncc-assets/RIS/UK11063.pdf

Solent Maritime SAC Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/5762436174970880

Solent and Dorset Coast SPA (Marine Components GB) Citation and Conservation Objectives
https://publications.naturalengland.org.uk/publication/5294923917033472

8. Appendices

8.1 Appendix A – ODU maps

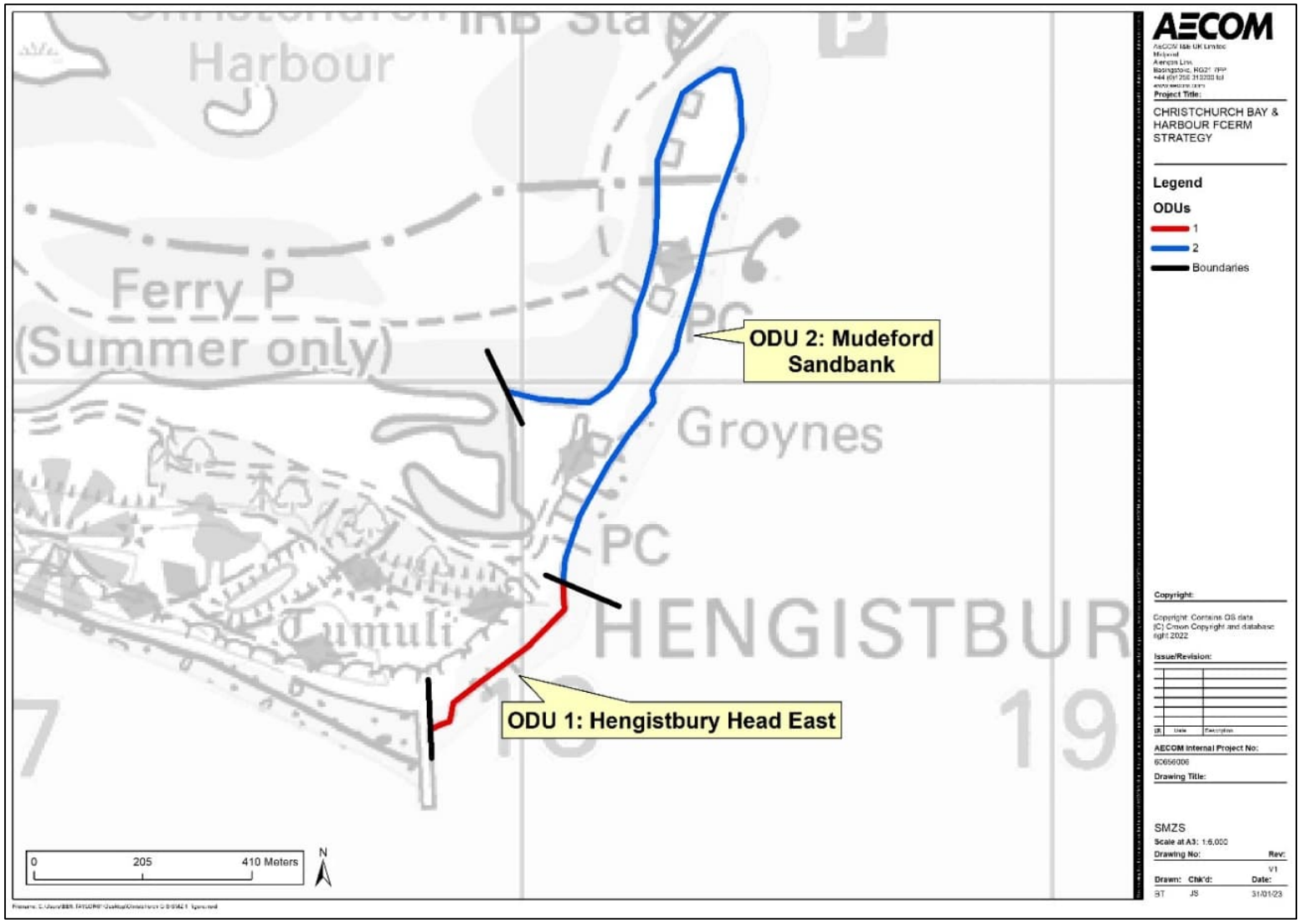

Figure 8-1: SMZ 1

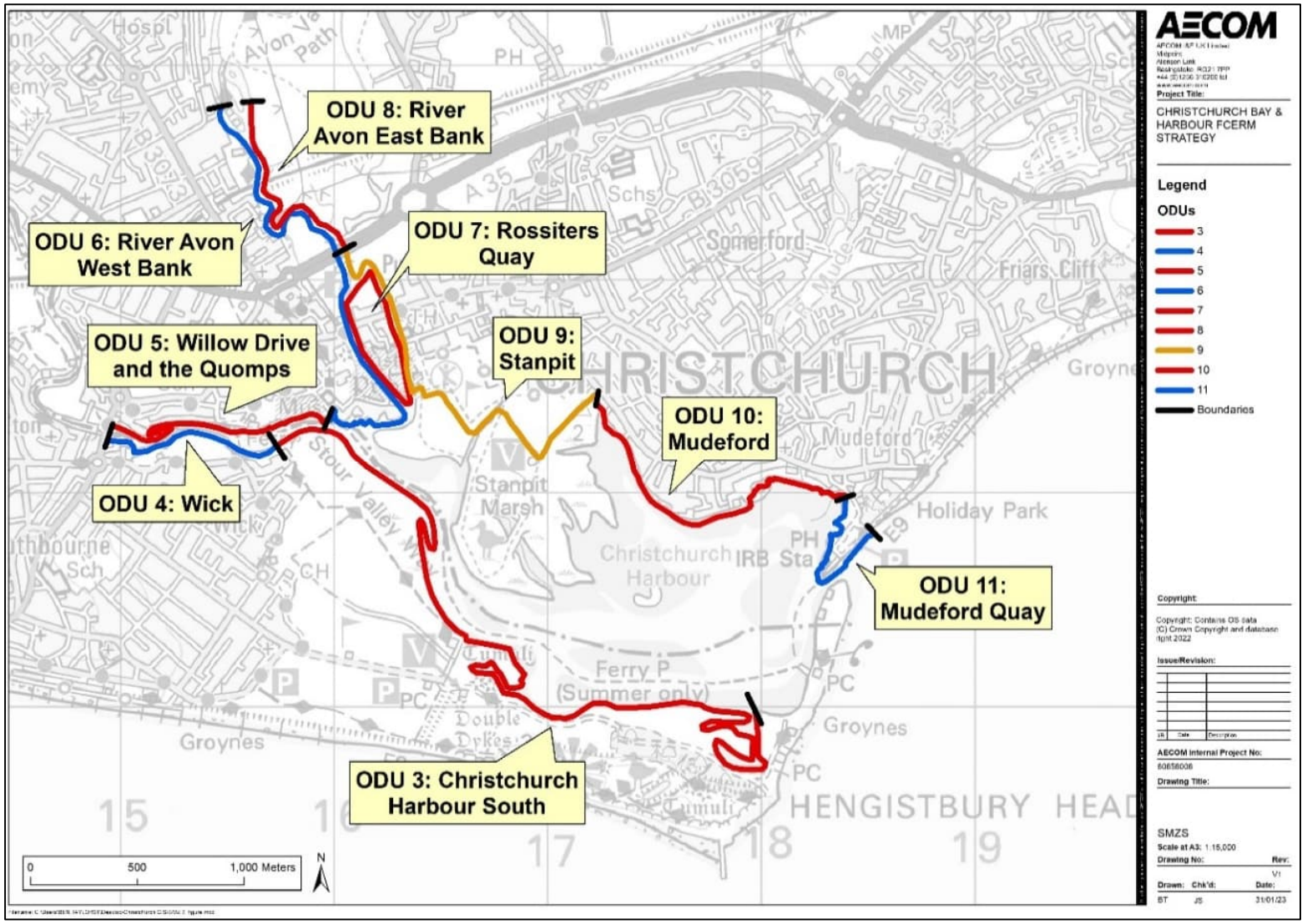

Figure 8-2: SMZ 2

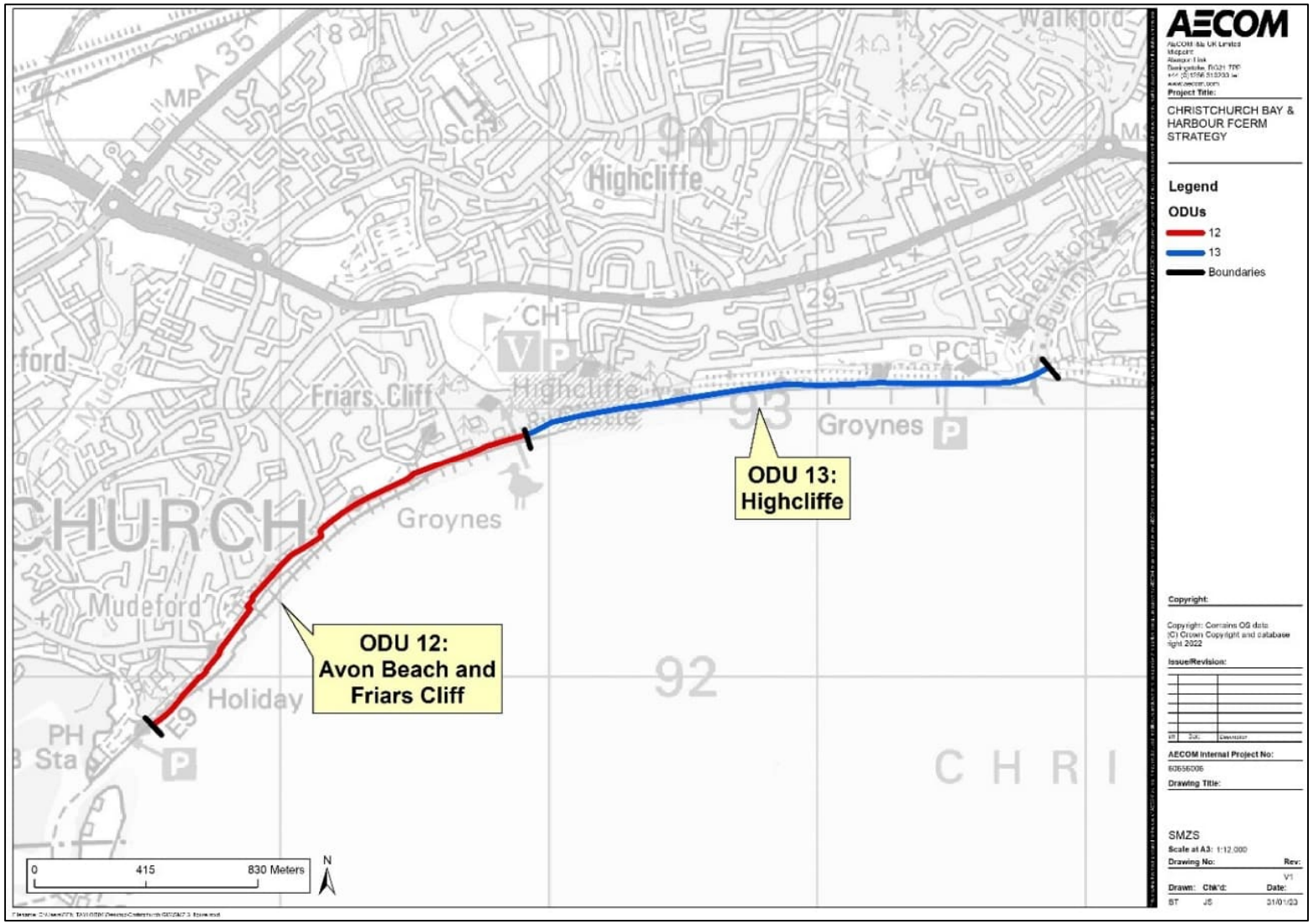

Figure 8-3: SMZ 3

Figure 8-4: SMZ 4

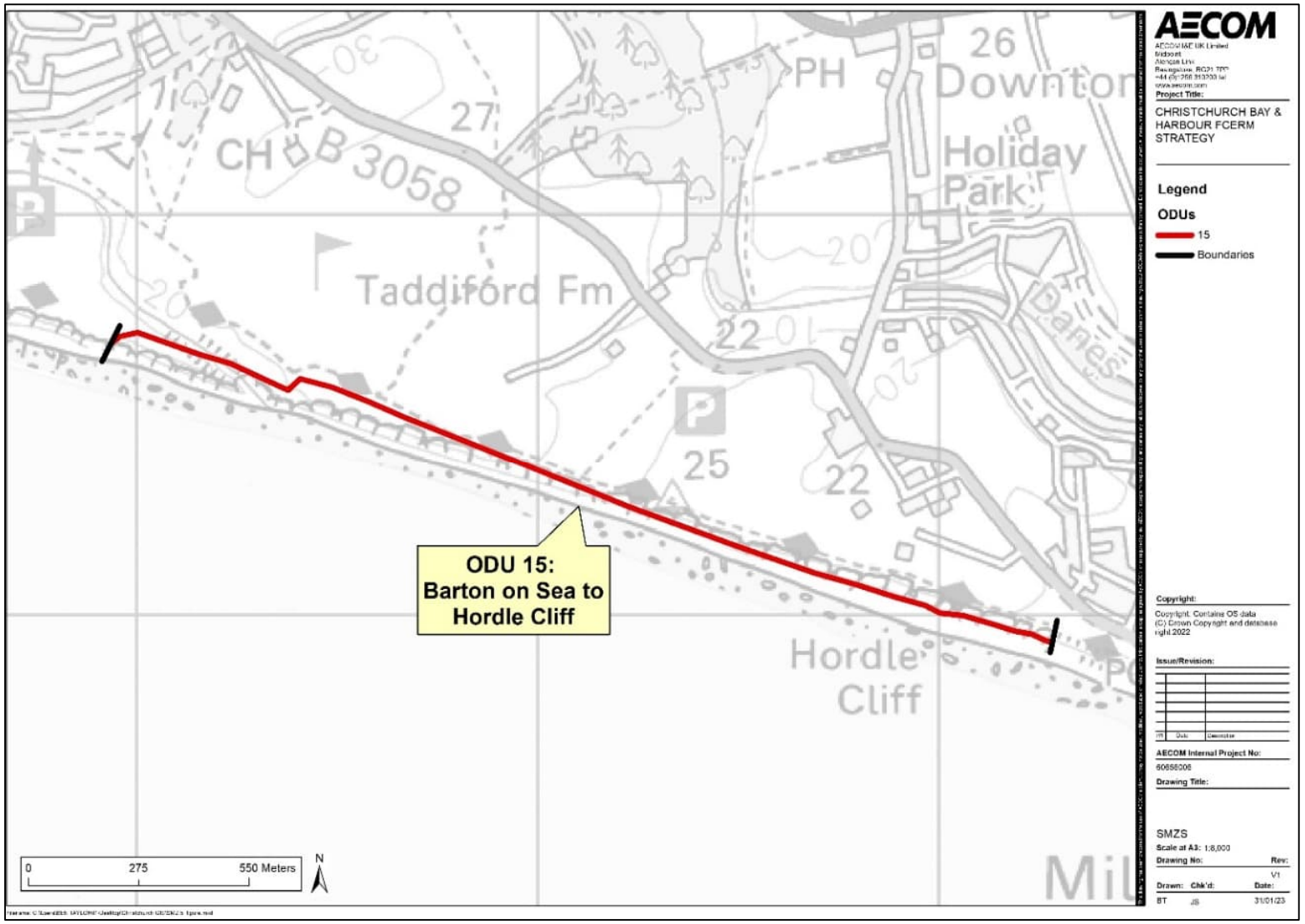

Figure 8-5: SMZ 5

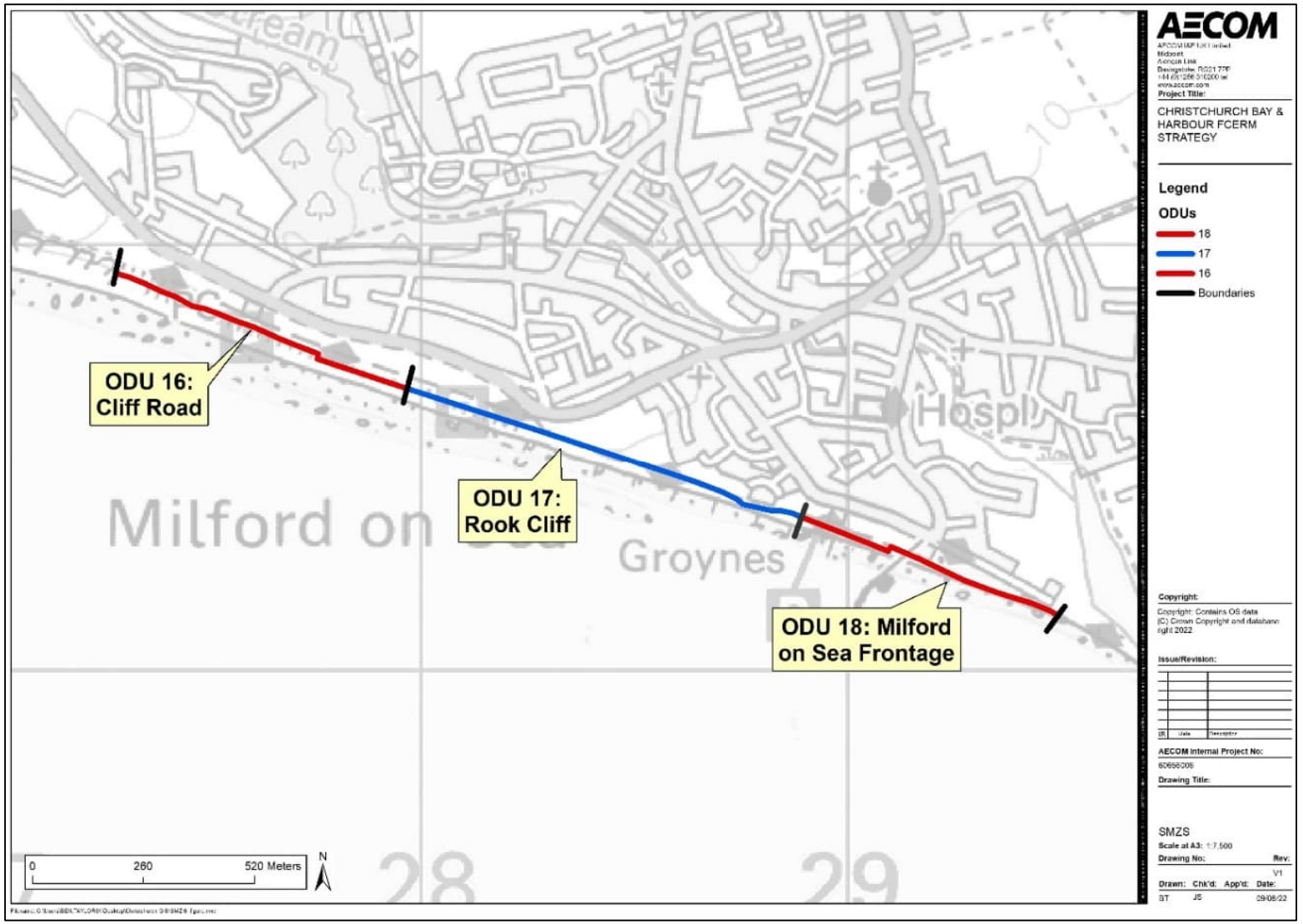

Figure 8-6: SMZ 6

8.2 Appendix B – Natural England Advice on HRA Screening

Date: 11 August 2023
Our ref: DAS A010331
Your ref: Click here to enter text.

Click here to enter text.

BY EMAIL ONLY

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

Dear Cally Barnes

Discretionary Advice Service (Charged Advice)

Christchurch Bay & Harbour Strategy, dHRA and MCZ assessment, SEA for Christchurch Bay & Harbour FCERM

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

dHRA Screening

ODU 14/15/16 and part of 17: the full length of the frontage is also a SSSI for geological reasons, stabilisation, drainage and rock revetments are all damaging to the SSSI features.

Dorset heathlands (SAC/SPA)

Table 1
A number of the features of the designated sites are not present in the co-located parts of the designated sites eg Great crested newts/southern damselfly, alkaline fens, calcareous fens and molinia meadows.

It is difficult to see how turbidity would affect the features of the designated sites (SAC/SPA).

R Avon SAC

ODU 6, north of the bypass should be screened in for habitat loss, the common land north and south of the bypass need not be defended.

ODUs should be screened in for turbidity and the pressure evaluated in relation to ODU 6, 7 and 9. Although turbidity might already be high, changes in the physical characteristics of the river can affect the migratory features of the site and so these should be looked into at a project level. No additional comments on the screening.

Avon Valley SPA / Ramsar

ODU 6, 7, 9 should be screened in for turbidity.

Solent and Southampton Water SPA

1. Habitat loss should be screened in, and the pressure evaluated in relation to ODU 18 to ensure the SPA is not impacted if there is not sufficient space for construction.

2. Changes in physical regime should be screened in and the pressure evaluated in relation to ODU 16, 17 and 18 to ensure works would not lead to changes in the physical regime of the habitat.
3. Physical damage should be screened in and the pressure evaluated in relation to ODU 18 to ensure construction does not cause physical damage to the SPA.
4. Turbidity should be screened in, and the pressure evaluated in relation to ODU 16, 17 and 18 to evaluate if there will be any changes in suspended solids at a project level as tern species are very sensitive to increases in turbidity.
   Cook & Burton (2010) consider common tern to be highly vulnerable to changes in turbidity as vision plays an important role in the species' foraging capability.
   Little Tern and tern species is general are visually foraging birds, which depends on clear water to identify and catch potential prey. Therefore, they are sensitive to changes in turbidity (van Kruchten & van der Hammen 2011).
   Cook & Burton (2010) assess Sandwich Tern to be highly vulnerable to changes in turbidity as vision plays an important role in the species' foraging capability.
5. Disturbance should be screened in and the pressure evaluated in relation to ODU 16 and 17 to ensure disturbance is unlikely. All bird features present are sensitive to above water noise and visual disturbance.

Solent and Dorset Coast SPA

1. Changes in physical regime should be screened in and the pressure evaluated in relation to ODU 12-18. ODU 12, 13, 14, 16, 17 and 18 have the potential to change the physical regime of the shingle bars and beaches.
2. Turbidity should be screened in, and the pressure evaluated in relation to ODU 12, 13, 14, 16, 17 and 18 to evaluate if there will be any changes in suspended solids at a project level as tern species are very sensitive to increases in turbidity.
3. Disturbance should be screened in, and the pressure evaluated in relation to all ODUs as tern species are vulnerable to above water noise and visual disturbance. Also, consider in combination effects of work at Hengistbury Head Long Groyne as disturbance from this work may amplify effects of changes in foraging patterns, sediment plumes ect reducing the features available habitat. Please consider the phasing of works.

Solent Maritime SAC

1. Habitat loss, physical damage and turbidity should be screened in and the pressure evaluated in relation for ODU 18 due to the proximity of the works to the SAC and designated sensitive habitat. Smothering, siltation rate changes, changes in suspended solids, abrasion, and physical loss are all pressures which may affect the SAC habitats.
2. Changes in physical regime should be screened in and the pressure evaluated in relation to ODU 16, 17 and 18 to ensure works would not lead to changes in the physical regime of the sensitive habitat. Saline lagoons, Atlantic salt meadows and other designated sediment types are sensitive to changes in accretion/siltation as well as erosion/scour which construction of structures in the local area may cause.
3. Throughout this section it is quoted "The closest options with interventions are ODU 16, 17 and 18 which are within approximately 1 km of the SAC, with ODU 18 being 50m away at its closest point. Review of aerial photography and www.magic.defra.gov.uk shows the habitat in these areas to be sand and gravel.". It is not very clear what is meant by this statement in relation to effects upon the SAC. Within 50m of ODU 18 the designated features salt marsh and saline lagoon are present which should be focused upon compared to the substrate present at the construction sites outside of the protected site.

MCZ Screening assessment

The Needles MCZ
No comments

Southbourne Rough MCZ
Small note - in "screening decision" it refers to The Needles MCZ, this should say Southbourne Rough MCZ.

Yarmouth to Cowes MCZ
No comments

Poole Rocks MCZ
No comments

Christchurch FCERM SEA Environmental Report V2

ODU 2/11 The strategic options are not wholly clear, it appears to Natural England that the current deeper channels within the harbour are not being managed in a manner which maximises options to encourage soft coastal defences within the harbour. The options 5 and 6 should be reviewed. It should not be assumed that changes due to natural processes which modify the extent of biodiversity features are necessarily negative. Natural England would support the National Leading Option allowing natural processes.

ODU 3, Natural England would concur with the National Leading Option but not a negative impact on biodiversity.

ODU 6, where the adjacent land is not residential a broader approach to adaptation/resilience should be pursued to allow for natural flood management.

ODU 11, National Leading Option is considered appropriate but it is likley that this would result in biodiversity gains.

ODU 12 eastwards. Natural England advise that the effect of groynes on beach sediment transportation is an important aspect of sustainable coastal defences. It would be prudent to investigate more fully a better adjustment of heights and lengths along the coast to maintain minimum sustainable beach levels whilst allowing west east sediment flows to defend the coast.

ODUs which include Highcliffe to Milford Cliff SSSI should consider maintaining sufficient natural erosion processes such that the geological features remain available. If over stabilised/drained negative geological and biodiversity impacts would occur.

This section of coast contains a number of internationally and nationally important nature conservation sites and features. The coastal processes are complex and it may be of assistance to the authorities to engage in discussions directly to refine options and determine the significance of effects given different approaches. This would necessarily entail discussion about the need for a flexible approach to coastal management against a background of sea rise predictions.

I trust these comments will be of assistance.

Yours sincerely

Nick Squirrell

Conservation and Planning Senior Advisor
Dorset Team
Wessex Area Team
Natural England
Mob: 07766 133697
Email nick.squirrell@naturalengland.org.uk