

## 6 OVERVIEW OF THE KEY POTENTIAL IMPACTS OF THE PROPOSED SCHEME

### 6.1 Introduction

6.1.1 This section provides an overview of the key potential impacts of the proposed scheme (comprising approach channel deepening, offshore disposal of dredged material and beach nourishment) during its construction and operational phases. A summary of potential impacts, proposed mitigation measures and residual impacts associated with the proposed scheme is provided in Tables 6.1 (approach channel deepening), 6.2 (offshore disposal of dredged material) and 6.3 (beach nourishment). Given the nature of this Non-Technical Summary it is not practicable to provide a full discussion of all potential impacts and the reader is referred to the Environmental Statement for such a discussion. However, the tables in Section 7 summarise all potential impacts (pre- and post-mitigation) and proposed mitigation measures.

6.1.2 In the following sub-sections, the key impacts have been categorised into those related to the 'human and built' environment and those related to the 'natural environment'. In all cases, any discussion of impact 'significance' relates to residual impacts that are predicted to arise following the implementation of any mitigation measures.

6.1.3 Potential impacts on the 'human and built' environment are considered to comprise those impacts on the following aspects:

- Fishing activity;
- Commercial and recreational navigation;
- Archaeology and heritage;
- Recreation and leisure;
- Noise and vibration;
- Air quality;
- Infrastructure, land drainage and coastal protection;
- Traffic and transportation; and
- Socio-economics.

6.1.4 Potential impacts on the 'natural environment' are considered to comprise the following aspects:

- Sediment quality;
- Water quality;
- Marine and coastal ecology;
- Marine and coastal ornithology;
- Coastal and terrestrial ecology;
- Fish and shellfish resource; and,

- Geology, landscape and visual setting.

## 6.2 Potential impacts on the ‘human and built’ environment

- 6.2.1 The potential for the proposed scheme to impact on **fishing activity** is related to the potential impacts on the fish and shellfish resource of the study area (see Section 6.3) and the physical interference of the construction works. It is concluded that the impact of the construction phase on access to potential fishing grounds and on fishing gear would be of negligible significance, primarily due to the temporary nature of the works and the fact that fishing activity is not significant within the dredged channels. During the operational phase, no significant impacts are predicted on the fisheries resource of the study area and, consequently, no commercial impacts are predicted to arise as a result of the proposed scheme.
- 6.2.2 During the construction phase, the main potential impacts on **commercial and recreational navigation** are the relocation of moorings, potential for collision during dredging and potential for effect on the operation of the chain ferry. It is concluded that the risk of collision between the dredger and commercial or recreational vessels is negligible, given that it would be operating within a navigation channel that is subject to the standard navigational control procedures and that particular measures are applicable to vessels undertaking construction works (e.g. display of appropriate signals).
- 6.2.3 Although it would be necessary to relocate 9 or 10 deep water moorings present on the edge of the Middle Ship Channel, these would be repositioned in similar areas nearby and there would be no loss of moorings as a result of the scheme. It may be necessary to permanently relocate 6 or 7 of these moorings, with the remainder being relocated temporarily. No impact is predicted on the operation of the chain ferry given that the closest point of dredging to the ferry would be approximately 80m away (in the vicinity of Buoy No. 14).
- 6.2.4 During the operational phase, the key potential impacts on commercial and recreational navigation are associated with potential changes to the hydrodynamic and sedimentary regime (both directly through changes in current speeds and direction as well as wave activity and indirectly through potential silting up of channels). Potential impacts are also associated with changes to the characteristics of shipwash, beach draw-down and changes to the tidal range.
- 6.2.5 It is concluded that around the Harbour entrance there would be changes to current speeds and direction as a result of the channel deepening. The pattern of change is predicted to be similar for peak flood and peak ebb tides. In the inner part of the Swash Channel and in the area to the east of the Swash Channel, peak flows are predicted to decrease by up to about 0.2knots. In the vicinity of Buoy No. 14, increases in peak current speeds of about 0.6 knots are predicted to occur; however, this would occur in a very localised area. Over most of the area where increases in peak current speeds are predicted, the increase would be of the order of about 0.1 knots. Although changes in current speeds are of low magnitude, the predicted changes around Buoy No. 14 are considered to represent a potential impact of minor adverse significance for recreational vessels.
- 6.2.6 It is also predicted that the proposed channel deepening would have an effect on the pattern of erosion and deposition of fine sediment in the Harbour. It is predicted that in

the area around the North Channel and Wych Channel, the rate of deposition would increase by between 5 and 10mm per year, whereas within other areas there would be a lower rate of deposition or increase in erosion (generally in the order of -10mm/yr), depending on the existing trend in a particular area; this would occur in the small channels to the west of Brownsea Island such as Upper Wych Channel. Although in the short term such changes are insignificant, over the longer term an impact of minor adverse impact is predicted for recreational navigation in those locations where the rate of deposition would be increased. This impact is not possible to mitigate, but could be dealt with in the future by some limited maintenance dredging in affected channels if required.

- 6.2.7 The East Looe Channel area is currently eroding. The scheme is predicted to reduce current speeds in this area by about 0.2 knots. This would be likely to cause the area to become less erosional, although the existing trend for erosion would continue.
- 6.2.8 On completion of the construction phase, the effect of the scheme on tidal propagation would cause a decrease in the level of low water at low water on spring tides by about 20mm. Although this represents a decrease in the subtidal area, the change would not be perceptible to Harbour users and is considered to be of negligible significance to navigation.
- 6.2.9 With respect to **archaeology and heritage**, there is the potential during the channel dredging to impact on Palaeolithic or Mesolithic sites that may be present within sedimentary deposits. Although there are no such known sites, should they exist their importance would be likely to be of high significance. In view of this, a mitigation strategy would be developed and agreed with English Heritage which would include the preparation of a protocol for reporting any finds made during dredging.
- 6.2.10 The dredging also has the potential to impact on the maritime archaeological resource. The geophysical survey identified a number of anomalies of varying archaeological potential that could be either directly or indirectly (i.e. through changes to the hydrodynamic and sedimentary regime) impacted by the proposed dredging. In addition to the mitigation strategy described above, it is proposed that diving would be undertaken on a range of identified anomalies to characterise them and to confirm their importance.
- 6.2.11 Specific mitigation measures are being developed in consultation with English Heritage in relation to a wreck identified during the geophysical surveys.
- 6.2.12 No significant impacts on the known or potential archaeological resource are predicted as a result of the offshore disposal of dredged material or beach nourishment schemes.
- 6.2.13 In addition to the potential effects on recreational navigation discussed above, the proposed scheme has the potential to impact on other aspects of **recreation and leisure**. An impact of minor adverse significance is predicted during the implementation of the beach nourishment schemes, given that access would be restricted to the areas of the beach where works were taking place. However, the longer term operational impacts would be of moderate beneficial significance given the importance of the beaches as a recreational resource.
- 6.2.14 The offshore disposal of dredged material would increase the background suspended sediment concentrations within Poole Bay for the period of the disposal, with potentially

adverse effects on visibility for diving. Visibility would, however, rapidly improve following cessation of disposal. The main effect would be in the vicinity of Inner Poole Patch where greater deposition of fine sediment is predicted and this material would be resuspended by wave action from time to time. At this location, visibility would be adversely affected for a longer period of time, resulting in a predicted impact of minor adverse significance.

- 6.2.15 The main potential effects of the scheme on **noise and vibration** and **air quality** are associated with the presence of the dredger and plant at the beach nourishment locations. However, no significant impacts are predicted given that the works would comprise a small number of plant for a limited period of time.
- 6.2.16 No significant impacts are predicted on **infrastructure and land drainage** given that the proposed dredging would occur in a channel that is already dredged and there is no infrastructure present that could be affected by the works.
- 6.2.17 The main potential impact of the proposed dredging on **coast protection** arises on the south-eastern shore of Brownsea Island, where it is predicted that there would be a small increase in wave energy incident on the shoreline. This would occur in an area that is currently protected by coastal defence structures and already experiences erosion. The scheme would, therefore, make a small contribution to an existing problem. The impact is considered to be of minor adverse significance. The area of the Brownsea Island shoreline where the most significant existing erosion problems occur is between Castle Pier and East Pier to the north; in this area it is predicted that the scheme would lead to a decrease in current speeds and, therefore, a lower rate of erosion. This is considered to represent a potential impact of minor beneficial significance. A reduction in scour along the frontage to the east of the Haven Hotel is also predicted.
- 6.2.18 The proposed beach nourishment schemes would enhance the standard of coastal defence at the beach nourishment sites within Poole Bay. During the operational phase, the standard of coastal defence would be 1:100 years at Poole (in conjunction with control structures) and Bournemouth and 1:300 years at Swanage. Such measures are identified as necessary in the Shoreline Management Plan and, therefore, this impact is considered to be of major beneficial significance.
- 6.2.19 The main potential impact of the proposed scheme on **traffic and transportation** is predicted to arise during the operational phase. Should the *M/V Coutances* (a freight ferry) be withdrawn and replaced with a larger vessel (carrying freight and passengers), it is predicted that there could be an increase of up to a maximum of either 2400 car movements per day (based on two sailings per day and allowing for full embarkation and disembarkation) or up to 180 HGV movements (based on the range of typical HGV capacity of larger ferries) compared with the existing situation. Therefore, the increase in total vehicle movements would be up to 2400 (assuming a full cargo of cars) per day.
- 6.2.20 The predicted increase in traffic flows would occur at particular times of the day, related to the schedule of the ferries, and would result in more periods of short term congestion. However, the effect on traffic levels is expected to be local to the immediate vicinity of the Port, as is currently the case. It is predicted that the increased flows would make a minor contribution to existing traffic flows beyond the immediate vicinity of the Port, with a low magnitude of effect in terms of implications for overall road capacity. Therefore,

the impact is considered to be of minor adverse significance local to the Port, with an impact of negligible significance on road capacity beyond this area.

- 6.2.21 A number of beneficial **socio-economic** impacts are predicted as a result of the proposed scheme. Primarily, and importantly, the proposed dredging is essential to maintaining the current level of Port activities and employment. Given that the Port makes an important contribution to the local and regional economy, the potential impact is considered to be of major beneficial significance. The use of dredged material for beach nourishment would also provide a beneficial impact in that it is a more sustainable option compared with the alternative of obtaining material from a licensed offshore source. Similarly, during the operational phase, the beach nourishment schemes (and the maintenance of sandy beaches) would be of major beneficial significance to the tourist industry,

### 6.3 Potential impacts on the 'natural environment'

- 6.3.1 The effects of the proposed scheme on **sediment and water quality** are interlinked, given that the existing sediment quality of the proposed dredge areas influences the effect of the scheme on water quality. In summary, the concentrations of various substances within the sediment in the proposed dredged areas are similar to those present in 'receptor areas' (i.e. those areas that are predicted to be influenced by fine sediment dispersed during dredging). As a result, no significant impacts are predicted with respect to the mobilisation of contaminants.
- 6.3.2 The main potential for the scheme to affect water quality is, therefore, a physical rather than a chemical phenomenon. It is predicted that the concentration of suspended sediment in the water column would exceed the criteria specified in the Shellfish Waters Directive (i.e. 30% above background levels) during the dredging and the offshore disposal of sediments and that such an increase may persist for a duration (i.e. up to 3 months) that results in a temporary breach of the Shellfish Waters Directive. It should be noted that the boundaries of the Shellfish Waters within Poole Harbour and Poole Bay encompass the whole of the proposed dredge and disposal area. Therefore, this potential impact is unavoidable given that increases in suspended sediment concentrations in the vicinity of the dredger are also unavoidable (although they would be limited as far as possible). However, given that the intention of the Directive is to protect the shellfish resource, although the dredging and disposal has the potential to breach this water quality criteria for the duration of dredging of silty sediments, it is the subsequent impact of suspended sediment and the deposition of fine sediment on shellfish that is of primary importance (see 6.3.11 to 6.3.15 below).
- 6.3.3 The proposed scheme is not predicted to have any significant implications on water quality criteria under either the Dangerous Substances Directive or the Bathing Waters Directive.
- 6.3.4 The potential impacts of the proposed scheme on certain aspects of **marine and coastal ecology** and the potential impacts on **marine and coastal ornithology** are closely linked. For example, the intertidal habitats and the species they support are the feeding resource for a variety of waterbirds for which Poole Harbour is designated as a SPA. The main potential impacts of the scheme on these parameters are due to the predicted effects on Harbour morphology and the effect of the dispersal and deposition of fine sediment during offshore disposal.

- 6.3.5 The proposed scheme has the potential to have a number of potential impacts on intertidal habitats and communities during the construction phase. Potentially, the most significant of these include the effects of increased suspended sediment concentrations and the deposition of fine sediment. It is predicted that, over much of the intertidal area of the Harbour, the deposition of between 0.5 and 5mm of fine sediment would occur, with up to 10mm predicted to accumulate on the intertidal areas in the Wareham Channel. In terms of the potential impact of such sedimentation on intertidal communities, the impact is considered to be of negligible significance. However, this deposition is predicted to result in an increase in the intertidal area within the Harbour of between 0.4 and 2.6ha, representing a potential impact of minor beneficial significance.
- 6.3.6 In addition to the above, the effect of the dredging on tidal range would increase the area of intertidal habitat available for feeding waterfowl by between 2.9 and 11.7ha. This would be a permanent, one-off effect to occur on completion of the capital dredging. Although this effect would not have an impact on benthic communities, it represents a potential beneficial effect for waterbird populations, in that the intertidal area available for feeding would be increased at low water on spring tides.
- 6.3.7 During the operational phase, it is predicted that net export of fine sediment from the Harbour would increase, resulting in an increase in the rate of erosion of the intertidal area (saltmarsh) of between 0.11 to 0.34ha per year (the existing background rate of intertidal erosion is 0.9 to 4.9ha). This prediction of increased loss of fine material takes account of the fact that it is proposed to retain the fine material depositing in the Turning Basin within the Harbour through agitation dredging (rather than disposing of the material offshore). No adverse effects on waterbird populations of the Harbour are predicted as a result of this change.
- 6.3.8 There are a number of species of nature conservation importance in Poole Bay; maerl beds, *Sabellaria spinulosa* reefs, *Ampelisca* mats and *Zostera marina* beds. The deposition of fine material in areas where these species are known to be present has been modelled. No significant impacts are predicted given that temporary (slack water) deposition of up to 1mm is predicted in these areas with no permanent deposition.
- 6.3.9 The potential impacts of the scheme on **coastal and terrestrial ecology** are limited to effects that may arise indirectly as a result of predicted changes to the hydrodynamic and sedimentary regime. As described above, the proposed scheme is predicted to make a small contribution to an existing trend for erosion on parts of the shoreline of Brownsea Island that are not protected by coast protection structures. Much of the shoreline that could potentially be affected by erosion is currently protected by a gabion wall with a beach in front of it and appears to be stable. Beyond the gabion wall, the shoreline is not protected and can be seen to be eroding. However, the scheme in itself does not give rise to a threat to the integrity of the existing coastal protection structures. In the long term, the integrity of the coastal protection structures could be affected in light of the prevailing conditions in the area. Given that much of Brownsea Island is designated as the Dorset Heathlands SPA and Ramsar site and the Dorset Heaths cSAC, the scheme has the potential to cause an impact of minor adverse significance to arise in that it contributes (in a small way) to the long term potential for the erosion of these sites.
- 6.3.10 In addition, it is predicted that there would be a tendency for erosion in the centre of Studland Bay. This erosion would occur within the boundaries of the Dorset Heaths and

Studland Dunes cSAC, given that the boundary of this site extends across the intertidal area. However, in view of the existing northwards drift of material, the changes due to the proposed channel deepening are very minor and would be of negligible significance for the coastal and terrestrial ecological interest of this designated site, although this change is viewed as negative in those locations where erosion would occur.

- 6.3.11 With respect to the **fish and shellfish resource**, the route for potential effects is similar to that for intertidal species in general and, therefore, the main potential impacts are those due to increased suspended sediment concentrations and, in particular, the deposition of fine sediment on intertidal areas.
- 6.3.12 Increases in peak suspended sediment concentrations of the order of hundreds of mg/l above background are predicted in the north and western parts of the Harbour, with higher values in the immediate vicinity of the dredging operations. To the south of Brownsea Island and in eastern parts of the Harbour, peak concentration increases of the order of 20 to 100mg/l above background levels are predicted. Such effects have the potential to occur during the period when silty sediments are to be dredged, which is estimated to be a period of 2 to 3 months.
- 6.3.13 In terms of the deposition of fine sediment, peak deposition of the order of 0.5 to 5mm is predicted over much of the intertidal area within the Harbour, with some areas (in the vicinity of the Wareham Channel) predicted to accumulate up to 10mm of fine sediment. In the Wareham Channel area, sediment accumulation is not predicted to be linear over the period of the dredging because, under neap tide conditions, there is no pathway for fine sediment to reach this area from the dredging operations. Under spring tides, however, sediment would disperse into this area and settle on the bed (at a rate of approximately 1mm per day).
- 6.3.14 Overall, the implications of the predicted effects described above on fish and shellfish populations are considered to be of negligible significance at worst, given that fish would avoid areas of elevated suspended sediments and shellfish are able to tolerate such levels of deposition, particularly given that the surface of the mudflats are disturbed by tidal currents and waves and that periodic deposition and removal of fine sediment is a characteristic of this environment. It should also be noted that much of the predicted deposition would not be permanent and would only occur over the slack water period.
- 6.3.15 No significant impacts are predicted on fish and shellfish as a result of the predicted changes to intertidal areas of the Harbour or the offshore disposal of dredged material.
- 6.3.16 Given the nature of the proposed works, minimal potential exists for an impact on **geology, landscape and visual setting** to arise. The main potential for impact on these aspects arises due to the beach nourishment works; however, all works would take place on existing recreational beaches and no significant effects are predicted because there would be no change to the existing landscape character. No direct or indirect impacts are predicted on important geological sites.

**Table 6.1 Potential impacts, mitigation measures and residual impacts associated with the proposed approach channel deepening**

Potential impact	Impact significance	Mitigation	Residual impact
<b>HYDRODYNAMIC AND SEDIMENTARY REGIME</b>			
<b>Construction phase</b>			
Effect on tidal range	A slight reduction in low water level (approximately 20mm) resulting in increased exposure of between 2.9 and 11.7ha	No mitigation measures are required	This is considered to be a 'change' arising as a result of the proposed scheme rather than an 'impact' that can be assessed in terms of significance. The implications of this change on other parameters included in the EIA (e.g. marine and coastal ecology) have been assessed
Increased suspended sediment concentrations during capital dredging	Increases in peak concentrations of the order of hundreds of mg/l are predicted in the north and west parts of the Harbour, with higher values in the immediate vicinity of dredging operations. To the south of Brownsea Island and in eastern parts of the Harbour, peak increases of the order of 20 to 100mg/l above background are predicted	No mitigation measures are possible	See comment above

Potential impact	Impact significance	Mitigation	Residual impact
Deposition of fine material during capital dredging	Dredging would release approximately 100,000 dry tonnes of fine material which would result in deposition of between 0.5 and 5mm over much of the intertidal area, with up to 10mm in the Wareham Channel area. Overall, this would lead to an increase in intertidal area of between 0.4 and 2.6ha	No mitigation measures are required	See comment above
<b>Operational phase</b>			
Local changes to coastal morphology	It is predicted that there would be the potential for a slightly enhanced northward drift of beach sand in <i>Studland Bay</i> with accumulation in the north and slightly increased erosion in the centre of the Bay. Small changes to current speeds are predicted in the <i>Harbour entrance</i> . Along the <i>Sandbanks coastline</i> , scour is predicted to reduce to the east of Haven Hotel. On the <i>Brownsea Island</i> coastline, wave heights and tidal currents are predicted to marginally increase to the south of Castle Pier and marginally decrease between Castle Pier and East Pier	No mitigation measures are possible	This is considered to be a 'change' arising as a result of the proposed scheme rather than an 'impact' that can be assessed in terms of significance. The implications of this change on other parameters included in the EIA (e.g. marine and coastal ecology) have been assessed

Potential impact	Impact significance	Mitigation	Residual impact
Changes to wave climate	Very small changes are predicted in Poole Bay. Wave heights are predicted to reduce in Shell Bay and in the northern part of Studland Bay. Small increases in wave height are predicted on the south-east shore of Brownsea Island, at or just inside the Harbour entrance and to the west of the seaward end of the Swash Channel	No mitigation measures are possible	See comment above
Increased export of fine sediment from Poole Harbour	It is predicted that there would be an increase in the export of fine sediment of between 4,800 and 6,700m <sup>3</sup> /year	In total, the loss of fine sediment would increase the rate of intertidal erosion be between 0.15 and 0.6ha per year. In mitigation, it is proposed to undertake agitation dredging in the Turning Basin, thereby retaining fine material in the Harbour	Following mitigation, the net effect of the channel dredging would be to increase the rate of loss of intertidal area by about between 0.11 and 0.34ha per year
Increased deposition of fine sediment in the Turning Basin	It is predicted that an additional 5,700m <sup>3</sup> /year would be deposited and, if it were to be dredged and deposited offshore, would represent a further loss of fine sediment		
<b>SEDIMENT QUALITY</b>			
<b>Construction phase</b>			
Potential effects on the sediment quality of the receptor areas due to capital dredging	Negligible significance (physical); no significant impact (chemical); no significant impact (biological)	None required	Negligible significance (physical); no significant impact (chemical); no significant impact (biological)
<b>Operational phase</b>			
Potential effects on the sediment quality of receptor areas due to maintenance dredging	No impact (physical, chemical and biological)	None required	No residual impact

Potential impact	Impact significance	Mitigation	Residual impact
<b>WATER QUALITY</b>			
<b>Construction phase</b>			
Potential effect on water quality due to the release of dangerous substances during capital dredging	Minor adverse significance (localised, short-term)	No mitigation measures are possible	Minor adverse significance
Potential effect on bathing water quality during capital dredging	Minor adverse significance (short-term around the dredging areas) but no impact at bathing waters	No mitigation measures are possible	Minor adverse significance (short-term around the dredging areas) but no impact at bathing waters
Potential effect on shellfish water quality during capital dredging	Moderate adverse significance (suspended solids) given that there is the potential to breach the Shellfish Waters Directive; no impact (DO, metals or organohalogenated compounds)	The effect of the dredging on suspended sediment concentration, in terms of its effect in relation to the Shellfish Waters Directive, is not possible to mitigate because elevated concentrations are unavoidable. No mitigation measures are required with respect to other water quality effects.	Moderate adverse significance (suspended solids); No residual impacts (DO, metals and organohalogenated compounds )
<b>Operational phase</b>			
Potential effect on water quality due to release of dangerous substances during maintenance dredging	Short-term impact of minor adverse significance	The release of contaminants into the water column as a result of the proposed dredging is not possible to mitigate.	Minor adverse significance
Potential effect on bathing water quality during maintenance dredging	Minor adverse significance around the maintenance dredging area; no impact at bathing waters	No mitigation measures are possible	Minor adverse significance around the maintenance dredging area; no impact at bathing waters
Potential effect on shellfish water quality during maintenance dredging	No impacts (suspended sediments, DO, metals and organohalogenated compounds)	No mitigation measures are required	No impacts (suspended sediments, DO, metals and organohalogenated compounds)

Potential impact	Impact significance	Mitigation	Residual impact
<b>MARINE AND COASTAL ECOLOGY</b>			
<b>Construction phase</b>			
Potential impact due to the removal of the benthic community within the footprint of the capital dredging	Minor adverse significance	No mitigation measures are possible	Minor adverse significance
Potential impact on intertidal and subtidal benthic communities due to the predicted effect on tidal range	No impact (effect on benthic communities)	None required	No residual impact
Potential impact on benthic communities arising as a result of increased SSC during capital dredging	Negligible significance (intertidal and subtidal communities); no impact (eelgrass)	None required	Negligible significance (intertidal and subtidal communities); no residual impact (eelgrass)
Potential impact on benthic communities due to the deposition of fine sediment within intertidal and subtidal areas	Negligible significance (intertidal benthic infaunal communities); no impact (on subtidal infaunal communities); no impact (on eelgrass); minor beneficial significance (increased intertidal area)	No mitigation measures are required	Negligible significance (for existing intertidal benthic infaunal communities); no residual impact (on subtidal communities); no residual impact on eelgrass; minor beneficial significance (increase in intertidal area)
Potential effect on saltmarsh habitat	Negligible significance	No mitigation measures are required	Negligible significance
Potential disturbance to marine mammals due to the generation of underwater noise	Negligible significance	No mitigation measures are required	Negligible significance
<b>Operational phase</b>			
Potential change to the benthic community within the footprint of the capital dredging due to changes in the nature of the habitat	Negligible significance	No mitigation measures are required	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
Potential impact on subtidal benthic communities due to maintenance dredging	Negligible significance	None possible	Negligible significance
Potential long term impact on intertidal benthic community structure within Poole Harbour due to predicted changes in the sediment budget and intertidal morphology	Negligible significance	Change existing maintenance dredging strategy to undertake agitation dredging in the Turning Basin in order to retain fine sediment within the Harbour	Negligible significance
Loss of intertidal area due to the predicted increase in the intertidal erosion rate	Minor adverse significance (saltmarsh)	Change existing maintenance dredging strategy to undertake agitation dredging in the Turning Basin in order to retain fine sediment within the Harbour	Minor adverse significance (saltmarsh)
Potential effects of intertidal and subtidal communities due to deposition of fine sediment as a result of agitation dredging in the Turning Basin	No impact	None required	No residual impact
Potential impact on benthic communities due to predicted local changes to hydrodynamics (wave activity and current speeds)	Negligible significance (for biological communities); no impact on intertidal and subtidal biological communities in areas of reduced wave energy.	None required	Negligible significance at worst
Potential impact on marine mammals due to shipping activity	No impact	None required	No residual impact

Potential impact	Impact significance	Mitigation	Residual impact
<b>MARINE AND COASTAL ORNITHOLOGY</b>			
<b>Construction phase</b>			
Increased noise disturbance to waterbirds caused by the capital dredging	No impact	None required	No residual impact
Implications of the intertidal deposition of sediment on potential feeding resources for waterbirds	No impact	None required	No residual impact
Potential impact on feeding waterbirds due to the predicted effect on tidal range	A beneficial impact, but of negligible significance	None required	A beneficial impact, but of negligible significance
Effect of the proposed capital dredging on intertidal morphology	Minor beneficial significance	None required	Minor beneficial significance
<b>Operational phase</b>			
Implications of the predicted change to morphology of Poole Harbour for waterfowl populations	Negligible significance	Change existing maintenance dredging strategy to undertake agitation dredging in the Turning Basin in order to retain fine sediment within the Harbour	Negligible significance
Predicted effect of maintenance dredging on waterbird populations	No impact	None required	No residual impact
Potential effect of agitation dredging on the food resources for waterbirds	No impact	None required	No residual impact
Increased disturbance due to the potential effect of the proposed dredging on traffic levels within the Harbour	Negligible significance	The existing restrictions (e.g. vessel speeds) would apply to all commercial shipping following the channel deepening	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
Effect of shipwash on feeding waterbirds	Negligible significance	Existing speed restrictions would apply to all commercial shipping following the channel deepening	Negligible significance
<b>COASTAL AND TERRESTRIAL ECOLOGY</b>			
<b>Construction phase</b>			
Potential for direct impact on sites designated for coastal and terrestrial ecological interest	No impact	None required	No residual impacts
<b>Operational phase</b>			
Potential for indirect impact on sites designated for coastal and terrestrial ecological interest	Negligible significance (Dorset Heaths and Studland Dunes cSAC); minor adverse (coastal and terrestrial ecological interest on Brownsea Island in the long term given that the scheme would add to an existing problem of erosion)	It is concluded that the problem of erosion at this location should be addressed through an integrated strategy for management of the coastline, given that there are various interests (i.e. nature conservation, heritage and coastal protection) and, therefore, a number of stakeholders	Negligible significance (Dorset Heaths and Studland Dunes cSAC); minor adverse (coastal and terrestrial ecological interest on Brownsea Island in the long term) in that the scheme would make a small contribution to an existing problem of erosion
<b>FISH AND SHELLFISH RESOURCE</b>			
<b>Construction phase</b>			
Potential impact on fish and shellfish due to direct uptake (entrainment) and disturbance during capital dredging	Negligible significance (fin-fish); no impact (shellfish)	None possible	Negligible significance (fin-fish); no residual impact (shellfish)
Effect of the predicted change in tidal range on fish and shellfish populations	No impact	None required	No residual impact
Potential impacts on fish and shellfish populations due to increased SSC and sediment deposition	No impact (fin-fish); negligible significance (shellfish)	None possible	No impact (fin-fish); negligible significance (shellfish)

Potential impact	Impact significance	Mitigation	Residual impact
Potential impact on fish and shellfish populations due to noise, vibration and light disturbance	Negligible significance (fin-fish); no impact (shellfish)	None possible	Negligible significance (fin-fish); no impact (shellfish)
<b>Operational phase</b>			
Potential impact of the loss of habitat due to changes in the morphology of the Harbour	Negligible significance (fin-fish and shellfish)	Change existing maintenance dredging strategy to undertake agitation dredging in the Turning Basin in order to retain fine sediment within the Harbour	Negligible significance (fin-fish and shellfish)
Potential effect of the proposed maintenance dredging strategy on the shellfish resource	No impact	None required	No residual impact
Potential effect on food resources within the dredged channels	Negligible significance	None possible	Negligible significance
<b>FISHING ACTIVITY</b>			
<b>Construction phase</b>			
Potential for loss of revenue due to the restriction of access to fishing grounds	Negligible significance (finfish and shellfish)	PHC would issue a Notice to Mariners to inform users of the Harbour about the location and duration of the dredging works. Sufficient warning should also be given to potters regarding the timing of the proposed dredging operations within the Swash Channel in order that any gear can be moved away from the proposed dredge zone to avoid possible damage	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
Potential for loss or damage to fishing gear	No impact	See above	No impact
<b>Operational phase</b>			
Financial impact arising as a result of loss of fishery resource	No impact	None required	No residual impact
Potential conflict between fishing vessels and commercial shipping activity resulting from the capital dredging	Negligible significance	Maintain the current navigational control procedures; no further mitigation measures are required	Negligible significance
<b>COMMERCIAL AND RECREATIONAL NAVIGATION</b>			
<b>Construction phase</b>			
Risk of collision during capital dredging	Negligible significance	No mitigation measures are required beyond standard navigational procedures	Negligible significance
Relocation of moorings due to capital dredging	No impact	None required	No residual impact
Potential effect of the presence of the dredging on the operation of chain ferry	No impact	None required	No residual impact
<b>Operational phase</b>			
Implications of potential changes to shipwash for intertidal habitats and Harbour users	Negligible significance (shipwash and draw-down)	None required	Negligible significance (shipwash and draw-down)
Increase in safety of navigation for large vessels	Minor beneficial significance	None required	Minor beneficial significance
Effects on collision risk due to the presence of larger vessels	No impact	None required	No residual impact

Potential impact	Impact significance	Mitigation	Residual impact
Effects on the operation of the chain ferry at the Harbour entrance	Negligible significance	None required	Negligible significance
Effects on navigation due to changes in current speeds and wave activity	Minor adverse significance	None possible	Minor adverse significance
Effects on navigation due to change in tidal range	Negligible significance	None required	Negligible significance
Effects on navigation due to accretion of channels	Minor adverse significance	It is possible that maintenance dredging could be undertaken within affected channels, if required, in order to maintain depths.	No residual impact (if mitigation is adopted); minor adverse significance otherwise
<b>ARCHAEOLOGY AND HERITAGE</b>			
<b>Construction phase</b>			
Potential impact on Palaeolithic and Mesolithic sites and/or finds	Major adverse significance (worst case, assuming sites are present within the dredge footprint) to no impact if sites are not present	An overall mitigation strategy would be developed and agreed with English Heritage. This would include preparation and implementation of a reporting protocol, provision for temporarily relocating dredging away from areas of possible interest pending archaeological advice, provision for emergency first-aid conservation and for archaeological inspection and a programme of visits to monitor the effectiveness of the protocol. Environmental assessment of peat layers may also be warranted	Minor adverse (for finds discovered during dredging) to moderate adverse significance (given that sites could be lost, but the likelihood of unrecorded loss is minimised through the proposed mitigation strategy). There would be no residual impact if no sites are present within the dredge footprint

Potential impact	Impact significance	Mitigation	Residual impact
Potential impact on late prehistoric and Roman terrestrial sites and/or finds	No impact	The mitigation strategy described above would also apply here	No residual impact
Potential impacts on the maritime archaeological resource	Moderate adverse significance	The mitigation strategy described above would also apply here. Archaeological diver investigation would be undertaken on a sample of anomalies identified during the geophysical survey to characterise the anomalies and verify their potential importance; this would allow action to be taken if finds of high importance are discovered	Minor adverse significance
<b>Operation phase</b>			
Potential impacts on the maritime archaeological resource	Moderate adverse significance	Discussions are ongoing with English Heritage regarding appropriate mitigation measures for the wreck identified during the geophysical survey. At this stage it is proposed that measures would be implemented that would allow preservation of the wreck <i>in situ</i> and thus greatly increase the chances of survival of the wreck in view of the erosive nature of the environment in which it is situated at present	Major beneficial significance

Potential impact	Impact significance	Mitigation	Residual impact
<b>RECREATION AND LEISURE</b>			
<b>Construction phase</b>			
The only potential route for the approach channel deepening to affect recreation is by affecting recreational navigation or recreational angling; these issues are addressed within 'commercial and recreational navigation' and 'fishing activity'			
<b>Operation phase</b>			
The only potential route for the approach channel deepening to affect recreation is by affecting recreational navigation or recreational angling; these issues are addressed within 'commercial and recreational navigation' and 'fishing activity'			
<b>NOISE AND VIBRATION</b>			
<b>Construction phase</b>			
Potential for elevated noise levels during construction works	Negligible significance	It is recommended that, if practicable, dredging in the areas closest to land is avoided during the night	Negligible significance
Potential for vibration during the construction works	No impact	None required	No residual impact
<b>Operational phase</b>			
Noise generation during maintenance dredging activities	No impact	None required	No residual impact
Potential for vibration during maintenance dredging activities	No impact	None required	No residual impact
<b>AIR QUALITY</b>			
<b>Construction phase</b>			
Potential effect on local air quality due to emissions from the dredger	Negligible significance	Dredging in the areas closest to residential properties should be kept to minimum practicable timescales	Negligible significance
<b>Operational phase</b>			
Potential air quality implications associated with maintenance dredging	Negligible significance	None required	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
<b>GEOLOGY, LANDSCAPE AND VISUAL SETTING</b>			
<b>Construction phase</b>			
Potential for direct impact on sites designated for geological or landscape importance	No impact	None required	No residual impact
<b>Operational phase</b>			
Potential for impact on sites designated for geological importance due to effects on coastal processes	No impact	None required	No residual impact
<b>INFRASTRUCTURE, LAND DRAINAGE AND COASTAL PROTECTION</b>			
<b>Construction phase</b>			
Potential for damage to infrastructure during the proposed capital dredging	No impact	The dredging contractor should be informed of the location of the water main and electricity cables	No residual impact
<b>Operational phase</b>			
Potential effects on infrastructure during maintenance dredging	No impact	None required	No residual impact
Potential effects on infrastructure through a change in the hydrodynamic and sedimentary regime	Negligible significance	None required	Negligible significance
Potential impacts on coastal protection structures around Brownsea Island due to changes in wave climate and current speeds	Minor adverse significance (south-eastern part of Brownsea Island); minor beneficial significance (coast protection structures north of Castle Pier)	None possible	Minor adverse significance (south-eastern part of Brownsea Island); minor beneficial significance (coast protection structures north of Castle Pier)

Potential impact	Impact significance	Mitigation	Residual impact
<b>TRAFFIC AND TRANSPORTATION</b>			
<b>Construction phase</b>			
Implications for traffic levels on the local road network	No impact	None required	No residual impact
<b>Operational phase</b>			
Potential for increased traffic levels on the local road network	Minor adverse significance (local to the Port); negligible significance (road capacity beyond the local area)	The construction of a second opening bridge would significantly improve the flow of traffic on the local road network and ease congestion. It is also expected to have the capacity to accommodate any additional traffic generated by the Port in the future	Minor adverse significance (local to the Port); negligible impact (road capacity beyond the local area)
<b>SOCIO-ECONOMICS</b>			
<b>Construction phase</b>			
Provision of temporary employment during the dredging works	Minor beneficial significance	None required	Minor beneficial significance
<b>Operational phase</b>			
Maintenance and enhancement of business at the Port of Poole	Major beneficial significance	None required	Major beneficial significance

**Table 6.2 Potential impacts, mitigation measures and residual impacts associated with the proposed offshore disposal of dredged material**

Potential impact	Impact significance	Mitigation	Residual impact
<b>HYDRODYNAMIC AND SEDIMENTARY REGIME</b>			
<b>Construction phase</b>			
Increased suspended sediment concentration during disposal	Peak increases in suspended sediment concentrations of the order of 50-100mg/l would occur within Poole Bay, with larger increases in the vicinity or streamline of the site. Mean concentration increases would be under 25mg/l except very near the point of disposal	No mitigation measures are possible	This is considered to be a 'change' arising as a result of the proposed scheme rather than an 'impact' that can be assessed in terms of significance. The implications of this change on other parameters included in the EIA (e.g. marine and coastal ecology) have been assessed
Deposition of fine sediment on the seabed	Deposition of sediment would largely be temporary, occurring over the slack water period. Less than a millimetre of deposition is predicted at most locations, although deposition of up to about 8mm of fine sediment is predicted at Inner Poole Patch	No mitigation measures are possible	See comment above
<b>Operational phase</b>			
No significant effects are predicted			
<b>SEDIMENT QUALITY</b>			
<b>Construction phase</b>			
Potential effect on the sediment quality of the offshore disposal ground and surrounding seabed due to deposition of sediment	Short-term minor adverse significance (physical); no impact (chemical and biological)	No mitigation measures are required	Minor adverse significance (physical); no residual impacts (chemical and biological)

Potential impact	Impact significance	Mitigation	Residual impact
<b>Operational phase</b>			
Potential effect on the sediment quality of the offshore disposal ground and surrounding seabed due to the disposal of maintenance dredgings	No impacts	No mitigation measures are required	No residual impacts
<b>WATER QUALITY</b>			
<b>Construction phase</b>			
Potential effect on water quality due to release of dangerous substances during the disposal of dredged material	Minor adverse significance (short-term)	No mitigation measures are possible	Minor adverse significance (short-term)
Potential effect on bathing water quality during the disposal of dredged material	Minor adverse impact (short-term at the disposal ground); no impact (bathing waters)	No mitigation measures are possible	Minor adverse impact (short-term at disposal ground); no impact (bathing waters)
Potential effect on shellfish water quality during the disposal of dredged material	Moderate adverse significance (suspended sediment); no impact (DO, metals or organo-halogenated compounds)	No mitigation measures are possible	Moderate adverse significance (suspended sediment); no residual impact (dissolved oxygen and metals and organo-halogenated compounds)
<b>Operational phase</b>			
Potential effect on water quality due to release of dangerous substances during offshore disposal of maintenance dredgings	Minor adverse significance (short-term)	No mitigation measures are possible	Minor adverse significance (short-term)
Potential effect on bathing water quality during offshore disposal of maintenance dredgings	Minor adverse significance (short-term) at disposal ground; no impact is predicted at bathing waters	No mitigation measures are possible	Minor adverse significance (at disposal ground); no residual impact is predicted at bathing waters.

Potential impact	Impact significance	Mitigation	Residual impact
Potential effect on shellfish water quality during offshore disposal of maintenance dredgings	No impact (suspended sediment, DO, metals or organo-halogenated compounds)	No mitigation measures are required	No residual impacts (suspended sediment, dissolved oxygen and metals and organo-halogenated compounds).
<b>MARINE AND COASTAL ECOLOGY</b>			
<b>Construction phase</b>			
Potential impact on seabed communities within the disposal ground	Negligible significance	No mitigation measures are required	Negligible significance
Potential impact of increased SSC and subsequent deposition of fine silty sediment on marine communities	No impact ( <i>Sabellaria spinulosa</i> ); negligible significance (maerl); no impact ( <i>Ampelisca</i> mats and <i>Zostera marina</i> ); negligible significance (subtidal communities throughout Poole Bay) and minor adverse significance (Poole Rocks).	Beyond the proposal to dispose of dredged material in the south-east quadrant of the disposal ground, no further mitigation measures are possible	No impact ( <i>Sabellaria spinulosa</i> ); negligible significance (maerl), no impact ( <i>Ampelisca</i> mats and <i>Zostera marina</i> ), negligible significance (subtidal communities throughout Poole Bay) and minor adverse significance (Poole Rocks).
Potential impact on marine mammals	Negligible significance	No mitigation measures are required	Negligible significance
<b>Operational phase</b>			
Potential impact on subtidal marine communities due to the disposal of maintenance dredgings	Minor beneficial significance	No mitigation measures are required	Minor beneficial significance
<b>MARINE AND COASTAL ORNITHOLOGY</b>			
<b>Construction phase</b>			
Potential disturbance to waterbirds due to the presence of the dredger at the disposal ground	Negligible significance	No mitigation measures are required	Negligible significance
Potential effect on the food resource for diving waterbirds	Negligible significance	No mitigation measures are required	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
<b>Operational phase</b>			
Potential disturbance and effects on the food resource for waterbirds during the disposal of maintenance dredgings	No impact	No mitigation measures are required	No residual impact
<b>COASTAL AND TERRESTRIAL ECOLOGY</b>			
<b>Construction phase</b>			
Potential for direct impact on coastal and terrestrial ecology	No impact	No mitigation measures are required	No residual impact
<b>Operational phase</b>			
Potential for indirect impact on coastal and terrestrial ecology	No impact	No mitigation measures are required	No residual impact
<b>FISH AND SHELLFISH RESOURCE</b>			
<b>Construction phase</b>			
Direct impact on finfish and shellfish populations due to smothering	Negligible significance (finfish); no impact (shellfish)	Disposal operation would be confined to a targeted area of seabed in order to minimise the overall area of seabed affected by disposal	Negligible significance (finfish); no impact (shellfish populations)
Potential impact on finfish and shellfish due to the increased SSC in the vicinity of the disposal ground and deposition of fine sediment	Negligible significance (finfish and shellfish)	The location of the offshore disposal of dredged material has been optimised (i.e. in the south-east quadrant of the disposal ground) to limit the potential for accumulation of fine sediment on sensitive habitats	Negligible significance (finfish and shellfish)
<b>Operational phase</b>			
Potential impact of the disposal of maintenance dredgings on finfish and shellfish communities	No additional impact	No mitigation measures are required	No additional impact

Potential impact	Impact significance	Mitigation	Residual impact
<b>FISHING ACTIVITY</b>			
<b>Construction phase</b>			
Potential for loss or damage to fishing gear	No impact	Other than issuing a Notice to Mariners no other mitigation measures are required	No impact
<b>Operational phase</b>			
Potential impact on fishing activity due to the disposal of maintenance dredgings	No additional impact	No mitigation measures are required	No additional impact
<b>COMMERCIAL AND RECREATIONAL NAVIGATION</b>			
<b>Construction phase</b>			
Collision risk due to presence of the dredger	Negligible significance	No mitigation measures are required	Negligible significance
<b>Operational phase</b>			
Obstruction to navigation through the accumulation of material	No impact	No mitigation measures are required	No impact
<b>ARCHAEOLOGY AND HERITAGE</b>			
<b>Construction phase</b>			
Potential impact on Palaeolithic or Mesolithic sites and/or finds	Negligible significance	No mitigation measures are required	Negligible significance
Potential impact on late prehistoric and Roman terrestrial sites and/or finds	No impact	No mitigation measures are required	No residual impact
Potential impacts on the maritime archaeological resource	Negligible significance	No mitigation measures are required	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
<b>Operational phase</b>			
Potential impacts on the maritime archaeological resource due to the disposal of maintenance dredgings	No impact	No mitigation measures are required	No residual impact
Potential impact on Palaeolithic, Mesolithic, late prehistoric and Roman terrestrial sites and/or finds	No impact	No mitigation measures are required	No residual impact
<b>RECREATION AND LEISURE</b>			
<b>Construction phase</b>			
Effects on bathing waters designation	No impact	No mitigation measures are required	No impact
Effects on divers due to reduced visibility	Minor adverse significance	No mitigation measures are possible	Minor adverse significance
<b>Operational phase</b>			
No additional impact is predicted given the reduction in the volume of maintenance dredgings to be disposed of at the offshore disposal ground			
<b>NOISE AND VIBRATION</b>			
<b>Construction phase</b>			
Noise generated during transport of dredged material to the offshore disposal ground	No impact	No mitigation measures are required	No impact
Potential for vibration to be generated during disposal operations	No impact	No mitigation measures are required	No impact
<b>Operational phase</b>			
Noise generation due to the disposal of maintenance dredgings	No impact	No mitigation measures are required	No impact
Potential for vibration to be generated during the disposal of maintenance dredgings	No impact	No mitigation measures are required	No impact

Potential impact	Impact significance	Mitigation	Residual impact
<b>AIR QUALITY</b>			
<b>Construction phase</b>			
Potential effect on local air quality due to emissions from the dredger	No impact	No mitigation measures are required	No impact
<b>Operational phase</b>			
Potential effect on local air quality due to emissions from the dredger	No impact	No mitigation measures are required	No impact
<b>GEOLOGY, LANDSCAPE AND VISUAL SETTING</b>			
<b>Construction phase</b>			
Potential for deposition of fine material within sites designated for their geological or landscape importance	No impact	No mitigation measures are required	No impact
<b>Operational phase</b>			
No significant impacts are envisaged during the operational phase			
<b>INFRASTRUCTURE, LAND DRAINAGE AND COASTAL PROTECTION</b>			
<b>Construction phase</b>			
Potential effects of disposal on infrastructure	No impact	No mitigation measures are required	No impact
<b>Operational phase</b>			
Effects of maintenance dredgings disposal on infrastructure	No impact	No mitigation measures are required	No impact
<b>TRAFFIC AND TRANSPORTATION</b>			
<b>Construction phase</b>			
Implications for traffic levels on the local road network	No impact	No mitigation measures are required	No impact
<b>Operational phase</b>			
Implications for traffic levels on the local road network	No impact	No mitigation measures are required	No impact

Potential impact	Impact significance	Mitigation	Residual impact
<b>SOCIO-ECONOMICS</b>			
<b>Construction phase</b>			
There are no specific socio-economic effects associated with the offshore disposal; the effects are encompassed within the overall scheme (see Table 6.1)			
<b>Operational phase</b>			
There are no specific socio-economic effects associated with the offshore disposal; the effects are encompassed within the overall scheme (see Table 6.1)			

**Table 6.3 Potential impacts, mitigation measures and residual impacts associated with the proposed beach nourishment**

Potential impact	Impact significance	Mitigation	Residual impact
<b>SEDIMENT QUALITY</b>			
<b>Construction phase</b>			
Potential effect on the sediment quality at the beach nourishment sites	No impact (physical, chemical and biological)	No mitigation measures are required	No residual impacts
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>WATER QUALITY</b>			
<b>Construction phase</b>			
Potential effect on water quality due to release of dangerous substances during beach nourishment	No impact	No mitigation measures are required.	No residual impacts
Potential effect on bathing water quality during beach nourishment	Minor adverse significance (short term) but no impact in relation to the criteria of the Bathing Waters Directive	No mitigation measures are required.	Minor adverse significance (short term) but no impact in relation to the criteria of the Bathing Waters Directive
Potential effect on shellfish water quality during beach nourishment	No impact	No mitigation measures are required.	No impact

Potential impact	Impact significance	Mitigation	Residual impact
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>MARINE AND COASTAL ECOLOGY</b>			
<b>Construction phase</b>			
Smothering of intertidal communities	Negligible significance	No mitigation measures are possible	Negligible significance
Potential impact of the release and subsequent deposition of fine material from the beach nourishment schemes on subtidal communities	Negligible significance	No mitigation measures are possible	Negligible significance
Potential impact on marine mammals	No impact	No mitigation measures are required	No residual impact
<b>Operational phase</b>			
Recovery of infaunal communities within the beach nourishment areas	Beneficial impact (recovery of communities) although the overall effect of the nourishment would be neutral	No mitigation measures are required	Beneficial impact (recovery of communities) although the overall effect of the nourishment would be neutral
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>MARINE AND COASTAL ORNITHOLOGY</b>			
<b>Construction phase</b>			
Potential disturbance to waterbirds during the beach nourishment	Negligible significance	No mitigation measures are required	Negligible significance
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			

Potential impact	Impact significance	Mitigation	Residual impact
<b>COASTAL AND TERRESTRIAL ECOLOGY</b>			
<b>Construction phase</b>			
Potential for direct impact on coastal and terrestrial ecological interest	Negligible significance	No mitigation measures are required	Negligible significance
<b>Operational phase</b>			
Potential for indirect impact on coastal and terrestrial ecological interest	No impact	No mitigation measures are required	No residual impact
<b>FISH AND SHELLFISH RESOURCE</b>			
<b>Construction phase</b>			
Potential smothering of areas of importance for shellfish and finfish populations	No impact	No mitigation measures are required	No residual impact
Potential impact on fish and shellfish populations due to increased SSC and sediment deposition	Negligible significance (shellfish); no impact (finfish)	No mitigation measures are possible	Negligible significance (shellfish); no residual impact (finfish)
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>FISHING ACTIVITY</b>			
<b>Construction phase</b>			
Restriction of access to potential fishing grounds during the beach nourishment works	Negligible significance.	The relevant Local Authorities would inform other users of Poole Bay about the location and duration of the beach nourishment works.	Negligible significance
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			

Potential impact	Impact significance	Mitigation	Residual impact
<b>COMMERCIAL AND RECREATIONAL NAVIGATION</b>			
<b>Construction phase</b>			
Navigational conflict due to the presence of nourishment plant	Minor adverse significance	The potential hazard would be minimised by issuing Notices to Mariners and putting appropriate lights and day signals on the pipeline and associated plant. No further mitigation measures are possible	Negligible significance
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>ARCHAEOLOGY AND HERITAGE</b>			
<b>Construction phase</b>			
Potential impact on Palaeolithic or Mesolithic sites and/or finds	No impact	The mitigation strategy described in Table 6.1 would also apply here	No residual impact
Potential impact on late prehistoric and Roman terrestrial sites and/or finds	No impact	No mitigation measures are required	No residual impact
Potential impacts on the maritime archaeological resource	No impact	No mitigation measures are required	No residual impact
<b>Operational phase</b>			
Protection of potential sites of all periods from erosion	Minor beneficial significance	No mitigation measures are required	Minor beneficial significance

Potential impact	Impact significance	Mitigation	Residual impact
<b>RECREATION AND LEISURE</b>			
<b>Construction phase</b>			
Restrictions on access to beach during beach nourishment works	Minor adverse significance	The impact could be minimised by liaison with tourism and residents groups prior to carrying out the nourishment works. Publicity regarding the beach restrictions should also take place to allow residents and visitors to be forewarned and visit other areas, if necessary	Minor adverse significance
<b>Operational phase</b>			
Potential impacts on the amenity value and existing characteristics of the beaches within Poole Bay	Moderate beneficial significance	No mitigation measures are required	Moderate beneficial significance
<b>NOISE AND VIBRATION</b>			
<b>Construction phase</b>			
Noise and vibration disturbance during the beach nourishment works	Minor adverse significance (nourishment in areas adjacent to residential properties); negligible significance (elsewhere)	It is recommended that the proposed beach nourishment schemes are discussed with the Environmental Health Officers of the relevant local authority in order to determine whether the noise generated would be of concern. If noise levels are likely to be of concern the impact could be minimised by restricting working hours to avoid night time disturbance.	Minor adverse significance (nourishment in areas adjacent to residential properties); negligible significance (elsewhere)

Potential impact	Impact significance	Mitigation	Residual impact
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>AIR QUALITY</b>			
<b>Construction phase</b>			
Potential air quality impact due to emissions from plant	Negligible significance (exhaust emissions); no impact (release of dust/sand into air)	No mitigation measures are required	Negligible significance (exhaust emissions); no impact (release of dust/sand into air)
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>GEOLOGY, LANDSCAPE AND VISUAL SETTING</b>			
<b>Construction phase</b>			
Effect on views due to presence of beach nourishment plant	Negligible significance	Any potential adverse impact on the visual character of the coastline is minimised by undertaking the works during the winter period when the least number of people would be affected. In addition, the site area should be kept tidy, in line with normal site practices	No residual impact
Potential effect on geologically important sites	No impact	No mitigation measures are required	No residual impact
<b>Operational phase</b>			
Effects on landscape due to a change in the appearance of the beaches	Negligible significance	No mitigation measures are required	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
<b>LAND DRAINAGE AND COASTAL PROTECTION</b>			
<b>Construction phase</b>			
Potential effects of beach nourishment on coastal infrastructure	No impact	No mitigation measures are required	No residual impact
<b>Operational phase</b>			
Increased standard of coastal defence	Major beneficial significance.	No mitigation measures are required	Major beneficial significance.
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>TRAFFIC AND TRANSPORTATION</b>			
<b>Construction phase</b>			
Effect on local road network due to presence of construction plant	Negligible significance	No mitigation measures are required	Negligible significance
<b>Operational phase</b>			
The potential environmental impacts associated with any renourishment scheme that may be required would need to be assessed during the application process for the necessary Food and Environment Protection Act and Coast Protection Act consents that would be required.			
<b>SOCIO-ECONOMICS</b>			
<b>Construction phase</b>			
Wider socio-economic benefits associated with the beneficial use of dredged material	Moderate beneficial significance	No mitigation measures are required	Moderate beneficial significance
Provision of temporary employment during the construction phase	The potential benefit to the local economy provided by construction employment has been assessed for the scheme as a whole and is, therefore, encompassed in Table 20.1		
<b>Operational phase</b>			
Implications for the tourist industry	Major beneficial significance	No mitigation measures are required	Major beneficial significance