

20 SUMMARY OF POTENTIAL IMPACTS AND MITIGATION MEASURES

20.1 INTRODUCTION

20.1.1 Tables 20.1 to 20.3 summarise the predicted effects and impacts associated with the proposed approach channel deepening, offshore disposal of dredged material and beach nourishment respectively. The tables show the significance of each potential impact, proposed mitigation measures (where applicable) and the significance of the residual impact (i.e. the impact remaining following the implementation of mitigation measures).

Table 20.1 Potential impacts, mitigation measures and residual impacts associated with the proposed approach channel deepening

Potential impact	Impact significance	Mitigation	Residual impact
HYDRODYNAMIC AND SEDIMENTARY REGIME			
Construction phase			
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
Operational phase			
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 ³ /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 ³ /year would be deposited and, if it were to be dredged and deposited offshore, would represent a further loss of fine sediment		
SEDIMENT QUALITY			
Construction phase			
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)
Operational phase			
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
WATER QUALITY			
Construction phase			
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)
Operational phase			
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
MARINE AND COASTAL ECOLOGY			
Construction phase			
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 (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
Operational phase			
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
MARINE AND COASTAL ORNITHOLOGY			
Construction phase			
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
Operational phase			
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
COASTAL AND TERRESTRIAL ECOLOGY			
Construction phase			
Potential for direct impact on sites designated for coastal and terrestrial ecological interest	No impact	None required	No residual impacts
Operational phase			
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
FISH AND SHELLFISH RESOURCE			
Construction phase			
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)
Operational phase			
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
FISHING ACTIVITY			
Construction phase			
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
Operational phase			
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
COMMERCIAL AND RECREATIONAL NAVIGATION			
Construction phase			
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
Operational phase			
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
ARCHAEOLOGY AND HERITAGE			
Construction phase			
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
Operation phase			
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
RECREATION AND LEISURE			
Construction phase			
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'			
Operation phase			
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'			
NOISE AND VIBRATION			
Construction phase			
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
Operational phase			
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
AIR QUALITY			
Construction phase			
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
Operational phase			
Potential air quality implications associated with maintenance dredging	Negligible significance	None required	Negligible significance

Potential impact	Impact significance	Mitigation	Residual impact
GEOLOGY, LANDSCAPE AND VISUAL SETTING			
Construction phase			
Potential for direct impact on sites designated for geological or landscape importance	No impact	None required	No residual impact
Operational phase			
Potential for impact on sites designated for geological importance due to effects on coastal processes	No impact	None required	No residual impact
INFRASTRUCTURE, LAND DRAINAGE AND COASTAL PROTECTION			
Construction phase			
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
Operational phase			
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
TRAFFIC AND TRANSPORTATION			
Construction phase			
Implications for traffic levels on the local road network	No impact	None required	No residual impact
Operational phase			
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)
SOCIO-ECONOMICS			
Construction phase			
Provision of temporary employment during the dredging works	Minor beneficial significance	None required	Minor beneficial significance
Operational phase			
Maintenance and enhancement of business at the Port of Poole	Major beneficial significance	None required	Major beneficial significance

Table 20.2 Potential impacts, mitigation measures and residual impacts associated with the proposed offshore disposal of dredged material

Potential impact	Impact significance	Mitigation	Residual impact
HYDRODYNAMIC AND SEDIMENTARY REGIME			
Construction phase			
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
Operational phase			
No significant effects are predicted			
SEDIMENT QUALITY			
Construction phase			
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
Operational phase			
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
WATER QUALITY			
Construction phase			
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)
Operational phase			
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).
MARINE AND COASTAL ECOLOGY			
Construction phase			
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
Operational phase			
Potential impact on subtidal marine communities due to the disposal of maintenance dredgings	Minor beneficial significance	No mitigation measures are required	Minor beneficial significance
MARINE AND COASTAL ORNITHOLOGY			
Construction phase			
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
Operational phase			
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
COASTAL AND TERRESTRIAL ECOLOGY			
Construction phase			
Potential for direct impact on coastal and terrestrial ecology	No impact	No mitigation measures are required	No residual impact
Operational phase			
Potential for indirect impact on coastal and terrestrial ecology	No impact	No mitigation measures are required	No residual impact
FISH AND SHELLFISH RESOURCE			
Construction phase			
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)
Operational phase			
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
FISHING ACTIVITY			
Construction phase			
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
Operational phase			
Potential impact on fishing activity due to the disposal of maintenance dredgings	No additional impact	No mitigation measures are required	No additional impact
COMMERCIAL AND RECREATIONAL NAVIGATION			
Construction phase			
Collision risk due to presence of the dredger	Negligible significance	No mitigation measures are required	Negligible significance
Operational phase			
Obstruction to navigation through the accumulation of material	No impact	No mitigation measures are required	No impact
ARCHAEOLOGY AND HERITAGE			
Construction phase			
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
Operational phase			
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
RECREATION AND LEISURE			
Construction phase			
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
Operational phase			
No additional impact is predicted given the reduction in the volume of maintenance dredgings to be disposed of at the offshore disposal ground			
NOISE AND VIBRATION			
Construction phase			
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
Operational phase			
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
AIR QUALITY			
Construction phase			
Potential effect on local air quality due to emissions from the dredger	No impact	No mitigation measures are required	No impact
Operational phase			
Potential effect on local air quality due to emissions from the dredger	No impact	No mitigation measures are required	No impact
GEOLOGY, LANDSCAPE AND VISUAL SETTING			
Construction phase			
Potential for deposition of fine material within sites designated for their geological or landscape importance	No impact	No mitigation measures are required	No impact
Operational phase			
No significant impacts are envisaged during the operational phase			
INFRASTRUCTURE, LAND DRAINAGE AND COASTAL PROTECTION			
Construction phase			
Potential effects of disposal on infrastructure	No impact	No mitigation measures are required	No impact
Operational phase			
Effects of maintenance dredgings disposal on infrastructure	No impact	No mitigation measures are required	No impact
TRAFFIC AND TRANSPORTATION			
Construction phase			
Implications for traffic levels on the local road network	No impact	No mitigation measures are required	No impact
Operational phase			
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
SOCIO-ECONOMICS			
Construction phase			
There are no specific socio-economic effects associated with the offshore disposal, the effects are encompassed within the overall scheme (see Table 20.1)			
Operational phase			
There are no specific socio-economic effects associated with the offshore disposal, the effects are encompassed within the overall scheme (see Table 20.1)			

Table 20.3 Potential impacts, mitigation measures and residual impacts associated with the proposed beach nourishment

Potential impact	Impact significance	Mitigation	Residual impact
SEDIMENT QUALITY			
Construction phase			
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
Operational phase			
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.			
WATER QUALITY			
Construction phase			
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
Operational phase			
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.			
MARINE AND COASTAL ECOLOGY			
Construction phase			
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
Operational phase			
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.			
MARINE AND COASTAL ORNITHOLOGY			
Construction phase			
Potential disturbance to waterbirds during the beach nourishment	Negligible significance	No mitigation measures are required	Negligible significance
Operational phase			
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
COASTAL AND TERRESTRIAL ECOLOGY			
Construction phase			
Potential for direct impact on coastal and terrestrial ecological interest	Negligible significance	No mitigation measures are required	Negligible significance
Operational phase			
Potential for indirect impact on coastal and terrestrial ecological interest	No impact	No mitigation measures are required	No residual impact
FISH AND SHELLFISH RESOURCE			
Construction phase			
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)
Operational phase			
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.			
FISHING ACTIVITY			
Construction phase			
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
Operational phase			
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
COMMERCIAL AND RECREATIONAL NAVIGATION			
Construction phase			
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
Operational phase			
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.			
ARCHAEOLOGY AND HERITAGE			
Construction phase			
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
Operational phase			
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
RECREATION AND LEISURE			
Construction phase			
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
Operational phase			
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
NOISE AND VIBRATION			
Construction phase			
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
Operational phase			
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.			
AIR QUALITY			
Construction phase			
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)
Operational phase			
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.			
GEOLOGY, LANDSCAPE AND VISUAL SETTING			
Construction phase			
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
Operational phase			
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
LAND DRAINAGE AND COASTAL PROTECTION			
Construction phase			
Potential effects of beach nourishment on coastal infrastructure	No impact	No mitigation measures are required	No residual impact
Operational phase			
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.			
TRAFFIC AND TRANSPORTATION			
Construction phase			
Effect on local road network due to presence of construction plant	Negligible significance	No mitigation measures are required	Negligible significance
Operational phase			
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.			
SOCIO-ECONOMICS			
Construction phase			
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		
Operational phase			
Implications for the tourist industry	Major beneficial significance	No mitigation measures are required	Major beneficial significance