

## 17 CONCLUSIONS

An environmental characterisation assessment has been undertaken to consider the potential use of a site within the North Edinburgh Channel for the placement of sandy dredged material. The site was chosen in consultation with the local fishing industry, who were considered key stakeholders in this offshore location.

A series of baseline surveys were carried out to provide information on marine biology, sediment quality, fish, bathymetry and hydrodynamic parameters. Desk-based studies were undertaken to consider the archaeological potential of the site and to predict the fate of the placed sand.

The conclusions of the assessment are presented as follows and a table summarising the impacts and mitigation measures is contained in Appendix J:

1. The placement operation will cause localised changes to hydrodynamic properties in the placement site. These changes will gradually return to the previous regime as the sand is transported away from the site. No significant effects are predicted outside of the area surrounding each mound of sand.
2. The sediment quality of the material to be placed has been compared to the existing seabed condition in the North Edinburgh channel. The dredged sand is considered chemically cleaner than the existing seabed sediment in the North Edinburgh, perhaps due to its relative distance from the historic sewage sludge disposal sites. The placement operation is predicted to improve sediment quality at the placement site.
3. There are no predicted impacts on water quality parameters due to the low levels of contaminant and organic material and the small proportion of fine material in the dredged sand.
4. The marine biology within the proposed placement site is impoverished and representative of communities inhabiting mobile sand environments. There were no species of conservation importance identified in the survey. The placement operation will initially smother the existing community but it is predicted that recovery will be relatively rapid as the placement operation is essentially similar to the effects of a natural extreme event to which the biology will be adapted.
5. The Thames estuary is of importance to fisheries as both spawning and nursery areas for a variety of fish. There is no evidence to suggest that the placement site is of any specific importance. However, in recognition of the increased sensitivity during the important sole spawning period, the PLA has committed, where possible, to avoid both dredging and placement activities during this time.

6. Bird usage of the Thames Estuary is geographically widespread and variable from year to year. Red-throated divers are of particular importance in the estuary and should such birds be observed in the placement site, placement operations will be directed to a site remote from the diver activity.
7. There are no designated conservation sites within 15km of the proposed placement site and no impacts are predicted on these designated areas.
8. An archaeological assessment of the proposed placement site found evidence for a number of maritime and prehistoric sites in the wider estuary. Within the placement site lies the wreck of the Hawksdale and an exclusion zone of 100m will be established around this wreck to prevent direct coverage. It is thought however that the wreck is presently buried.
9. The site was established following discussion with the commercial fisherman and, therefore, negligible effects are expected on fishing activity.
10. Commercial and recreational navigation will be managed by the PLA harbour master to avoid any interference from the placement activities.
11. There are a number of other projects ongoing or predicted in the Thames Estuary, but due to the geographical separation between the projects, no interference is predicted.
12. Further, the geographical separation limits the potential for in-combination effects. There is the potential for mobile species to be affected by the projects and the PLA has undertaken to manage the placement operations, where possible, to avoid the sole spawning area.

### **17.1 South Falls Marine Disposal Site**

The South Falls disposal site is the closest licensed site to the Princes Channel, but the distance is considerable at 55km. The characterisation process has considered the impact of placing the material at South Falls with the following conclusions:

1. The cost of the operation would be expected to double due to the significant increase in transit time compared to the North Edinburgh channel.
2. The sand would be moved to a location outside of the sedimentary regime of the Thames Estuary.
3. South Falls has not previously received such a large quantity of sand over the proposed time period and further assessment would be required to consider the effects of the rate of input.
4. South Falls is not in a dynamic sandbank system and the marine ecology may not be as well adapted to mobile sand as the North Edinburgh site.

Notwithstanding the above, the South Falls site is a designated disposal site where adverse impacts are to some extent considered acceptable. However, the placement of

sand in the North Edinburgh Channel is considered akin to mimicking the natural processes and recycling sediment rather than disposing of material.

## **17.2 Maintenance dredging**

There may be a small future maintenance dredging requirement and the characterisation assessment has indicated that the site would be able to receive this ongoing input without adverse effects. Such placement would form a small fraction of the ongoing movement of sand in this dynamic area. This prediction will be confirmed by the bathymetric monitoring proposed for the main placement operation.

## **17.3 Conclusion**

In summary, there are no predicted long-term significant adverse effects on any of the environmental sensitivities considered in the characterisation assessment. It is considered that the potential for in-combination effects can be managed with the commitment from the PLA to avoid the sole spawning period. The preparation of a Sand Placement Management Plan will ensure that the dredging contractor builds the proposed mitigation measures into his project plan. Liaison with the fishing industry and navigation sector will occur throughout the project via the PLA Harbour Master.

It is considered that the lack of significant environmental effects associated with the proposed sand placement operation and the significant cost reduction achieved by using the North Edinburgh outweighs the benefits of using the South Falls disposal site.