

Planning Act 2008

Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011

Document reference: TR030006/Cover



## **Able Marine Energy Park**

### *Material Change 2*

### **Cover Letter**



Ms Kath Haddrell  
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Your Ref  
TR030006  
Our Ref  
AAT/ADW/124645.0013  
Date  
16 March 2022

Dear Kath

**Proposed Able Marine Energy Park Material Change 2**  
**Application ref: TR030006**  
**Applicant's Submissions - 16 March 2022 - document ref TR030006/Cover**

Please find the submissions of the Applicant, which are submitted in compliance with the letter issued by the Examining Body ('ExB') on 14 March 2022, as follows.

**1. Applicant's Response to Natural England's Comments on Sediment Plume Dispersion**

1.1. The document with reference TR030006/SPD is the information that the Applicant provided to Natural England relating to the modelling of sediment plume dispersion from construction activities. Natural England confirmed to the Applicant on 8 March that they had no outstanding concerns relating to the Applicant's proposed material change.

**2. Clarification relating to the indirect losses of the Application**

2.1. The Applicant confirms that the information relating to the indirect losses of the Application are contained in documents submitted into examination. The exact figures relating to the indirect losses are detailed in Table 13 of the updated Habitats Regulation Assessment ([REP5-008](#)) as well as page 5 and Annex 3 of the Updated Environmental Statement, Appendix UES11-2 ([REP1-027](#)).

2.2. These documents confirm that the indirect losses from the Application are:

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50/60 Station Road  
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**BDB**  
BDB PITMANS

Loss	Habitat Type	Description	Area (ES)	Area (Update)	Notes
Indirect functional loss through disturbance	1140/1310	Mudflat/sandflat not covered by seawater at low tide  Mudflat with pioneer saltmarsh	11.6	7.7	To the south of the reclamation site - potentially disturbed by operational activity on the quay following completion of construction (275m disturbance zone)
	1330	Saltmarsh	0	4.7	New loss as this community has recently colonised this area.

Yours sincerely



**Angus Walker**  
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For and on behalf of BDB Pitmans LLP

  
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## **Able Marine Energy Park**

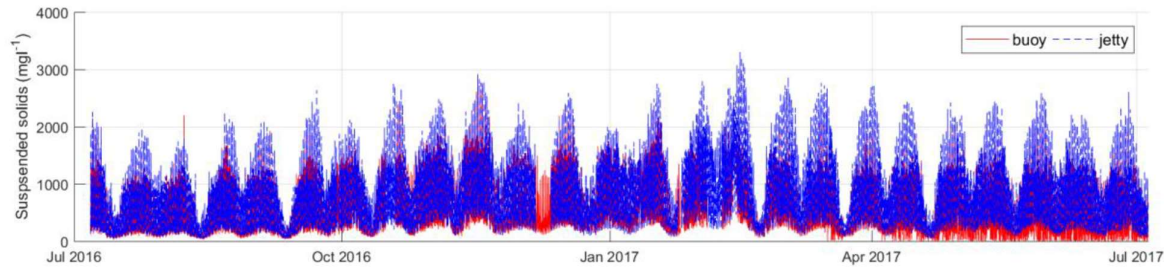
### *Material Change 2*

## **Applicant's Response to Natural England's Comments on Sediment Plume Dispersion**

**Able Marine Energy Park 2021 Report DER6453-RT006 R01-00 Modelling of Sediment Plume Dispersion from AMEP Construction Activities**

**Further information required**

<b>Section</b>	<b>Additional information required</b>
1.2	<p>Model simulations were carried out to predict dispersion and deposition patterns of fine sediment from reclamation run-off and BHD during reclamation. There is no discussion of the fate of coarser grained sediments released from reclamation run-off and BHD during reclamation. We cannot, therefore, comment on the fate of suspended sediments with a diameter &gt;63 microns and we advise that the fate of coarser grained sediments should be considered.</p> <p><u>HR Wallingford response:</u> All sediment plume modelling for AMEP, whether in the original ES or Updated ES, has considered the dispersion of the finest fraction of sediment only. The coarser fractions of material released in any run-off will remain close to the discharge point. Some of the coarser material will be re-dredged in subsequent stages of the dredging.</p>
Section 4 Para 2	<p>Suspended sediment concentration (SSC) values within the Humber Estuary are quoted from a 2004 Delft Hydraulics report. A reference should be provided for this report, however, given its age, it would be more appropriate to use a more recent source.</p> <p><u>HR Wallingford response:</u> The 2004 data is referenced in general terms and is not the only source listed in the reference paragraph.</p> <p>The most recent source is the Partrac data from 2018 (Section 4, Bullet 1) The figure below (Figure 12 from UES Appendix UES 9.3) shows the time measurements of suspended sediment concentration at two locations in proximity to the AMEP site measured between July 2016 and July 2017. The strong correlation with the spring-neap tidal cycle can clearly be seen, with elevated concentrations (typically peaking at 2,000 to 3,000 mg/l) at the time of spring tides and reduced concentrations at the time of neap tides (typically peaking at 200 to 500 mg/l).</p>



Source Figure 12 of Appendix UES9.3

Section 4, Bullet Points 1-4

There is no schematic/map showing the location of the SSC measurements described. Furthermore, Bullet Points 2-4 refer to old data and the reports referenced have not been included in the references. More up to date data should be used. This is particularly relevant to the data discussed for Humber Sea Terminal, as this is near to the proposed AMEP site. Contextual information should also be provided regarding the sample timing / duration for these data.

HR Wallingford response:

See response above and refer to Appendix UES 9.3, for comprehensive details of a year long monitoring campaign proximate to the development site

Section 5.1

There are no specific details of the sediment that will be released by BHD. It would be useful to for this site in order to understand the nature and composition of the sediment likely to be removed by BHD and, thus, released. Details should be provided, including particle size analysis data, to show the nature and composition of the seabed/sub-surface material that will undergo BHD as this will help validate the model predictions.

HR Wallingford response:

The source terms used for the BHD were the same as used in the original study supporting the 2011 ES (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR030001/TR030001-000374-8.4%20-%20Dredging%20Plume%20Dispersion.pdf> ). See Section 5.2 for details.

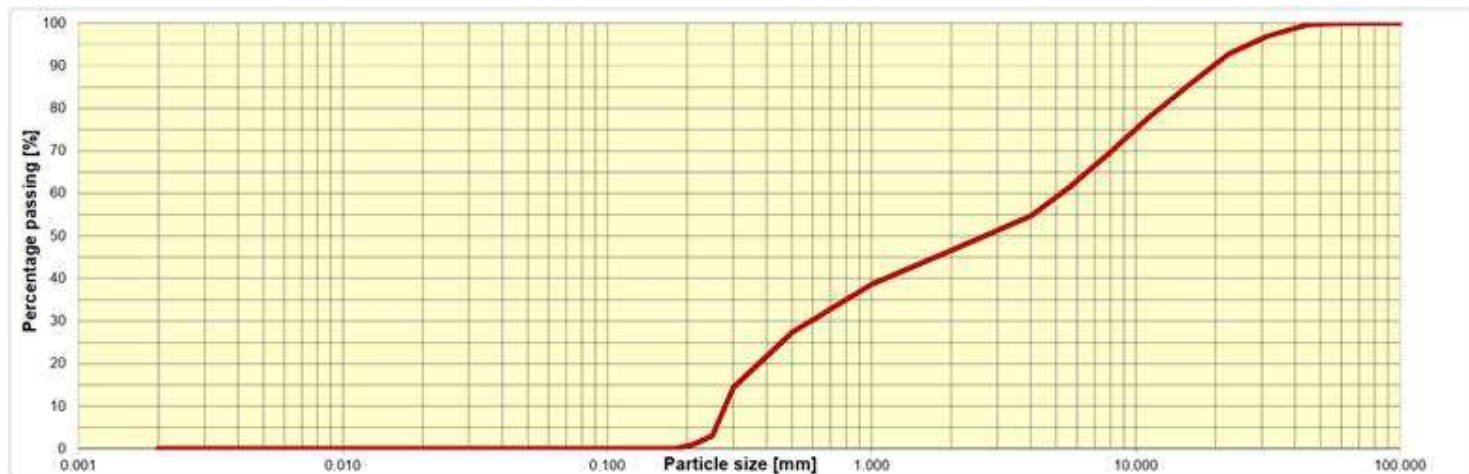
## Section 5.2

Material from an offshore licensed aggregate site will be used for the reclamation. It is assumed that the fines content in the fill material will be 1% when pumped ashore. There is no specific information (such as particle size analysis data) regarding the nature of the sediment that will be pumped ashore. This should be included in order to show whether this offshore aggregate will alter the sedimentary character of the seabed at and around the reclamation site. This will help to validate the model results.

### HR Wallingford response:

The plume modelling has focussed on the release of the finest fraction of material from the run-off (see response above). The coarser material from the placement will either remain in the footprint of the reclamation as part of the permanent works or will be redistributed locally and then be dredged in subsequent phases of the works.

The fines content of material in-situ at licensed offshore aggregate sites is generally very low (a few percent or less). After being dredged by TSHD at the aggregate site with some overflow during the loading of the dredger the fines content will be further reduced. Our assumption of 1% fines in the material being placed ashore into the reclamation is considered conservative. An indicative grading curve is provided below.



Source - AMEP

Section 6.3.4 and  
Table 6.2

Predicted accretion at South Killingholme Oil Jetty due to the reclamation run-off and BHD dredging is 219m<sup>3</sup> over a spring-neap cycle. However, for BHD alone, infill is predicted to be 3m<sup>3</sup>. Therefore, there is a considerable difference in infill at this location where BHD is combined with reclamation run-off. It is suggested that the predicted infill figures relatively insignificant when compared to annual maintenance dredge requirements and the natural variation in those quantities. However, relevant figures for annual maintenance dredge requirements should be included to confirm this.

HR Wallingford response:

In the previous studies supporting the application plume modelling was not undertaken to illustrate the reclamation stages of the construction. The dredging strategy described the works that would be undertaken including the reclamation. The reclamation activity itself was envisaged to be discharge of dredged material into confined areas (i.e. cells created by cross dams and bunds) where the source of plumes arising from the reclamation would be run-off of transport water and accompanying fines.

Given the option to undertake open reclamation (i.e. without the confinement provided by closed cells) it was considered helpful to illustrate the proposed open reclamation activity. The reclamation activity is proposed to take place over about 10 months. At times (on two occasions for up to a month each) there will also be BHD dredging loading into barges occurring whilst the reclamation takes place. It was decided to simulate these occasions, when there will be reclamation run-off in combination with BHD dredging activity, and to compare these results with those presented previously for the BHD operations. The comparison that is made is with the previously presented BHD loading barges.

The report presents the results in the same format as for previous plume modelling studies and hence presents patterns and rates of deposition and volumes of infill at nearby berths. Importantly the report uses the flow patterns arising from the part constructed works. The previously published results used either the baseline flow conditions, representative of the very start of the construction programme, or the final scheme flow conditions, representative of the end of the construction programme.

The results of the new plume simulations show that compared to the previous simulations the predicted increases in infill at nearby berths are negligible except at South Killingholme Oil Jetty (SKOJ) where additional infill is predicted as a result of the combined effects of the changes to the hydrodynamics associated with the stage of construction, the location of the BHD operation and the effects of reclamation run-off compared to the previous simulations of BHD seawards of the AMEP quay.

Based on the proposed construction sequence (10 months of reclamation and up to 2 months of BHD operations) the additional monthly infill predicted at SKOJ is between a maximum of 70 m<sup>3</sup> and 430 m<sup>3</sup>. The SKOJ berth will be regularly



	<p>surveyed during the construction period and protective provisions are in place (DCO Schedule 9, Part 15) should there be sedimentation in the berths above the typical background rates.</p>
Section 7	<p>Based on the information provided in this report, we broadly agree that SSCs and associated deposition are comparable to that previously assessed for the amended scheme. Furthermore, based on the background SSC levels near the AMEP site, the impacts of the project alone appear not to be significant in terms of SSCs and associated deposition. However, there is no mention in this report of other projects acting cumulatively within the zone of influence during the construction phase of the AMEP project, or in-combination with other aspects of the same development. This could lead to more spatially extensive and/or higher concentration sediment plumes arising from multiple coincident operations and should therefore be considered as part of the assessment.</p> <p><u>HR Wallingford response:</u> This point has not been raised previously by Natural England or the MMO during previous consultation on the plume modelling undertaken for AMEP. The most significant dredging plumes are those arising from TSHD dredging sand and gravel or CSD loading barges (see Sections 9 and 10 of the earlier study, HR Wallingford Report DER6453-RT002-R04-00, June 2021).</p> <p>SSC's during construction will, in any event, be subject to an Active Monitoring Scheme that has already been approved by the MMO (DCO Schedule 8 paragraph 39), and dredging at AMEP will be suspended when monitoring indicates levels outside the agreed limits of acceptable change set out in Appendix UES 9.3.</p>

#### Additional comments

Section	Comment
General Comment	<p>Scale should be included on all figures.</p> <p><u>HR Wallingford response:</u> Scales are included in all figures. Area plans are provided with an OS grid as the scale.</p>
General Comment	<p>No specific details are provided of the plume dispersion model used to characterise the dispersion and deposition of fine sediment due to reclamation run-off and back hoe dredging (BHD). Therefore we cannot provide any comments on the validation and calibration of the numerical model itself.</p>

	<p><u>HR Wallingford response:</u> The SEDPLUME model is described in Section 2 of the earlier report (HR Wallingford Report DER6453-RT002-R04-00, June 2021).</p>
Section 6.3.1, 1 <sup>st</sup> Paragraph	<p>This refers to Figure 6.4, but should refer to Figures 6.8-6.11.</p> <p><u>HR Wallingford response:</u> Correct.</p>
Section 6.3.1, 2 <sup>nd</sup> Paragraph	<p>This refers to Figure 6.5, but it should refer to Figure 6.12.</p> <p><u>HR Wallingford response:</u> Correct.</p>
Figure 6.12	<p>The peak increase in depth-averaged SSC near the AMEP site appears insignificant compared with measured background SSCs and we understand that background SSC levels further up the estuary can reach thousands of mg/l. However, at Grimsby this is not the case. Peak surface concentrations of 150-200mg/l were recorded at Grimsby in 2009. Figure 6.12 shows predicted peak increase in SSC of 10-20mg/l at Grimsby but 20-50mg/l just to the north of Grimsby. These values relate to 5-33% increase above the 2009 peak surface concentrations which could be considered significant.</p> <p><u>HR Wallingford response:</u> NE is referred to Chapter 10, Section 10.4.0 of the UES with regards to the significance of any impacts of elevated levels of SSC on the marine environment. Specifically, paragraph 10.4.24 states:</p> <p><i>'The ecological effects associated with the proposed material change will be substantially similar in nature to those considered in the original ES, with no new effects having been identified'.</i></p> <p>The highest increases in suspended sediment concentrations in the vicinity of Grimsby arose from the scenario of the TSHD dredging sand and gravel. In the earlier studies it was found that the effects of dredging with the amended AMEP scheme were comparable to the consented scheme (see Figures 9.5 to 9.8 of the earlier study). No previous concerns about elevated peak suspended sediment concentration in the vicinity of Grimsby have been raised by Natural England, the Environment Agency or the MMO.</p>