



Supplementary Environmental Information

Addendum to Flood Risk Assessment

Supplementary Report EX 13.2

June 2012
Revision: 0
JBA Consulting

ABLE Marine Energy Park

EX 13.2 Explanatory Note

Addendum to Flood Risk Assessment

June 2012

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Revision History

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Explanatory Note v1 11 June 2012		Richard Cram, ABLE UK Ltd Report Text emailed as Word Document.
Explanatory Note v2 12 June 2012	Various minor amendments as discussed with client.	Richard Cram, ABLE UK Ltd Report Text emailed as Word Document.

Contract

This report describes work commissioned by ABLE UK Ltd under an email instruction from Richard Cram dated 31 May 2012. ABLE UK Ltd's representative for the contract was Richard Cram. David Stark of JBA Consulting carried out this work.

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Purpose

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Executive Summary

This Explanatory Note addresses those parts of the relevant representation dated 2 April 2012 from the Environment Agency that relate to the Flood Risk Assessment and Drainage Strategy (Final Report Version v4, prepared by JBA Consulting, August 2011).

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Abbreviations

AMEP	Able Marine Energy Park
DCO	Development Consent Order
EA	Environment Agency
FRA	Flood Risk Assessment
IDB	Internal Drainage Board
IPC	Infrastructure Planning Commission
LPA	Local Planning Authority
mAOD	Metres Above Ordnance Datum
MEP	Marine Energy Park
NELC	North East Lincolnshire Council
NELDB	North East Lindsey Drainage Board
NLC	North Lincolnshire Council
PPS25	Planning Policy Statement 25: Development and Flood Risk
SFRA	Strategic Flood Risk Assessment
SUDS	Sustainable Drainage Systems
WWTW	Waste Water Treatment Works

Definitions

Annual Exceedance Probability / Return Period	The severity of a flood event is now described in terms of its annual probability of exceedance. A 1% annual exceedance probability (AEP) flood has a 1 in 100 chance of being exceeded in a given year. Descriptions using 'return period' are now regarded as being misleading, but the two may be related by taking the inverse of the AEP. For example, a 1% AEP event may be equated to a '100-year' return period flood.
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1. Purpose of this Explanatory Note

1.1 Environment Agency Relevant Representation

- 1.1.1 The IPC accepted the application for the Able Marine Energy Park (AMEP) at Killingholme on 12 January 2012. Since then notices have been issued to statutory consultees that the application has been accepted and relevant representations have been received from some consultees. This Explanatory Note addresses those parts of the response dated 2 April 2012 from the Environment Agency that relate to the Flood Risk Assessment and Drainage Strategy (Final Report Version v4, prepared by JBA Consulting, August 2011). A copy of the Environment Agency's relevant representation is included in Appendix A.

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2. Modelling of Quay Design

2.1 Environment Agency Relevant Representation

- 2.1.1 On page 2 of their relevant representation letter dated 2 April 2012, the Environment Agency commented that:

The Flood Risk Assessment (FRA) submitted in respect of the Marine Energy Park (MEP) site has assessed the risks to and from the project based on an earlier quay (chamfer) design. The modelling methodology used is fit for purpose. Unfortunately, the FRA does not reflect the latest amended (square edged) quay design, which only becomes apparent on reading Chapter 8 of the Environmental Statement. It will be difficult for us to advise on the definitive requirements for flood risk mitigation until the FRA is updated and we request that this further work is submitted as soon as possible.

The construction of the quay will result in a reduction of the current standard of protection provided by the adjacent defences. This occurs at both the north and south ends of the quay, the north section being the worst affected. However, Able is proposing to mitigate for this increase to the north as part of the development. It is our opinion that the project may increase sedimentation over time to the south of the quay. Able has also agreed to monitoring sediment levels and the foreshore to the south, with a view to improving defences if/when required.

2.2 Comment on the Relevant Representation

- 2.2.1 Section 3.4 of the FRA reported on the impact of an iteration of the submitted quay design on adjacent tidal defences. The latest quay design has now been modelled as described in AMEP Supplementary Report - Modelling of Final Quay Design (Supplement to Annex 8.1 of the Environmental Statement), dated June 2012. In accordance with Environment Agency requirements, the latest modelling has considered the 200-year event in 2033 (the extent of the current Environment Agency Humber Strategy timeline). The latest quay design incorporates rock armour in the following locations to mitigate increased wave heights:

- Along the northwest face of the quay, with a 1:4 gradient, extending 160 m seawards from where the quay meets the existing defences.
- In front of the existing northern sloping flood defences, extending from where the quay meets the existing defences, to a distance of 60m along the existing defences to the northwest.
- Along the southwest face of the quay and for 150 m along the southeast face of the quay, at a 1:2 gradient.

- 2.2.2 Key relevant outputs from the latest modelling are as follows:

- There will be no adverse impact on the adjacent tidal defences (taking into account the mitigation effect provided by the rock armour).
- Overtopping is limited to less than 2 l/s/m (the limit agreed with the Environment Agency).
- Any increased sedimentation (due to the presence of the quay) in the affected inter-tidal areas over time will act to depth-limit waves further, leading to further potential mitigation of these impacts.

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3. Impact on Overland Flood Flows

3.1 Environment Agency Relevant Representation

- 3.1.1 On page 2 of their relevant representation letter dated 2 April 2012, the Environment Agency commented that:

The flood modelling has identified that the project will impact on overland flood flows and locally increase the flood depth to the surrounding area. This generally results in a 300mm increase in flood depths, which could affect third parties, in particular the warehousing/office buildings at Manby Road, and property on Marsh Lane, such as Hazel Dene (a residential property). The Secretary of State will need to take a view on whether or not this increase in flood depths to third parties is acceptable.

3.2 Comment on the Relevant Representation

No response is required.

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4. Surface Water Disposal

4.1 Environment Agency Relevant Representation

- 4.1.1 On page 2 of their relevant representation letter dated 2 April 2012, the Environment Agency commented that:

The FRA includes sufficient detail to confirm the acceptability of surface water disposal from the site. However, further details will be required to ensure a satisfactory scheme will be implemented. Currently, the proposal requires adaptation to a small but integral part of the North East Lindsey Drainage Board scheme and the relocation of the pumping station. The former will require the agreement of the Drainage Board and the latter will require consent from us under the Environment Agency Anglian Region Land Drainage and Sea Defence Byelaws 1987.

4.2 Comments on the Relevant Representation

- 4.2.1 Extensive discussions have already been held with the North East Lindsey Drainage Board (NELDB) and the Environment Agency about these matters, as reported in the Flood Risk Assessment and Drainage Strategy.
- 4.2.2 Schedule 11, Requirement 11 of the draft DCO provides for all details of the surface water drainage scheme to be agreed for each stage of the development before construction commences on the respective stage.

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5. Climate Change Requirements

5.1 Environment Agency Relevant Representation

- 5.1.1 On pages 2 and 3 of their relevant representation letter dated 2 April 2012, the Environment Agency commented that:

The FRA has used climate change requirements set out in Planning Policy Statement 25 'Development and Flood Risk' (PPS25), which was [the] relevant policy in force at that time, (but is now superseded by the National Planning Policy Framework (NPPF)). This was our advice to the applicant during the pre-application consultation stages. In January 2012 the National Policy Statements for Ports was finally designated and this requires the applicants to use the latest set of UK Climate Projections. The PPS25 levels are comparable to the high emission scenario 90% estimate from UKCP09, so by having considered this degree of change, it is our opinion that Able has covered all that is required. However, if there are any safety-critical elements to the project, Able may want to revisit the high emissions scenario to ensure those elements are set at an appropriate level, above the potential flood risk.

5.2 Comments on the Relevant Representation

- 5.2.1 As stated by the Environment Agency, the FRA has used the climate change requirements set out in PPS25. The NPPF and the associated Technical Guidance Document retain key elements of PPS25, including in particular the same recommended contingency allowances for net sea level rises (see Table 4 of the NPPF Technical Guidance Document).
- 5.2.2 However, as stated by the Environment Agency, the National Policy Statement for Ports and the UKCP09 climate change projections are now the relevant documents for the AMEP scheme, and these incorporate less onerous climate change projections as illustrated in Table 5.1 below.

Table 5.1 Climate Change

Document	Sea Level Rise mm/yr up to 2025	Sea Level Rise mm/yr 2026 to 2050	Sea Level Rise mm/yr 2051 to 2080	Sea Level Rise mm/yr 2081 to 2115
PPS25 (comparable to the 90% high emission scenario from UKCP09)	4.0	8.5	12.0	15.0
UKCP09 (95% medium emission scenario)	4	7	11	15

- 5.2.3 The FRA is therefore satisfactory in this respect, as stated by the Environment Agency.

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6. Land Drainage and Sea Defence Byelaws

6.1 Environment Agency Relevant Representation

- 6.1.1 On page 3 of their relevant representation letter dated 2 April 2012, the Environment Agency commented that:

As the MEP development will take place within the Environment Agency Anglian Region Land Drainage and Sea Defence byelaw distance of 9 metres, our consent for the works will also be required under these Byelaws.

6.2 Comments on the Relevant Representation

- 6.2.1 Extensive discussions have already been held with the Environment Agency about this matter, as reported in the Flood Risk Assessment and Drainage Strategy (Section 5 Flood Defence Consent). The applicant intends to submit a formal application for Flood Defence Consent in due course.

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7. Foul Water Drainage Strategy

7.1 Environment Agency Relevant Representation

- 7.1.1 On pages 7 and 8 of their relevant representation letter dated 2 April 2012, the Environment Agency commented that:

Annex 9.5 includes a letter from Anglian Water Services confirming that they will work with Able to develop the appropriate sewage infrastructure so that foul sewage can be directed to the mains sewer.

It is disappointing that Able has not included our suggestion that details of flows for sewage and trade effluent be included in the ES, together with discussion on potential effects on the receiving water body. As a result of the project Anglian Water Services will need to upgrade its waste water treatment works. Further details on quantities and flows would enable us to know with greater certainty that the required Environmental Permit variation can be accommodated within environmental limits.

We are aware that the Customs House will not be connected to the mains system, but will be serviced by a package treatment plant. The discharge from this plant will require an Environmental Permit from us under the Environmental Permitting Regulations (England and Wales) 2010.

7.2 Comments on the Relevant Representation

- 7.2.1 As reported in the FRA, ABLE UK Ltd initially provided the following preliminary foul flow rates:

- Domestic sewage: 13 l/s.
- Trade effluent: 25 l/s.

- 7.2.2 However, the latest ABLE estimate of foul dry weather flow is 7 l/s and that figure has been provided to Anglian Water. This revised predicted peak foul flow is based upon building areas, the number of workers, and the total number of appliances. The calculation takes account of guidance in BS6465 (relating to the number of appliances) and BS8301 (relating to the probability of the appliances being discharged at any one time).

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Appendices

A. Environment Agency Relevant Representation dated 2 April 2012

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