

# **Vattenfall Wind Power Ltd**

## **Thanet Extension Offshore Wind Farm**

Annex A to Appendix 15 to Deadline 6 Submission:  
Responses to Natural England Residual Goodwin  
Sands pMCZ comments

Relevant Examination Deadline: 6

Submitted by Vattenfall Wind Power Ltd

Date: May 2019

Revision A

Drafted By:	Vattenfall Wind Power Ltd
Approved By:	Daniel Bates
Date of Approval:	May 2019
Revision:	A

Revision A	Original Document submitted to the Examining Authority
N/A	
N/A	
N/A	

Copyright © 2019 Vattenfall Wind Power Ltd
All pre-existing rights retained

## Contents

1	Responses to Natural England Residual Goodwin Sands pMCZ comments Introduction.	4
1.1	Further information .....	4
1.2	Consideration .....	5
1.3	Reduction in flow speed change .....	5
	Understanding of the 'pressure' .....	5
	Thanet Extension EIA .....	5
	Goodwin Sands pMCZ habitats.....	7

## 1 Responses to Natural England Residual Goodwin Sands pMCZ comments Introduction

- 1 This note has been drafted to accompany the final draft SoCG between the Applicant and Natural England with regards potential effects on the proposed Goodwin Sands MCZ (Goodwin Sands pMCZ). It has been submitted to Natural England for consultation prior to submission.

### 1.1 Further information

- 2 Natural England have asked for a further pressure to be considered within the assessment of potential effects on the Goodwin Sands pMCZ. Natural England have requested that extraction be considered a pressure, due to the need for sandwave clearance within the pMCZ.
- 3 Specifically, Natural England requested that a pressure be considered that is an analogue of aggregate extraction, to reflect the removal of sediment. The Applicant notes that there is a clear difference between the proposed activities within the Dover Harbour Board extraction site, and those for the proposed Thanet Extension project. The Applicant has requested consent to clear sandwaves via dredging but has committed to dispose of the material within 500m of the Goodwin sands pMCZ. There is therefore not a comparable 'wholesale removal' of sediment from the site in a way comparable with that of the DHB extraction which seeks to clear a substantive area within the pMCZ to a depth of 2-3m for the purposes of undertaking construction work at Dover Harbour. The Applicant does note however that the pressure identified within the Thanet Coast MCZ Advice on Operations (AoO) - "*Water flow (tidal current) changes, including sediment transport considerations*" can (as also described within the AoO) apply to "*non-backfilled trenches dug for cable burial which can result in localised flow speed changes until the trench is backfilled*" [either mechanically or through natural processes].

## 1.2 Consideration

- 4 The Applicant considers that the use of extraction as an analogue is neither appropriate nor necessary, for the reasons laid out in paragraph 37 *et seq* of Appendix 32 of the Applicant's D5 submission which noted that the pressures of relevance to cable installation, such as increased suspended sediment or abrasion, already allow for and incorporate consideration of pre-lay sandwave clearance/dredging. The Applicant accepts that in some circumstances however there may be a short period where an area of seabed lowering may persist post cable installation. Whilst the persistence is likely to be limited in both space and time the following section provides the relevant information as requested by Natural England with regards the potential for this seabed lowering to act in a manner comparable in nature, if not magnitude, with effects associated with aggregate extraction.

## 1.3 Reduction in flow speed change

### Understanding of the 'pressure'

- 5 This section provides a brief response to Natural England's request to consider the potential for the following pressure "Water flow (tidal current) changes, including sediment transport considerations" to arise as a result of the proposed Thanet Extension sandwave clearance.
- 6 As identified within the Natural England Advice on Operations the risk of this pressure will increase depending on the spatial/ temporal scale and intensity of the activity, the proximity of the activity to the feature (in space and time) and the sensitivity of the feature to the pressure. Overall the risk is categorised by Natural England as low.

### Thanet Extension EIA

- 7 The key chapter of relevance is the Marine Geology, Oceanography and Physical Processes Chapter of the ES (Application ref 6.2.2), and the associated annex (Application ref 6.4.2.1) which considered changes in sediment transport and sediment transport pathways that may arise from the project (Application ref 6.2.2; Paragraph 2.11.26 *et seq*). The chapter primarily considered impacts that may arise as a result of the installation of cable protection, though the same principle can be applied to lowering of the seabed.

- 8 The chapter identified that the extent to which continuous but localised changes in flow speed could influence rates of bedload transport will depend upon the magnitude of change relative to sediment mobilisation thresholds. In places, it is probable that localised flow reductions will lessen the frequency with which sediment particles are mobilised and therefore rates of transport may also be similarly reduced. Conversely, marginally greater rates of sediment transport may be experienced where localised flow accelerations are found.
- 9 The overall result of these slight changes in flow speed could potentially be a very small reduction in the net volume of material transported as bedload through the array area.
- 10 The chapter further identifies that the process of void infilling (whether the interstitial spaces within cable protection, or an unfilled trench) is expected to occur relatively quickly (in the order of a few months). The chapter confirms that this is due to saltation as well as the anticipated high rates of transport in areas of mobile seabed.
- 11 Bedload is the process by which sands move while still in contact with the seabed. Bedload will be temporarily affected up until such time that any unfilled trench is covered by sand and the slope gradient either side has been reduced in response to the accumulation of a sediment wedge with stable slope angles. Following this, bedload will continue because the slope angle presented by any trough areas would be within the natural range of bed slope angles associated with bed forms mapped within the export cable corridor.
- 12 Accordingly, for all areas in which sandwaves are cleared through dredging, it is not expected that the presence of any residual trenches will continuously affect patterns of sediment transport following the initial period of accumulation. It follows that any changes on seabed morphology away from the immediate area of effect will also be very small. The extent of the proposed works are such that they do not constitute a continuous blockage along the cable route corridor, or a meaningful blockage within the Goodwin sands pMCZ.
- 13 Any changes will be limited to the nearfield <100m, and short term in duration (a few months) and as such there will not be a notable effect on any physical processes receptors. This is to be compared with 2.5 million m<sup>3</sup> of aggregate being proposed to be dredged for DHB, across an area of 3.9km<sup>2</sup> of the pMCZ.

## Goodwin Sands pMCZ habitats

- 14 The habitats present within the area that the proposed cable corridor interacts with the Goodwin Sand pMCZ are recognised as being limited to sands and gravels, with potential for the presence of the biogenic reef forming worm *Sabellaria spinulosa*. The potential presence of biogenic reefs is the topic of an agreed biogenic reef mitigation plan and as such it is not considered relevant here. The remaining habitats are therefore sands and gravels, or the features 'subtidal sands', and 'subtidal coarse sediment' as defined within the proposed designation material for the site.
- 15 The MarLIN assessment for subtidal mixed sediments and subtidal coarse sediment concludes that the biotopes experience moderate tidal streams and substantial increase or decrease would probably result in a decline of the biotope. However, a 0.1 – 0.2 m/s change (the benchmark, which is defined in full as "A change in peak mean spring bed flow velocity of between 0.1m/s to 0.2m/s for more than 1 year") is unlikely to significantly impact the characterizing species. The overall conclusion made within the MarLIN assessments is that resistance is, therefore, assessed as 'High', resilience is assessed as 'High' and the biotope is assessed as 'Not Sensitive' at the benchmark level.
- 16 It should be recognised that the assessment has concluded that the habitats will not be sensitive at the benchmark level, the benchmark level is considered highly precautionary and as such the assessment is considered to be very robust.
- 17 The benchmark itself was defined to reflect a pressure associated with activities that have the potential to modify hydrological energy flows, e.g.; tidal energy generation devices which remove (convert) energy and where such pressures could be manifested leeward of the device; capital dredging which may deepen and widen a channel and therefore decrease the water flow or canalisation &/or structures which may alter flow speed and direction; managed realignment (e.g. Wallasea, England). MarLIN identifies that the pressure extremes are a shift from a high to a low energy environment (or vice versa). The biota associated with these extremes will potentially be markedly different as will the substratum, sediment supply/transport and associated seabed/ground elevation changes. The potential pressure therefore allows for profound changes (e.g. coastal erosion/deposition) to occur at long distances from the construction itself if an important sediment transport pathway was disrupted. These pressures are not considered in anyway likely to occur at Thanet Extension, and this highly precautionary assessment is provided to give full comfort that any effect on the Goodwin Sands pMCZ as a result of the proposed Thanet Extension project falls well below any best practice assessment benchmark.

- 18 With this high level of confidence and precaution within the assessment there is a high degree of certainty in the conclusion that there will be no hindrance to the Goodwin Sands pMCZ as a result of the proposed Thanet Extension works, specifically focussing here on the proposed sandwave clearance works.