

# East Anglia THREE Draft Marine Mammal Mitigation Protocol

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## 1 INTRODUCTION

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### 1.1 Purpose of this document

1. The purpose of this Draft Marine Mammal Mitigation Protocol (dMMMP) is to demonstrate the principles of the marine mammal mitigation protocol to be submitted for approval under Condition 13(f) of the Deemed Marine Licences and to detail contingency arrangements to respond to and minimise the impacts of piling associated with the construction of the proposed East Anglia THREE project.
2. Condition 13(f) states:
3. *“13. The licensed activities or any part of those activities must not commence until the following (as relevant to that part) have been submitted to and approved in writing by the MMO—*  
  
*(f) Only when driven or part-driven pile foundations are proposed to be used as part of the foundation installation, a marine mammal mitigation protocol in accordance with the draft marine mammal mitigation protocol, for minimising acoustic disturbance to marine mammals.”*
4. This dMMMP sets out the protocol of how EATL would:
  - Mitigate impacts assessed in the Environmental Impact Assessment (EIA) to reduce the likelihood of injury and disturbance to marine mammals during underwater piling operations; and
  - Meet the relevant licence requirement (13(f), as stated above).
5. The final MMMP would be agreed with the Marine Management Organisation at least four months prior to construction in consultation with Natural England. East Anglia THREE Ltd (EATL) will follow the relevant guidelines at the time in relation to a strategic approach to construction and monitoring and the development of the final MMMP as detailed in the In Principle Monitoring Plan (see Document ref. 8.12).

## 2 DESCRIPTION OF PROJECT

6. The proposed East Anglia THREE project would consist of between 100 and 172 wind turbines, each having a rated capacity of between 7 and 12MW, with a total installed capacity of up to 1,200MW.
7. EATL are currently considering both a High Voltage Direct Current (HVDC) and a Low Frequency Alternating Current (LFAC) electrical solution for the proposed East Anglia THREE project. A decision on the final electrical solution for the project will be made post-consent during the final design stage of the project. Unless specified the range of values presented in this document will therefore cover both the HVDC and the LFAC solution.
8. The East Anglia THREE offshore cable corridor would follow a similar offshore cable corridor to that proposed within the East Anglia ONE Development Consent Order (DCO). An additional section joins East Anglia THREE cable corridor with that of East Anglia ONE.
9. EATL is currently considering constructing the project in either a Single Phase or in a Two Phased approach. Under the Single Phased approach the project would be constructed in one single build period and under a Two Phased approach the project would be constructed in two phases each consisting of up to 600MW.
10. Under the Single Phase approach it is expected that the construction period for the proposed East Anglia THREE project (offshore and onshore) would span approximately 41 months. Under a Two Phased approach the proposed East Anglia THREE project would be built in a staggered way, with the construction of Phase 2 commencing a maximum of 18 months after the start of onshore construction of Phase 1. The total construction period would span 45 months.

### 2.1 Key Project Characteristics

**Table 1 Key project characteristics**

Parameter	Characteristic
Capacity	Up to 1,200MW
Number of wind turbines	100 - 172 units
East Anglia THREE area (offshore)	305km <sup>2</sup>
Water depth	Generally <45m but up to 49m
Distance from East Anglia THREE to shore (closest point of site to Lowestoft)	69km
Maximum offshore cable corridor length	166km

Parameter	Characteristic
Maximum export cable corridor area	454km <sup>2</sup>
Number of export cables	Up to four
Maximum interconnector cable corridor area	238km <sup>2</sup>
Offshore cable corridor (taking account of overlap between the interconnector cable corridor and the export cable corridor).	571km <sup>2</sup>
Number of interconnector cables	Up to four
Proposed turbine capacity	7 - 12MW
Turbine rotor diameter	154 – 220m
Hub height	99 - 150m (MSL)
Tip height	178 - 247m (LAT)
Minimum clearance above sea level	22m (MHWS)
Indicative minimum separation between turbines	In row spacing 675m Inter-row spacing 900m
Number of wind turbine models	Up to three
Wind turbine foundation type options	Jackets (on piles or on caissons), gravity base structures, suction caissons, monopiles
Number of met masts	Up to two
Height of met masts (maximum)	160m (LAT)
Met mast foundation type options	Jacket (on piles or on caissons), gravity base, suction caisson or monopile
Offshore electrical platforms	Up to two HVDC converter stations and four* HVAC collector stations
Accommodation platform	One
Offshore platform foundation type options	Jacket and gravity base
Buoys	Up to 12 which could include LiDAR, wave monitoring or guard.

### 3 BACKGROUND

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11. EATL have made an assessment of potential impacts to marine mammals as part of the Environmental Impact Assessment which is reported in the project's Environmental Statement (Chapter 12 Marine Mammal Ecology).
12. At a project level the impacts from the proposed East Anglia THREE project are assessed as minor adverse at worst case and no significant impacts were identified. This is a precautionary assessment to take account of the uncertainty/low confidence in the underlying assumptions and data used to inform the assessment.
13. Construction activities (piling) have the potential to produce underwater noise and vibration levels capable of causing injury and disturbance to marine mammals. This dMMMP details how EATL would reduce the likelihood of activities causing injury.

#### 4 DRAFT MARINE MAMMAL MITIGATION PROTOCOL

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14. EATL are committed to using the best practicable means at the time of construction to mitigate the impacts of the project, and their contribution to the cumulative, impact. The protocol outlined below is in line with current best practice (JNCC, 2010) and will be updated no later than four months prior to construction.
15. The protocol would involve the establishment of an exclusion zone up to 1000m radius (from the pile location) before each pile driving activity based on the predicted instantaneous PTS distance estimated in the Environmental Statement (see Chapter 12).
16. EATL will take all reasonable steps to ensure that no marine mammals are present within the exclusion zone 30 minutes prior to piling activity commencing in-line with JNCC guidance (2010).
17. EATL will ensure that soft-start for piling is utilised for a minimum of 20 minutes prior to ramping up to full power. In the event that piling activity has been stopped for more than 10 minutes EATL would ensure that the soft-start protocol is re-enacted.
18. Monitoring of marine mammals would involve the deployment of at least one marine mammal observer (MMO) one hour after sunrise until one hour before sunset. A single passive acoustic monitoring (PAM) device will be deployed when necessary to ensure 24/7 working is possible. The use of acoustic deterrent devices (ADD) will be reviewed in consultation with the Marine Management Organisation (MMO) and Natural England prior to agreement of the final MMMP.
19. Reports detailing the piling activity will be sent to the relevant conservation agency after the end of the final piling activity including:
  - Date and location of the piling operations.
  - A record of all occasions when piling occurred, including details of the activities used to ensure the mitigation zone is established and soft-start procedures, and any occasions when piling activity was delayed or stopped due to presence of marine mammals.
  - Any relevant details on the efficiency of the marine mammal exclusion methodology.
  - Details of any problems encountered during the piling process including instances of non-compliance with the agreed piling protocol.

## 4.1 Indicative Communication & Responsibilities

**Table 2 Indicative Communications & Responsibilities**

Organisation / Key Personnel <sup>1</sup>	Contact	Responsibilities
<b>Environmental Liaison Officer (ELO)</b>	TBC	Take overall responsibility for compliance with this procedure. The ELO will pass all relevant information received from the construction team to the MMO and consult with them before making any decision affecting the mitigation and the monitoring programme.
<b>Offshore Installation Manager</b>	TBC	Take offshore responsibility for ensuring that the requirements of this procedure are met, and be responsible for liaising with the EATL ELO, Vessel Master, MMO and installation personnel as required. The EATL Offshore Installation Manager has the responsibility to delay piling activities where necessary. The EATL Offshore Installation Manager will be responsible for ensuring that a copy of the pile driving and drilling records from the Installation Contractor are made available to the ELO and MMO.
<b>Marine Mammal Advisor (MMO)</b>	TBC	Reports to EATL ELO. Responsible for ensuring that relevant parts of this procedure are met and managed. Will liaise and advise the Installation manager as appropriate. Monitors marine mammals one hour after sunrise until one hour before to sunset
<b>Passive Acoustic Monitoring operator (PAM)</b>	TBC	Reports to EATL ELO. Responsible for ensuring that relevant parts of this procedure are met and managed. Will liaise and advise the Installation manager as appropriate. Monitors marine mammals one hour before sunset until one hour after sunrise.
<b>Marine Vessel Coordinator</b>	TBC	Responsible for informing MMO about scheduled piling activity and liaise with and advise ELO and MMO on construction activity.

\*TBC – to be confirmed

<sup>1</sup> Note the titles and job descriptions shall be refined depending on the contractual agreement however responsibilities will be maintained.

## 5 REFERENCES

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JNCC (2010) Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Joint Nature Conservation Committee, Inverness.

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