East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Comments Richard Reeves' Deadline 9 Submission

Applicant: East Anglia TWO and East Anglia ONE North Limited
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Applicable to East Anglia ONE North and East Anglia TWO

Revision Summary				
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Description of Revisions			
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Glossary of Acronyms

DCO	Development Consent Order
ES	Environmental Statement
HDD	Horizontal Directional Drilling
PD	Procedural Decision

Glossary of Terminology

Applicant	East Anglia TWO Limited / East Anglia ONE North Limited
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.

1 Introduction

1. This document presents the Applicants' comments on Richard Reeves' Deadline 9 submission (REP9-146).

2. This document is applicable to both the East Anglia TWO and East Anglia ONE North Development Consent Order (DCO) applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's procedural decisions on document management of 23rd December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission.

2 Applicants' Comments

2.1 Applicants' Comments on Richard Reeves' Deadline 9 Submissions (REP9-146)

ID	Richard Reeves' Comment	Applicants' Comments
1	**Applicants' Comment:** "The Applicants would note that an aquifer is a body of porous rock or sediment saturated with groundwater; Mr Reeves comments appear to be based a misconception that an aquifer is an underground body of water which is incorrect." **My response:** Regarding the comment itself X, for the Applicant is correct in his description of the aquifer, but incorrect in describing my understanding of what an aquifer is. X has taken an inadvertent use of a colloquial description of the aquifer on my part, the sole example of such usage, to make this attempted criticism, while ignoring the many examples of technically correct description I habitually use in discussing this issue. In terms of rhetoric, this is a *quibble*: typically used in legal bargains - to fulfil the exact verbal conditions of an agreement in order to avoid the intended meaning. Examples, by way of exemplification, can also be found in literature. In Shakespeare, universally familiar, Portia, in The Merchant of Venice, pointing out that the agreement called for a pound of flesh, but no blood, is a classic *quibble*. Before exposing other examples of the Applicant fulfilling merely the word, rather than substance, of agreements and statements, I will now have to quote from my previous submissions in order to provide an accurate picture of my understanding, rather than the	While referring to an aquifer as a *"vast underground lake or reservoir"* can be understood as a 'colloquial description', Mr Reeves' Deadline 7 submission (REP7-084) refers to the strata that 'contain the aquifer' a number of times, including in the text he has reproduced here. The Applicants' comment is not a quibble; it is made at ID1 of ***Table 2.1*** in REP8-052 simply to provide context for the remainder of the Applicants' comments and because it is important to ensure there is no confusion on the matter for the reader.

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	general ignorance with which X seems to wish to characterise me. His remarks are both misleading and discourteous, and I take great exception to their being allowed to stand. The quotes below, I believe, show that I do not picture a stand-alone underground lake in reality, and that my single use of that colloquial expression cannot stand as the sole exemplar of what I, as merely a concerned member of the public, have understood from putting much time and effort into private, unpaid research, in the face of handsomely salaried, extensive opposing teams. **From my D7 submission, Applicant's text in Italics, please note I have not sought to edit my use of a colloquial description, but that single use is far outweighed by more technically accurate description.** *Existing BGS boreholes surrounding the landfall (see Figure 1 in Appendix 1) indicate that the London Clay is at approximately -50m Ordnance Datum Newlyn (ODN). However, this differs to the base of Crag contour map shown on the 1:50,000 series published map, which shows the base of the Crag* In referencing London Clay at this depth, and the existence of a chalk layer underlying it, the Applicant seems to be suggesting that the non-porous nature, and extreme depth of the clay seals the chalk layer from any possible damage or pollution from the DHD process. While this is true, it is of no relevance. Having seized on the word "chalk", in connection with the aquifer, the Applicant implies that as there is a single basal level of chalk below the clay that contains the aquifer. However, as the Applicant admits, in the previous paragraph	

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	In East Anglia, drift deposits are variable, including pebbly sand, gravels, silts, and clays. A chalky till, known as Lowestoft Till covers much of the area Whether in Lowestoft Till, Red Crag, or a mixture of both combined with chalk, the aquifer does not lie under the London Clay layer referred to above. The numerous ponds, wells, and boreholes within the area of the works all attest to the fact that the feature we refer to as "the aquifer" – a vast underground lake or reservoir – lies very near the surface. Whether the HDD process does or does not penetrate the London Clay level at -50m is therefore of no consequence. By the time the drill-head reaches 11m below ground at cliff base, on its way to bore through the coralline crag (Applicant's own plan, please see above) it will already have passed through the aquifer-levels responsible for widespread water supply. Hence the seemingly much vaunted paragraph: *Pre-construction ground investigations will confirm the true depth to the London Clay, however, unless it is significantly shallower than expected, the HDD will not be drilling within the London Clay* - far from demonstrating that the HDD process will leave the aquifer levels unaffected because the London Clay will not be impacted, in fact only serves to underline the fact that the water-bearing mix of till, crag, and chalk above the London Clay will be unavoidably compromised. **Hydrogeology** *The Crag and the Chalk are designated by the Environment Agency as 'Principal Aquifers', which can provide a high level of water storage and support water supply and base river flows on a strategic scale. However, In the study area, the Chalk groundwater*	

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	below the London Clay is highly saline and potable supplies are taken only from the Crag. Again, the chalk groundwater below the London Clay is of no relevance as it is from the levels above the clay that drinking water is extracted or collected. It is noted that these upper levels of mixed crag are classified as a "Principal Aquifer"	
2	**Applicant's Comment:** "The use of environmentally friendly drilling fluids and drilling with a minimum practical flow rate are key mitigation methods applied by the risk assessment. As noted in paragraph 15, any drilling fluid losses would be confined to a very limited area around the drill. The drilling fluid will fill in and stabilise fractures created during the drilling process so there will not be an impact on the wider aquifer or the groundwater it contains. These are routine practises when drilling through aquifers which it a regular requirement for construction projects." **My response:** "A very limited area" – what is this area? As with so many of the Applicant's assurances, there is no substance or detail, so no assurance can be taken. Similarly with the attempted assurance that drilling through aquifers is "a regular requirement". Not one real-life example, with factual data collected and impartially assessed by an independent body, after the process has been completed, has been provided. Can the Applicant actually provide any data at all regarding the ability of the lost drilling fluid to instantly fill in and stabilise fractures? What account has been taken of the leeching and wicking nature of aquifers, or the rate of flow? It	Throughout REP8-052 the Applicants refer to ***Horizontal Directional Drilling (HDD) Verification Clarification Note*** (REP6-024) as containing the information on which the hydrogeological risk assessment is based. As noted, this document provides the examples requested by Mr Reeves and was prepared by Riggall & Associates, an independent firm providing technical advice on HDD solutions. This company has worked on over 200 HDD projects and specialises in feasibility studies, hydrofracture modelling, drill force modelling, detailed design and planning. For clarity, the Applicants refer to their response at ID1 (both in this document and in REP8-052): an aquifer is a body of porous rock or sediment saturated with groundwater. In REP8-052, when discussing potential effects on the aquifer, the Applicants twice refer to groundwater separately simply to provide assurance that water supplies will not be affected by the works.

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	also must be pointed out, particularly in the light of the points I have had to illustrate by quoting previous submissions above, that X separation of aquifer from groundwater, in the expression "wider aquifer or the groundwater it contains" seems to imply a stratum containing an independent body of water within it, rather that a saturated crag / till / chalk layer, or layers. Perhaps he was being colloquial …	
3	**Applicant's Comment:** "The Applicants would clarify that complete avoidance of the Coralline Crag has never been proposed by the Applicants. As stated in the Outline Landfall Construction Method Statement (an updated version has been submitted at Deadline 8, document reference ExA.AS-2.D8.V3), one of the reasons for using HDD at the landfall is to "avoid direct physical disruption to the outcrop of Coralline Crag". By 'outcrop', the Applicants are clearly referring to the parts of the Crag that are visible at the surface; the HDD bores as proposed pass through the Coralline Crag, but beneath its visible surface before 'punching out'." **My response:** This is quibble no 2 in this brief list of equivocations. The very fact that the Applicant now seeks to deny the fact that it has gone to great lengths, from live hearings, through live and written consultations with Aps, Ips, and other residents, and in response to urgent queries for clarification from ED, to demonstrate its assertion that the integrity of the coralline crag will not be compromised by the planned HDD works by now specifying that only those parts of	Mr Reeves' assertions are incorrect, and the Applicants maintain the position stated in REP8-052. The Applicants would refer to ***Chapter 4*** of the Environmental Statement (ES) (APP-052), particularly ***section 4.7.5.5*** which states that the Coralline Crag is an exposed area of rock that underpins coastal processes at the landfall location, which are in turn critical to the coastal processes associated with the water cooling infrastructure and sea defences at Sizewell B Nuclear Power Station. In short, it is physical interaction with the exposed surface of the Crag that is of concern. For a more detailed overview the Applicants refer to ***Appendix 4.6 Coastal Processes and Landfall Site Selection*** of the ES (APP-447).

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	the Coralline crag that are visible were ever presented as being considered for protection is breathtakingly disingenuous. When so much of the focus of this aspect of the discussion has been on the possible, and now revealed to be highly probable, damage to the seabed, cliff, and aquifer stability, for the Applicant now to turn to the word "outcrop", as if only the visible, above ground portion of the Coralline Crag is of importance, or had ever been discussed, is simply not correct. The reason for this particular quibble is now clear: it has all along been the Applicant's plan to drill through the Coralline Crag, while paying merely lip-service to any measures of mitigation or protection. It is a key signifier to the modus operandi of the Applicant as a whole: put together a form of words which appear superficially to give reassurance, while in reality proceeding in exactly the manner to which serious objections and concerns have been raised. The following point therefore remains of absolute relevance, that the Applicant is now relying absolutely on the (previously accepted as fragile) coralline crag to provide stable insulation against fluid loss. So, after going to such great lengths to assert that the coralline crag would be avoided, due to fragility, now it is apparently to be relied on, and bored through, because, at the tap of a desk-based key-stroke, it is convenient to describe it as being super-strong. It very much seems that this is yet another example of the Applicant simply attempting to bend reality to suit whatever its latest argument demands. Super-strong, or fragile – which is it? In short, the Applicant is now openly declaring that if we can't see what it is doing, it will do whatever it wishes to.	

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4	**Applicant's Comment:** "The Applicants would note that they requested to attend the Access Required Site Inspections but were advised by the Planning Inspectorate that they could not due to COVID-19 restrictions." **My response:** Had the Applicant checked facts, it would have found that COVID-19 restrictions did not at that point in time prevent people from attending work.	As noted in the comment reproduced here by Mr Reeves, the Applicants made efforts to attend the Access Required Site Inspections but were told that they could not by the Planning Inspectorate.
5	**Applicant's Comment:** "The drilling fluid will fill in and stabilise fractures created during the drilling process so there will not be an impact on the wider aquifer or the groundwater it contains." "As noted at ID1, the strata is the aquifer, it does not bear it. The Applicants acknowledge that the HDD bores will be within the aquifer; this is the basis of the risk assessment." **My response:** The two statements by the Applicant, one of which I have already referred to above, are mutually contradictory. In the former, the aquifer and groundwater are presented as separate entities, one contained within the other. In the latter, the aquifer is described as one integral structure. As with estimated distances of works from dwellings and buildings at Ness House, referred to in previous submissions, the Applicant needs to present a coherent and through-composed account of its estimates and understanding.	The two statements reproduced by Mr Reeves do not contradict one another as suggested. The Applicants would also note that the second statement is in response Mr Reeves' comment *"The crag, till, and mixed chalk elements bearing the aquifer…"* and again is intended to ensure there is no confusion on the matter for the reader. For clarity, the Applicants refer to their response at ID1 (both in this document and in REP8-052): an aquifer is a body of porous rock or sediment saturated with groundwater. In REP8-052, when discussing potential effects on the aquifer, the Applicants twice refer to groundwater separately simply to provide assurance that water supplies will not be affected by the works.

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	Could the Applicant please be encouraged to improve internal communication within its own organisation?	
6	**Applicant's Comment:** "'Tied into the well' means that whatever source of alterative water supply is provided, it will be tied into the well system so there is no change to how the Wardens Trust or surrounding properties use the existing supply. It is noted that the Applicants are seeking to reassure the Wardens Trust and surrounding properties that an alternative supply is available, and that works such as those proposed at the landfall are regular occurrences on construction projects and through the application of well established mitigation measures there will be no degradation of water supplies as a result of the Projects' works." **My response:** The final quibble for this initial list. "Tied into the well" means "tied into the well" – who'd have guessed – but the surrounding residents and Wardens Trust are not concerned about being able to use the same pipes and taps from which to draw water, we are concerned, perfectly obviously, about the water itself. And it will be different water. Again, the Applicant also completely fails to describe what it actually plans to do. Will mains water be connected at the Applicant's expense? Again, has Anglian Water been contacted if this is the plan? If other temporary measures, such as water bowsers, tanks, or bottles are to be suggested, the Applicant is already aware that both the residents and X on behalf of Wardens have declared those measures to be unacceptable. Does the Applicant actually have any estimate of the amount of water usage that occurs at these locations? If not, what possible information can	As noted in the text reproduced by Mr Reeves, *"works such as those proposed at the landfall are regular occurrences on construction projects and through the application of well established mitigation measures there will be no degradation of water supplies as a result of the Projects"*, however *"the Applicants are seeking to reassure the Wardens Trust and surrounding properties that an alternative supply is available"*. In short, the Projects will not disrupt use of the Ness House well, but for reassurance the Applicants have offered to provide an alternative supply during construction of the landfall.

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	be informing the statements made regarding the provision of an alternative supply? And, in yet another startling piece of equivocation, the Applicant states definitively that there will be no degradation of water supplies, while claiming to be planning an alternative supply should such degradation happen. I'll close this particular part of my D9 submission by predicting in advance, that in a quibble upon a quibble, the Applicant will state that while it guarantees that water supply will not be degraded, it is not guaranteeing that water itself, originating from the aquifer, drawn from our well, will not be degraded. Many thanks to the Inspectorate for considering the points I have addressed. I would be most grateful, and I believe it would be most helpful, if the Applicant could be held to account with regard to the frequent discrepancy between the words it puts forward and the actual plans / actions it undertakes.	