Written submission for Deadline 4, 13/01/2021

From

Richard Reeves, AP EA1N AFP 133 / IP 2002765

For my submission to Deadline 4 I would like to expand on the topic of the Applicant's failure to undertake sufficient research and undertake surveying and feasibility studies, in particular with regard to the Suffolk Chalk Aquifer.

As was heard with general surprise during the course of the hearings, the Applicant's negligence in having conducted no prior surveys or examination of the landfall site and proposed cable corridor route is exacerbated by future plans, in the context previously touched upon, to the near disbelief of all attending not of the Applicant's party, that surveying work will not be completed until approximately 6 months after the closure of the hearings, putting the Inspectorate in the position of having to deliberate on these issues without even the benefit of the relevant information.

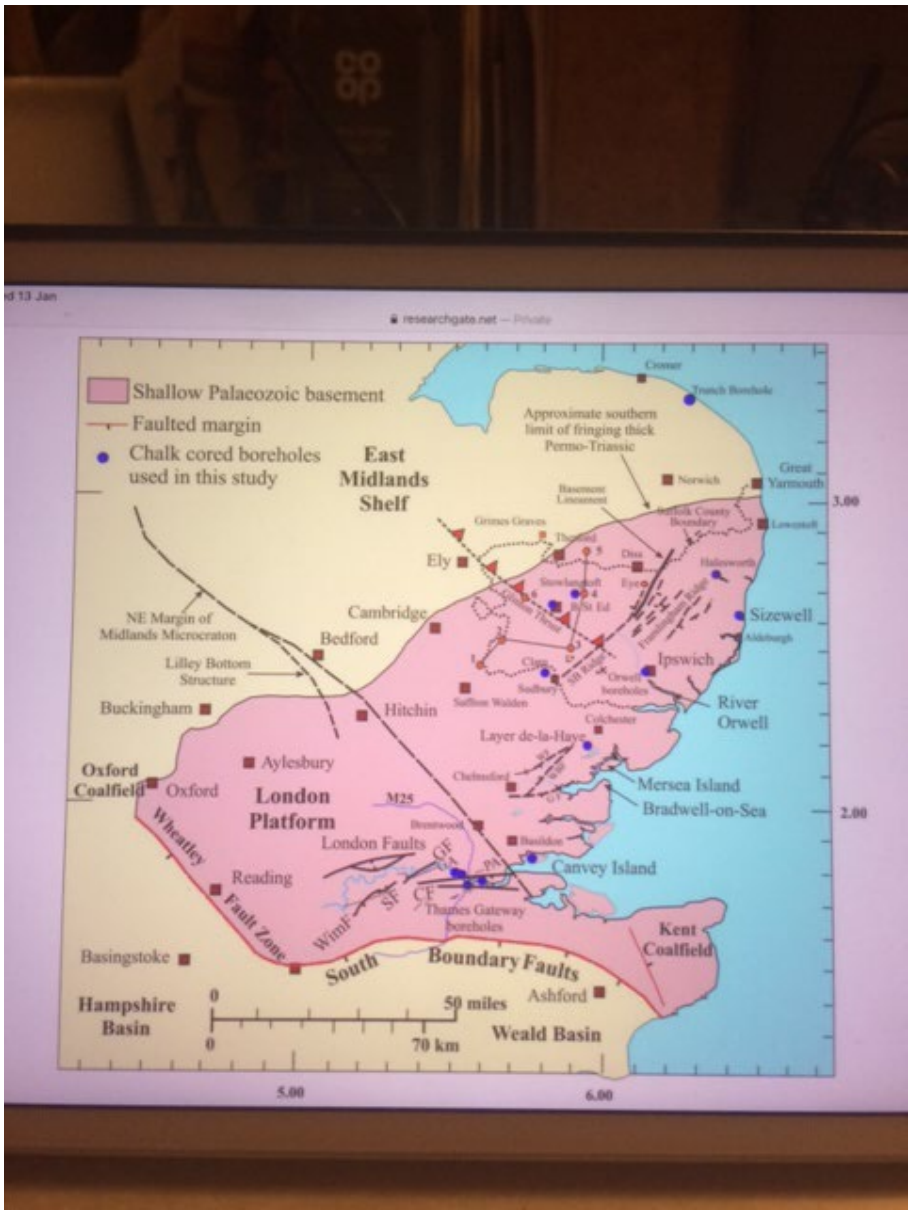
Either though lack of knowledge, or disingenuously, the Applicant has sought to present an impression of the region-wide feature, the Suffolk Chalk Aquifer, as a series of unconnected wells or boreholes, used by a very small percentage of the population of East Anglia to access underground water supply. In an act of either ignorance or wilful disinformation, the Applicant has suggested in written submissions that by maintaining a distance from private water supply points of 250m any damage or piercing of the aquifer by drilling, trenching, and associated highly pollutant processes would be avoided.

As the map below, and associated cited articles of reasearch clearly illustrate, nothing could be further from the truth. The aquifer underlies not merely the county of Suffolk, but the East Anglian region as a whole. Furthemore, the region-wide aquifer, occupying the entire upper chalk stratum at a depth of approximately 10m below ground level at Wardens Centre / Ness House, where I have personal access to, and knowledge of, the private pumping station, extends, on its gentle south easterly subterranean slope, under the bed of the north sea itself, along the whole of the east Anglian coastline.

It is clear, from these facts, that any process of HDD, either onshore or offshore; trenching; onshore boreholes; associated waste, pollution, industrial contamination; erosion of onshore ground conditions or offshore sea-bed destruction, will severely, if not catastrophically, damage and compromise this unique and vital natural resource.

May I emphasize, once again, that direct domestic and agricultural use by means of wells, pumping stations and boreholes, while vital for individuals, businesses, and farms, does in fact represent the least utilisation of the aquifer. No less a body than Anglian Water itself, on its water management site, quote the fact that 50% of the region's water supply comes from an underground natural source, namely the Suffolk Chalk Aquifer.

It is a cause of continuing and increasing worry and disappointment that the Applicant, appearing to have done no acurate study or research into the effects of its proposed project on either geological or societal infrastructure, seeks constantly to deny and trivialise major concerns. I repectfully request the Inspectorate to intervene to prevent another in a growing series of serious threats to the welfare of both Suffolk residents and the wider population.



NB East Anglia chalk aquifer indicated in pink shading above

Source 1

East Anglia and adjoining areas - Suffolk and south Norfolk

www.gov.uk/natural-england

In Suffolk and south Norfolk the younger sedimentary bedrock consists mainly of a sequence of sedimentary layers including the Chalk, dipping gently to the south-east. These rest on the younger sedimentary bedrock layers that occur at the surface farther west in the Fenland, but those layers only extend eastwards beneath the Chalk for a short distance. The younger

sedimentary bedrock in this area is up to about 400 m thick and ranges in age from about 150 to 50 million years old. The main elements of the sequence are sandstones and mudstones up to 30 m thick, overlain by the Chalk, which reaches 300 m in thickness, and capped near the coast by younger sands and clays up to 50 m thick; so the Chalk is the dominant sedimentary layer of this stack.

Chalk is a fine-grained white, or grey rock composed of fragments and microfossils of calcium carbonate; it is a special type of limestone. In its upper parts, black flint nodules (**Plate P210913**) are common. Flint is a very fine-grained form of silica and flint nodules were dug from the Chalk in prehistoric times, for example at Grimes Graves near Thetford, and used by early man to fashion stone implements.

The Chalk is a very important aquifer, not just in East Anglia but in adjacent parts of southern and eastern England. Unlike the other aquifers referred to in this account (the Crag and the Sherwood Sandstone) most of the water flow in the Chalk is not through the pore spaces between the grains of the rock but along the fractures within it. These fractures are both horizontal and vertical and connect together to make pathways for water to flow through. Because the Chalk is composed of calcium carbonate which can be slowly dissolved by groundwater, the fractures become wider over long periods of time leading to the quite rapid flow of water through some parts of the Chalk. The bottom of the Chalk is rich in clay and the thin layer immediately below is a clay layer, the Gault Clay. Water trickling through the Chalk cannot percolate downwards any further when it reaches these clay layers and so flows along the top of the clay until it emerges at the surface forming springs. The water from the Chalk is rich in dissolved calcium carbonate and is referred to as ‘hard’. When this water boils, for example in a kettle, the calcium carbonate is precipitated as 'scale'.

Physical and functional links to other National Character Areas

The East Anglian Chalk of Bedfordshire, Cambridgeshire, Hertfordshire, Suffolk and north-west Essex forms a narrow continuation of the chalk ridge that runs southwest–north-east across southern England, continuing in the Chilterns National Character Area (NCA) and along the eastern edge of The Wash. The northern boundary is clearly defined by the base of the north-west-facing chalk scarp slope, around the southern limit of Cambridge and along the fenland edge. From the higher ground to the south-east there are wide panoramas across the Bedfordshire Claylands NCA and the adjoining Fens NCA. To the north-east, sandy soil is blown over the Chalk, exerting a shared ‘breck’ character with the neighbouring Brecks NCA, visible in characteristic knarled Scots pine hedgerows. To the south and east it is bounded by the overlying chalky boulder clay of the South Suffolk and North Essex Clayland NCA, which includes Saffron Walden. The Wadlow Wind Farm, north of Balsham in Cambridgeshire, is a prominent feature along the boundary between the two NCAs.

The chalkland landscape is united with the rest of the East Anglian NCAs as a major food producer, with arable farming being the predominant land use. The smooth, rolling chalkland hills are dissected by the two gentle valleys of the rivers Granta and Rhee, which converge flowing westward into the River Cam just south of Cambridge. The Rhee begins at Ashwell Springs in Hertfordshire,

running north then east 19 km through the farmland of southern Cambridgeshire. The longer tributary, the Granta, starts in Essex and flows north into the East Anglian Chalk NCA near Saffron Walden. **The underlying chalk aquifer provides functional links between these areas and the population of East Anglia, whose water the aquifer supplies.**

Source 2

Mark A. Woods1, Rory N. Mortimore2 & Christopher J. Wood3

1British Geological Survey, Keyworth, Nottingham, NG12 5GG, UK

2University of Brighton and ChalkRock Limited, 32 Prince Edwards Road, Lewes, Sussex, BN7 1BE, UK

3Scops Geological Services Ltd, 31 Periton Lane, Minehead, Somerset, TA24 8AQ, UK

From its broad expanses of rolling downlands across southern England, the Late Cretaceous Chalk Group sweeps northwards across much of East Anglia, and on into Lincolnshire and Yorkshire. The Chalk is the major bedrock unit across Suffolk, and dips gently eastwards beneath much of the East Anglia region. The oldest strata are locally exposed along the western margin of the outcrop, for example near Mildenhall, and progressively younger horizons are introduced eastwards towards the coast. Consequently, the Chalk is thickest in the eastern part of the Suffolk region, reaching about 250 m in the Combs Borehole [TM 0427 5625] near Stowmarket; perhaps close to 300 m beneath Ipswich; and about 321 m in a borehole at Lowestoft [TM 5380 9260] (Moorlock et al., 2000). Northwards, boreholes in Norfolk have proved more than 400 m of Chalk at Trunch [TG 2933 3455] (468 m); Somerton [TG 4607 2120] (433 m); and West Somerton [TG 4736 1935] (423 m) (Arthurton et al., 1994), at least part of this increased thickness being attributable to the preservation of younger chalk in the upper parts of these successions. Just as in neighbouring Essex and Norfolk, much of the Suffolk Chalk is buried beneath a variable succession of post- Cretaceous, predominantly Quaternary deposits, but including Palaeogene and Neogene strata in the south-east of the county. For this reason, the region has not developed the typical downland landscape of southern England, and our geological understanding of the Chalk of Suffolk has to be assembled from rare natural exposures, chalk quarries and borehole data.

The general tectonic and basin setting of the Chalk of Suffolk, and the wider East Anglia region, is unusual in that Lower Palaeozoic and older Neoproterozoic rocks are at shallow depths. For much of the Late Palaeozoic and Mesozoic the area was occupied by the Anglo- Brabant Massif, which formed a persistent land area or region of shallow marine deposition, including the area referred to as the ‘London Platform’ (Fig. 1). It was not until the Albian, when the mudstones of the Gault were deposited, that this persistent palaeogeographical feature became completely submerged.

Today, the main areas in Suffolk where Chalk crops out are in the north-west of the county around Bury St Edmunds, Brandon, Icklingham and Barnham. Southwards and eastwards there are significant exposures of Chalk at Sudbury and in the Gipping Valley, for example at Needham Market and Great Blakenham; there are also minor, isolated occurrences in the vicinity of Haverhill, Nedging Mill and Monks Eleigh (Fig. 2). Information about the subsurface development of the Chalk in Suffolk is provided by cored stratigraphical boreholes, such as the Stowlangtoft Borehole [TL 9475 6882]; boreholes drilled in connection with the Ely-Ouse Transfer Scheme; site investigation boreholes near Mundford and in the Ipswich area, the former (CERN Project) for a large proton accelerator, and the latter (Project Orwell) as part of a flood relief scheme; **cored site investigation boreholes drilled at**

Sizewell; and a cored borehole at Clare, near Sudbury (Fig. 1). There are also numerous borehole geophysical logs from uncored boreholes and water wells, particularly in the north of the county.

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Responses, Questions, Corrections

RE The Applicants' Landfall Hydrogeological Risk Assessment 24/02/2021

Referred to below as LHRA

General Comment:

For APs and IPs, the interval of merely a few days in which to digest and respond to the Applicants' D6 LHRA desktop survey compilation is not adequate. Further detail and corrections to both factual claims and interpretation of data on the part of the Applicants will be added prior to, and at, D8, and in forthcoming ISHs.

Specific Initial Responses, referencing LHRA statements.

Quotes from the Applicants' LHRA submission are in *italics*

3 Proposed Works

10. *The landfall HDD bores are likely to be located north of Thorpeness (approximately 750m south of the Wardens Trust site) with planned lengths of up to 2000m.*

12*. The pilot hole will be steered and surveyed using a wireline guidance tool located behind the drilling bit. The HDD will be at approximately 11m below the base of the cliffs along the coast …*

The distance quoted from Wardens site of landfall HDD bores is noted, although later in the same document a different, an even shorter, distance is quoted. In my previous submission I estimated the distance to be 1200m. The effect of this on my previous calculations regarding the depth below surface of the aquifer / water bearing stratum is to decrease its subterranean estimated depth, based on these recent actual measurements:

To refresh memories from y D6 submission:

" … the rest water level, ie the surface of the water in the well at Ness House, lies at no more than 2.1 m / 7ft above sea-level (calculation being ground elevation @13.8m minus depth below ground-level of surface of aquifer @ 11.7m) At the proposed Landfall point, the cliff edge at Thorpeness Point, this same differential between elevation above sea-level of ground surface and rest water level of the aquifer below ground surface, (6.3m minus 11.7 m) would place the aquifer at 5.4m below sea-level at the foot of the cliff / top of the beach. Again in my previous submission at Deadline 4, in the description of the Suffolk Chalk Aquifer quoted from Natural England, the chalk layer containing the aquifer waters is described as lying on a gentle slope, running downward from NW to SE of the region, to continue its trajectory under the bed of the North Sea. The angle of this slope can be reasonably estimated by comparing the above / below sea-level figures quoted above, namely 2.1 m above sea-level at Ness House, sloping down by a net fall of 7.5m in the

course of the approximately 1200m distance between Ness House and the proposed Landfall point, a gradient of 0.625m in 100m / 0.006 in 1."

In short, given the much lesser distance from Wardens / Ness House quoted, the very slight gradient of the aquifer has a much lesser opportunity to have effect, and the aquifer is therefore lying at an even shallower level of elevation than estimated in my previous submission. Thus, the assumed depth of the rest-water in the aquifer at the cliff-base adjacent to Landfall must now be taken to be significantly less than the 5.4m previously used in my calculations.

The Applicants' confirmation of an even greater depth of drilling level at the base of the cliffs – 11m as opposed to the 3m assumed in my previous calculation, is also noted. At such a depth, the Applicants themselves now confirm that drilling through the water-bearing strata that contain the aquifer is unavoidable, as will be drilling through the aquifer for a second time, from below, when rising through sea-bed strata to the "punch-out" point.

15*.The HDD is expected to be within the Coralline Crag beneath the cliffs, and the strength of the Coralline Crag is expected to prevent any drilling fluid breakout at this point*

Over the whole course of these examinations the Applicant 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 EDF, to demonstrate its assertion that the integrity of the coralline crag will not be compromised by the planned HDD works. Now, at this late stage of the Examinations, it is suddenly revealed that the HDD bore will in fact pass through the coralline crag. Furthermore, 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?

4.1 Geology

21*The basal Chalk bedrock dips gently to the south-east, as do the Palaeogene strata which overlie it. In the east of the area, the Pliocene and Pleistocene Crag deposits dip eastward (Environment Agency, 1997).*

22. *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 DHH 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

20 *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:

23 *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.

4.2 Hydrogeology

25 *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 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”

30 *It is understood that the Ness House well is located in a locked building within the bounds of the property over* ***400m*** *north of the likely location of the HDD bores. The well supplies five properties at and around Ness House, including Wardens Trust.*

My bold emphasis above – earlier in the document 750m was quoted. One wonders what figures will be plucked out of the air next by the Applicant. Ness House, Wardens, Ilex House, Ness House Cottages are at the same location. The locked building referred to is in the courtyard of my home. All of this would have been clear to the Applicant had their representatives attended the recent site visit to which they had been cordially invited.

4.3 Hydrology

31 *The landfall is not located within a catchment of any permanent surface water features and could only be affected by surface runoff.*

Again, are we to assume landfall is at 400m, 750m, or another as yet unspecified distance from Wardens / Ness House site? And the extent of landfall, predicted to require plots 4, 10 12, 13, 14 amongst others, remains unspecified as to total land area required. In terms of the statement regarding permanent surface water, this is factually inaccurate. Plots 4 and 12 contain permanent ponds, where aquifer-supplied water table sits just below ground level, and there are several boreholes and taps located in these areas which testify to permanent surface or near-surface aquifer presence. Again, had the Applicant attended the site inspection referred to above, it could have witnessed these features, rather than rely on inadequately informed speculation.

34 Table 4.2

The table is factually inaccurate in that it fails to represent multiple species of protected flora and fauna present in all the areas it reports on:

Some examples:

In Important Hedgerows 3 and 4 (scheduled for demolition) and the associated hedgerows linking and bordering plots 10;12;13;14 more than 40 species of wild flower have been recorded (cf my earlier submissions which include species recorded by Wardens volunteers and trustees over several decades). Amongst these flora are Red Valerian; Honeysuckle; Petunia; Sloe; Hawthorn; and numerous nectar-rich flowers. The species I name here are of particular relevance to several rare and protected species; three examples: the Hummingbird Hawk Moth; Lampyris Noctiluca (the Glowworm); Elephant Hawk Moth.

These and the numerous other species of insects, moths, and butterflies, as well as being vital pollinators, are also part of the extending food-chain. As the aquifer feeds the soil, which grows the vegetation, which fees the insects, so the insects feed the birds - and the bats. This is how nature works. Remove one link and the whole chain fails.

Bats

Not appearing in the “suite of surveys” undertaken by the Applicant in plots 10;12;13;14 (because the “suite” did not come here) are the local bats – in the main they are recorded as Common Pipistrelle. These roost, feed, breed, and hibernate in the coppices, hedgerows, stables, and field shelters of the area. On balmier evenings following warmer days even as early as next month (March 2021 at time of writing) they will emerge to feed on the first hatchings of air-born insects. I will be observing them, as I have for over 13 years, caught in the shafts of moonlight against the naturally dark skies above my own garden. These super-sensitive protected mammals will suffer potentially catastrophic consequences not only from the interference to their food-supply caused by the demolition of environment, but

also from the light, air, noise, and ground pollution resulting from SPR's industrialisation of the AONB.

Birds

Again, as a small exemplifying selection of the many species I have previously listed, in the same hedgerows, coppices, woodlands, fields, stables and field-shelters of plots 10;12;13;14 are memorable species in addition to the rich and diverse population of familiar British Field and Garden Birds. In particular, swallows, nesting through many generations, for as far back as local memory stretches, in the same stables, fieldshelters, eaves, as the bats, and similarly completely reliant on the abundance of insect life supported by the vegetation. These join other summer and winter visitors which rely on the continuity and abundance of the local environment, amongst their number, Lapwing; Redwing; Martins; Nightingale; Swift; Fieldfare; Warblers including Garden and, only last year returning, Cetti's. Plot 13 also, with its pond, provides a respite site for migrating geese.

In the last 5 years, since the land was returned to arable use, particularly rare species have returned to inhabit the skies, hedgerows, coppices, fields, and woodlands of 10;12;13;14. Marsh Harrier; Wood Lark; and a much remarked on rarity, Firecrest.

Reptiles and Amphibians

As with bats and birds, so with the local population of reptiles and amphibians – species dependent on the successful continuing functioning of the natural environment; from soil to tree-top this is one interdependent bio-system. Part of this environment are the frequent, naturally occurring ponds and seasonal water features, a result of the self-same underlying chalk aquifer layer. Increasingly rare and protected species are present. Common Frog; Common Toad; Natterjack Toad (very rare); Grass Snake; Adder; Common and Sand Lizard; Slow-Worm; and, easily viewable during breeding season in the now threatened wildlife pond at Wardens Centre, Newt, including Great Crested. The same pond, and those naturally occurring in plots 10;12;13;14 also host multiple species of Dragonfly and Damselfly, reliant on the viability of the pond-water, and hence aquifer, for both food supply and location of eggs and subsequent larvae. Reptile and Amphibian mitigation measures, which we heard much of back when the Applicant was seeking to acquire Broom Covert for industrialisation, has not been planned – for the simple reason, it seems to me, that, as I have indicated above, the "suite of surveys" referenced by the Applicant did not include Plots 10;12;13;14.

36 *As noted in Section 2, the landfall HDD bores are likely to be located approximately 750m south of the Wardens Trust site*

750m …. 400m … 750m …as previously noted, this seems to be either indecisive or a result of a lack of detailed planning of any kind. Can the Applicant be encouraged to select a location please?

38 *Existing contamination sources can include neighbouring land uses and historical activities within the onshore development area and in its surroundings. From the*

desk-based information and the findings of a site walkover (July 2018, see Appendix 20.4 Geomorphological Baseline of the ES (APP-498)), potential sources of contamination have been identified within the onshore development area and include:

• Agricultural land, which can be associated with some contaminative activities including use/storage of pesticides and herbicides and burial of wastes; and • A number of historical sand and gravel pits (including Thorpe Sand Pit) present in various locations within the onshore development area have been infilled and may contain unknown and potentially contaminated fill material.

This is pure, groundless speculation, without a scrap of actual evidence. The implication, as seen previously in the Applicant's attempt to characterise rural areas as "suburban", is that the area of the landfall and proposed cable-corridor route are already contaminated – the implied conclusion being that it would therefore not matter if they were contaminated further. What and where are the "various locations?" – and if infilled with "unknown" material, what possible knowledge could inform the assumption that the material is "contaminated"?

39 & 40

There are considered to be two key groundwater receptors linked to the landfall:

• Lowestoft Sand and Gravel and any associated private water supplies (including the Ness House well); and • Crag aquifer.

The Chalk aquifer is not considered as a receptor in this assessment due to presence of isolating layer of London Clay and due to depth of the proposed activities

Again, this appears to be a wilful obfuscation of facts. The chalk underlying the London Clay is of no relevance. The crag, till, and mixed chalk elements bearing the aquifer that lies close under the ground level at Ness House and throughout the area of the proposed works is the source of drinking and irrigation waters, and, as has been previously identified by information provided by the Applicant above, is considered to be a "Principal Aquifer"

43 *From the 50m drilled length, up until 110m drilled length, the HDD is expected to be in the Crag Group deposits.*

The statement confirms that the HDD will pass through the strata bearing the aquifer to which we refer as the source of our water supply.

48. *The HDD is likely to be within the Coralline Crag from 110m until 1,300m of the drilling distance. The Crag is expected to provide ideal conditions for HDD.*

Further to the comments recorded above regarding the sudden disclosure that far from protecting or avoiding the previously described as fragile and unstable coralline crag, here we see the massive scope of the planned HDD intrusion. 1190m – almost four fifths of a kilometre to be drilled through. Could the Inspectorate please ensure that EDF is informed of this intrusion into the geological feature which that company has expressed deep concern regarding its stability and integrity.

49. *Previous studies for the area note the presence of vertical joints within the Coralline Crag. Some of the fractures appear to have remained open. These will not pose a problem for bore stability, being vertically oriented, but there might be temporary fluid losses as the drilling bit passes through them. When the bit has passed, the drilling fluid in the fractures will gel to seal the fractures. If persistent losses occur there is a wide range of stop-loss materials that can be added to the drilling fluid to seal the fractures.*

Again, this is based on pure speculation as to the possible size and extent of the vertical joints referenced (and as always, in historical studies carried out by, here, un-named 3rd parties). How wide a gap can the gelling lost fluid (and here we see open admission of planned fluid loss) be expected to bridge? How wide are the fractures? Could escaping fluid gel successfully enough to bridge a gap of a metre? Has this ever been attempted? Are there any examples of this gelling process actually being attempted or successfully completed?

51 & 52

The Applicants propose to implement water quality and levels monitoring at the Ness House well during HDD activities to ensure no that the proposed mitigation is sufficient

Monitoring as described above is already being carried out on a permanent, year-round basis by industry professionals and council authority, as detailed by Dr Gimson in both oral and written representations and submissions. It is highly unlikely that the Applicant, with no experience or knowledge of this field, will be liable to provide a more expert or reliable service in this field. As for the “mitigation” referenced in the above quotation, and also in:

Table 5.2 hydrological Risk Assessment

Provision of a temporary portable water supply tied into the well at Ness House during HDD activities at the landfall

As both Dr Gimson and I have repeatedly pointed out, no specific form of mitigation for any adverse effect to our water supply has yet been evinced. Indeed, we have both predicted, correctly, that the Applicant would use terms of such generality as to be no more than an evasion of the question. “Tied into the well”? – What will be tied into the well? Pipeline from mains water supply? Has the Applicant approached Anglian Water about this? Bottled water? A water bowser? – both already declined as a viable or acceptable alternative by Dr Gimson. The only meaningful inference to be drawn from “mitigation” plans thus far put forward by the Applicant is that it seems clear that contamination of our water supply is openly expected.

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FURTHER TO ORAL SUBMISSIONS AT ISH7

With particular reference to:

Important Hedgerows and Tree Preservation Plan Sheet 2 / Important Hedgerows 3 & 4

Hedgerows, Flora, Fauna in and bordering Plots 10; 12;13;14

During ISH7 / Biodiversity, the Applicant's representative, when questioned regarding surveys of soil, geology, flora and fauna with regard to the areas cited above (10;12; 13;14;) made frequent reference to "a suite of surveys" having been carried out, but to date no surveys have yet been carried out in the areas I cite. Rather, the areas in and around the proposed sub-station at Friston, the Hundred river, and associated plots seem to have been concentrated on.

Could the Applicant please be questioned again as to the date and extent of any surveys specifically undertaken on plots 10;12;13;14? Surveys undertaken some miles away can have no relevance to this area. Furthermore, in concentrating what survey work has been undertaken on identifying likely habitats for certain species, rather than recording the actual presence of such species, which has been independently recorded for many years, the Applicant has really done little more than have a quick look around, and failing, for instance, to stumble upon either the presence of the brown eared bat, or whatever the Applicant had deemed to be a viable habitat for such an individual, concluded that, contrary to extensive local reportage, no such species is present. Without wishing to be trivial or vexatious in any way, one really is reminded of the legend of Admiral Lord Nelson at the Battle of Copenhagen putting a telescope to his blind eye and declaring, "I see no ships"

In previous submissions I have entered a compendium of the many bird and wild-flower species recorded in the plots referred to above and in the environs of Wardens and Ness House. I will not take up space by rehearsing the entire list but would like to provide some vivid examples of how this area of land operates as an integrated ecosystem, where species are interdependent.

The process begins, of course in the very soil of the area, typically light and sandy, moisture being successfully present only because of the underlying saturated chalk layer – the Suffolk Chalk Aquifer, a report on which I submitted at D4 D5 and expand on in this submission above, as the original narrative part of my D5 submission is reproduced in print too small to be legible on the PINS website (a result I'm sure of my having attached it to relevant screen-shots rather than sending maps separately). Without this massive underground reserve of pure water, not only would the East Anglian region's people's water supply be adversely affected, but the foundation of the ecosystem itself – the very material that gives us "the birds and the bees" would be catastrophically diminished.

Some examples:

In Important Hedgerows 3 and 4 (scheduled for demolition) and the associated hedgerows linking and bordering plots 10;12;13;14 more than 40 species of wild flower have been recorded (cf my earlier submissions which include species recorded by Wardens volunteers and trustees over several decades). Amongst these flora are Red Valerian; Honeysuckle; Petunia; Sloe; Hawthorn; and numerous nectar-rich flowers. The species I name here are of particular relevance to several rare and protected species; three examples: the Hummingbird Hawk Moth; Lampyris Noctiluca (the Glow-worm); Elephant Hawk Moth.

These and the numerous other species of insects, moths, and butterflies, as well as being vital pollinators, are also part of the extending food-chain. As the aquifer feeds the soil, which grows the vegetation, which fees the insects, so the insects feed the birds - and the bats. This is how nature works. Remove one link and the whole chain fails.

Bats

Not appearing in the "suite of surveys" undertaken by the Applicant in plots 10;12;13;14 (because the "suite" did not come here) are the local bats – in the main they are recorded as Common Pipistrelle. These roost, feed, breed, and hibernate in the coppices, hedgerows, stables, and field shelters of the area. On balmier evenings following warmer days even as early as next month (March 2021 at time of writing) they will emerge to feed on the first hatchings of air-born insects. I will be observing them, as I have for over 13 years, caught in the shafts of moonlight against the naturally dark skies above my own garden. These super-sensitive protected mammals will suffer potentially catastrophic consequences not only from the interference to their food-supply caused by the demolition of environment, but also from the light, air, noise, and ground pollution resulting from SPR's industrialisation of the AONB.

Birds

Again, as a small exemplifying selection of the many species I have previously listed, in the same hedgerows, coppices, woodlands, fields, stables and field-shelters of plots 10;12;13;14 are memorable species in addition to the rich and diverse population of familiar British Field and Garden Birds. In particular, swallows, nesting through many generations, for as far back as local memory stretches, in the same stables, field-shelters, eaves, as the bats, and similarly completely reliant on the abundance of insect life supported by the vegetation. These join other summer and winter visitors which rely on the continuity and abundance of the local environment, amongst their number, Lapwing; Redwing; Martins; Nightingale; Swift; Fieldfare; Warblers including Garden and, only last year returning, Cetti's. Plot 13 also, with its pond, provides a respite site for migrating geese.

In the last 5 years, since the land was returned to arable use, particularly rare species have returned to inhabit the skies, hedgerows, coppices, fields, and woodlands of 10;12;13;14. Marsh Harrier; Wood Lark; and a much remarked on rarity, Firecrest.

Reptiles and Amphibians

As with bats and birds, so with the local population of reptiles and amphibians – species dependent on the successful continuing functioning of the natural environment; from soil to tree-top this is one interdependent bio-system. Part of this environment are the frequent, naturally occurring ponds and seasonal water features, a result of the self-same underlying chalk aquifer layer. Increasingly rare and protected species are present. Common Frog; Common Toad; Natterjack Toad (very rare); Grass Snake; Adder; Common and Sand Lizard; Slow-Worm; and, easily viewable during breeding season in the now threatened wildlife pond at Wardens Centre, Newt, including Great Crested. The same pond, and those naturally occurring in plots 10;12;13;14 also host multiple species of Dragonfly and Damselfly, reliant on the viability of the pond-water, and hence aquifer, for both food supply and location of eggs and subsequent larvae. Reptile and Amphibian mitigation measures, which we heard much of back when the Applicant was seeking to acquire Broom Covert for industrialisation, has not been planned – for the simple reason, it seems to me, that, as I have indicated above, the "suite of surveys" referenced by the Applicant did not include Plots 10;12;13;14.

Conclusions

All of the information offered above with regard to Biodiversity with particular reference to plots10;12;13;14 and the surrounds of Wardens Centre, Ness House, and Cottages is no more than a small snap-shot of an even smaller percentage of the flora and fauna present in this area, all of which will have its long-standing natural environment destroyed, permanently, by not just the industrialisation of the whole area, and by that I mean not merely the cable-route trenching, lay-down area, haul-road building, industrial storage facilities, 24hr light and noise pollution, pollution of water-source, demolition of hedgerows, coppices, woodlands, stables, field-shelters – that is only the projected works which may or may not be consented later this year, and commenced in the future, which many individuals and organisations are contesting.

Nearer at hand, scheduled to commence immediately, is the digging of over 30 trenches, and numerous invasive deep boreholes piercing the aquifer layer, currently presented as a pre-consent Archaeological Survey of plots 10 and 13. I have sent a copy of the map of these proposed works in my previous email.

This forms part of the process we heard described by Dr Gimson in his submission referencing NDAs. "A bribe" was his description on record. Our local MP, Dr Coffey, similarly described the activity as resembling, "sharp practice". In addition to these specific, on-record references, I would like to add my own sense of shock and dismay at a growing body of evidence of what very much appears to be a process of unfriendly pressure, to say the least, on the part of the Applicant, aimed, in the main, at vulnerable and distressed residents.

I would like to conclude this part of my D6 submission by repeating my request for clarification of exactly where, when, and how the "suite of surveys" conducted by the Applicant are relevant to plots 10;12;13;14 and the surrounds of Wardens, Ness

House, and Cottages. Bats; birds; insects; flora; reptiles and amphibians with mitigation plans; a basic investigation of the aquifer itself – none of this has been undertaken in the square mile in which I live.

Why is this area so rich in species? Is it unusual locally? – No. It is part of an AONB equally diverse and rich. Hence the designation AONB in the first place, and the reason why the integrity of the area is protected. I respectfully request that the Inspectorate refuse consent to the destruction of this vital natural environment.

I would also like to add my support to those referencing the recent Vanguard High Court decision, in that the cumulative effects of the multiple projects must now be taken into account, and indeed are being emphasised in a refreshed approach to the managing of the East Coast as a whole in terms of energy supply-chain by H M Government.

With that in mind, in concert with many concerned and engaged organisations and individuals I would like to respond to Action Point 2, The Planning Balance from Open Floor Hearing 6

I respectfully urge the Examining Authorities to recommend to the Secretary of State a 'split decision' so that:

1. **The offshore turbines are recommended for consent.** (We are fully supportive of renewable energy and have no objections to the offshore elements of these DCO applications with the proviso all installations are acceptable to stakeholder concerns over the statutory purposes of the AONB affected by these proposals).

2. **The onshore infrastructure is rejected in favour of full consideration of better locations for this infrastructure where the adverse impacts are minimised at a brownfield site.**

As an Affected Person and Interested Party, I have participated throughout the course of the Hearings and I think one thing has become clear, the adverse impacts of this particular onshore site location substantially outweigh the benefits of the application when taken as a whole. The impact on our environment and the local communities and economy would be devastating but importantly needlessly devastating. There are alternative sites available which could avoid this destruction by their virtue of being at a brownfield site.

These Applications have come at an unprecedented time of consensus around the importance of offshore wind in reducing the UK's carbon emissions and meeting the government's 2030 offshore wind targets. They have also come at an unprecedented time of consensus around the acutely detrimental impacts of radial connections which these Applications propose. There are still 9 years to go until the Government's 2030 offshore wind targets. There is time for Scottish Power Renewables, National Grid and the Department for Business Energy and Industrial Strategy (BEIS) to get this planning Application right **without** jeopardising these important targets.

A 'split decision' would mean that no time is wasted with respect to the construction of the offshore turbines but would give the opportunity to rethink the onshore aspects of this project to fall in line with current government aspirations.

"We will safeguard our cherished landscapes, restore habitats for wildlife in order to combat biodiversity loss and adapt to climate change, all whilst creating green jobs."

"To minimise the impact on local communities, we will implement a more efficient approach to connecting offshore generation to the mainland grid."

The Energy White Paper

EXPANDED AQUIFER INFO UPLOADED FOR DEADLINE 6

I will hopefully be adding a geological cross-section of Suffolk terrain and seabed to enhance this slightly updated report. I would be most grateful if you could retain the paragraphs below within my D6 submission, as, probably due to my adding screenshots to the same page, on the PINS website the text of my D5 submission is too small to be read.

Many thanks once again for reviewing the information presented below with reference to additional information requested for Deadline 5 supporting previous submissions on the importance and vulnerability of the aquifer contained in the continuous chalk layer underlying the East Anglian region in general, and with specific local relevance to Wardens Centre / Ilex House / Ness House / Ness House Cottages / the long-standing grazing rights and vulnerable status of the livestock in the paddocks adjoining Ness House, and the centuries-long usage by farms, local businesses, and individuals.

I would very much like this submission and information to also be made available to Anglian Water and EDF, as organisations also likely to be adversely affected by the danger of the aquifer being compromised and polluted. The following additional information I believe has an immediate bearing on both the Applicant's proposed Landfall site choice, and the pre-consent archaeological surveys, comprising over 36 trenches and numerous deep boreholes immediately adjacent to the properties indicated above, which the Applicant is currently seeking to commence during the next two months, planned to extend into 2022. Details and a copy of the map illustrating these highly intrusive works can be supplied either at the next Hearing, or by / before Deadline 6.

For Deadline 5 Submission: The levels in the private water supply at measure by Veritas Water Engineers Ltd, the company retained by the Wardens Trust and Gimson family to install and maintain water purity for the Wardens Centre, Ness House, Ilex House, Ness House Cottage 1 and 2, were reported as follows, measured on 26/01/2021: "The well is 13.1 m deep measured from floor level in the pump house, the rest water level (surface of the well water) is 11.7 m. hence a depth of 1.4 m of water in the well" The following two screenshots display the elevation above sea-level at site of the well at Ness House (map 1, upper) and at the proposed Landfall site,

Thorpeness Point, at cliff edge (map 2, lower) Ness House : 46 ft / 13.8m above sea-level Landfall site cliff edge: 21ft / 6.3m above sea-level The extremely shallow depth of the water in the well at Ness House / Wardens, at 1.4m / 4.67ft is a clear indicator of the extensive lateral size of the Suffolk Chalk Aquifer. For such a shallow depth of water to supply, for a period of time that exceeds living memory, and in the case of Ness House, then known as The Tea House on 19th century o/s maps, and also in the case of Suffolk farmland usage, for a period that stretches back even further in time, and for the water source not have run dry must surely indicate a very substantial body of water.

In my previous submission for deadline 4, I quoted from, and referenced, two authoritative sources of information regarding the overall dimensions and vital importance of the Suffolk Chalk aquifer, a continuation of the single chalk-layer aquifer underlying, and supplying water to, the whole of the East Anglian region and beyond.

From the maps below, together with the current readings at the Ness House / Wardens site, we can see that the rest water level, ie the surface of the water in the well, lies at no more than 2.1 m / 7ft above sea-level (calculation being ground elevation @13.8m minus depth below ground-level of surface of aquifer @ 11.7m) At the proposed Landfall point, the cliff edge at Thorpeness Point, this same differential between elevation above sea-level of ground surface and rest water level of the aquifer below ground surface, (6.3m minus 11.7 m) would place the aquifer at 5.4m below sea-level at the foot of the cliff / top of the beach. Again in my previous submission at Deadline 4, in the description of the Suffolk Chalk Aquifer quoted from Natural England, the chalk layer containing the aquifer waters is described as lying on a gentle slope, running downward from NW to SE of the region, to continue its trajectory under the bed of the North Sea. The angle of this slope can be reasonably estimated by comparing the above / below sea-level figures quoted above, namely 2.1 m above sea-level at Ness House, sloping down by a net fall of 7.5m in the course of the approximately 1200m distance between Ness House and the proposed Landfall point, a gradient of 0.625m in 100m / 0.006 in 1.

At a depth of 5.4m below sea-level at the foot of Thorpeness cliff it might be thought that the aquifer might be below the level of HDD drilling proposed by the Applicant, which has referred to the under-beach level of the cable ducts as being 3m below beach level. However, seaward from the foot of Thorpeness cliff, both the beach and the subsequent sea-bed shelve at a far steeper gradient than that of the aquifer, the top-of the beach dropping over 3m in elevation in 50m travel to the shoreline, and the sea-bed then shelving to a depth of over 5m in a similar distance. It seems therefore extremely likely that the aquifer-bearing chalk level proceeds under the sea-bed at an angle that brings it in very close proximity to the sea-bed floor above it.

Without a specific geological survey of the depth under the sea-bed at which the aquifer lies, at frequent points of measurement between the proposed Landfall point and the planned “punch-out” point, it is impossible to say for certain at what exact depth the aquifer lies, along that trajectory. However, it is surely also clear that drilling down to a depth sufficient to undermine both cliff and beach at Thorpeness, the Applicant’s HDD process cannot avoid piercing and boring through the aquifer from

above. Equally clearly, the progress back up through the sea-bed strata to arrive at the “punch-out” point cannot avoid drilling through the aquifer for a second time from below, this time adding sea-water to the pollutants entering the major source of underground water-supply to the East Anglian region, and further afield.

As a specific, local example of how vulnerable the aquifer is to pollution, I can offer our own personal experience at the Ness House Cottage / Wardens site. For most of the years since moving here in 2007, the surrounding fields (currently adjoining Ness House and earmarked for industrialisation as part of the proposed cable-corridor) sustained mixed farming, alternating arable, root crops, and occasional single years of pig farming. For one period of no more than 3 years, pig-farming was unrelieved by intervening arable or root cropping. The result was that, for the first time in living memory - and the memories of our neighbour Dr Gimson’s parents at that point went back over 8 decades - the water in the well became compromised as drinking water by pollutant corrosive elements leaching down into the chalk aquifer layer, resulting from extended presence of the pigs. It was as a result of this, on the advice and subsequent insistence of council authorities, that the filtration and purification equipment currently installed at the pump-house at Ness House was installed.

In addition, therefore, to damage and pollution from the HDD process, the extensive trenching and inevitable industrial waste and run-off from all the proposed works, from Landfall extending along the whole proposed cable-corridor, seem certain to severely compromise and possibly render unusable the local area’s water supply, and in time that of the wider region. The question has been asked of the Applicant, in person by local landowners, and in writing at previous Hearings and for previous Deadlines - quite simply, what will they do to remedy this damage. Like many IP and AP contributors, I have been shocked to see vital and relevant questions such as this brushed aside by the Applicant with an answer that contains no specific information - merely the stock reply that Best Practice will be used, should anything go wrong. I respectfully request the Inspectorate to press the Applicant on this question. What we need to know, in the unhappy event of the project proceeding as planned, is what specific things the Applicant plans to do if our water supply is compromised - exactly how will they remedy the situation, and precisely when?

With great thanks as always for considering my submission for inclusion.

Yours sincerely

Richard Reeves

Richard Reeves, AP EI1N AFP 133 / IP 2002765

Responses, Questions, Corrections

RE The Applicants' Landfall Hydrogeological Risk Assessment 24/02/2021

Referred to below as LHRA

Comments on:

Applicants' Comments on Submissions Regarding the Landfall Hydrogeological Risk Assessment (REP6-021)

Applicant: East Anglia TWO and East Anglia ONE North Limited Document Reference: ExA.AS-26.D8.V1 SPR Reference: EA1N_EA2-DWF-ENV-REP-IBR-001018

Date: 25th March 2021 Revision: Version 01 Author: Royal Haskoning DHV

Applicable to East Anglia ONE North and East Anglia TWO

Applicants' Comments on Submissions on REP6-021 25th March 2021

Applicable to East Anglia ONE North and East Anglia TWO Page i

Revision Summary

Rev Date Prepared by Checked by Approved by

01 25/03/2021 Paolo Pizzolla

Lesly Jamieson / Ian MacKay

Rich Morris

1

Applicant's 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, Mr Pizzolla for the Applicant is correct in his description of the aquifer, but incorrect in describing my understanding of what an aquifer is. Mr Pizzolla 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 general ignorance with which Mr Pizzolla 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.

22. *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

20 *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:

23 *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.

4.2 Hydrogeology

25 *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 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 also must be pointed out, particularly in the light of the points I have had to illustrate by quoting previous submissions above, that Mr Pizzolla's 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 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.

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

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. 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 Dr Gimson 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 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.

Kind regards

Richard Reeves.

Dear Sheena,

I wanted to contact you directly in relation to an issue that may be of concern in relation to the proposed Scottish Power Renewables projects East Anglia Two Offshore Windfarm and East Anglia One North Offshore Windfarm, particularly in respect to the issues of the suitability of the proposed Landfall site at Thorpeness, and the wider issues of national security connected with such a concentration of infrastructure in this vulnerable area.

On the 24th October 2018 I discovered what appeared to be an exposed telecommunications cable extending from near the top of the beach to the water's edge. There had been strong winds and high tides in the previous days.

I contacted Paul Patterson, Senior Coastal Engineer at Waveney District Council on the 26th October by phone to express concern, and after investigation he confirmed to me in a voicemail message that this was in fact one of the 3 fibre optic telecommunications cables clustered in this area, making landfall at Sizewell, Thorpeness and Aldeburgh. The cable had been laid by a Dutch firm, Interoute (subsequently acquired by GTT Communications, whose website advertises that they specialise in transport of high volume data and cloud based applications between financial markets, data centres and media hubs throughout the world). The cable in question is designated by the name Concerto.

Mr Patterson said that the company had been made aware of the situation at the beginning of the week and were currently involved in plans to bury the cable and make it secure. Owing to weather conditions, the cable remained exposed for the best part of a week.

I'm keen to bring this to wider attention on two specific counts.

1. The first is a matter of the suitability of this site for invasive engineering work. The Concerto cable is located directly adjacent to the site where ScottishPower Renewables propose to establish their Landfall site, and lay cables by a process of HDD, or Horizontal Directional Drilling. This part of the beach is exceptionally vulnerable to the effects of tides and winds, and notices erected recently warn of the danger of the sandy cliffs and dunes collapsing. Indeed, last year there was a tragic death caused by the collapse of the cliff in that vicinity, as I know you'll be aware. The exposure of the cable simply by the action of tide and wind demonstrates how unstable the terrain is. The site is simply unsuitable for extended drilling and mechanical work as proposed by SPR, who have stated that it is a possibility that their two projects may be undertaken consecutively rather than simultaneously, guaranteeing extended years of invasive activity at that site. Cables making landfall here are at risk.

2. The second issue is that of national security. We have heard from Theresa Coffey that if the SPR developments, and other projected works, are to go ahead , this narrow and little-policed area will be the point of entry to up to 30% of the nation's energy supplies, making it a potential target for malicious acts of terrorism, whether cyber or otherwise. The cable Concerto was entirely at risk to such an act, simply by dint of the weather and the geological composition of this part of the coast. The addition of further potentially vulnerable infrastructure seems highly inadvisable.

I'd be very keen for you to follow up on this issue if it would be of interest to you. As a local resident, living adjacent to the proposed Landfall site, my interest is primarily in how this incident may be brought to bear in the argument questioning the suitability of SPR's projects in this area.

We have several photos of the cable in situ, and videos showing its exposed length and context on the beach. Please do let me know if you'd like these forwarded, and if we can offer any more help.

With Best Wishes,

Tessa Wojtczak.