



WRITTEN REPRESENTATION

NNB Generation Co (SZC) Ltd:

THE SIZEWELL C PROJECT: EN010012

Harmful effects of the proposed new Access Road on designated sites and protected wildlife

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1.PROBLEMS WITH THE ACCESS ROAD

The proposed new Sizewell C Access Road would run eastwards from the B1122 to the nuclear station platform. This would become the main route for traffic to and from the station, both to aid construction and subsequently as the permanent access road during operation. Our members have grave concerns about NNB Generation Co (SZC) Ltd's plans for this road and regard it as one of the most seriously damaging features of the entire project. Reasons for this view are given below.

1.1 Mitigation hierarchy disregarded

EDF Energy, despite 9 years of public consultation, totally ignored the first step of the Mitigation Hierarchy, i.e. Avoidance. We have never been offered options for other routes that might be less damaging to this highly sensitive ecological area. As it is, it would divide the protected landscape of Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) completely in two, separating the world-famous RSPB Minsmere nature reserve from Sizewell Marshes Site of Special Scientific Interest (SSSI), currently an open landscape with outstanding habitats and high connectivity for wildlife.

The road would cross over the north-eastern part of Sizewell Marshes SSSI, causing direct loss of more than 1.2ha of this specially designated site, protected under the Wildlife & Countryside Act 1981 (as amended). Only after many protests from ourselves and others, including the Environment Agency, has EDF Energy amended their design of the Crossing in an attempt to reduce the land-take. EDF claims that by shortening the tunnel 450m² of land is saved. However, since the width of the road at the base has increased from 63m at Stage 3 Consultation to 70m at DCO, such claims seem dubious: (AS-202: 2.7.9). The fact is that the current proposals still amount to almost twice the land-take of a three-span bridge, which, from an ecological perspective, would be less damaging.

There has been no attempt at all to avoid crossing the SSSI. While EDF points out that they have situated the road at the narrowest point of the SSSI, it also means that it would be even closer to the protected European and Internationally designated sites of the Minsmere-Walberswick Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar, causing greater impacts here. Moreover, the latest proposals featuring a 40m span bridge with embankments, would be situated slightly further eastwards, again closer to these designated sites.

Rather than following the Mitigation Hierarchy step by step, EDFE went straight to the final stage of Compensation, which should only be used as an absolute last resort. This was in the form of the Aldhurst Farm habitat creation – yet this was only meant to compensate for SSSI land lost to the station platform, not the Crossing. In any case, a new scheme such as this can never compensate for a designated site of high biodiversity value, that has taken many hundreds of years to evolve. There are several other specific reasons why this new habitat is inadequate and this is discussed in more detail in our Written Representation concerning impacts on the invertebrates of the SSSI (Fulcher, 2021).

The Mitigation Hierarchy is vital in the process of the Environmental Impact Assessment (EIA), because it aims to ensure that, in any development, environmental impacts are reduced or avoided altogether. Sizewell C is a Schedule 1 development, and as such, EDF is required to submit an EIA under the legislation of the Town & Country Planning (Environmental Impact Assessment) Regulations 2017. By not following the Hierarchy, NNB Generation Co (SZC) Ltd have failed in their application to comply with the 2017 Regulations in this respect, putting this protected environment at great risk.

1.2 A roadless area dissected

Roadless areas are fast diminishing, leaving the planet shattered into some 600,000 fragments, causing degradation of ecosystems. In their research paper on roadless areas, Pierre Ibisch *et al* point out that the impact of roads extends far beyond the roads themselves (Ibisch, 2016). They cause 'deforestation, fragmentation, chemical pollution, noise disturbance, increased wildlife mortality, changes in population gene flow, and facilitation of biological invasions'. If more roads are to be built, say the authors, then they should be in areas of 'low environmental values'. The authors conclude that protection of roadless areas important for biodiversity should be given high priority by governments. Here in the UK there has been little progress towards reaching the United Nations' biodiversity agenda as specified in the Aichi Targets of the Convention on Biological Diversity, 2010. Target 5 states that governments must 'substantially reduce the degradation and fragmentation of natural habitats'.

Yet here we have an application to drive a highway through a roadless area of very rich biodiversity value. While EDFE has assessed some individual impacts of the Access Road, such as noise disturbance and air quality, there is no proper evaluation of the collective effects on the designated habitats and their resident and visiting wildlife. We utterly refute their claim that effects would not be significant (PEI Vol 2A, table 2.3.1).

1.3 The Road Effect Zone (REZ)

A considerable body of research exists that demonstrates that it is not just the road itself that reduces biodiversity, in terms, for example, of green land-take and wildlife mortality through traffic accidents, but the areas all around the roads. The worst affected is the zone lying within 1km either side of the road, and the nearer to the road, the greater the negative impacts. Depending on the animals involved and their degree of mobility, this zone may extend to 5km.

As far as the Sizewell Access Road is concerned, this is deeply worrying, as 1km north of the road would include virtually all of the Minsmere Southern Levels, with the Minsmere-Walberswick SSSI, and parts of the European designated habitats SAC, SPA and Ramsar lying to the east along the coast. 1km south of the road would cover most of Sizewell Marshes SSSI and Sizewell Levels & Associated Areas County Wildlife Site (CWS). **This means that all of these protected areas would become permanently degraded due to the Access Road.**

Decline in populations of birds would be up to 30% within the 1km zone and of mammals the same percentage within 5km either side of the road, depending on mobility (Rejnen, R. *et al*, 1996; Fahrig & Rytwinski, 2009; Benitez-Lopez *et al*, 2010). Wide-ranging animals, such as deer and otters, would be affected throughout this whole area.

The effects south of the road would be compounded by the 'Green' railway line during construction, that would run all along the north-western edge of Kenton Hills, making this area largely untenable for wildlife. Affected species here would include the rare Barbastelle bat.

1.4 Barrier effect

A road acts as a barrier to wildlife, so that normal interchange is threatened and survival therefore reduced. Species are unable to disperse to find mates resulting in a reduction in genetic diversity. The in-breeding that follows weakens the population. Such a barrier also curtails foraging, restricting the quantity and suitability of available food.

Animals most at risk are those requiring an extensive range that also have low reproductive rates. They are more likely to risk crossing a road and therefore suffer high mortality. Otters, for example, need up to 20km of river for foraging, yet may have litters of only two or three, often with only one surviving into adulthood. (IUCN OSG, 2013.) Road-kill is a major reason for mortality of this protected animal (see 5.1 below).

1.5 Pollution of designated sites

While NNB Generation Co (SZC) Ltd's documents promise the use of SuDs drainage systems alongside the new roads, the fact is that none of these are a hundred per cent effective. Spills of oil, diesel and petrol and the wearing of tyres and braking systems cause chronic pollution to roads, including heavy metals, hydrocarbons and microplastics. These build up during dry weather, then, when it rains, they are washed off the roads and ultimately into our rivers. Advertisements for the best filtration systems promise to capture up to 80% of the main pollutants, but only up to 40% of total phosphorus. (SDS, retr. 2021.) There is no mention of microplastics, so the assumption is that these would pass through such systems.

We are bound to conclude, therefore, that despite best practice, a certain quantity of pollutants from the Access Road would inevitably end up in the Leiston Beck (Drain), which would then carry them northwards across the Minsmere South Levels SSSI, across the eastern part of the Minsmere-Walberswick SAC, SPA and Ramsar and out into the sea via the Minsmere Sluice. Some of the pollutants, such as heavy metals, can kill fish and other aquatic life, and affect the health of aquatic plants. Research by Veronica Edmonds-Browne of the University of Hertfordshire has found such pollutants in aquatic invertebrates, shortening their lives and preventing breeding (Browne, 2019).

Then there is the problem of litter, which will inevitably be dropped or thrown out of windows. Both domestic and wild animals, as well as birds, can die after inadvertently consuming plastic. Serious cuts can result from discarded tin cans, while the plastic that holds several together is a

terrible hazard to inquisitive animals. Otters, for example, can get their heads stuck in these. (UK WOT, 2021.) Driving a polluting road across a protected landscape and high-quality designated site must be refused.

1.6 Air pollution

Microplastics would also be blown off roads by the wind, as will particulates from diesel fumes. As the prevailing wind is from the south-west, these will mostly end up in the Minsmere designated sites. If, however, it blows from the north-east, then they will pollute the Sizewell Marshes SSSI, Sizewell Levels & Associated Areas County Wildlife Site and Leiston Common CWS.

Traffic fumes will also result in deposition of nitrogen into the protected wetlands. This could be very serious, as the rare plants and invertebrates depend on clean water that is low in nutrients for survival. Over time the chemistry of the water would change – to the detriment of Red Listed species, already under threat. (Fulcher, 2021.)

1.7 Is mitigation possible?

Improving the habitat near to roads has a negative effect overall, as species may be attracted to it, but then suffer higher incidents of mortality on the road. Deer and other animals may also come to the road to lick the salt put down to melt the ice in winter. The only possible form of mitigation is to create new favourable habitats outside the disturbed zone, of the same quality as that affected. (Reijnen *et al*, 1996.)

As mentioned, EDFE claims that the Aldhurst Farm habitat creation compensates for the loss of SSSI land at the Crossing, but this is not the case. The new scheme was only ever supposed to compensate for the loss of ditches and reedbeds due to the construction of the station platform – not the Crossing. (E.A., 2020.) Moreover, the habitat creation is not, and can never be, of the same quality of the species-rich SSSI habitats. Most particularly it is too high in nutrients, due largely to drainage from the adjacent sewage works and agricultural fertiliser run-off (APP-297:19.4.41). This means that the rare Red Data Book invertebrates, that would be lost from Sizewell Marshes under the Access Road and construction areas, would not colonise the new habitat. These losses would therefore be permanent and significant.

In addition, the Aldhurst Farm scheme, lying as it does on the western side of Lover's Lane, would not compensate for the very substantial loss of connectivity, due to the Access Road, between Sizewell Marshes SSSI and the Minsmere-Walberswick designated sites immediately to the north. There is very fast traffic on Lover's Lane, a terrible hazard to wildlife. See also under 5.1 below.

2. ROUTE OF THE ACCESS ROAD

The proposed road would consist of a single carriageway, 12m wide, with segregated route for cyclists and pedestrians alongside. (AS-202: 2.7.8.) It would be built to take very heavy lorries as well as lighter vehicles. It would run eastwards from the B1122 to the Sizewell C station platform, and onwards to the beach, cutting the Suffolk Coast & Heaths Area of Outstanding Natural Beauty

(AONB) into two. So that it could cross the north-eastern part of Sizewell Marshes Site of Special Scientific Interest and reach the raised station platform it needs to be constructed on a 7.3m high causeway.

The Crossing would also carry the haul road that would take large volumes of very heavy materials from the beach and station platform to the stockpile/borrow pit areas. It would therefore consist of four lanes from the platform, over the crossing and to the point where the haul road diverts to the north.

The landscape and habitat types that the road would run through from west to east are as follows:

arable field;

native species-rich hedge including trees running north to south;

arable land with scattered scrub and native species-rich hedge with trees east to west;

hedge with trees north to south (few species);

improved grassland;

footpath/track with hedges and trees (few species);

two arable fields with hedge between;

woodland strip north-west to south-east;

arable field;

plantation woodland of Dunwich Forest and Goose Hill with some broadleaved and some mixed, and species-rich rides; 3 ponds;

Sizewell Marshes SSSI: dense scrub (some with bracken), semi-natural broadleaved woodland, wet woodland, swamp, standing water;

semi-improved grassland and scrub (platform area).

It is obvious from this list that the Sizewell Estate consists of a mosaic of interconnected habitats, offering rich resources for a great many wild species. The loss of these habitats and the implications for resident and visiting wildlife is discussed below.

2.1 Land-take during construction

Extensive areas either side of the permanent road would become hard-standing for lay-down and construction areas, amounting in all to approximately 332ha (APP-224: 4.11.20). All of the above green areas would therefore go under concrete, with the exception of the native species-rich hedge with trees east to west, part of the woodland strip, and some small patches of broadleaved and mixed woodland. The green corridor proposed at Stage 1 consultation running between Ash Wood and Kenton Hills would now be taken over by water management zones.

During construction the very wide haul road mentioned above, with a width of 30m, would run along the northern perimeter of what is now Goose Hill, leading from the beach and station platform to the stockpile and borrow pit areas. The building of the proposed station Access Road

would result in land-take from the valuable habitat of Sizewell Marshes SSSI, which would be permanent. There would be a further haul road along the southern edge and various other unmade roads in between. A railway would also run along the north-western edge of Kenton Hills into the construction site. Although the haul roads and railway would be removed following the completion of the building works (after approximately 12 years), the Access Road with SSSI Crossing would remain. A further permanent road would branch off and run directly south from the Access Road to the new electrical substation, acting as a north-south barrier and causing more fragmentation.

2.2 Habitat changes during operation

After removal of the construction site and restoration to green areas, the habitats and landscape, according to the proposals, would be entirely different. Some of the arable land and improved grassland to the west would remain, but rather than re-planting the lost woodland at Dunwich Forest and Goose Hill, heathland would be created in this location. The haul road would be taken away, but the Access Road would remain as a permanent feature. It is the view of Friends of the Earth that this is one of the worst aspects of the entire Sizewell C project, as it would cause chronic damage to this highly sensitive and wildlife-rich landscape, with lasting effects on the protected habitats either side of it, as outlined in this paper.

3. DIRECT LOSS OF HABITAT

EDF Energy argues a) that the habitat lost to construction is of poor ecological quality, with the exception of the NE triangle of the SSSI and fen meadow habitat along the western edge of the proposed station platform; b) that it would only be 'temporary' and that the landscape would be restored. Our members utterly refute both of these statements. The plantation woodland at Goose Hill permanently lost to construction in fact contains a number of valuable protected species, as can be seen from those listed below. The word 'temporary' is misleading, as it refers to at least nine years, or most likely 12 years of construction time. Added to this a further two at the minimum to restore the land, the result is closer to 14 or 15 years. In terms of the life-span of many of the affected species, often as little as 3 years or less, the loss is in fact permanent. We do not therefore accept the term 'temporary'.

3.1 Loss of arable fields, grassland and removal of hedges

EDF considers that the area of arable fields on the western side of the route is of little biodiversity interest. (AS-021, Phase 1 update, Table 1.) Yet the ornithologists who surveyed this area in 2020 have the opposite view, demonstrating that the fields, together with the hedges and grassland, are in fact important for birds. The 'Breeding Bird and Waterfowl Survey Report' (in AS-021) states that the arable fields are one of the 'key areas supporting breeding birds' (2.3.3). They observed seven Red-listed species here (Cuckoo, Linnet, Skylark, Starling, Yellowhammer, Mistle Thrush and Turtle Dove) and nine amber-listed (Meadow Pipit, Snipe, Willow Warbler, Mediterranean Gull, Bullfinch,

Dunnock, Stock Dove, Black-tailed Godwit and Swift) along with many others of lesser conservation concern.

The hedges are significant features, even those with little variety of woody species. Those that are more than 30 years old are classified under the Hedgerow Regulations 1997 as 'important' even if they support few native plant species. Many of the above birds will be using the hedges for nesting and feeding. The map on page 121 of AS-021, shows that several hedges are indeed 'important', with trees offering many potential bat roosts. Nearly all of these would be removed. The hedgerows also provide linear, connecting features in the landscape, used by the bats as commuting routes for foraging, to orientate themselves and to provide protection from wind and predators.

Equally, small mammals, such as bank voles and harvest mice, also stoats and weasels, will use hedges for cover and foraging. They are especially important for hedgehogs, which will find nesting sites at the base. Unfortunately, EDF have not surveyed the hedgerows for small mammals, dismissing them as unimportant, despite the fact that both harvest mouse and hedgehog are Suffolk BAP species and listed under Schedule 41 of the NERC Act (APP-224: 14.14.11). Both of these species have suffered catastrophic losses due to habitat destruction and pollution, and hedgehog is now on the mammals Red List.

Hedges provide food, shelter and breeding sites for pollinators, especially where there are perennial plants at the base. Bumble bees use these linear features to guide their foraging for nectar. No less than 20 species of butterfly breed in the hedges of lowland Britain. Indeed, the Applicant admits in APP-224 that the invertebrates in the arable field margins to the north-west of Goose Hill are of 'County Importance', due to an overspill from the surrounding high-quality habitats (14.8.5). Removal of these hedges would result in the loss of insect diversity and abundance, which in turn has a knock-on effect on species that feed on them.

The only important hedge to be retained on the Main Development Site would be very close to the proposed entrance roundabout. It would divide the construction area from the site for the accommodation campus and would no longer be in a rural environment. The noise, dust, pollution, lighting and constant movement of people and vehicles would deter any animal or bird from using it as a resource.

While EDFE have promised to plant new hedges, this will not be for at least a decade. It will take many years thereafter for them to mature and at least 20 for the trees to grow. Meanwhile, short-lived species depending on the hedges could become locally extinct.

3.2 Loss of recreational enjoyment

The most popular route for ramblers is the circular walk from Sizewell, along the beach, then inland along the Sandlings Walk to Kenton Hills. From here you cross Leiston Common, down Sandy Lane

and back to Sizewell village. On a sunny weekend, there are dozens, if not hundreds of people enjoying this route, including our own members.

Most of the Sandlings Walk would be permanently closed during construction, as part of it is also the route for the new Access Road. The permissive paths around Goose Hill would also be stopped up. During operation, the Sandlings Walk from the beach would take a different route and run directly by the new power station and alongside the permanent Access Road by the Crossing. This would no longer be a pleasant and quiet country walk. The route would also be significantly longer.

There is also the concern that hundreds of workers would take over these tranquil walks, deterring local people from using them.

3.3 Felling of plantation woodland at Dunwich Forest and Goose Hill

Almost all the trees would be felled here, with a loss of 46ha of woodland to the Access Road and accompanying construction site. EDF Energy minimises the value of this woodland, dismissing it as a 'plantation' and therefore unimportant in wildlife terms (AS-021, Phase 1 update, Table 1). Yet, at the same time the Applicant's document APP-224 describes the Goosehill rides to be of 'National Importance' for their invertebrate assemblages (14.8.4). The Wildlife Trusts point out that evergreen woodlands have been crucial in extending the natural range of both the Firecrest and Crossbill (Wildlife Trusts, 2020). As with all birds, they are protected under The Wildlife & Countryside Act 1981. Indeed, it is well established that they both feed and breed at Goose Hill. As for Firecrests, coastal regions of the East and South East of England are the only areas where they take up residence. Hobby is also known to nest in the trees of Goose Hill. This woodland is part of the Sizewell Levels & Associated Areas County Wildlife Site (CWS). The citation describes it as being 'of ornithological importance', along with Kenton Hills and Nursery Covert. The way in which its importance as a habitat is dismissed by EDFE is therefore totally incorrect.

In addition to the birds mentioned above, the 2020 surveys report six Red-listed species seen here (Cuckoo, Song Thrush, Starling, Marsh Tit, Linnet and Ring Ouzel) and eight Amber (Bullfinch, Dunnock, Kestrel, Stock Dove, Tawny Owl, Willow Warbler, Shelduck and Snipe). (In AS-021.)

The open rides are of great value for the Grayling butterfly (*Hipparchia semele*), which uses the warmth for thermoregulation. Where there is also honeysuckle, the food plant of the caterpillar of the White Admiral butterfly (*Limenitis camilla*), a valuable habitat is offered. This butterfly is often seen in summer at Goose Hill, especially along the Sandlings Walk (SBC, 2019). Both of these butterflies are protected under Section 41 of the Natural Environment & Rural Communities (NERC) Act, yet no mitigation is being offered by EDFE for loss of their habitat here. Our detailed Written Representation concerning impacts of the Sizewell C development on invertebrates is submitted separately, *q.v.* (Fulcher, 2021).

The four reptiles all found on the Sizewell Estate, namely Adder (*Vipera berus*), Grass Snake (*Natrix helvetica*), Common Lizard (*Zootoca vivipara*) and Slow Worm (*Anguis fragilis*), also use the sunny woodland rides of Goose Hill for basking and are found in 'good numbers' both here and in the

scrub habitat (APP-235, Table 1.7). All four are Priority Species under the UK Post-2010 Biodiversity Framework and protected under the Wildlife & Countryside Act 1981. The need for basking leaves them exposed to incidental injury and mortality as the result of human activity, especially where machinery and vehicles are involved. Although translocation sites are being offered by way of mitigation, it is the view of local ecologist Tom Langton that they are unsuitable from many perspectives, most particularly from a dearth of worthwhile prey items, lack of water and the simple fact that the habitat types and quality are not the same as those lost. (Langton, 2020.) See also under 6 below.

Badgers have known setts at [REDACTED]. Members of our Friends of the Earth group have often noticed their latrines while walking along the permissive paths here, which indicate their territories. EDFE have confirmed that these setts would have to be closed. However, there is no indication of where new setts would be created for these animals, which are protected under the Badger Act 1992. Documents referring to these animals in the DCO submission are marked 'Confidential' or have been redacted.

Many other animals use the woodlands for foraging, resting or protection, including bats, many rare such as the Barbastelle. Suffolk Wildlife Trust reports that Water Voles explore this area looking for bulbs, fruit and roots (SWT, 2020). Rare invertebrates such as the Norfolk Hawker dragonfly will use the trees for resting. Deer regularly visit for feeding. In essence the woodlands are part of the mosaic of habitats that make up Sizewell Marshes SSSI and Sizewell Levels and Associated Areas County Wildlife Site (CWS). It therefore must not be viewed in isolation.

Yet almost the entire woodland at Goose Hill and Dunwich Forest would be felled for the Access Road and construction area, apart from a thin fringe around the edges, too small to offer any useful habitat. **In addition to the loss of an important resource for visiting animals, including water voles, good habitat for uncommon birds, scarce butterflies, four reptile species and badgers would therefore be destroyed.** There are no plans to replace the woodland nor its valuable rides, so this loss would be permanent. EDF claims that 50ha of new woodland would be planted around the estate (AS-033: 14.7.166), but this falls far short of the amount destroyed, which includes also the whole of Coronation Wood, already felled to make more space for Sizewell C. In addition, parts of Kenton Hills and St James' Covert woodland have been cleared to make space for the translocation of reptiles.

Bearing in mind the urgent need for more trees to help to offset climate change, such a loss due to this massive construction project cannot be tolerated. Recently the Climate Change Committee said that tree planting needs to be tripled to meet the demand for a further 2bn by 2050.

3.4 The severing of designated sites

Of the four construction options to cross Sizewell Marshes SSSI presented by EDFE during the consultations, the company initially chose a causeway with culvert. Due to strong opposition from the Environment Agency, Suffolk Wildlife Trust, RSPB Minsmere, local individuals and other groups,

including ourselves, this has recently been changed to a 30m span bridge with embankments. We remain totally opposed to this option as it still involves far too much land-take from Sizewell Marshes' important wetland habitat and would present an intrusive obstacle within Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB), not least because of its height at 7.3m.

As already mentioned, the entire landscape at present through from the famous RSPB Minsmere bird reserve to Sizewell Marshes and beyond is totally open. This means that the birds and animals can roam freely throughout the whole area. Indeed, the Minsmere – Walberswick European sites and Ramsar immediately to the north of the proposed crossing are functionally linked to Sizewell Marshes, as many of the rare birds and animals use these marshes for foraging, including Marsh Harrier and Greater Bittern, and other important birds such as Gadwall, Teal and Shoveler. The road would therefore permanently sever this linkage. This is in contravention of the European Birds and Habitats Directives, now transposed into English law as The Conservation of Habitats & Species Regulations 2017.

3.5 Loss of SSSI habitat at the Crossing

The proposed Crossing would evidently need to take both the permanent access road as well as the haul road leading to the borrow pit and stockpile areas. At 30m wide, this haul road is substantial in order to accommodate the massive 7m-wide earth-moving vehicles. From west to east, therefore, the bridge would need to be 47m, while its span would be 30m. Either side there would be steep embankments. Clearly, this would be a huge and intrusive construction within the protected AONB landscape, a currently tranquil and unspoilt area.

Reedbed, alder carr (wet woodland), ditches, swamp and open water would all be destroyed, along with some marshy grassland, semi-natural broadleaved woodland and scrub, all valuable habitats. EDF Energy claims that their new habitat creation at Aldhurst Farm would compensate for these losses, but there is only one small copse present at the farm, which in fact was already there and not planted by the developer, other than a few new trees around the edges. So the loss of the broadleaved woodland has not been compensated for here, nor has the scrub. While there was originally some open water at the farm, it is now totally overgrown with reeds and bindweed, leaving no water visible. Those invertebrates and other animals that need open water either for hunting over, or as an aquatic habitat, would not find a home here. Nor would those invertebrates requiring ancient reedbed. There is also no wet woodland at the Farm, although the developer now says that some will be planted along the edges of the new flood compensation land to the north-west of the site. However, this will take many years to mature. Moreover, it would only amount to about 0.7 ha, whereas 3.12ha would be permanently lost. (REP1-004: Exec. Sum.) This is nothing like enough by way of compensation.

Such mitigation to be worthwhile should already be up and running, to demonstrate that it is in fact viable. Meanwhile all the invertebrates that depend on the wet woodland that would go under concrete will not survive. Bearing in mind their short lives, **local extinctions of the specialist species are highly likely**. Of particular note is the Alder Signal moth (*Stathmopoda pedella*) a

Nationally Scarce micro-moth. It is an alder carr specialist, its larvae feeding on the green fruits of this tree. (Fulcher, 2020.)

Although ponds and ditches have been created at Aldhurst Farm, the water here is not of the same quality as that to be lost. This is patently evident from the amount of algae in the lagoons, visible in EDF's photograph of 2018 (AS-033: PI 14.1, p. 62) indicating water high in nutrients. In any case, these ditches were supposed to compensate for those removed beneath the station platform, not those at the Crossing, as already pointed out. Many of the specialist invertebrates including the larvae of the rare Norfolk Hawker dragonfly and scarce aquatic plants such as Frogbit and Water Violet, need water that is very low in nutrients, so they will not survive at the Farm.

There is also no mitigation offered for the loss of marshy grassland, so important for many breeding birds, including those mentioned in the citation for Sizewell Marshes SSSI, in particular Gadwall, Teal, Shoveler, Snipe and Lapwing, all protected by the Wildlife & Countryside Act 1981. The first four have a conservation status of Amber, while the Lapwing is rated as Red and on the danger list. Presumably the developers think too small an area of this habitat would be built on to warrant any special consideration. However, it lies just between the designated sites of Minsmere and Sizewell and as such offers important connectivity.

4. USE BY VEHICLES

4.1 During construction

At the start of the construction and through the early years, a temporary bridge would be built over the SSSI to the main platform, but used only by light vehicles (APP-184: 3.4.36). Nevertheless, it seems that this use would be extensive with almost 800 cars alone within 18 hours. (APP-208: p. 3.) Lorries would go by the existing route down Lover's Lane and into the company's existing entrance and then northwards past Sizewell B. The company states that after the first year of construction this route would be rarely used. However, they also state that this first year would involve mainly earth works and it seems extremely unlikely that the permanent new road with Crossing would be ready for use after only 12 months. At any rate, the temporary bridge would eventually be removed and the permanent one with culvert constructed, suitable for use by the heavy vehicles.

At peak of construction it is anticipated that there would be 1,000 two-way HGV movements along the Access Road on the busiest days, with approximately 3,750 cars and 1,700 HDVs (APP-608: 3.3 & APP-208: table 1.2). Added to this are about 4 AILs (abnormal indivisible loads) per day. This amounts to around 6 vehicles per minute, or one every 10 seconds. The tables evidently exclude the use of the main haul road and various other 'temporary' roads on and around the construction site. In other words there would be an unremitting and constant roar of traffic, with the attendant noise and fumes, especially during the day time, and of course constant lighting at night.

Should the proposed new jetty and Beach Landing Facility be available by this time (2028), together with increased use of rail for freight, then EDF anticipates that a further 20% of materials could be taken off the roads. (AS-181: 2.2.9.) At the same time, the company has indicated that an extra

20% of aggregates would be required. It is unclear at the time of writing whether this extra amount would be brought in by sea or by road.

4.2 Traffic during operation

During operation (from 2034) all traffic would drop to around 1,600 vehicles within 24 hours, of which 20 or so would be HGVs. (APP-208: p.12.) Even so, this equates to four per minute, clearly remaining very busy. However, this is on an average day and seems not to include outages for re-fuelling. These would occur every 6 months (including for Sizewell B) and last approximately eight weeks, when a further 1,200 workers are brought on to the site together with many hundreds more vehicles travelling in both directions. In addition, EDFE expects many thousands of visitors each year to both Sizewell B and C. Trainees need to be factored in also.

It is notable that a car park would be provided for 1,370 vehicles immediately to the west of the station platform (APP-297: 19.5.11). Although run-off would drain away from Sizewell Marshes SSSI, it is a real concern that it would drain northwards towards Minsmere Southern Levels and the designated sites.

EDF Energy have declared that the main haul road and construction site would be removed at the start of operation, but that the Access Road would remain. This would form a permanent barrier to wildlife. It would not be feasible to reduce the width or height of the 30m span bridge. This, together with the 7.3m high causeway, would persist as a totally inappropriate intrusion into Suffolk Coast & Heaths Area of Outstanding Natural Beauty, designated not only for its beauty of landscape, but also for its tranquillity. Moreover, the National Association of AONBs describes it as 'one of the most important wildlife areas in Britain'. As an AONB it has 'the highest level of protection' under the Natural Environment & Rural Communities (NERC) Act 2006. This places a duty on public authorities to ensure that its special qualities are preserved.

4.3 Projected traffic at night

Various construction activities, in particular large concrete pours, require non-stop 24-hour working. During these periods, therefore, the construction site would be very busy at night. Appendix 11F (APP-208) gives an indication of general night-time flow, with the busiest time between 5 and 7am at peak, involving around 100 HDVs and 375 cars, or on average four vehicles per minute. This does not take account of necessary 24-hour working.

According to the tables in the appendix, there does not seem to be any activity expected during operation, i.e. from 2034, before 6am. There is no mention, though, of outages, which is a remarkable omission bearing in mind the large numbers of workers involved (around 1,200 on top of the existing workforce of an estimated 900) and the fact that 24-hour working is required. These last for two months every 18 months. With two reactors at Sizewell C and another at Sizewell B, they would occur every six months

EDF fails to mention the night-time working for re-fuelling outages during operation.

5. THREATS TO PROTECTED MAMMALS DUE TO THE ACCESS ROAD

Intensive desk studies have shown that roads have a seriously harmful effect on wild mammals, resulting in a permanent drop in population density of up to 30%. This extends up to a full 5 km, depending on the mobility of the animal concerned: the nearer to the road, the worse the effect. There are many reasons for this, including noise, lights and pollution, as detailed above. Then, of course, there is road kill.

Deaths of mammals on roads are truly shocking. The National Road Death Survey carried out by the Mammal Society in Britain estimated annual casualties as 100,000 hedgehogs and foxes, 50,000 badgers and up to the same number of deer. (Garland, 2001.) However, this was completed two decades ago, and figures are now considerably greater with the increase in road building and traffic volumes. The faster the speed allowed, the worse the effects, as most mammals have not evolved to be able to react to anything above 40mph. As 50mph is proposed, there is no question that the Access Road would result in the deaths of many animals, some of which are protected by law.

This could be somewhat alleviated by the provision of underpasses or green bridges for the animals, but, even so, they can be hesitant to use these. Research demonstrates that tunnels reduce, but do not eliminate negative effects of roads: populations nearby are still 15% lower (van der Ree, 2009). It is notable that the Applicant does not offering any such safe crossings along the extent of the Access Road, other than the long culvert beneath the SSSI Crossing, despite requests from ourselves and others. If this road is allowed, then it is absolutely crucial that these are incorporated. At the very least there should be one further tunnel between the Crossing and B1122, 'placed where habitat and species' movement dictates is optimum'. There would have to be deer, badger, otter and amphibian fencing to direct species to the entrances and appropriate vegetation cover on the approaches. (Sangwine, 2020.)

5.1 European otter (*Lutra lutra*)

Otters are known residents of Sizewell Marshes SSSI and their use of land and water taken by the Access Road and Crossing would have a very deleterious effect on their ability to thrive. EDFE admits that they remain 'vulnerable' despite recent increases in population. In the Otter Method Statement (APP-252: App 14C10) it is admitted that the species would be 'directly and indirectly affected by the proposed development' (1.3.1). The Amec report of 2012 (APP-248: App.14A9.3) states of the Sizewell otters that there is 'good habitat connectivity to the north with a sizeable additional foraging resource in the extensive reedbeds of the Minsmere Levels and wider Minsmere/Yox catchment'. It also mentions the 'low levels of disturbance to waterways and wetland areas across much of the Sizewell Belts'. Not only would the proposed Access Road create a barrier to the movement of the otters, reducing ability to forage and disperse, there would be ongoing disturbance due to noise, lights, movement and pollution.

Along with the Leiston Beck (Drain), the Sizewell Drain is also an important route for the animals between Sizewell and Minsmere, as are the various other minor tributaries. To imply that the Leiston Drain is the only link is totally incorrect as the whole area at present is completely open. (APP-252: App. 14C10: 1.3.1.) Yet, due to the realignment of the Sizewell Drain and construction of the road, all of the water would be directed in to the Leiston Drain and through the newly constructed culvert. EDFE claims that the animals would use this culvert with side passage to pass through to the Minsmere Southern Levels and *vice-versa*. We do not agree. Since the land here is marshy, it would not be suitable for most animals. Even at the recently proposed reduced length of 47m, this will be a significant deterrent. When given the option, it is well known that otters will always prefer to travel overland rather than through a dark tunnel. We find it extraordinary that EDFE are refusing to heed the advice of the Environment Agency that a completely open, three-span bridge would be the best solution both for the hydrology and the animals. (E.A., 2020.)

Supposing that the otters are able to navigate the steep embankment to the top of the causeway, they would then face a very high risk of being run over during construction by the many large lorries and huge haulage vehicles, or, during operation, by the numerous workers' vehicles, particularly during outages. Sadly otters rarely live for more than four years, although their natural lifespan is much longer. Road-kill is one major reason for this, along with a shortage of food, mainly fish. Diverting the Sizewell Drain and stopping up the many smaller tributaries, leaving only the Leiston Drain, significantly reduces the fish populations and other prey items needed by the otters. Furthermore, as many aquatic invertebrates and fish need light for navigation, the dark tunnel will prevent these species from moving from one side of the road to the other. This will cause significant harm to the ecology either side of the culvert.

The European otter found here is fully protected as a European species and under Schedules 9 and 11 of the Wildlife & Countryside Act 1981. It is illegal to capture, kill, disturb or injure the animals and also to obstruct, damage or destroy their breeding or resting places. Yet here we have EDFE proposing to destroy an important part of their habitat, with direct land take from Sizewell Marshes and Goodrum's Fen. The otter survey maps (APP-248: App. 14A9.3) clearly show regular multiple spraints at the point where the SSSI Crossing would be, including a couch, together with regular otter activity within the SSSI triangle, also to go under concrete. To try and make out that this is only a small area misses the point.

To state that the habitat lost, its fragmentation and the ongoing disturbance to the species, particularly during construction, is 'not significant' fails to take into account the impact of the blockage of natural connectivity between Sizewell Marshes and Minsmere Southern Levels. Otters are territorial animals, requiring an extensive home range in which to find food, readily travelling 35km along a river bank. (Natural England, 2020.) The barrier effect due to the road would cut their current range in two, greatly reducing its viability for successful foraging by the species.

Moreover, the major earth-moving works to create the Crossing over the SSSI, the re-alignment of the Sizewell Drain, and the insertion of a cut-off wall to isolate the station platform for de-watering,

would all have an effect on the quality of water on which the otters depend for their food (Low *et al* 2021).

It is clear that EDFE have not properly assessed the impacts of their proposals on the otters. Of the six negative impacts listed by Natural England in their Standing Advice, five would be directly caused either by the construction works, long-term operation, or both, namely:

- Habitat loss or degradation in or near water bodies
- Habitats being cut off and becoming fragmented
- Disturbance to resting and feeding places
- Disturbing their usual routes, e.g. road, bridge or culvert works forcing otters to use roads or bridges that might mean it's more likely that otters will be killed or injured on the road
- Changes to water quality which could also affect food sources

Natural England urges developers to avoid negative effects in the first instance, such as working on or near a river and known otter habitat, by leaving a buffer zone and not working at night. Bearing in mind the nature of the works, that involves working directly within an otter habitat, sometimes at night, it is hard to see how EDFE can incorporate such tactics.

Compensation measures are called for to offset the negative impacts, which should:

- Result in no net loss of breeding or resting sites
- Provide enhanced habitat – in terms of quality or area compared with that lost
- Remedy any loss of otter access and habitat connectivity

The developer says that the animals will move to Aldhurst Farm and claim to have seen them there. Yet there is a road between Sizewell Marshes and the new habitat with fast traffic on it, namely Lover's Lane. This will worsen greatly if Sizewell C goes ahead, putting otters at extreme risk. Otters have already been killed on this road. (Natural England, 2020.) We have asked repeatedly for a safe crossing for these protected animals, and, after many refusals, it seems that at last this may be put in place. Meanwhile the small culvert under the road, which is very old, needs to be repaired as a matter of urgency.

Natural England emphasises that Aldhurst Farm can only mitigate for land directly lost, not for impacts of fragmentation and loss of functionality between Sizewell and Minsmere. (Natural England, 2020.) The newly created ditches and reed beds would have to be greater in extent than those lost. At present only the very minimum has been provided and in any case only compensate for those lost under the station platform, not the Crossing. This is not acceptable. It is our view that EDFE's proposals for Sizewell C that include this new Access Road would cause very significant harm to these protected animals and mitigation measures reluctantly offered are totally inadequate.

5.2 Water voles

Due to habitat loss and degradation, and predation by American mink, these animals, since 2008, have been afforded the same legal protection as the otter under the Wildlife & Countryside Act. It should also be added that both of these species are of 'Principal Importance for the Conservation of Biodiversity' under Section 41 of the Natural Environment & Rural Communities (NERC) Act, 2006. This places a duty on public authorities to ensure that populations and habitats are restored. Despite this, water voles remain the fastest declining mammal in Britain, numbers having fallen from 8 million to only 100,000 within a few decades.

The Amec report of 2012 (APP-248: Appendix 14A9.3) acknowledges that 'ditches within the survey area provide an important ecological link between Sizewell and Minsmere to the north', offering 'an important dispersal route' and 'linking populations at Sizewell with those found in Suffolk's coastal marshes to the north' (3.3.4). Yet all of these important ditches would be stopped up by the road embankment, the only remaining dispersal route being the very long dark culvert, which the water voles would be unlikely to use. The present lush vegetation, needed by these animals for both food and cover, would not grow under such conditions and the water voles would therefore be obliged to move away from this area.

The wetland habitats at both Minsmere and Sizewell have been designated as National Key Sites for the species. All the ditches surveyed at Sizewell by Amec show water vole activity in numbers varying from 4 to 17 per 100m. (APP-248: p.10, 1.2.31-34.) In particular, the SSSI triangle that would be lost to the road crossing and other works, is a particularly good habitat, with water at least 1m deep, earth banks to the ditches and wide swathes of riparian vegetation dominated by reeds.

By way of mitigation, EDFE plans to capture these animals and translocate them to Aldhurst Farm. However, water voles already inhabit the old ditches here. The new ditches provided are the bare minimum as requested by Natural England, and would be insufficient to accommodate the numbers that would need to be rescued from the SSSI crossing area. (N.E., 2020.) It should be emphasised that this is a Biodiversity Action Plan species. This means that populations should be enhanced, not yet again put under stress.

5.3 Badger (*Mele meles*)

Badgers are particularly safeguarded under the Protection of Badgers Act 1992. They also have protection under Schedule 6 of the Wildlife & Countryside Act 1981. These animals are well established on the Sizewell Estate, with 18 active setts recorded in 2019, divided into two social groups, covering the area from [REDACTED]. (APP-248: 1.3.18). Our members, when walking along the permissive paths, have frequently noticed their latrines that mark the extent of their territories.

Bearing in mind that proposals for the Sizewell C construction works involve the felling of both [REDACTED] and [REDACTED] and therefore the closure of the badger setts, it seems

inconceivable that Sizewell C Co should conclude that 'no significant effects' would occur. (APP-248: 1.4.8.) Badger setts that are well established, as here, are often decades old and passed down from one generation to the next. The loss of so much woodland is of great consequence to the badgers.

Added to that would be the proposed Access Road, that would run directly across [REDACTED] and on to the station platform. These animals have been used to foraging throughout the entire area, but those at Ash Wood would be entirely cut off from the rest of the Estate and would become isolated. They would naturally attempt to forage along their usual routes southwards, but would be confronted during the first decade of construction by heavy haulage vehicles, and long-term threats from the many vehicles on the permanent Access Road. Road kill is one of their main causes of death (other than deliberate culling of course).

Sizewell C Co also states that the habitat is 'sub-optimal', yet this cannot be the case as the animals at Sizewell continue to thrive. The habitat would certainly become greatly reduced, fragmented and dangerous due to the cutting down of woodland for the proposed building works and permanent new road. It is deeply concerning that badgers often forage at dawn, just when traffic would be particularly heavy between 5am and 7am during construction.

If Sizewell C has to be given the go-ahead, then our members demand that new setts are made for the badgers, in a safe place well away from any roads. We want to see that Natural England, as the responsible authority, ensures that the company carries out this obligation.

5.4 West European Hedgehog (*Erinaceus europaeus*)

The loss of hedgehogs recently within Britain has been staggering. In 1995 there was an estimated 1.5 million, but by 2018 this had reduced to only 500,000. In rural areas the numbers have declined by half since 2000 (Mammal Society, retr.2020). The species is now on the Red List for England's Mammals and classified as 'vulnerable'. Badgers are sometimes blamed, as they will occasionally take a hedgehog if other food supplies are short, but the fact is that this loss is due largely to road kill together with poisoning from pesticides. The density of road networks has expanded dramatically, with around 70,000 km of roads built each year in Britain. This has resulted in an increase of traffic, amounting to 9.5% during just the last two decades. EDFE's proposals would result in additional kilometres of new roads, including the Link Road, the Two Village Bypass and Yoxford Roundabout, as well as the Access Road, all of which would fragment the Suffolk landscape and significantly increase the risk of mortality to all resident and visiting animals.

As they currently are, the Sizewell and Minsmere areas provide a safe haven for wild animals, well away from busy roads. If the proposed power station goes ahead, however, the open landscape will be divided in two permanently by the new Access Road, not just reducing available foraging resource, but putting hedgehogs and other animals at risk of road kill. Hedgehogs need to travel up to 3 km in a single night to find sufficient food and require a home range of around 10 ha. They tend to follow linear features, especially hedgerows or woodland edges, where there is leaf litter in

which good sources of food can be found in the form of insects, slugs etc. Following roads, however, is extremely risky, particularly as the animal's defensive mechanism is to curl into a ball.

To say that the habitat under the Sizewell C footprint is 'suboptimal' for hedgehogs is incorrect (APP-248: 1.4.37). The station platform area has a number of hedges suitable for the animals and from here they can currently travel safely down to Goose Hill and on to the Minsmere Southern Levels. The cutting down of the woodland at both Goose Hill and Coronation Wood significantly reduces woodland edge habitat, so important for the species.

Hedgehogs were listed in 2015 under Section 41 as a Priority Species for conservation under the NERC Act, yet EDFE are offering no compensation nor any sort of mitigation for loss of their habitat. At the very least we would expect 'green' bridges or tunnels with fencing along all the new roads, so that the animals can pass safely from one side to the other. Wild animals have not evolved to assess the high speeds of modern traffic. Putting the speed limit at 50 mph for Sizewell traffic is much too fast and must be reduced to 40 mph at the absolute maximum, as recommended by the Mammal Society (2020).

5.5 Brown Hare (*Lepus europaeus*)

EDFE claims that brown hares may no longer be living on the Sizewell Estate, although they used to be present (APP-248: 1.4.28) and have recently been seen near Coronation Wood. Nevertheless, they are regularly found within the 2km Zone of Influence, at Minsmere. As the company admits, the arable hedgerows and grassland at Sizewell offer suitable foraging for these herbivorous animals, while the woodlands provide shelter. While there has been a sharp decline in the species, with only about 20% left of the UK total recorded in 1880, numbers do fluctuate each year. Habitats in East Anglia are especially important for the species and therefore need to be conserved. We should therefore take its likely presence into account.

Brown hare has legal protection under the Natural Environment & Rural Communities Act 2006 and is a Priority Species for conservation under the UK Post-2010 Biodiversity Framework. It is also safeguarded under Schedule 10A of the Wildlife & Countryside Act 1981 (as amended) during the 'close season' (1 February – 20 September). Despite this, Sizewell C Co asserts that it is of 'very low importance' under the Important Ecological Feature (IEF) guidelines (APP-248: 1.4.35). We utterly reject this classification.

Home ranges of the species are very large at well over 20 ha (Kunst *et al*, 2001). Part of the reason for its decline has been habitat loss and fragmentation – just such as would occur here with the proposed Access Road, also the Link Road and Two Villages Bypass. In addition, it has suffered from persecution and hare coursing, a country sport, thankfully now banned. It continues to be safeguarded from deliberate cruelty under the Wild Mammal (Protection) Act 1996. It is especially vulnerable during the breeding season as it does not make a burrow, like the rabbit, but nests in a 'form', a small depression in the grass. This leaves both the adults and leverets very exposed.

5.6 Harvest Mouse (*Micromys minutus*)

This tiny mouse is a Suffolk Priority Species for conservation under the UK Post 2010 Biodiversity Framework and therefore safeguarded under Section 41 of the NERC Act. How is it, then, that EDFE concludes that it is of 'low importance' when following Environment Impact Assessment guidelines? As a prey item, it is an important part of the ecology of the area, but Sizewell C Co. fails to take this into account.

Like virtually all other British mammals, Harvest Mouse is declining, with an estimated 71% of the species lost over only the past 18 years (APP-248: 1.4.45). This is hardly surprising if most developers behave in the way that EDFE does by dismissing it as not worth any consideration. The British Wildlife Centre is calling for conservation plans to be put together urgently to reverse the decline (BWC, retr. 2020).

The favoured habitat of Harvest Mouse is tall, tussocky grasses, hedges, reedbeds, farmland and woodland edges. It is obvious, therefore, that both the Sizewell Estate and Minsmere provide ideal foraging and nesting areas for the species. The reed-beds, in particular, are important for the mouse, where it thrives among the tall stems, hanging on with its prehensile tail, which it uses like a fifth limb. Here it can make its rounded nest of woven grasses out of the reach of predators such as foxes, stoats and weasels. The reed-beds are also abundant in invertebrates, on which it feeds, along with seeds and fruits.

A significant area of the reeds would be destroyed for the Sizewell C SSSI Access Road Crossing, along with nesting sites of this small mammal. Yet EDFE is doing nothing to save the animal from the construction works and road and is offering no mitigation. The connectivity through to the Minsmere Southern Levels would also be lost, reducing the animal's opportunities for dispersal and to find other harvest mice with which to breed. Its population will therefore be substantially reduced.

Harvest Mouse is extraordinarily sensitive, feeling the smallest vibrations through the soles of its feet, as they pass through the ground and up the stems of plants on which it rests. Similarly, it has acute hearing, aware of tiny rustling sounds that cause it to freeze or flee. It is not difficult to imagine what the impact of the vibrations of pile-driving would be on such a sensitive animal. As for the loud noises of the construction works, these would totally overwhelm the mouse's aptitude for detecting small sounds, resulting in loss of this natural defensive mechanism and leaving it much more vulnerable to predation. If any of the species were left post-construction, the noise of traffic on the Access Road and the risk of mortality would continue to affect the mouse's ability to thrive. EDFE/Sizewell C Co. is offering no mitigation at all to help to offset the reduced population caused by their building works. This is in contravention of the NERC Act.

5.7 Water Shrew (*Neomys fodiens*)

All shrews have special protection under Schedule 6 of the Wildlife & Countryside Act 1981 (as amended). This species is considered to be of local importance and is a Suffolk Biodiversity Action

Plan species for conservation. How then, as with many of the other supposedly protected animals, can EDFE/Sizewell C Co reject it as being of 'low importance'? The company cites the CIEEM guidelines, but it should be pointed out that this is simply a professional body offering advice to land-owners and others and has no legal status. Rather than plans for conservation, therefore, as required, EDFE conveniently rejects the species as being inconsequential.

As its name implies, Water Shrew lives mostly in wetlands, both Sizewell Marshes and Minsmere therefore providing ideal habitats for the species. It is a good swimmer, hunts for aquatic insects and makes burrows in the banks of rivers and dykes. It can even tackle newts, frogs and small fish due to its poisonous saliva that immobilises the prey.

The species has suffered from habitat loss due to development and drainage for agriculture. Unsympathetic bank management and vegetation clearance destroys its burrows and exposes its established hunting routes along the water's edge. It is particularly active just before dawn. (Wildlife Trusts, retr. 2020.) With regard to the Access Road, this is extremely problematic for the animal, as night-time traffic figures due to Sizewell C are high between 5.00 and 7.00 hours. Water Shrew also requires very clean water in order to thrive, which it currently has at both Sizewell and Minsmere – but this will not be the case if construction works are allowed here. Many waterways that are not permanently destroyed will be contaminated by sediment due to the earthworks and inevitable long-term pollution from road run-off.

Water Shrew is especially vulnerable on account of its very short lifespan at less than two years. After breeding, the adults die, leaving the young to carry the population through the winter and many fail to survive. EDFE's insistence that its 12-year construction works are only 'temporary' is nonsense; as far as this animal is concerned – and many others with short lives – the impact is in effect permanent. Not only will the young have to cope with the harshness of winter, but also with loss of habitat, the barrier effect of the road and water that is of poorer quality. It is not difficult to see how populations, already at low densities, would become further reduced. EDFE are doing nothing whatever to protect this animal and, as such, are in contravention of the Wildlife & Countryside Act.

5.8 Bat species

Bats are legally protected under the Wildlife & Countryside Act 1981 and the Conservation of Habitats & Species 2017. Decline of bats during the last century was catastrophic and it is now unlawful to disturb or harm any bat or its roost – whether or not it is currently present.

The Access Road would sever a well-established bat commuting and foraging route at the SSSI Crossing, and also further west between their north-south route from Ash Wood to Kenton Hills. There is a further route along the track to Eastbridge, which would also be severed by the permanent road. The haul road during construction is especially worrying, as not only would it cut across the first two of these routes, it would end close to [REDACTED], where there are Barbastelle

and Natterers maternity roosts. This will reduce their home range and reproductive potential, resulting in a decline in the colony (Berthinussen & Altringham, 2012).

These new roads would put the resident bats at severe risk. Several species of bats fly close to the ground or along hedges, as protection against the weather and predators. Many are reluctant to cross an open space, so a road forms a barrier to foraging and dispersal. Those that do cross roads will typically do so at traffic height, resulting in many fatalities. (Bat Conservation Trust, retr. 2020.)

Mitigation is offered by EDFE in the form of some acoustic fencing, but this only runs around parts of the periphery of the site. It might block some of the sound within the eastern-most foraging area, supposing that the bats have been able to negotiate the Crossing safely. It would also lower noise levels somewhat in Ash Wood – but this would depend on bats flying here over the railway line, the construction site, the Access Road and the haul road without being killed. (APP-253: App 14C1A.) The acoustic fencing would be no help at all for the foraging route from Eastbridge south via Upper Abbey Farm, nor for the route between Fiscal Policy and the Crossing. Echo-location signalling will be masked by the traffic noise so that the bats will capture fewer prey items. The fact is that even quite low noise levels will interrupt some bats' ability to feed. Various species, such as Brown Long-eared, use direct hearing (rather than echo-location) to detect the small sounds of insects. These would become inaudible at roadsides.

Artificial lighting is also seriously disrupting to bats. While EDFE says that it will be 'controlled', this will not be possible at the station platform, nor at the car park, nor the search area for security reasons. The Crossing will also be lit and the roundabout at the western end. One of the bats' main commuting and foraging routes over the Crossing and northwards will remain permanently affected by the lighting. Many of the natural prey items of bats, the moths and other insects, will be attracted to the lights, which in turn will draw the animals to these areas, in particular Pipistrelle species, the very places where there will be multiple vehicle movements. Risk of collision and mortality will therefore be greatly increased. Slow flying bats of the Myotis species for example avoid illuminated areas, leaving them with poorer foraging opportunities, the lights having created a 'vacuum effect'.

Home ranges of insectivorous bats typically extend 0.5 to 5km from the roost. That of the Barbastelle is up to 6km. It is crucial for survival that this range provides unrestricted foraging opportunities. Research has shown that **there is significant decline in diversity and abundance of bats within 1.6 km of a road.** (Berthinussen & Altringham, 2013.) It is not difficult to see how the new Access Road – and indeed the other proposed roads – will result in a serious decline in East Suffolk's bat populations. This must not be allowed.

The RSPB and Suffolk Wildlife Trust are submitting a joint Written Representation that covers impacts on bats in considerable detail, to which the examiners are referred. Suffolk Coastal Friends of the Earth fully support this submission.

6. IMPACT OF THE ACCESS ROAD ON REPTILES

Four of England's reptiles are present on the Sizewell Estate and within the 2km Zone of Influence, namely Adder (*Vipera berus*), Grass Snake (*Natrix Helvetica*), Slow Worm (*Anguis fragilis*) and Common Lizard (*Zootoca vivipara*). All are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and are listed within Section 41 of the Natural Environment & Rural Communities Act 2006 as Species of Principal Importance. All are also Priority Species for the Suffolk Biodiversity Action Plan. The area is considered to be a Key Reptile Site, offering ideal conditions for basking, feeding and hibernation. The Sizewell C proposals would have profound consequences for these animals. Sizewell C Co admits in APP-235 that they would be 'sufficiently affected by the proposed development to be a material consideration in the planning determination' (1.6.1.). They go on to state that **'the reptile assemblage within the ZOI would be susceptible to habitat loss and incidental mortality'**.

The Access Road would permanently destroy much of the reptiles' habitat, cause fragmentation and isolation of populations. Of the four, the Adder is the rarest and is found in particular along the the rides at Goose Hill and Dunwich forest, where it basks, using the nearby scrub for shelter. Grass Snake also uses this habitat, finding good quantities of food in the adjacent wetland. Our members have also frequently seen Common Lizard and Slow Worm here and along Kenton Hills rides. 46ha of Goose Hill woodland would be entirely removed for the new road and construction area, eliminating this valuable habitat, while the railway would put the animals at risk along the north-western edge of Kenton Hills.

The four reptiles are also found in good numbers on the coastal strip, particularly among the grassy dunes, yet the eastern extension of the road, running from the beach landing facility to the station platform would permanently remove some of their habitat here. In addition, the whole of the beach would be dug up for new defences, and of course the area of the station platform, also a good reptile habitat, would be permanently covered in concrete.

All of these reptiles are suffering from loss and degradation of habitat (Froglife, retr. 2020) and isolation into ever smaller pockets, that are not viable in the long term. The new Access Road and construction site would significantly exacerbate this situation. EDFE have put forward a plan to translocate the reptiles. However, the areas to which they would be moved are less suitable than their present habitats. Most of these already support reptile species. If more are added, then there will not be sufficient food to go round. Some are lacking in water, especially Studio Field, and are therefore not suitable for Grass Snake, which has a preference for amphibians. It is the view of Suffolk Wildlife Trust that the animals will die a slow death of starvation here, if not killed on the adjacent road (SWT, 2020).

EDFE cut down trees in Kenton Hills some years ago to create heathland to be offered as extra reptile habitat. Slow Worm is particularly found along the woodland edge here, directly adjacent to the proposed route of the new railway line. Inevitably these lizards will find their way on to the line and be killed. **As for the heathland, our members noted on a recent visit that there was little sign**

of such a habitat, EDFE having failed to maintain it. It is now totally overgrown with bracken and a succession of silver birch. (See Appendix 1 for photo.) This gives us little confidence that the company can be relied on to care for the wildlife and their habitats in future.

Local ecologist Tom Langton has made a study of the reptile translocation sites (Langton, 2020), to which the examiners are referred.

7. IMPACT OF THE ACCESS ROAD ON AMPHIBIANS

The very rare Natterjack Toad (*Epidalea calamita*) was introduced to Retsom's Field within the Sizewell Estate some years ago and is currently thriving. This is a European Protected Species on Schedule 2 of the Conservation of Habitats & Species Regulations 2017. It is also a Suffolk BAP species listed under Schedule 41 of the Natural Environment & Rural Communities Act 2006. These amphibians have an established route from their breeding pond to their hibernation site, now within the red line boundary, where EDFE proposes to build a water management zone. This would lead to a direct loss of 3.55ha of suitable foraging habitat (APP-224: 14.10.20). The artificial lighting from the adjacent construction site with haul road and permanent Access Road would further affect their foraging ability (14.10. 33). Creating another pond, as proposed, would not compensate for such a loss. In addition, the noise would mask the toads' mating calls. Clearly, there would be a very deleterious effect on this protected species, with **risk of local extinction**.

The RSPB and Suffolk Wildlife Trust are submitting a joint detailed Written Representation concerning the impacts on this protected species, wholly endorsed by Friends of the Earth, to which the examiners are referred.

Great Crested Newt (*Triturus cristatus*) is thought not to be present on the Estate, although Smooth Newt is (*Lissotriton vulgaris*). This has limited protection, whereby it is illegal to sell or trade them in any way. Open water and ditches will all be lost under the Access Road footprint. We are not aware of any plans to move these animals to a safe location.

Common Toad (*Bufo bufo*) is a Priority Species for conservation in Suffolk and is listed under Section 41 of the NERC Act 2006. Despite this, the Applicant dismisses it as of 'very low importance' following EIA-specific assessment methodology and scopes it out. One reason is the assumption that only low numbers are present on the site. This is based on a desk study only and out-of-date records from 1998 to 2010. Our members do not agree with this conclusion, as they are often seen, especially in late summer within the Estate. In particular they have been noted on the Goose Hill rides and are known to use the scrub habitat here (APP-233:1.4.17). Some of their breeding ponds lie directly under the footprint of the new road. Here again, this animal would suffer 'incidental mortality' and loss of habitat as a result of the Access Road. This is in contravention of the NERC Act under which the animal is protected.

8. DISTURBANCE EFFECTS ON BIRD POPULATIONS DUE TO THE ACCESS ROAD

8.1 Anticipated population losses

A study in Holland examined the effects of traffic on the density of breeding birds. (Reijnen *et al*, 1996.) Disturbance distances varied according to species and amount of traffic, but most had an estimated population loss of 12-56% within 100m of the road at 5,000 cars a day. This would be comparable to traffic movements along the permanent Access Road after construction of Sizewell C and during outages and adding in visitor and trainee numbers. Throughout the years of construction, traffic volumes would of course greatly exceed this number. Black-tailed Godwit (*Limosa limosa*) and Oystercatcher (*Haematopus ostralegus*) suffered particularly badly in the study, with losses of 22% and 44% respectively at up to 500m. Lapwing (*Vanellus vanellus*), Shoveler (*Anas clypeata*) and Skylark (*Alauda arvensis*) also had very significant population losses.

The conclusion of the study is that new roads must 'avoid areas important for breeding birds'. The authors also emphasise that **no new road should be built where 1,000m either side of it is of high quality habitat**. Yet, habitats either side of the proposed Access Road are of exceptional quality. Even more destructive is the fact that the road will actually cross over Sizewell Marshes SSSI, directly destroying at least 1.2ha of this valuable habitat.

The citation for Sizewell Marshes SSSI particularly mentions the importance of the 'unimproved wet meadows' that support 'outstanding assemblages of invertebrates and breeding birds'. Added to this is the area immediately to the north-east of the proposed Access Road and beyond, pre-eminent for breeding birds, many rare, with the designations of Minsmere-Walberswick SPA, Ramsar and SSSI. Building of the Access Road would seriously undermine all the careful conservation work carried out by RSPB Minsmere and the Suffolk Wildlife Trust over many years. Such population reductions of protected species cannot be tolerated. Causing this degree of damage to bird densities by building the road in this position would be in contravention of the law under the Conservation of Habitats & Species Regulations 2017, the Wildlife & Countryside Act 1981 and the Ramsar Convention 1975.

8.2 Harmful effects of traffic noise

Noise from traffic can severely disrupt communication of species, either by acoustic interference, or by the masking of messages. It has been noticed that both birds and frogs near roads attempt to call at a higher pitch and more often. This puts them under stress. Luther & Gentry (2013) point out that both the detection of the signal is affected as well as the ability to discriminate and identify the source and type of species trying to communicate. **Birds' reproductive rates will decline, as their mating calls will not be heard and identified above the sound of the traffic**. Many birds will establish territory through song. It is crucial, therefore, that they can be heard. Thereby conflict is avoided. Alarm calls may also be used to warn of impending danger, especially if a predator is nearby. If the call cannot be heard, the predator is likely to succeed.

During the operational phase, EDFE entirely rules out disturbance to birds from noise 'as the noise environment is unlikely to differ substantially from the existing background levels to which birds are already habituated' due to the Sizewell B station. (APP-224: 14.12.178.) This statement is utterly false. They have totally omitted to include the impacts of the permanent Access Road, which, as we can see, would be very considerable.

9. NEGATIVE IMPACTS ON INVERTEBRATES

The Sizewell C construction works would have a devastating impact on invertebrate populations and this is fully discussed in our Written Representation 'Negative impacts of Sizewell C on the invertebrates of Sizewell Marshes SSSI and nearby designated habitats' (Fulcher, 2020), to which the examiners are referred.

Also of great concern is EDFE's persistence in proposing a culvert under the SSSI road crossing. In addition to the direct habitat loss, which would be very considerable, aquatic invertebrates would be completely unable to use this culvert due to the length and lack of light, despite the revised design. They need polarized light for navigation. **It would in fact be a dead zone in the middle of the Leiston Drain**, the main drainage route to the north. A barrier to their dispersal would be the result and reduction in reproductive ability.

The invertebrate assemblage of Sizewell Marshes SSSI is cited by Natural England as being 'outstanding', including at least 22 Red Data Book species and 120 Nationally Scarce. The Access Road, along with all the other construction works, would cause chronic damage to the marshes and this 'special interest' feature. Under the Wildlife & Countryside Act, it is an offence to intentionally or recklessly damage or destroy SSSI land or disturb its wildlife in any way. EDF would be doing just that. Such permanent destruction must not be tolerated.

10. EFFECTS OF THE CULVERT ON FISH

The Environment Agency has made repeated requests for an open three-span bridge without a culvert, which would cause the least environmental change and take only around half the amount of SSSI land than the Crossing proposed. Yet the culvert remains.

The alteration in velocity of water flow between the natural stream and the culvert, together with the sudden lack of light and vegetation, would cause serious difficulties for many fish species. Much would depend on the fishes' swimming capability and how far they can go without tiring. Particularly at risk are juveniles and those of small size, less able to cope with such events. (Baker & Votapka, 1990.) This also raises the question of how long they can survive in a dark tunnel without food, since there would be no invertebrates present.

Another common problem with culverts is blockage by debris, particularly after a storm.

Clearly, any culvert would act as a barrier and harm fish populations. Loss of fish would also have a knock-on effect on species that rely on fish as a source of food, including otters and birds such as kingfishers.

If EDFE are serious about reducing impacts on wildlife, then they will not pursue the culvert option, even if the alternatives are more expensive.

CONCLUSION

It is evident from our researches that the proposed Access Road would cause ongoing, chronic damage to the protected landscape of Suffolk Coast & Heaths AONB, to the designated sites of Sizewell and Minsmere, and to the wildlife, much of it uncommon and rare, that depends on these habitats for survival.

Not only would the traffic result in the deaths of wild creatures through collisions, the road would act as a barrier to natural dispersal and loss of ability to find mates. This, combined with the impacts of noise, lights and pollution, would result in degradation of habitats for at least 1km either side of it, resulting in **decline in populations of birds and mammals by up to 30%.**

This flies in the face of the government's 25 Year Environmental Plan and Environment Bill, which pledge a recovery of nature. Damage to Sizewell Marshes SSSI and to protected species would contravene the Wildlife & Countryside Act 1981 (as amended) and/or the Natural Environment & Rural Communities Act 2006, and, where European protected sites and species are concerned, the Conservation of Habitats & Species Regulations 2017.

It is the view of Suffolk Coastal Friends of the Earth that if the Sizewell C Project cannot go ahead without this Access Road, then it must be refused.

APPENDIX 1



Kenton Hills, August 2020. Unmanaged 'heathland' now completely overgrown. (Photo R. Fulcher.)

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