CONTENTS

20 TERRESTRIAL ECOLOGY

20.1 Introduction

This section details the existing terrestrial ecological interests in the vicinity of the onshore elements of the Thanet Offshore Wind Farm (Thanet) project comprising the landfall, onshore cable route and substation extension, and the potential impacts on these ecological interests from the construction, operation and decommissioning phases are assessed. Required mitigation measures are cited where appropriate.

20.2 Assessment Methodology

20.2.1 Consultation and data collection

The following bodies were consulted *inter alia* regarding the terrestrial ecology interests in the area and relevant data sets requested:

- English Nature;
- Kent Wildlife Trust;
- The Royal Society for the Protection of Birds (RSPB);
- Kent Mammal Group;
- Butterfly Conservation;
- Kent Reptile and Amphibian Group (KRAG); and
- Kent Ornithological Society (KOS).

A desktop study was undertaken to provide a preliminary ecological baseline for the study area. The extent of the study area was defined as a corridor 1km either side of the landside infrastructure, as far seaward as the mean high water springs.

The data collated included:

- Nature conservation designations;
- Protected species i.e. species protected under European or UK environmental legislation;
- Nationally, regionally and locally rare species;
- UK Biodiversity Action Plan (BAP) species; and
- Kent BAP species.

20.2.2 Ecological surveys

An extended Phase 1 Habitat survey was undertaken for the landfall and cable route, together with land 30m to either side of it. A more extensive area, comprising land to 500m on both sides of the route was searched for the presence of water bodies (see **Figure 20.1**). The survey was undertaken in accordance with the Nature Conservancy Council (NCC) methodology *'Handbook for Phase 1 Habitat Survey'* (NCC, 1990) and relevant protected species survey guidelines. A full copy of the survey report, including detailed methodologies, is presented in **Appendix 20.1** and a summary is provided

below. Following a minor adjustment of the northern section of the onshore cable route, an additional area was subject to survey by an experienced ecologist during September 2005.

Habitats, plant species and communities

A baseline walkover was carried out between 21st April 2005 and 7th June 2005. All habitats were recorded and mapped and all plant communities were characterised by recording the dominant, abundant and any other significant species.

Great crested newts

Aquatic and terrestrial habitat within 500m of the proposed cable route was assessed for its potential to support breeding great crested newts *Triturus cristatus*, as recommended by English Nature (2001). This initial assessment included some pond-netting in order to establish the presence of aquatic invertebrates suitable as prey items, as well as to identify any potential predatory species.

Each waterbody was then surveyed for the presence of great crested newts on four separate occasions, using a combination of standard methods (English Nature, 2001). An initial daytime assessment of the waterbodies within the grounds of Richborough Power Station was undertaken. This included netting, egg searching and observation. Due to access restrictions, evening surveys for great crested newt were not carried out within the power station grounds.

Reptiles

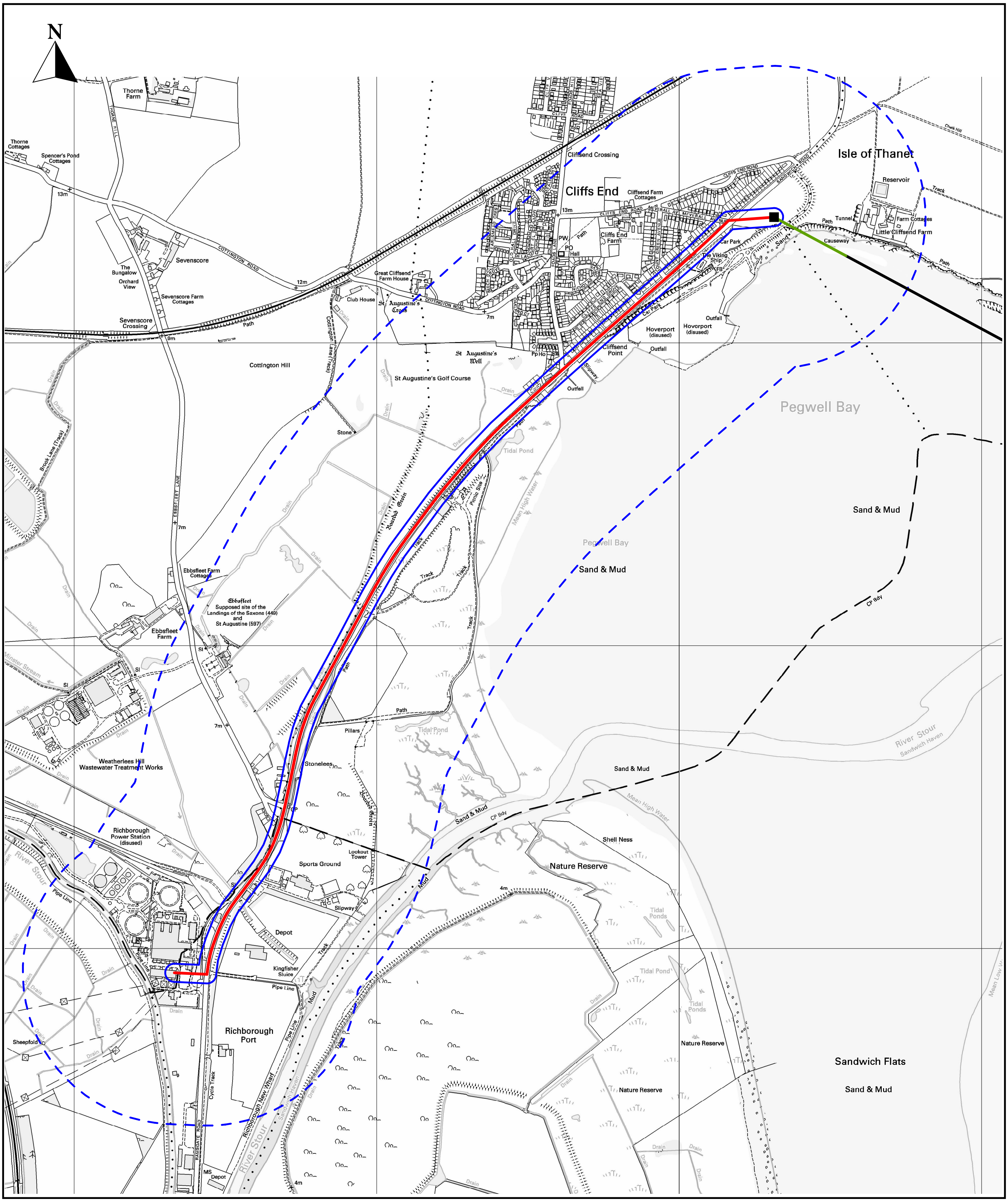
The survey area was assessed for its potential as reptile habitat. Suitable habitat comprises structurally varied vegetation supporting good numbers of invertebrates providing both open areas for basking, particularly on south facing slopes, and denser patches that provide shelter from predators (Beebee and Griffiths, 2000). 'Cold searching', that is walking slowly through all suitable habitats, watching and listening for animals or movement (HGBI, 1998) was also carried out along the onshore cable route.

Bats

A visual inspection was made of all trees within the survey area for features with potential to support roosting or hibernating bats, using binoculars where necessary. Such features include woodpecker holes, splits and cracked boughs, loose bark and ivy cladding (English Nature, 1994). Virtually all buildings in the survey area are in private ownership and none would be affected by laying of the cables. However, buildings and structures were assessed, where visible from public rights of way, for their potential to support roosting or hibernating bats. No specific bat transects were undertaken but heterodyne bat detectors were used on all evening great crested newt survey visits in order to record feeding or commuting bats around the ponds.

Badgers

The site was searched for signs of badgers, *Meles meles,* including setts, dung pits, pathways, hairs, paw prints and feeding signs such as snuffle holes and scratched trees and logs.



Legend:

- Terrestrial Cable Route
- Joint Transition Pit
- Landfall Route
- Marine Cable Route
- 30m Buffer
- 500m Buffer

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BASED ON FIGURE 1 FROM ESL (2005)

Title: TERRESTRIAL ECOLOGY STUDY AREA

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MJM	CO	
Date: SEPT 05		Figure: 20.1
Scale: 1:12,000		Revision No:

ROYAL HASKONING

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Water voles

All waterbodies and roadside ditches in the site were searched for signs of the presence of water voles, *Arvicola terrestris*, including burrows, footprints, latrines and feeding remains.

Birds

All birds seen and heard during the walkover survey were recorded. Locations of species included on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and those with a UK Biodiversity Action Plan (BAP) were also mapped and their activity was recorded.

20.3 Existing Environment

20.3.1 Designated sites

The following designated sites are present in the vicinity of the onshore infrastructure:

- Thanet Coast and Sandwich Bay Special Protection Area (SPA)/Ramsar Site;
- Sandwich Bay Special Area of Conservation (SAC);
- Sandwich Bay and Hacklinge Marshes Site of Special Scientific Interest (SSSI); and
- Pegwell and Sandwich Bay National Nature Reserve (NNR).

The interest features and qualifying species and habitats for these sites are discussed in detail in **Section 4, Policy Framework and Guidance** and shown on **Figure 4.1**.

In addition, there is one Site of Nature Conservation Importance (SNCI) 1.5km to the west of the cable route named Ash Level and South Richborough Pasture. SNCIs are county designations and whilst they do not have any legal protection, they are still a material consideration within the planning process. SNCIs are very scarce within the District and only take up a small land area. It is explicitly stated in policy NC4 of the Thanet Local Plan that development will not be permitted on these sites unless there are exceptional circumstances.

There is also a Roadside Nature Reserve (RNR) situated along a 450m length of the A256 Sandwich Road in Area 4 east. This comprises the roadside verge, which is designated for its botanical interest. RNRs have no statutory protection, but the Local Plan recognises that statutory designations cannot by themselves protect the full diversity of wildlife in the wider countryside and states as one of its overall nature conservation objectives "*to maintain the full range of natural habitats*" and "*to resist development that would be likely, either directly or indirectly to damage or destroy those sites and interests*".

20.3.2 Biodiversity Action Plan (BAP) species and habitats

The BAP species that have been recorded in the Pegwell Bay area are listed in **Table 20.1**. BAP habitats within the study area include saltmarsh and sand dune systems, both of which support an important assemblage of water birds.

Table 20.1 BAP Species recorded in the Pegwell Bay area

Species	Group	Location	Status
45 Pipistrelle *Pipistrellus pipistrellus*	Bat	Various	Protected Species
55 Pipistrelle, *P. Pygmaeus*	Bat	Various	Protected Species
Whiskered Bat *Myotis mysticanus*	Bat	Minster	Protected Species
Daubenton's Bat *M. daubentonii*	Bat	Various	Protected Species
Brown Long-eared bat *Plecotis auritus*	Bat	Sandwich	Protected Species
Noctule Bat *Nycatalus noctula*	Bat	Various	Protected Species
Serotine Bat *Eptesicus serotinus*	Bat	Cliffs End	Protected Species; UK BAP species
Brown Hare *Lepus europaeus*	Mammal	Various	UK BAP
Water Vole *Arvicola terrestris*	Mammal	River Stour and surrounding ditches	UK BAP
Otter *Lutra lutra*	Mammal	Downstream of Richborough Port	UK BAP
Marsh Warbler *Acrocephalus palustris*	Bird	Wetherlees	UK BAP
Shining Ram's-horn Snail *Segmentia nitida*	Mollusc	Marsh ditch systems	UK BAP
Slow worm *Anguis fragilis*	Reptile	Sandwich, Pegwell Bay	Protected Species
Grass Snake *Natrix natrix*	Reptile	Sandwich, Pegwell Bay	Protected Species
Common Lizard *Lacerta vivpara*	Reptile	Sandwich, Pegwell Bay	Protected Species
Deptford Pink *Dianthus armeria*	Plant		UK BAP
Lizard Orchid *Himantoglossum hircinum*	Plant	Sandwich; Richborough Power Station; Pegwell Bay	Protected Species
Bedstraw Broomrape *Orobanche caryophyllacea*	Plant	Sandwich	Protected Species
Bright Wave moth *Idaea ochrata catiata*	Moths	Pegwell Bay; Pegwell Hoverport	Protected Species
Dune Tiger Beetle *Cicindela maritima*	Beetle	Pegwell Bay	UK BAP
Heath Tiger Beetle *Cicindela sylvatica*	Beetle	Sandwich Bay	UK BAP
Cerceris quadricinata	Solitary Wasp	Cliffs End; Little Cliffsend	Protected Species; UK BAP

20.3.3 Habitats

For descriptive purposes, the Phase 1 Habitat Survey was divided into a number of discrete habitat areas (see **Figure 20.2**). The habitats recorded are illustrated on **Figures 20.3a** and **20.3b** and include all waterbodies surveyed within the wider study area. Full descriptions of these habitat areas, with details of species present, can be found in the full survey report in **Appendix 20.1**. The additional area surveyed during September 2005 to the northern end of the onshore cable route is shown as Area 3X on **Figure 20.2**.

The habitats within the study area are predominantly rough grassland, amenity grassland, arable, saltmarsh and intertidal sand/silt. A summary of the key habitat types present within the onshore site and adjacent land is provided below.

Semi-improved grassland

There is semi-improved grassland within the study area including an area to the south of the Stonelees Golf Course. This area is dominated by meadow foxtail *Alopecurus pratensis,* creeping thistle *Cirsium arvense* and cock's-foot *Dactylis glomerata*.

Rough grassland

Rough grassland is present within the Pegwell Bay Country Park dominated by common couch *Elytrigia repens*, cock's foot, false oat-grass *Arrhenatherum elatius*, bramble *Rubus fruticosus* and large bindweed *Calystegia silvatica*.

Amenity grassland

There are several areas of amenity grassland within the study area. These include the picnic area, which is part of Pegwell Bay Country Park, Pfizer Sports Ground and St Augustine's Golf Course and Stonelees Golf Course. These amenity grassland areas are predominantly mown turf dominated by perennial rye-grass, daisy *Bellis perennis*, and ribwort plantain *Plantago lanceolata,* with bristly ox-tongue *Picris echioides,* dandelion *Taraxacum sp,* and red fescue *Festuca rubra*.

Arable

The northern section of the study area comprises fields under arable cultivation.

Open water

Several ponds were identified within the study area, five of which are located on Stonelees Golf Course. The remaining ponds include a recently created complex of four small pools within the Pegwell Bay Country Park and a section of enlarged ditch adjacent to Richborough Power Station. There is also a tidal pond within the saltmarsh area.

Reedbed

A wet reedbed area exists to the east of the disused hoverport. The species present include sea couch *Elytrigia atherica,* wild celery *Apium graveolens,* water dock *Rumex hydrolapathum,* sea beet *Beta vulgaris* ssp. *maritima,* bittersweet *Solanum dulcamara,* bulrush *Typha latifolia,* reed sweet-grass *Glyceria maxima,* great willowherb *Epilobium hirsutum* and greater pond sedge *Carex riparia.*

Saltmarsh

There is an area of emergent saltmarsh to the southeast of the disused hoverport road. This area is dominated by cord-grass and sea purslane (see **Section 9, Marine Ecology**).

Broadleaf woodland

Small broadleaved woodland blocks are located within Pegwell Country Park. These areas of woodland comprise sycamore *Acer pseudoplatanus,* hawthorn *Crataegus monogyna,* blackthorn *Prunus spinosa* and guelder-rose *Viburnum opulus*.

Broadleaf plantation

There are areas of broadleaf plantation around the boundary of the picnic site and along the A256 Sandwich Road. Species within this habitat include hawthorn, sycamore, elder *Sambucus nigra,* field maple *Acer campestre,* ash *Fraxinus excelsior,* and white poplar *Populus alba*.

Individual trees

In addition to the woodlands and plantations within the study area there are individual trees located along the A256 Sandwich Road. Species mainly comprise of black poplar *Populus x canadensis,* willow *Salix* sp*,* and sycamore.

Dense scrub

There are several areas of dense scrub within the study area. These are predominantly within the area of rough grassland to the east of the A256 Sandwich Road, within the Pegwell Country Park. This is a mosaic of scattered and dense scrub of hawthorn with willow and wild privet *Ligustrum vulgare*.

Wasteland vegetation

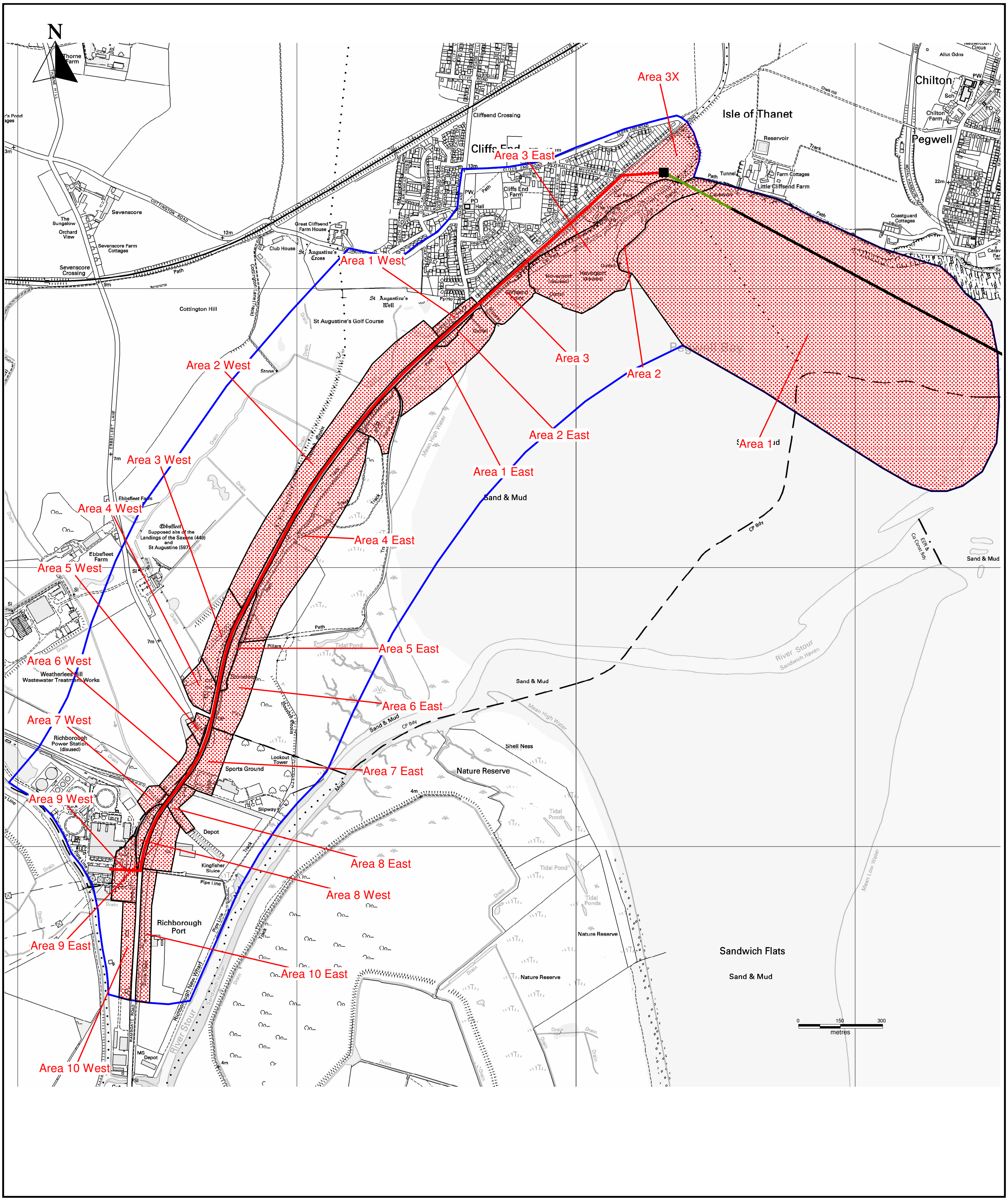
There are areas of wasteland vegetation around the disused hoverport. The car park vegetation is sparse, only occurring in cracks in the hard standing and including annual meadow-grass *Poa annua*, smooth meadow-grass *Poa pratensis*, yarrow *Achillea millefolium*, fennel *Foeniculum vulgare* and cock's-foot. Some scrub, comprising bramble, hawthorn, blackthorn, buddleia *Buddleja davidii* and broom *Cytisus scoparius*, is also present. Dominant species here include bramble, elder, common nettle *Urtica dioica,* black horehound *Ballota nigra*, hogweed *Heracleum sphondylium* and fennel.

Watercourses

There are a number of ditches and watercourses within the study areas. These are predominantly located along field boundaries. Many of the ditches contain water and the species include common reed *Phragmites australis*, great willowherb and soft rush *Juncus effuses*.

20.3.4 Plant species

A small single tussock of bulbous meadow-grass *Poa bulbosa*, a nationally scarce species, was found at TR 35096 64211. The location of this tussock is shown on **Figure 20.4a**.



Legend:

- Wider survey area
- Habitat description area
- Terrestrial Cable Route
- Joint Transition Pit
- Landfall Route
- Marine Cable Route

(ecological services) limited

BASED ON FIGURE 2 FROM ESL (2005)

Title:	ECOLOGICAL SURVEY AREAS
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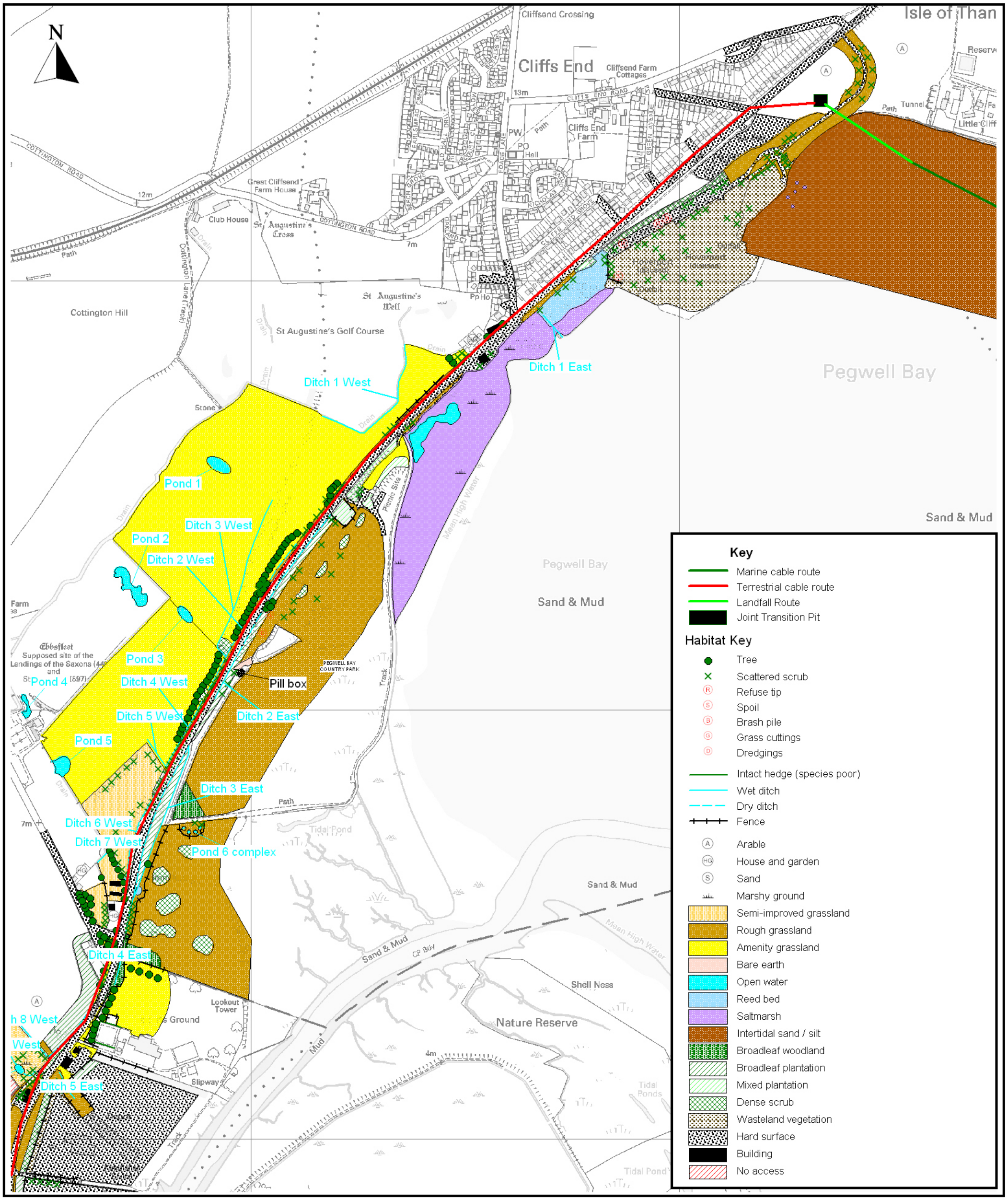
Date: SEPT 05		Figure: 20.2
Scale: 1:13,000		Revision No:

ROYAL HASKONING



BASED ON FIGURE 3a FROM ESL (2005)

ESL (ecological services) limited

Title: TERRESTRIAL HABITATS	Drawn by: ESL; Checked: CO; Drawing No:
Project: THANET OFFSHORE WIND FARM	Date: OCT 05; Figure: 20.3a
Source: This product includes mapping data licensed from Ordnance Survey ®. © Crown copyright and/or database right 2004. License number 0100031673	Scale: 1:8,000; Revision No:
Client: THANET OFFSHORE WIND LTD	ROYAL HASKONING

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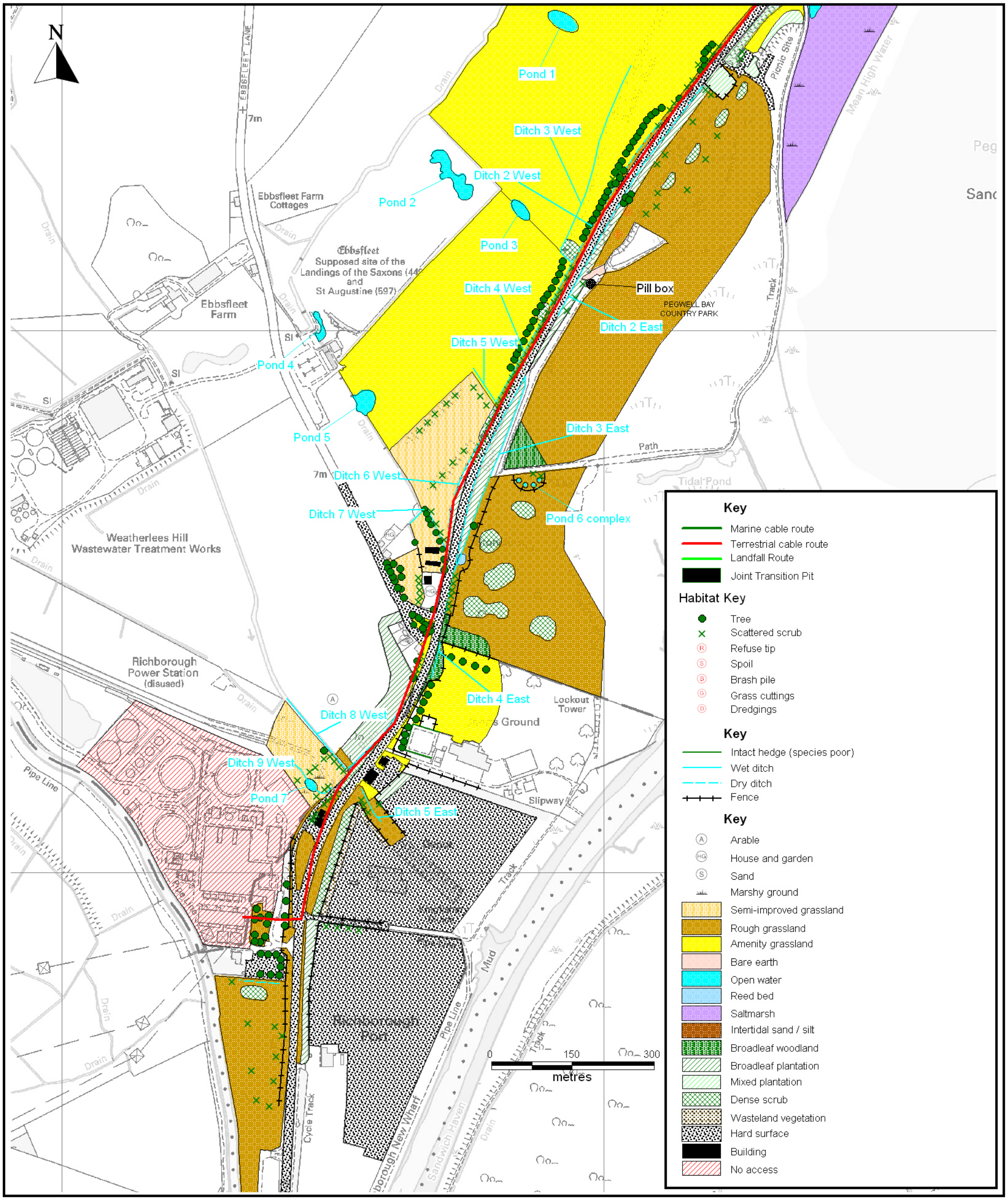

BASED ON FIGURE 3b FROM ESL (2005)

(ecological services) limited

Title: TERRESTRIAL HABITATS	Drawn by: ESL	Checked: CO	Drawing No:
	Date: OCT 05		Figure: 20.3b
Project: THANET OFFSHORE WIND FARM	Scale: 1:8,000		Revision No:

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ROYAL HASKONING

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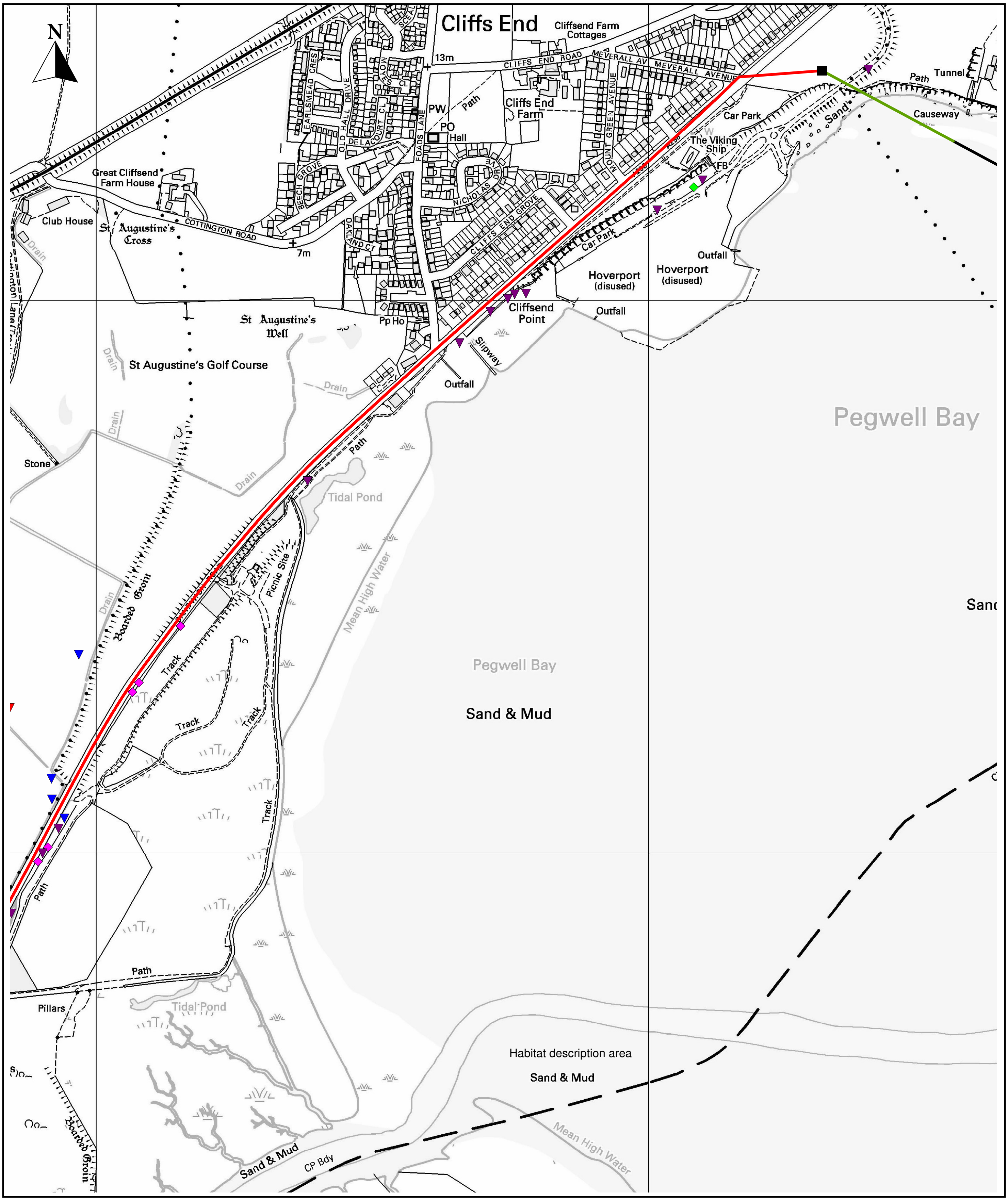


Legend:

Faunal records

- Tree with potential to support roosting bats
- Common lizard
- Water vole sign or habitat
- Pipistrelle bat
- Cetti's warbler

Plants of note

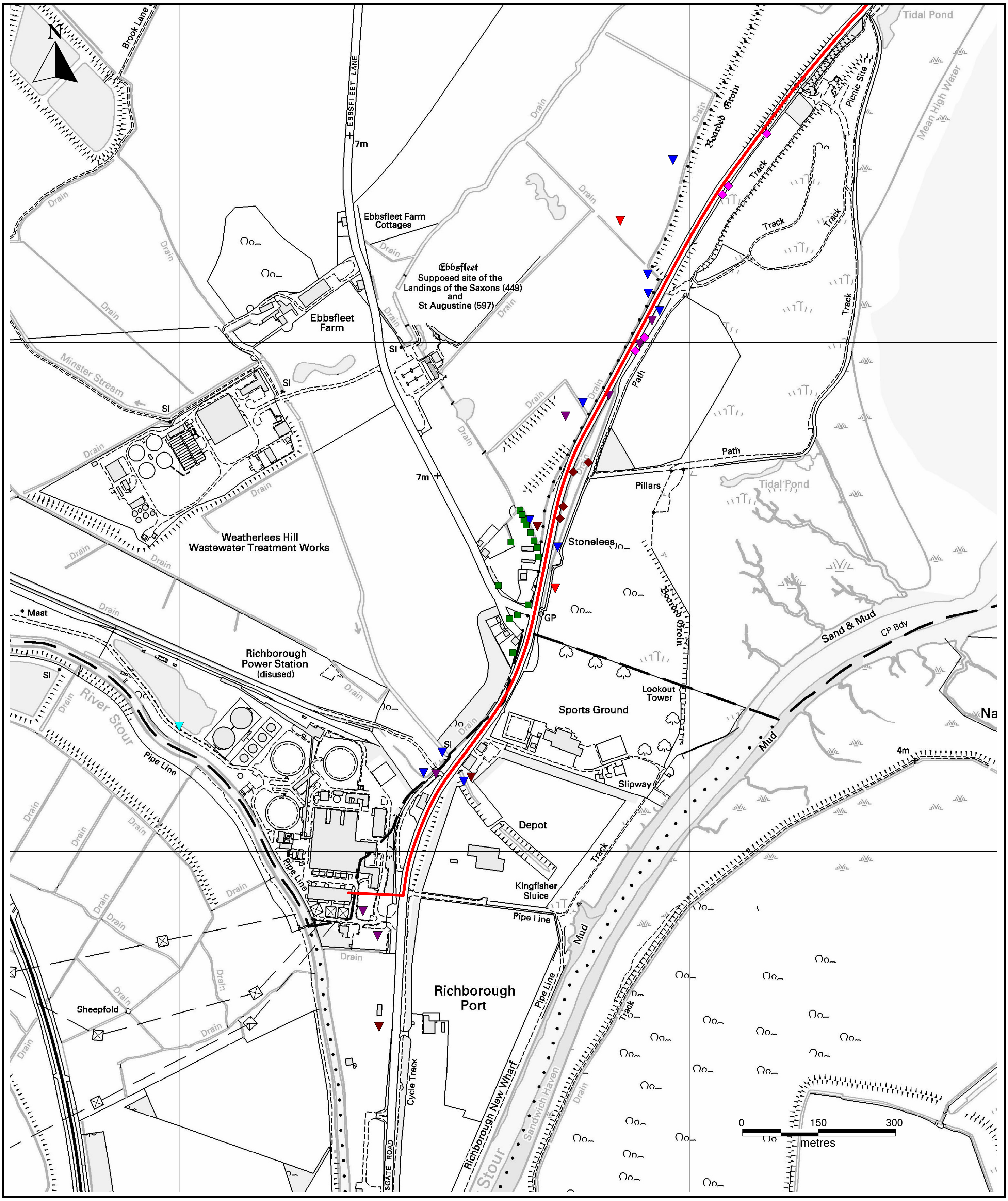
- Japanese knotweed
- Sharp rush
- Bulbous meadow-grass

- Terrestrial Cable Route
- Joint Transition Pit
- Landfall Route
- Marine Cable Route

esl (ecological services) limited

BASED ON FIGURE 4a FROM ESL (2005)

Title: ECOLOGICAL CONSTRAINTS	Drawn by: MJM	Checked: CO	Drawing No:
Project: THANET OFFSHORE WIND FARM	Date: SEPT 05		Figure: 20.4a
	Scale: 1:6,500		Revision No:
Source: This product includes mapping data licensed from Ordnance Survey ®. © Crown copyright and/or database right 2004. License number 0100031673	ROYAL HASKONING		
Client: THANET OFFSHORE WIND LTD			



Legend:

Faunal records
- Tree with potential to support roosting bats
- Common lizard
- Water vole sign or habitat
- Otter footprint
- Pipistrelle bat
- Cetti's warbler

Plants of note
- Japanese knotweed
- Sharp rush
- Bulbous meadow-grass

Terrestrial Cable Route

esl (ecological services) limited

BASED ON FIGURE 4b FROM ESL (2005)

Title: CONSTRAINTS MAP

Project: THANET OFFSHORE WIND FARM

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MJM	CO	
Date: SEPT 05		Figure: 20.4b
Scale: 1:7,000		Revision No:

ROYAL HASKONING

Three tussocks of sharp rush *Juncus acutus* were found on the banks of the dry ditch, at TR 33810 62823 and TR 33773 62766. This species is also nationally scarce (Stewart *et al*, 1994). The locations are shown on **Figures 20.4a** and **20.4b**.

Five stands of Japanese Knotweed, *Fallopia japonica*, are present on the eastern side of the A256 Sandwich Road on the roadside ditch bank adjacent to Pegwell Bay National Nature Reserve and Country Park. The size of the stands ranges from one stem to a linear strip of 20m². The locations of these stands are shown on **Figures 20.4a** and **20.4b**.

20.3.5 Fauna

Great crested newts

Seven ponds in the study area were assessed as suitable for supporting great crested newts and were subject to a full great crested newt survey. The locations of these ponds are shown on **Figures 20.3a** and **20.3b**. A number of roadside ditches held water but were excluded from the survey due to the poor nature of their habitats. Waterbodies 1 to 5 are located on the Stonelees Golf Course and are connected by mown and rough grassland.

No great crested newts were recorded on any of the survey visits. Amphibians of other species found are shown in **Table 20.2** below.

Table 20.2 Amphibians found in each waterbody

Pond Number	Amphibians recorded
1	Fewer than ten common toad tadpoles, on one visit only
2	No amphibians recorded on any survey visit
3	Green frog calling; no other amphibians recorded
4	No amphibians recorded on any survey visit
5	No amphibians recorded on any survey visit
6	Smooth newts on all visits; common frogs on two visits
7	Smooth newts on two visits; frog tadpoles on one visit

Reptiles

The walkover surveys identified a number of locations with good habitat for reptiles and particularly for common lizard *Lacerta vivipara*. This included tussocky and rough grassland, piles of grass cuttings and brashings. Good reptile habitat is considered to be present in most parts of the survey area, as shown on **Figures 20.3a** and **20.3b**.

Sixteen common lizards were found on both sides of the road during the course of the surveys (see **Figures 20.4a** and **20.4b**). Although the ecological data search highlighted that grass snake *Natrix natrix* and slow worm *Anguis fragilis* have both

previously been recorded in the Pegwell Bay area, these reptile species were not recorded during the site surveys. A length of fencing typical of that used to exclude reptiles was present on the eastern side of the road to the south of Richborough Power Station. The fence was in a poor state of repair with some sections incomplete. Approximately 18 reptile 'tins' (squares of flexible roofing felt) were seen in the Richborough Power Station entrance area, which indicate that reptile surveys have previously been undertaken.

Bats

Eight trees or groups of trees (shown in **Figures 20.4a** and **20.4b**) were identified as having potential to support bats. These were all on the west side of the A256 Sandwich Road and are described in **Table 20.3**.

Table 20.3 Trees with potential for use by bats

Tree Number	Features which could be used by Bats
T1	Mature hybrid black poplar in the car park of The Sportsman public house. Crevices in trunk from missing limbs and cracks and splits in a limb
T2	Mature pollarded willows on the banks of ditch. Woodpecker holes and other holes present in trunks of many of the trees
T3	Mature poplar species with cracks (in private garden)
T4	Mature ash with dense ivy covering
T5	Dead stump of ash with cracks and crevices. Some fungal attack by bracket fungi that might provide other niches for bats
T6	Mature birch with dense ivy covering
T7	Two mature sycamore in amenity grassland. Holes in the trunks where boughs have been lost
T8	Row of ivy-covered mature sycamores and limes

All buildings present in the survey area, with the exception of the pillbox, are privately owned and could not therefore be examined for the presence of bats. The petrol stations (Total, BP and Jet), derelict buildings and pillbox have little potential to support roosting bats.

Bats were recorded on two occasions during evening surveys for great crested newts. On the evening of 21st April 2005, a common pipistrelle was recorded over a pond on the Stonelees Golf Course. Another common pipistrelle was recorded on the evening of 11th May 2005 using one of the tree lined paths in Pegwell Bay Country Park. Both of these were recorded using heterodyne bat detectors.

Badgers

No evidence of badgers was found anywhere in the survey area.

Water voles

Sixteen sections of ditch within the survey area were examined for signs of the presence of water voles. Sightings were made or other evidence of such presence was found in nine ponds. Most of the golf course ponds also had water voles present. Locations of water vole signs within the site are given in **Figures 20.4a** and **20.4b**.

Otters

A single otter footprint was found within the boundaries of the Richborough Power Station. The location of this record is shown in **Figure 20.4b**.

Birds

In total, 50 bird species were recorded during the walkover survey. Of particular note were Cetti's warbler, peregrine and hobby, all of which could potentially breed in or close to the survey area. Singing Cetti's warblers were also noted in the study area (see **Figure 20.4b**). The peregrine was seen to land on one of the cooling towers at Richborough Power Station with a prey item. The hobby was seen hunting over Pegwell Bay Country Park. BAP species recorded using the survey area include turtledove, song thrush, linnet, bullfinch and reed bunting.

20.4 Impacts during Construction

20.4.1 Impacts to designated sites

SPA, Ramsar Site and cSAC

A very short length (approximately 20m) of the cable route above mean high water springs is located within the Thanet Coast and Sandwich Bay SPA and Ramsar site and the Thanet Coast SAC and the Sandwich Bay SAC. The effects on these sites are discussed in **Section 8, Ornithology** and **Section 9**.

SSSI

The cable route, above mean high water springs, crosses a small section of the Sandwich Bay to Hacklinge Marshes SSSI (see **Figure 4.1b**). The preferred open cut method would involve trenching across a small area of coastal grassland (approximately 20m) that forms part of the designation. This area is known to support a colony of the bright wave moth *Idaea ochrata* (pers. comm. Pete Forrest, Pegwell Bay NNR Reserve Manager), which is an interest feature of the SSSI. However, the narrow working width of 5m for the trenching process, combined with good construction practices (see **Section 2, Project Details**), means that the impact on this colony would be limited.

Vegetation, topsoil and subsoil would be excavated as the trench is formed and this material would be stored separately in order that it can be reinstated. The stockpiled subsoil and topsoil would avoid areas close to watercourses or sensitive areas of habitat, such as the reedbed, to avoid runoff. In addition, the following mitigation measures will be implemented as part of good construction practice:

- The working corridor will be minimised and demarcated to avoid unnecessary disturbance to other areas of the SSSI from movement of plant or storage of materials;

- On site dust damping will be undertaken if required to prevent the creation of dust; and
- Liaison will take place English Nature regarding works inside the SSSI.

Given the successful implementation of this mitigation it is considered that the open cut method would have a **negligible impact** on the SSSI.

The option of directional drilling the cable route at the landfall would not disturb the area of coastal grassland within the SSSI, resulting in **no impact** on the SSSI. The remainder of the cable route is within 50m of the edge of the SSSI and would not have an impact on this designation, given proper demarcation of the route.

Roadside Nature Reserve

The Roadside Nature Reserve (RNR) is located on the east side of the A256 Sandwich Road for a distance of 450m. The cables would follow the line of the road and be buried beneath it. The RNR would be demarcated with fencing to ensure that construction activities did not overspill into the area. **No impact** on the RNR is anticipated.

SNCI

There is one SNCI within 1.5km of the onshore cable route. The distance between the site and the cable route means that the site would not be impacted. **No impact** is therefore anticipated.

Pegwell and Sandwich Bay NNR

The Pegwell and Sandwich Bay NNR follows the same boundary as the SSSI in the area of the cable route landfall and therefore the same mitigation measures will be applied to minimise any short term impacts.

20.4.2 Impacts to habitats

Reedbed

An area of reedbed is located to the south of the disused hoverport and adjacent to the A256 Sandwich Road in Area 3. Reedbed is listed in the UK Biodiversity Action Plan (Anon, 1998) as a Priority Habitat. It is also listed in the Kent Biodiversity Action Plan (Kent Biodiversity Action Plan Steering Group, 1997) as a Priority Habitat. The landfall of the cable route is to the north of the hoverport and so would not directly impact on this habitat. Indirect disturbance to the habitat where the cable route passes down the A256 Sandwich Road itself will be avoided through good construction practices including:

- Demarcation of the working area, therefore avoiding the area of reedbed; and
- Excavated spoil to be stored in areas away from the reedbed to avoid run off.

No impact on the reedbed is anticipated, given implementation of the above mitigation measures.

Saltmarsh

The only of areas of saltmarsh that would be impacted by the onshore cable route are to the north of the hoverport and comprise small fragmented areas of emergent vegetation. The impact on the saltmarsh from the installation of the cable route is discussed in **Section 9**, as the majority of the area is below mean high water springs.

Other habitats

All other habitats and plant communities present in the area surveyed are of low conservation concern and can be considered common and widespread, both nationally and locally. If any tree or hedge removal is necessary as part of the construction phase, these will be reinstated using native species of local provenance.

The construction of the joint transition pit (see **Section 2**) would have **no impact** on any valuable habitat, as it is situated within arable land, which is of limited ecological value.

A temporary site compound to accommodate site offices, storage facilities, canteen, toilets and car parking would be situated in an area away from any ecologically sensitive habitats. This would be subject to a local planning application, if required, at a later time.

Depending on the final connection arrangement (see **Section 2**), the existing substation at Richborough Power Station would be extended by a maximum area of 0.6 acre and be located on existing hard standing. Overall, **no impact** on any other habitats is anticipated.

20.4.3 Impact to nationally scarce plant species

The locations of both nationally scarce plants, i.e. bulbous meadow-grass and sharp rush, are within approximately 10m of the onshore cable route. The following mitigation measures will be implemented as construction good practice to avoid loss or disturbance:

- Avoidance of areas of nationally scarce plants through mitigation during the design process;
- Adequately fence both areas of nationally scarce plants prior to construction commencing; and
- Brief construction team about areas to avoid, via a Construction Method Statement.

Given the above mitigation measures **no impacts** are anticipated.

20.4.4 Impact to invasive plant species

Five stands of Japanese knotweed, a highly invasive alien plant species, were found in the Roadside Nature Reserve. It is an offence under the Wildlife and Countryside Act 1981 *"to plant or otherwise encourage"* the growth of Japanese knotweed. This could include moving soil containing even small fragments of roots, which may be present several metres from an established clump, elsewhere on or off the site, as well as carrying out management operations such as mowing the adjacent grassland. The

close proximity of the plant to the onshore cable route has the potential to cause the plant to spread. The following mitigation measures will be implemented to avoid disturbance or proliferation of Japanese knotweed:

- The Cable Contractor will be informed of known locations of invasive plant species and such areas will be designated as 'controlled areas' during construction works;
- When working in 'controlled areas', measures will be taken to ensure all vehicles, equipment and clothing are free of seeds and plant fragments before leaving the area;
- All soil and plant material from these 'controlled areas' will be regarded as 'controlled waste' and will be subject to legal controls in terms of transportation and disposal off site;
- Best practice guidance provided by the Environment Agency will be adhered to; and
- Post-construction monitoring will be carried out to ensure that the Japanese Knotweed has not spread.

Providing that the above mitigation measures are successfully implemented it is anticipated that a **negligible impact** is anticipated.

20.4.5 Impacts to fauna

Great crested newts

No great crested newts were recorded on any of the survey visits therefore **no impact** from construction activities is anticipated.

Reptiles

Common lizards and suitable habitat for this species were found on both sides of the A256 Sandwich Road. Common lizards are given partial protection under the Wildlife and Countryside Act 1981, which prohibits *inter alia* the intentional killing, injuring or taking of protected species. There is no provision in the Act for licensing works, which could give rise to an offence, but it does provide a defence where the otherwise unlawful act can be shown to be the incidental result of a lawful operation and could not reasonably have been avoided. Permitted development or a development which has received planning permission is clearly a lawful activity but the law thus requires that a reasonable effort be made to avoid killing or injuring protected animals in the course of implementing this permission.

If common lizards are present in the corridor when work commences, there is a possibility that they could be killed or injured by the work, including by storage of plant or material. Measures to prevent this will be put in place prior to the commencement of construction works via mitigation measures to exclude lizards from the working area.

There is no suitable habitat within the area surveyed for any nationally rare reptile species, i.e. sand lizard or smooth snake, which receive a higher level of protection.

A **minor adverse** impact on reptiles is anticipated.

Bats

All species of bats are fully protected under the Wildlife and Countryside Act 1981 (as amended). They are also included on Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994. It is therefore an offence to intentionally disturb a bat, including capturing or killing one, damage or destroy a breeding site or resting place of any bat.

Eight trees or groups of trees were identified as having potential to support roosting bats within the study area. They do not, however require felling as part of the cable route installation and therefore **no impact** is anticipated.

Badgers

Badgers are fully protected by the Protection of Badgers Act 1992, which subsumed all previous legislation covering this species. This Act makes it an offence *inter alia* to wilfully kill, injure or take a badger, to damage or obstruct access to a badger sett or to disturb a badger when it is occupying a sett.

No badgers or setts were located within the study area and there are no records of the species in the area. **No impact** is anticipated.

Water voles

The presence of water voles within the study area was confirmed for nine of the sixteen section of ditches surveyed. Information obtained from the Environment Agency confirms that there is a strong population of water voles within the River Stour and adjacent ditches, which form the wider environment of the study area.

Water vole habitat is protected under the 1981 Wildlife and Countryside Act. This protection makes it an offence to intentionally damage, destroy or obstruct access to any structure or place, which water voles use for shelter or protection, or to disturb them while they are using such a place. The scope of this legislation is expected to be extended in 2005 and changes will be introduced to help protect the species from killing, injuring and taking, as well as the habitat.

Water vole populations fluctuate naturally from year to year, and the animals may be found in different parts of the site in different years. The following mitigation measures will be undertaken:

- A further water vole survey will be carried out prior to the construction of the onshore cable route if banks of ditches are to be disturbed;
- Any bank vegetation will be checked for nests prior to construction, then strimmed to ground level to at least 1.5m beyond the bank top. The strimmed material will be left on the banks for at least three days to allow water vole and other mammals to disperse naturally. If any burrows are present, the turf will be stripped using hand tools and the material left on site for a further three days. If there are any delays to the construction period, the vegetation will be kept strimmed to ground level. Any water vole exclusion exercise would be carried out under the supervision of an appropriately experienced ecologist;

- Any water vole dispersal exercises will take place at the appropriate time of year i.e. April to May or September to October, thus avoiding the breeding season and the winter when water voles are least active. The methodology will be approved by English Nature and Environment Agency prior to commencement; and
- Reinstatement of banks where necessary following the construction period.

Given that the majority of the onshore cable route would be constructed in the A256 Sandwich Road and providing successful implementation of the above mitigation measures it is anticipated that there would be **no impact** on water vole.

Otters

A single otter footprint was found within the boundary of the disused Richborough Power Station, however, there are no suitable lying-up sites or holt sites within the cable route or immediately adjacent to it. **No impact** on otter is anticipated.

Birds

The Wildlife and Countryside Act 1981 protects all wild birds and their nests and eggs. In addition, certain rare breeding birds, listed on Schedule 1 to the 1981 Act, are also protected against disturbance whilst building a nest or on or near a nest containing eggs or young.

Three species, including peregrine, hobby and Cetti's warbler, listed on Schedule 1 of the Wildlife and Countryside Act 1981 were recorded during the survey. Peregrines are rare/scarce breeders in lowland England, hobby is increasing as a breeding species and is probably no longer scarce but is very susceptible to disturbance, while Cetti's warbler is a nationally rare resident.

A peregrine was seen taking food onto the power station site, where there is suitable breeding habitat and it is probable that a pair breed there. A single hobby was seen hawking over Pegwell Bay on one occasion. There is no evidence that either of these species nest in areas, which might be disturbed by works. **No impact** on either species is anticipated.

Singing Cetti's warblers were recorded in three locations and suitable habitat is present in a number of places along the onshore cable route. Whilst this species is relatively tolerant of disturbance, pairs already nesting close to the works area before work begins could be disturbed by construction activity.

Nesting habitats for other bird species are present throughout the survey area. The following mitigation measures will be undertaken:

- Work to be completed outside the breeding season, or if this is not practicable, all scrub habitat within the required working width will be removed during the period of September to February;
- Any suitable bird nesting habitat remaining within the working width of the route prior to the start of works should be checked for nesting birds;
- Minimise working area to reduce the impact on breeding birds; and

- Brief construction workers on the implications of the Wildlife and Countryside Act.

Given the above mitigation measures, **no impact** on breeding birds is anticipated.

20.5 Impacts during Operation

20.5.1 Impacts on designated sites, habitats and species

No impacts on ecological or nature conservation resources are predicted during the operation of the onshore elements of the Thanet project. The cables would remain buried throughout their design lifetime. Maintenance of the cables is unlikely to occur during the design life of the project.

20.6 Impacts during Decommissioning

The cables would remain buried throughout their lifetime and would remain there after decommissioning, unless otherwise specified by the Local Planning Authority. **No impacts** are anticipated.

20.7 Cumulative Effects

Kent County Council has planned improvement works for the A256 Sandwich Road, including a small stretch of interest for this project. The road improvement works are scheduled to begin during 2005 and construction works are expected to last approximately 18 months.

It is possible that the road improvements could be planned to take place back to back with the cable laying works and there may be some overlap. Pre-installing any necessary road crossing or cable ducts would mean that the road would not have to be disturbed again. This would mean that the cumulative effects of the schemes would be minimised, such as the potential disruption to the Roadside Nature Reserve. Discussions will continue with Kent County Council.

20.8 Monitoring Proposals

20.8.1 Construction phase

The mitigation measures required to protect ecological and nature conservation resources during construction, as identified within this section, will be transposed into an Environmental Action Plan.

Monitoring and supervision by the Ecological Clerk of Works or an ecologist would be required if reptiles, badgers, bats, water voles and/or breeding birds are found to be present along the proposed cable route during construction. This monitoring will conform to the appropriate English Nature guidelines.

Monitoring will be carried out to ensure that the Japanese Knotweed located along the onshore cable route is controlled and managed in accordance with the guidance set out by the Environment Agency.

20.9 Summary

The majority of the onshore cable route would be buried below the A256 Sandwich Road. Habitats within the study area include rough and amenity grassland, scrub and small areas of broadleaved woodland mostly characterised by common and widespread species. The cable route crosses a small section of the Sandwich Bay and Hacklinge Marshes SSSI and a 450m stretch of Roadside Nature Reserve (RNR) is located along the east of the A256 Sandwich Road.

Protected species were identified within the study area during the Extended Phase 1 Habitat survey, although significant adverse impacts on these species are not anticipated as a result of the construction activities due to distance separation. However, there remains the potential for species such as reptiles, breeding birds and water voles, to move into an area that would be directly impacted by construction activities.

Given the successful implementation of the stated mitigation measures, such as minimising the construction footprint via fenced demarcation, avoidance of sensitive habitats or designated areas and further surveys prior to construction, in addition to the preparation of an Environmental Action Plan, impacts are anticipated to be **minor adverse** to **negligible**. Any mitigation measures if required will be implemented in accordance with English Nature and Environment Agency guidance.