East Anglia
Offshore Wind

VATTENFALL

SCOTTISHPOWER RENEWABLES

East Anglia THREE

Appendix 23.2

East Anglia ONE Background Data Search and Ecology Survey Reports

Environmental Statement
Volume 3
Document Reference – 6.3.23 (2)

Author – Royal HaskoningDHV
East Anglia THREE Limited
Date – November 2015
Revision History – Revision A

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Background Data Search Report

East Anglia ONE

Offshore Windfarm

Environmental Statement

Volume 3 Chapter 24 Ecology Appendices

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Appendix 24.1

Ecological Background Data Search Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.1 - Background Data Search Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Background Data Search Report

Client: East Anglia Offshore Wind Limited

Date: 28th August 2012

Office: Helsby

Status: Final

Author	Tom Smith	**Technical reviewer**	Sarah Harmer
Signature		Signature	
Date:	28th August 2012	Date:	28th August 2012

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Background Data Search

This ecological background data search is a desk-based study for records of internationally, nationally and locally important species and sites within 2 km (extending to 5 km for bats) of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search for the East Anglia ONE project. This document forms Appendix 24.1 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement.

This information can identify potential constraints to developments at an early stage and can be used in the assessment of the significance and magnitude of potential ecological impacts.

Background data searches provide valuable information for assessment, but have some limitations. For example, the reliability of biological record archives is unknown because factors such as recorder expertise, accuracy of species identification and accuracy of recorded location cannot be verified. It is important to note that the records do not provide a comprehensive list of all species in the search area. A lack of records for a defined geographical area does not necessarily mean that there is a lack of species; the area may simply be under-recorded.

1.2 Structure of the Report

The remainder of the report is set out as follows:

- *Section 2* describes the methodology of a background data search, including initial research information, organisations contacted for background data, and selection criteria for the information that was requested;
- *Section 3* presents summaries of the data received and researched;
- *Section 4* lists the references used in the report;
- *Section 5* is an appendix containing details of designated sites within a search area;
- *Section 6* is an appendix listing notable species within a search area; and
- *Section 7* is an appendix containing descriptions of protected species legislation and lists abbreviations used in this report.

2 METHODS

2.1 Background Data Search Methodology

A search was made of freely available reference materials relating to the ecology of an area comprising a 2 km buffer (extending to 5 km for bats) of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search. This included a review of the UK Biodiversity Action Plan (UKBAP; UK Biodiversity Steering Group 1998a-f, Biodiversity Reporting and Information Group 2007) and Suffolk's Local Biodiversity Action Plan (LBAP).

Information on statutory and non-statutory sites; notable species, and any other additional details that may be relevant to the project, were requested from the biological records centre, wildlife trust and county recorders. Additional sources on the internet, such as the Multi-Agency Geographic Information for the Countryside (MAGIC), Natural England, the Joint Nature Conservation Committee (JNCC) and Google Maps were also used for a search area of up to 2 km from the cable route and converter station.

A search was made for statutory designated sites (those that are internationally and nationally important sites for ecology) and non-statutory designated sites (those that are important in a local context) within 2 km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search. A search was also made for records of notable species within 2 km, extending to 5 km for bats. Species included in the search parameters are:

- European protected species (listed on *Schedules 2* and *4* of *The Conservation of Habitats and Species Regulations 2010*);
- nationally protected species under *Schedules 1, 5* and *8* of *The Wildlife & Countryside Act 1981* and *The Protection of Badgers Act 1992*;
- species listed as Critically Endangered, Endangered or Vulnerable on the *IUCN Red List*
- all species listed on the RSPB *Birds of Conservation Concern 2002-2007* as Red or Amber;
- Nationally Rare or Nationally Scarce species;
- Notable invertebrates; and
- species that have Action Plans under the UK Biodiversity Action Plan (UKBAP) or are Priority Species under the Local Biodiversity Action Plan.

Records with 2-digit grid references (*e.g.* SJ24) are considered too imprecise and are omitted from the results. The following types of notable species records are included:

- species records with six-digit grid references (*e.g.* AB123456) that lie within the search area;

- records with 4-digit grid references, which refer to a 1 km square area, where the square falls entirely or partially in the search area; and
- records with tetrad grid references, which refer to a 2 km square area, where the square falls entirely or partially in the search area.

2.2 Sources and Information Obtained

A list of sources and consultees, and the information obtained from them is given in *Table 1* (below). A full list of references and other relevant documentation is given is *Section 4* (References and Bibliography Chapter).

Table 1: Sources of background information and consultees.

Information Obtained	Available From
Bird species-records	The Royal Society for the Protection of Birds (RSPB)
Non-statutory designated site locations and citations	Suffolk Biological Record Centre
Designated site citations	Natural England website
Designated site information	MAGIC website
Designations and legal protection of notable species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the Suffolk LBAP	Local BAP website
Information on Broad and Priority Habitats and Species Action Plans for the UK	UK Biodiversity Action Plan (UKBAP) website
Priority and protected species records	Suffolk Biological Record Centre
Non-statutory designated site locations and citations	Suffolk Wildlife Trust
Satellite imagery	Google Maps

3 RESULTS

3.1 Background Data Search

3.1.1 Biodiversity Action Plans

A revised UK Biodiversity Action Plan (UKBAP) was published in June 2007 (Biodiversity Reporting and Information Group 2007) that includes 65 'Priority' Habitat Action Plans (HAPs), which are specific habitat types in 28 Broad Habitat types and 1,150 'Priority' Species Action Plans (SAPs).

Some HAPs and SAP species are also covered by Suffolk's Local Biodiversity Action Plan (LBAP). The Suffolk Biodiversity Partnership currently have 21 Habitat Action Plans (HAPs) and 262 Species Action Plans (SAPs) comprising their Biodiversity Action Plan. Some local HAPs of potential relevance to the current development are;

- Arable field margins;
- Built environment & associated habitats (including open mosaic habitats on previously developed land);
- Coastal and floodplain grazing marsh (including dykes);
- Coastal sand dunes;
- Coastal vegetated shingle;
- Eutrophic standing waters (lakes);
- Lowland fens;
- Hedgerows;
- Lowland calcareous grassland;
- Lowland meadows (previously lowland hay meadows);
- Lowland heath (including acid grassland);
- Lowland mixed deciduous woodland;
- Maritime cliffs and slopes;
- Oligotrophic (and dystrophic) lakes;
- Ponds;
- Reedbeds;
- Rivers;
- Saline lagoons;
- Coastal saltmarsh and intertidal mudflats;
- Traditional orchards;
- Wet woodland; and
- Woodpasture and parkland.

3.1.2 Designated Sites

3.1.2.1 Statutory Designated Sites

The 2 km search area contains 16 statutory designated sites of which two have multiple desingations, namely Deben Estuary Special Protection Area (SPA), Ramsar Site and Site of Special Scientific Interest (SSSI) and Alde-Ore Esturay SPA, Ramsar and SSSI. There are a further nine SSSIs, one further SPA, one Special Area of Conservation (SAC), two Local Nature Reserves (LNRs) and one Area of Outstanding Natural Beauty (AONB). A list of statutory sites within the 2 km search area is given below. The sites are listed in order of closest proximity to the Development Area. A more detailed description of these sites is given in *Table 3, Appendix 1.*

Crossed by the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Bawdsey Cliff SSSI* is of geological importance for its Red Crag exposure that is rich in marine Mollusca.

- *Deben Estuary SPA, Ramsar & SSSI* is important for its populations of over-wintering waders and wildfowl and also for its extensive and diverse saltmarsh communities.

- *Suffolk Coast & Heaths AONB* covers a large area from Lowestoft to the river Stour. Habitats of interest in the AONB include ancient open heathland, saltmarsh, mudflats, wetlands, shingle beaches and woodland.

Within 100 m of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Outer Thames Estuary SPA* is a large marine area that is important for birds. The site supports 38% of Great Britain's *Gavia stellata* (Red-throated Diver) population.

Within 1 km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Newbourn Springs SSSI* comprises a narrow spring-flushed valley occupied by a fast flowing stream with areas of Alder Carr, small areas of fen on peat, broad-leaved woodland, scrub, grassland communities and *Rubus fruticosus* agg. (Bramble) dominated heath. The site is important for breeding and migratory birds.

- *Alde-Ore Estuary SPA, Ramsar & SSSI* comprises cliffs, extensive ares of mud-flats, reedbeds, grazing marsh, saltmarsh, vegetated shingle and coastal lagoons. The site supports nationally-scarce plants, rare invertebrates, and notable assemblages of breeding and wintering wetland birds.

- *Orfordness-Shingle Street SAC* comprises a series of percolation lagoons and a shingle spit that supports rare habitats. The site is covered by Alde-Ore Estuary SPA, Ramsar & SSSI.

- *Great Blakenham Pit SSSI* exposes a sequence through Early and Middle Pleistocene sediments and soils and is of importance in interpreting the glacial history of southern Britain.

- *Waldringfield Pit SSSI* is a Quaternary geological locality that is important for a sequence of Middle Pleistocene deposits.

- *Little Blakenham Pit SSSI* consists of former chalk workings that support one of the few examples of chalk grassland flora in East Suffolk. A disused tunnel on the site contains one of the largest underground roosts for hibernating bats known in Great Britain.

Within 2 km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Bramford Meadows LNR* comprises scrub and low-lying wet meadows, separated by a number of drainage ditches, in a linear strip along the River Gipping. The site is important for invertebrates.

- *Rede Wood LNR* is a 7.6 hectare woodland dominated by *Fraxinus excelsior* (Ash), *Quercus sp.* (Oak) and coppiced *Corylus avellana* (Hazel). The site is important for birds.

- *Sinks Valley, Kesgrave SSSI* contains a range of habitats from open water, fringing swamp, spring-fed fen, wet grassland and wet *Alnus glutinosa* (Alder) woodland, to dry acid grassland, heathland and *Quercus sp.* (Oak) woodland rising up the valley sides.

- *Ferry Cliff, Sutton SSSI* is of geological interest because rocks of Palaeocene age here yield important mammalian fauna including representatives of the seven orders, including the oldest British members of the Rodentia, Artiodactyla and Perissodactyla (rodents and hoofed animals).

- *Ramsholt Cliff SSSI* contains an exposure of the Coralline Crag phosphorite deposit. The site is of geological importance for the number of sedimentological and palaeontological features and exhibits.

- *Riverside House Meadow, Hasketon SSSI* is a floristically rich unimproved meadow.

3.1.2.2 Non-statutory Designated Sites

The 2 km search area contains 77 non-statutory designated sites comprising Ancient Semi Natural Woodlands (ASNWs), Plantation Ancient Woodlands (PAWs), Woodland Trust Sites (WTs), County Wildlife Sites (CWSs), Suffolk Wildlife Trust Sites (SWTs) and Regionally Important Geological Sites (RIGSs). There are also 25 Veteran Trees within 2km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search of which two fall within the corridor/area of search. These are a *Quercus robur* (Pedunculate Oak) at TM26444714 and a *Quercus x rosacea* (Hybrid Sessile and English Oak) at TM26354681. A list of non-statutory sites within 100 m of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is given below. The sites are listed in order of closest proximity to the Onshore Cable Route. A table listing all the non-statutory designated sites is given in *Table 4, Appendix 1.*

Crossed by the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Suffolk Shingle Beaches CWS* comprise vegetated shingle, a rare and decreasing habitat, both in the British Isles and in Europe. The stretches of shingle beach along the Suffolk coast are of a national conservation importance for the range of shingle plants that grow there. Typical shingle flora includes *Lathyrus japonicus* (Sea Pea), *Crambe maritima* (Sea Kale), *Euphorbia paralias* (Sea Spurge), *Honckenya peploides* (Sea Sandwort) and *Calystegia soldanella* (Sea Bindweed). There are also rare invertebrates species found in these coastal sites.

- *Millers Wood ASNW & CWS* is enclosed by a woodbank, parts of which are probably medieval in origin, and divided by internal ditches. Of particular botanical interest, and a strong indicator of ancient woodland, is the presence of a *Sorbus domestica* (Service-tree) on the north western boundary.

- *Seckford Hall Campsite CWS* comprises a camping and caravan site with areas of acid grassland and wetland. There are a number of small scattered *Quercus sp.* (Oak) and *Crataegus monogyna* (Hawthorn) trees. The site supports two nationally scarce plant species; *Crassula tillaea* (Mossy Stonecrop) and *Trifolium suffocatum* (Suffocated Clover).

- *River Gipping (Sections) CWS c*omprise two stretches of the River Gipping as it flows through Ipswich. The river banks and adjacent grassland areas support a large number of different plants including some rare species, for eample *Nymphoides peltata* (Fringed Water Lily). The site is important for fish, invertebrates and birds, species of note include *Alcedo atthis* (Kingfisher) and *Aythya fuligula* (Tufted Duck).

- *The Mill River CWS* follows sections of the Mill River through a diverse landscape ranging from Alder carr, flower-rich grazing meadows, improved pasture and *Populus sp*. (Poplar) plantation. The Mill River has good water quality and supports a wide variety of aquatic wildlife. The site is important as a wildlife corridor and for birds.

- *Fore and Bushey Groves CWS* comprises two small woods separated by a track and an area of dense scrub. The majority of the woods have a uniform structure consisting of *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) coppice with *Fraxinus excelsior* (Ash) standards. However the southern half of Bushey Grove is occupied by a plantation of *Acer pseudoplatanus* (Sycamore) which is regenerating freely. In addition, approximately 10% of this area has been planted with *Pinus sylvestris* (Scot's Pine). A notable feature of Fore Grove is the *Sorbus domestica* (Service-tree).

- *Lumber Wood ASNW & CWS* is dominated by *Acer pseudoplatanus* (Sycamore) trees, which have been thinned and coppiced, and *Castanea sativa* (Sweet Chestnut). Dense clumps of suckering *Ulmus sp.* (Elm) together with occasional *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) form the shrub-layer.

- *Welham's Meadow CWS c*omprises wet-meadow flora. Plant species of note include *Ophrys apifera* (Bee Orchid), *Stachys officinalis* (Betony) and *Dactylorhiza maculata* (Heath Spotted Orchid).

- *Bullen Wood ASNW & CWS* is dominated by *Corylus avellana* (Hazel), *Fraxinus excelsior* (Ash) and *Acer campestre* (Field Maple) coppice with numerous mature *Quercus sp.* (Oak) standards. The site supports several less common woodland plants including *Orchis mascula* (Early-purple Orchid). Dead wood habitat on the site is important for birsds and invertebrates.

- *Round Wood and Elms Grove ASNW & CWS i*s bordered by a medieval bank, ditch and hedges. The dominant tree species in the wood are *Quercus sp.* (Oak) and *Fraxinus excelsior* (Ash) with frequent *Corylus avellana* (Hazel) coppice and *Crataegus monogyna* (Hawthorn). A good diversity of uncommon herbaceous and woody species can be found in the shrub and ground layers including *Orchis mascula* (Early-purple Orchid), *Anemone nemorosa* (Wood Anemone) and *Iris foetidissima* (Stinking Iris). The site is important for woodland birds particularly warblers.

Within 100 m of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Meadow Cottage Wood CWS* comprises deciduous woodland with ditches, scrub and tall herbs. This site is noted for *Elymus caninus* (Bearded Couch), it is the only record for this plant in east Suffolk. Two other scarce plants namely

Dipsacus pilosus (Small Teasel) and *Persicaria bistorta* (Common Bistort) also occur here.

- *Playford Reservoir CWS* is a spring-fed area of open water situated on a tributary of the River Fynn. The northern edge of the reservoir is fringed with dense reed, behind which is an area dominated by fen vegetation. The site is important for amphibians and birds.

- *Newbourne Springs Meadows CWS* is a series of unimproved meadows situated adjacent to the east bank of Newbourne Springs. The meadows support a herb-rich community characteristic of wet meadows; for example *Lychnis flos-cuculi* (Ragged-robin), *Dactylorhiza praetermissa* (Southern Marsh Orchid), *Oenanthe fistulosa* (Tubular Water-dropwort) and *Myosotis scorpioides* (Water Forget-me-not) grow frequently here. The reed-fringed dykes and stream support good numbers *Acrocephalus scirpaceus* (Reed Warbler) and *A. schoenobaenus* (Sedge Warbler).

- *Suffolk Water Park CWS* comprises a disused gravel pit with a horse-shoe shaped lake, a narrow fringe of emergent vegetation, areas of exposed mud and amenity grassland. The site is important for birds, species of note include *Aythya ferina* (Pochard), *Aythya fuligula* (Tufted Duck), *Bucephala clangula* (Goldeneye), Sandpipers and Gulls. The site also provides a valuable habitat for dragonflies.

- *Newbourne Springs SWT* comprises a steep-sided wooded valley with springs, streams, reedbed, fen, heathland and woodland. The rich mixture of habitats provides homes for many uncommon plants, insects and for breeding and migrating birds.

These statutory and non-statutory designated sites are shown in *Figures 24.1.1 and 24.1.2*.

3.1.3 Notable Species Records

At least 419 notable species were identified from records in the 2 km search area. Of these, 4 are amphibians, 151 are birds, 1 is a fish, 55 are flowering plants, 3 are fungi, 143 are insects, 27 are lichen, 2 are liverworts, 20 are mammals (of these, at least 12 are bats), 2 are molluscs, 7 are mosses and 4 are reptiles. Species that are protected by UK law under *The Wildlife and Countryside Act 1981, Schedules 2* and *4* of *The Conservation of Habitats and Species Regulations 2010* or *The Protection of Badgers Act 1992* and have been recorded in the search area are listed in *Table 2*.

Table 2: Protected Species in the Search Area

Species	Designation	Within 100m	Within 2km	Within 5km (bats)
Amphibians				
Bufo bufo (Common Toad)	WCA5.9.5	☒		
Lissotriton vulgaris (Smooth Newt)	WCA5.9.5	**P**	☒	
Rana temporaria (Common Frog)	WCA5.9.5	**P**	☒	
Triturus cristatus (Great Crested Newt)	EPS (Sch2), WCA5.9.1	**P**	☒	
Birds				
Alcedo atthis (Common Kingfisher)	WCA1.1	**P**	☒	
Anas acuta (Northern Pintail)	WCA1.2	☒		
Anas querquedula (Garganey)	WCA1.1	**P**	☒	
Anser anser (Greylag Goose)	WCA1.2	**P**	☒	
Aythya marila (Greater Scaup)	WCA1.1	**P**	☒	
Botaurus stellaris (Great Bittern)	WCA1.1	**P**	☒	
Bucephala clangula (Common Goldeneye)	WCA1.2	☒		
	WCA1.1	**P**	☒	
Calcarius lapponicus (Lapland Longspur)	WCA1.1		☒	
Calidris maritima (Purple Sandpiper)	WCA1.1		**P**	
Calidris temminckii (Temminck's Stint)	WCA1.1	**P**	☒	
Charadrius dubius (Little Plover)	WCA1.1	**P**	☒	
Chlidonias niger (Black Tern)	WCA1.1	**P**	☒	
Circus aeruginosus (Marsh harrier)	WCA1.1	**P**	☒	
Circus cyaneus (Hen Harrier)	WCA1.1		☒	
Circus pygargus (Montagu's Harrier)	WCA1.1		☒	
Coturnix coturnix (Common Quail)	WCA1.1	**P**	☒	
Crex crex (Corn Crake)	WCA1.1	☒		
Cygnus columbianus (Tundra Swan)	WCA1.1	**P**	☒	
Cygnus cygnus (Whooper Swan)	WCA1.1	**P**	☒	
Falco columbarius (Merlin)	WCA1.1	**P**	☒	
Gavia arctica (Black-throated Diver)	WCA1.1		**P**	
Gavia immer (Great Northern Diver)	WCA1.1	**P**	☒	
Gavia stellata (Red-throated Diver)	WCA1.1		☒	
Himantopus himantopus (Black-winged Stilt)	WCA1.1		☒	
	WCA1.1		**P**	
Jynx torquilla (Eurasian Wryneck)	WCA1.1	**P**	☒	
Lanius collurio (Red-backed Shrike)	WCA1.1	**P**	☒	
Larus melanocephalus (Mediterranean Gull)	WCA1.1	☒		
Larus minutus (Little Gull)	WCA1.1	**P**	☒	
	WCA1.1		**P**	

Species	Designation	Within 100m	Within 2km	Within 5km (bats)
Limosa limosa (Black-tailed Godwit)	WCA1.1		☒	
Lullula arborea (Wood Lark)	WCA1.1	**P**	☒	
Melanitta fusca (Velvet Scoter)	WCA1.1	☒		
Melanitta nigra (Common Scoter)	WCA1.1		☒	
Milvus milvus (Red Kite)	WCA1.1		☒	
Numenius phaeopus (Whimbrel)	WCA1.1	☒		
Oriolus oriolus (Eurasian Golden Oriole)	WCA1.1	**P**	☒	
Pandion haliaetus (Osprey)	WCA1.1	**P**	☒	
Panurus biarmicus (Bearded Tit)	WCA1.1	☒		
Pernis apivorus (European Honey-buzzard)	WCA1.1		☒	
Philomachus pugnax (Ruff)	WCA1.1	☒		
Phoenicurus ochruros (Black Redstart)	WCA1.1		☒	
Plectrophenax nivalis (Snow Bunting)	WCA1.1	☒		
Podiceps auritus (Slavonian Grebe)	WCA1.1	**P**	☒	
Podiceps nigricollis (Black-necked Grebe)	WCA1.1	**P**	☒	
Recurvirostra avosetta (Pied Avocet)	WCA1.1		☒	
Regulus ignicapilla (Firecrest)	WCA1.1	☒		
Sternula albifrons (Little Tern)	WCA1.1	☒		
Sylvia undata (Dartford warbler)	WCA1.1	☒		
Tringa glareola (Wood Sandpiper)	WCA1.1	☒		
Tringa ochropus (Green Sandpiper)	WCA1.1	☒		
Turdus iliacus (Redwing)	WCA1.1	☒		
Turdus pilaris (Fieldfare)	WCA1.1	☒		
Tyto alba (Barn Owl)	WCA1.1	☒		
Flowering plants				
Dianthus armeria (Deptford Pink)	WCA8		☒	
Mentha pulegium (Pennyroyal)	WCA8		☒	
Salvia pratensis (Meadow Clary)	WCA8		☒	
Insects				
Lucanus cervus (Stag Beetle)	WCA5.9.5	☒		
Nymphalis polychloros (Large Tortoiseshell)	WCA5.9.5		☒	
Papilio machaon (Swallowtail)	WCA5.9.1		☒	
Plebejus argus (Silver-studded Blue)	WCA5.9.5		☒	
Satyrium w-album (White-letter Hairstreak)	WCA5.9.5	**P**	☒	

Species	Designation	Within 100m	Within 2km	Within 5km (bats)
Mammals				
Arvicola amphibius (European Water Vole)	WCA5.9.4a	☒		
	EPS (Sch2), WCA5.9.1			☒
Barbastella barbastellus (Western Barbastelle)	EPS (Sch2)	**P**	☒	
	EPS (Sch2), WCA5.9.1		☒	
Chiroptera (Unidentified Bats)	EPS (Sch2), WCA5.9.1	☒		
Eptesicus serotinus (Serotine)	BA	☒		
Lutra lutra (European Otter)	EPS (Sch2), WCA5.9.1		☒	
Meles meles (Eurasian Badger)	EPS (Sch2), WCA5.9.1		☒	
Myotis brandtii (Brandt's Bat)	EPS (Sch2), WCA5.9.1		☒	
Myotis sp. (Myotis bat)	EPS (Sch2), WCA5.9.1	☒		
Myotis daubentonii (Daubenton's Bat)	EPS (Sch2), WCA5.9.1		☒	
Myotis nattereri (Natterer's Bat)	EPS (Sch2), WCA5.9.1		☒	
Myotis mystacinus (Whiskered Bat)	EPS (Sch2), WCA5.9.1		☒	
Nyctalus leisleri (Lesser Noctule)	EPS (Sch2)			**P**
Nyctalus noctula (Noctule Bat)	EPS (Sch2), WCA5.9.1		☒	
Nyctalus sp.	EPS (Sch2), WCA5.9.1		☒	
Phocoena phocoena (Common Porpoise)	EPS (Sch2), WCA5.9.1			☒
Pipistrellus sp. (Pipistrelle bat)	EPS (Sch2), WCA5.9.1	☒		
Pipistrellus nathusii (Nathusius's Pipistrelle)	EPS (Sch2), WCA5.9.1		☒	
Pipistrellus pipistrellus (Common Pipistrelle)	EPS (Sch2), WCA5.9.1			☒
	EPS (Sch2), WCA5.9.1	**P**	☒	
Pipistrellus pygmaeus (Soprano Pipistrelle)				
Plecotus sp. (Long-eared Bat species)				
Plecotus auritus (Brown Long-eared Bat)				
Molluscs				
Helix (Helix) pomatia (Roman Snail)	WCA5.9.1		☒	
Reptiles				
Anguis fragilis (Slow-worm)	WCA5.9.1	☒		
Natrix natrix (Grass Snake)	WCA5.9.1		☒	
Vipera berus (Adder)	WCA5.9.1		☒	
Zootoca vivipara (Common Lizard)	WCA5.9.1	☒		

Note - P relates to records with 4 figure or tetrad grid references that could potentially be anywhere within a 1 or 2 km square.

A full list of notable species with details of their respective protection and/or designations is provided in *Table 5*, *Appendix 2*.

4 REFERENCES AND BIBLIOGRAPHY

4.1 Printed Reference Material

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UK Biodiversity Steering Group (1998f). *UK Biodiversity Group Tranche 2 Action Plans: Volume VI – Terrestrial and Freshwater Species and Habitats*. English Nature.

4.2 Web-based Resources

English Nature (Statutory Protected Sites) http://www.english-nature.org.uk/Special/sssi/

Suffok County Council http://www.suffolk.gov.uk/

Joint Nature Conservation Committee (Statutory Protected Sites and protected species status lists) http://www.jncc.gov.uk/

Suffolk Biodiversity Action Plan http://www.suffolkbiodiversity.org/biodiversity-action-plans.aspx

Multi-Agency Geographic Information for the Countryside (MAGIC) http://www.magic.gov.uk/

National Association for Areas of Outstanding Natural Beauty http://www.aonb.org.uk/

UK Biodiversity Action Plan http://www.ukbap.org.uk/

Woodland Trust http://www.woodlandtrust.org.uk/

APPENDIX 1

Designated Sites

The following sections provide comprehensive lists of the statutory and non-statutory designated sites that fall in the search area. The name, designation, grid reference, distance from the site and a description of each site is given; the sites are listed in order of proximity[1] to the proposed cable corridor and converter station. The descriptions for statutory sites have been obtained from the citations available from Natural England, the Joint Nature Conservation Comittee, the National Association for Areas of Outstanding Natural Beauty and relevant Borough Councils. The descriptions for non-statutory designated sites have been obtained from Suffolk Biological Record Centre, the Woodland Trust and Suffolk Wildlife Trust.

Table 3. Details of Statutory Designated Sites within 2 km of the Proposed Cable Corridor and Converter Station Showing Site Name, Designation, Location and Distance from the Development.

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
Bawdsey Cliff, SSSI, TM3460 386, 0 m Bawdsey Cliffs are of great geological interest and potential for studies of non-glacial Pleistocene environments. The cliffs provide over 2km of section in the Butleyan division of the Early Pleistocene Red Crag. The site constitutes by far the largest available exposure of the Red Crag and is rich in marine Mollusca.
Deben Estuary, *SPA, Ramsar & SSSI*, TM295 441, 0 m The Deben Estuary is important for its populations of over wintering waders and wildfowl and also for its extensive and diverse saltmarsh communities. Several estuarine plants and invertebrates with a nationally restricted distribution are also present. The Estuary extends for over 12 km in a generally south-easterly direction. It is sinuous, relatively sheltered and narrow, particularly at its mouth, which is protected by shifting sand banks. Mudflats occupy much of the intertidal area with more sandy deposits occurring where exposed Red Crag erodes from cliffs. The Deben Estuary supports approximately 40% of Suffolk's area of saltmarsh which also displays the most complete range of the vegetation's community types in the county. These occur in a highly complex mosaic with the variation in the proportions of species being dependent upon several factors including substrate type, frequency of tidal inundation, exposure, position within the Estuary and past management practices. The site supports a diverse assemblage of birds. The numbers of *Tringa totanus* (Redshank) over wintering on the Estuary are of international importance and the summer breeding population of this species is of county significance. The site is of national importance for its winter populations of *Recurvirostra avosetta* (Pied Advocet), B*ranta bernicla* (Dark-bellied Brent Goose), *Tringa erythropus* (Spotted Redshank), *Tadorna tadorna* (Shelduck), *Anser fabalis* (Bean Goose), and *Limosa limosa* (Blacktailed Godwit) with the numbers of *Anas penelope* (Wigeon), *Anas acuta* (Pintail) and *Pluvialis squatarola* (Grey Plover) approaching this level in some years. The site also supports *Vertigo angustior* (Narrow-mouthed Whorl Snail), a species found in only

[1] Please note that when a site is made up of two or more separate areas, Proximity to Site is calculated from the area located closest to the pipeline route.

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
about 14 sites in Britain.
Suffolk Coast & Heaths, AONB, TM177 349, 0 m
Stretching south from Lowestoft to the river Stour, the AONB protects heathland, reed beds, saltmarsh and mud-flats, a rich mixture of unique and vulnerable lowland landscapes, all of which are under pressure of change. It is deeply indented by the estuaries of the Blyth, Alde, Deben, Orwell and Stour and bounded by the crumbling cliffs and tidal spits of the low and lonely North Sea coastline, the nearest unspoilt coast to Greater London. Habitats of interest on the site include ancient open heathland, saltmarsh, mudflats, wetlands, shingle beeches and woodland.
*Outer Thames Estuary, SPA,*TR273 962, 11 m
Outer Thames Estuary SPA is a large marine area that is important for birds. The site supports 38% of Great Britain's *Gavia stellata* (Red-throated Diver) population.
Newbourn Springs, SSSI, TM270 435, 273 m
The major part of the site comprises a narrow spring-flushed valley occupied by a fast flowing stream with Alder carr and small areas of fen on peat overlying London Clay. Drier more acidic soils further west and above the stream valley support broad-leaved woodland, scrub, grassland communities and *Pteridium aquilinum* (Bracken) dominated heath. Active management has led to the maintenance of a rich and varied flora and the subsequent diversity of habitats attracts good populations of breeding and migratory birds. There is a diverse ground flora along the stream banks and beneath the woodland; species of note including *Listera ovata* (Common Twayblade), *Dactylorhiza fuschii* (Common Spotted Orchid) and *Ophrys apifera* (Bee Orchid). The steep valley side above the stream supports Oak-Ash-Hazel woodland which has grown up into high forest. Above the valley is a large area of *Pteridium aquilinum* (Bracken) dominated heath fringed by thorn scrub. Some areas have been cleared and patches of dry acid grassland and heather heath have developed. A variety of birds breed on the site including *Luscinia megarhynchos* (Nightingale), *Regulus regulus* (Goldcrest), Warblers and Woodpeckers. Migratory birds such as Sylvia Warblers and *Turdus pilaris* (Fieldfare) are regular visitors as are many butterflies including *Callophrys rubi* (Green Hairstreak) and *Satyrium w-album* (White Letter Hairstreak).
Alde-Ore Estuary, SPA, Ramsar & SSSI , TM396 491, 397 m
The site stretches along the coast from Bawdsey to Aldeburgh and inland to Snape. It includes Orfordness, Shingle Street, Havergate Island, and the Butley, Ore and Alde Rivers. The site comprises cliffs, extensive ares of mud-flats, reedbeds, grazing marsh, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value.
The variety of habitats on the site contributes to the overall botanical diversity of the site. Many of the habitats have a restricted distribution in the UK and support rare and specialised floral species. Of note are the saltmarsh communities that occur along the length of the rivers and the vegetated shingle (that is the second largest and best preserved area of the habitat in Britain). Species of note include several lichens, *Zostera angustifolia* (Narrow-leaved Eelgrass), *Althaea officinalis* (Marsh Mallow)*, Lathyrus japonicus* (Sea Pea), *Medicago minima* (Bur Medick), *Puccinellia fasciculata* (Borrer`s Saltmarsh-grass), *Sonchus palustris* (Marsh Sow-thislte), *and Vicia lutea* (Yellow Vetch). The saline lagoons on the site support specialised invertebrate fauna, species of note include *Nematostella vectensis* (Starlet Sea Anemone) and *Gammarus insensibilis.*
The site is of national importance for its birdlife. Havergate Island holds the largest breeding colony of *Recurvirostra avosetta* (Pied Advocet) in Britain, and they also feed in large numbers of Hazelwood Marshes and the Alde mudflats. Other breeding birds on the Island and elsewhere on the site include *Anas strepera* (Gadwall), *Anas clypeata* (Shoveler), *Haematopus ostralegus* (Oystercatcher), *Charadrius hiaticula* (Ringed Plover), *Sterna hirundo* (Common Tern), Sterna

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
paradisaea (Arctic Tern), *Sterna sandvicensis* (Sandwich Tern), *Sterna albifrons* (Little Tern), *Asio flammeus* (Short-eared Owl), *Oenanthe oenanthe* (Wheatear) and *Circus aeruginosus* (Marsh Harrier). There are also very large breeding colonies of *Chroicocephalus ridibundus* (Black-headed Gull), *Larus fuscus* (Lesser Black-backed Gull) and *Larus argentatus* (Herring Gull) on Orfordness. In winter and during migration the site is visited by nationally important numbers of wildfowl and shore-birds, including *Cygnus columbianus* (Bewick's Swan), *Tadorna tadorna* (Shelduck), *Anas cracca* (Teal), *Anas penelope* (Wigeon), *Tringa totanus* (Redshank) and Pied Avocet. Orfordness and Gedgrave Cliff are listed as being of national importance in the Geological Conservation Review.
Orfordness-Shingle Street, SAC, TM433 491, 397 m
The site comprises a series of percolation lagoons and a shingle spit. The lagoons have developed in the shingle bank adjacent to the shore at the mouth of the Ore estuary. The fauna of these lagoons includes typical lagoon species, such as the cockle *Cerastoderma glaucum*, the ostracod *Cyprideis torosa* and the gastropods *Littorina saxatilis tenebrosa* and *Hydrobia ventrosa*. The nationally rare *Nematostella vectensis* (Starlet Sea Anemone) is also found at the site. Orfordness is an extensive shingle spit some 15 km in length and is one of two sites representing Annual Vegetation of Drift Lines habitat on the east coast of England. The drift-line community is widespread on the site and comprises *Beta vulgaris* ssp. *maritima* (Sea Beet) and *Atriplex* spp. (Orache) in a strip 2-5 m wide. This spit supports some of the largest and most natural sequences in the UK of shingle vegetation affected by salt spray. The southern end of the spit has a particularly fine series of undisturbed ridges, with zonation of communities determined by the ridge pattern. Pioneer communities with *Lathyrus japonicus* (Sea Pea) and *Arrhenatherum elatius* (False Oat-grass) grassland occur. Locally these are nutrient-enriched by the presence of a gull colony; elsewhere they support rich lichen communities. The northern part of Orfordness has suffered considerable damage from defence-related activities but a restoration programme for the shingle vegetation is underway.
Great Blakenham Pit, SSSI, TM116 498, 699 m
The Great Blakenham site exposes a sequence through Early and Middle Pleistocene sediments and soils. These include residual Crag, a thick body of estuarine sands, a thin layer of Thames river gravels, a buried soil complex, an extensive glacial till and associated outwash gravels. The present topsoil developed on the till includes periglacial soil structures and lenses of wind-blown sand. All these deposits make the site of great importance in interpreting the glacial history of southern Britain in Middle Pleistocene times.
Waldringfield Pit, SSSI, TM260 448, 764 m
Waldringfield Pit is a Quaternary geological locality important for a sequence of Middle Pleistocene deposits. The sequence comprises, from the base upward Red Crag; Waldringfield Gravels; the Valley Farm temperate palaeosol; the Barham periglacial palaeosol; and coversands. The top 1–2m of the deposits is ndeformed by periglacial involutions. Waldringfield Pit is the type site for the Waldringfield Gravels, the lowest unit of the Kesgrave Sands and Gravels, which form a series of Middle Pleistocene terraces in Suffolk. The exposure of the Valley Farm palaeosol is significant because it is younger and less complex than on the higher terraces further north although it may have elements within which are attributable to post Cromerian temperate pedogenesis. The pattern of involutions is also of particular interest as a later set of features (of Wolstonian or Devensian age) may be superimposed on an older Anglian Set.
Little Blakenham Pit, SSSI, TM108 491, 820 m
This site consists of former chalk workings that support one of the few examples of chalk grassland flora in East Suffolk. Amongst the more unusual plants present is the locally rare *Orobanche*

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
rapum-ganistae (Greater Broomrape). The botanical interest of the site centres on areas of chalk grassland, which are dominated by *Holcus lanatus* (Yorkshire Fog) and *Agrostis canina* (Brown Bent-grass). There are populations of *Anacamptis pyramidalis* (Pyramidal Orchid), *Ophrys apifera* (Bee Orchid), *Aceras anthropophorum* (Man Orchid) and *Dactylorhiza praetermissa* (Southern Marsh Orchid). A tunnel, totaling around 127m in length, is extremely important, as it contains one of the largest underground roosts for hibernating bats known in Great Britain. Three species of bat regularly use the tunnel between September and April, in numbers often totaling 450 or more. It is used principally by *Myotis daubentoni* (Daubenton's Bat), *Myotis nattereri* (Natterer's Bat) and *Plecotus auritus* (Brown Long-eared Bat), but occasional visitors are *Myotis mystacinus* (Whiskered Bat) and *Myotis brandti* (Brandt's Bat).
Bramford Meadows, LNR, TM126 468, 1334 m
Bramford Meadows LNR comprises low lying wet meadows, separated by a number of drainage ditches, and scrub in a linear strip along the River Gipping. The meadows are crossed by wet ditches and the old course of the river. The ditches support a diverse aquatic and emergent flora. The site is important for invertebrates; species of not include two species of Bush Cricket and *Aricia artaxerxes* (Brown Argus).
Rede Wood, LNR, TM153 506, 1420 m
Rede Wood LNR is a 7.6 hectare woodland dominated by *Fraxinus excelsior* (Ash), *Quercus sp*. (Oak) and coppiced *Corylus avellana* (Hazel). The woodland is home to rare species of plants and fungi; species of note include *Orchis mascula* (Early Purple Orchid). The site is also important for birds.
Sinks Valley, Kesgrave, SSSI, TM224 462, 1426 m
Sinks Valley is one of the few remaining valleys within the Suffolk Coast and Heaths Natural Area that are almost entirely occupied with semi-natural vegetation. It contains a full sequence of habitats from open water, fringing swamp, spring-fed fen, wet grassland and wet Alder woodland, to dry acid grassland, heathland and Oak woodland rising up the valley sides. It is this diversity of habitats, their barely interrupted sequence and their clear relation to the landform that makes Sinks Valley special. The habitats on the sites have high floristic diversity; species of note include *Crassula tillaea* (Mossy Stonecrop) and *Juncus squarrosus* (Heath Rush). The site is home to a number of rare animal species and is of particular importance for amphibians.
Ferry Cliff, Sutton, SSSI, TM279 486, 1541 m
This site is of geological interest because rocks of Palaeocene age here yield an important mammalian fauna including representatives of the seven orders, including the oldest British members of the Rodentia, Artiodactyla and Perissodactyla (rodents and hoofed animals). This locality and Belgian sites (of approximately the same age) have yielded the earliest Artiodactyls and Hyracotherium (ancestral horse) in Europe; and probably worldwide.
Ramsholt Cliff, SSSI, TM297 428, 1577 m
The Coralline Crag at this locality can be seen resting on irregular, erosional surface of London Clay, and to be overstepped by Red Crag where it comes to rest directly on London Clay. At the base of the Coralline Crag the phosphorite deposit (a 'coprolite bed' or 'Suffolk bone-bed') can be seen. This is the only locality where the Coralline Crag phosphorite deposit can be examined, and is also probably the only existing locality where the 'boxstones', phosphatic remnants of a Miocene formation can be seen in situ. The section at Ramsholt represents the most southerly and,

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
paleaoecologically, probably the most near-shore Coralline Crag deposited in East Anglia. The fauna is rich and well preserved and contains a number of uncommon species. Amongst these the most notable are the *Balanus concavus* (Large Barnacle), the Coral *Cryptangia woodii* and large colonies of the Bryozoan *Turbicellepora* which forms the substrate for C. woodii. Many species of aragonitic mollusc are also found. This site is important for the number of sedimentological and palaeontological features and exhibits.
Riverside House Meadow, Hasketon, SSSI, TM244 503, 1805 m Riverside House Meadow is a floristically rich unimproved meadow. The number of such traditionally managed herb-rich meadows has been greatly reduced in recent decades and remain under threat from changes in agricultural practice. The site supports a typically high number of grasses and herbs. The sward is dominated by *Alopecurus pratensis* (Meadow Foxtail), *Cynosurus cristatus* (Crested Dog's-tail) and *Holcus lanatus* (Yorkshire Fog). Fifty-two plant species other than grasses have been recorded in the meadow including a large number of *Orchis morio* (Green-winged Orchid). The meadow is on a gentle north-facing slope and situated on slowly permeable neutral to calcareous soils. It is managed traditionally with a summer hay cut and the aftermath is sometimes grazed.

Table 4. Non-statutory designated sites situated within 2 km of the proposed cable corridor and converter Station

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
Millers Wood ASNW & CWS is enclosed by a woodbank, parts of which are probably medieval in origin, and divided by internal ditches. Of particular botanical interest, and a strong indicator of ancient woodland, is the presence of a *Sorbus domestica* (Service-tree) on the north western boundary.	0 (corridor passes through the site)
Seckford Hall Campsite CWS comprises a camping and caravan site with areas of acid grassland and wetland. There are a number of small scattered *Quercus sp*. (Oak) and *Crataegus monogyna* (Hawthorn) trees. The site supports two nationally scarce species; *Crassula tillaea* (Mossy Stonecrop) and *Trifolium suffocatum* (Suffocated Clover).	0 (corridor passes through the site)
River Gipping (Sections) CWS comprise two stretches of the River Gipping as it flows through Ipswich. The river banks and adjacent grassland areas support a large number of different plant species including some rare species, for eample *Nymphoides peltata* (Fringed Water Lily). The site is important for fish, invertebrates and birds, species of note include *Alcedo atthis* (Kingfisher) and *Aythya fuligula* (Tufted Duck).	0 (corridor passes through the site)
The Mill River CWS follows sections of the Mill River through a diverse landscape ranging from Alder carr, flower-rich grazing meadows, improved pasture and Poplar plantation. The Mill River has good water quality and supports a wide variety of aquatic wildlife. The site is important as a wildlife corridor and for birds.	0 (corridor passes through the site)
Suffolk Shingle Beaches CWS comprise vegetated shingle, a rare and decreasing habitat, both in the British Isles and in Europe. The stretches of	0 (corridor passes through the site)

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
shingle beach along the Suffolk coast are of a national conservation importance for the range of shingle plants that grow there. Typical shingle flora includes *Lathyrus japonicus* (Sea Pea), *Crambe maritima* (Sea Kale), *Euphorbia paralias* (Sea Spurge), *Honckenya peploides* (Sea Sandwort) and *Calystegia soldanella* (Sea Bindweed). There are also rare invertebrates species found in these coastal sites.	
Fore and Bushey Groves CWS comprises two small woods separated by a track and an area of dense scrub. The majority of the woods has a uniform structure consisting of *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) coppice with *Fraxinus excelsior* (Ash) standards. However the southern half of Bushey Grove is occupied by a plantation of *Acer pseudoplatanus* (Sycamore) which is regenerating freely. In addition, approximately 10% of this area has been planted with *Pinus sylvestris* (Scot's Pine). A notable feature of Fore Grove is the *Sorbus domestica* (Service-tree).	0 (corridor passes through the site)
Lumber Wood ASNW & CWS is dominated by *Acer pseudoplatanus* (Sycamore) which have been thinned and coppiced, and *Castanea sativa* (Sweet Chestnut). Dense clumps of suckering *Ulmus sp*. (Elm) together with occasional *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) form the scrub layer.	0 (corridor passes through the site)
*Welham's Meadow CWS c*omprises wet-meadow flora. Plant species of note include *Ophrys apifera* (Bee Orchid), *Stachys officinalis* (Betony) and *Dactylorhiza maculata* (Heath Spotted Orchid).	0 (corridor passes through the site)
Bullen Wood ASNW & CWS is dominated by *Corylus avellana* (Hazel), *Fraxinus excelsior* (Ash) and *Acer campestre* (Field Maple) coppice with numerous mature *Quercus sp*. (Oak) standards. The site supports several less common woodland plants including *Orchis mascula* (Early-purple Orchid). Dead wood habitat on the site is important for birds and invertebrates.	0 (corridor passes through the site)
*Round Wood and Elms Grove ASNW & CWS i*s bordered by a medieval bank, ditch and hedges. The dominant tree species in the wood are *Quercus sp*. (Oak) and *Fraxinus excelsior* (Ash) with frequent *Corylus avellana* (Hazel) coppice and *Crataegus monogyna* (Hawthorn). A good diversity of uncommon herbaceous and woody species can be found in the shrub and ground layers including *Orchis mascula* (Early-purple Orchid), *Anemone nemorosa* (Wood Anemone) and *Iris foetidissima* (Stinking Iris). The site is important for woodland birds particularly warblers.	0 (corridor passes through the site)
Meadow Cottage Wood CWS comprises deciduous woodland with ditches, scrub and tall herbs. This site is noted for *Elymus caninus* (Bearded Couch), it is the only record for this plant in east Suffolk. Two other scarce plants namely *Dipsacus pilosus* (Small Teasel) and *Persicaria bistorta* (Common Bistort) also occur here.	13
Playford Reservoir CWS is a spring-fed area of open water situated on a tributary of the River Fynn. The northern edge of the reservoir is fringed with dense *Phragmites australis* (Common Reed), behind which is an area dominated by fen vegetation. The site is important for amphibians and birds.	56
Newbourne Springs Meadows CWS is a series of unimproved meadows	76

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
situated adjacent to the east bank of Newbourne Springs. The meadows support a herb-rich community characteristic of wet meadows; for example *Lychnis flos-cuculi* (Ragged-robin), *Dactylorhiza praetermissa* (Southern Marsh Orchid), *Oenanthe fistulosa* (Tubular Water-dropwort) and *Myosotis scorpioides* (Water Forget-me-not) grow frequently here. The reed-fringed dykes and stream support good numbers *Acrocephalus scirpaceus* (Reed Warbler) and *A. schoenobaenus* (Sedge Warbler).	
Suffolk Water Park CWS comprises a disused gravel pit with a horse-shoe shaped lake, a narrow fringe of emergent vegetation, areas of exposed mud and amenity grassland. The site is important for birds, species of note include *Aythya ferina* (Pochard), *Aythya fuligula* (Tufted Duck), *Bucephala clangula* (Goldeneye), Sandpipers and Gulls. The site also provides a valuable habitat for dragonflies.	77
Newbourne Springs SWT comprises a steep-sided wooded valley with springs, streams, reedbed, fen, heathland and woodland. The rich mixture of habitats provides homes for many uncommon plants, insects and for breeding and migrating birds.	96
Papermill Reedbed SWT	109
Kyson Meadows, Sluice Woods and Martlesham Creek CWS comprise cattle-grazed, unimproved pastures bordering the Deben estuary and broad-leaved woodland. The site contains a diverse assemlbelge of wetland plants. Adjacent to the reedbed, on the southern bank of Martlesham Creek, lies Sluice Wood. The site is important for birds, species of note include *Tringa glareola* (Wood Sandpiper), *Tringa nebularia* (Greenshank), *Emberiza schoeniclus* (Reed Bunting), *Tadorna ferruginea* (Shelduck), *Anas crecca* (Teal) and *Gallinago gallinago* (Snipe). The site is also important for amphibians and invertebrates.	160
Newbourne Great Pit RIGS is a wooded valley on the side of Orwell estuary – from 35m OD to sea level and including the Orwell shore.	211
Old Rotary Camping ground CWS comprises an area of tall herb vegetation dominated by *Pteridium aquilinum* (Bracken) encroaching on heavily rabbit grazed acid grassland, a wetter meadow area and hedges. There is a variety of different plant communities within a relatively small area, species of note include *Dactylorhiza praetermissa* (Southern Marsh Orchid).	285
Porters Wood WT & CWS is a woodland on a slope with wet Alder carr woodland at the bottom and woodland dominated by species such as *Quercus sp*. (Oak), *Ilex aquifolium* (Holly) and introduced species on the drier ground. There are important areas of standing and fallen dead wood and Porter's Wood falls within the area of Suffolk where *Lucanus cervus* (Stag Beetles) are found. Many resident and migrant birds have been recorded on the site.	287
Cubitts Pit CWS comprises chalk grassland and dense scrub. The site is noted for a large population of *Helix (Helix) pomatia* (Roman Snail). *Satyrium w-album* (White Letter Hairstreak) butterfly has also been recorded on the *Ulmus sp*. (Elm) around the perimeter of the site.	295
Crook' Meadow CWS is one of the few remaining unimproved meadows in the Fynn valley. It is fed by a nearby fresh water spring, and supports a wide	298

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
variety of plants. Rare sepcies include *Scrophularia umbrosa* (Green Figwort) and *Hypericum montanum* (Pale St. John's-wort). Although the meadow is lightly grazed, patches have been left ungrazed and here scrub and *Chamerion angustifolium* (Rosebay Willowherb) are invading.	
RNR 144 CWS comprises chalk flora, species of note include *Anacamptis pyramidalis* (Pyramidal Orchid).	330
Kiln Farm Meadow CWS comprises areas of wet and dry grassland with a diverse flora, species of note include *Dactylorhiza fuchsii* (Common Spotted-orchid).	355
Burstall Long Wood ASNW & CWS is dominated by *Fraxinus excelsior* (Ash) and *Acer campestre* (Field Maple) coppice with mature *Quercus sp*. (Oak) standards and is enclosed on three sides by a ditch and bank. The ground flora, supports scarce woodland plants including *Euphorbia amygdaloides* (Wood Spurge) and *Daphne laureola* (Spurge-laurel). *Sorbus domestica* (Service-tree) is also present in Burstall Long Wood. Areas of dead wood provide a source of decaying timber for invertebrates and hole-nesting birds.	372
Harrison Wood WT is an area of mixed woodland.	415
Newbourne Springs RIGS is is a wooded valley with Spring fed streams that is of geological interest.	419
Woodbridge Wet Meadow CWS supports a diverse wetland flora, a notable feature of which is a large and thriving population of *Dactylorhiza praetermissa* (Southern Marsh Orchid). Other wetland species include *Hypericum tetrapterum* (Square-stalked St. John's-wort) and *Angelica sylvestris* (Angelica). The drier slopes of the site support a plant community typically found on light soils in this part of Suffolk.	497
RNR 165 CWS is a Roadside Nature Reserve that supports *Arabis glabra* (Tower Mustard).	599
Corporation Marshes CWS consists of a reedbed interspersed with clumps of scrub. It is drained by a dyke which flows through the area into Falkenham Creek on the eastern side. It is used in winter as a hunting ground by *Asio flammeus* (Short-eared Owl), *Circus cyaneus* (Hen Harrier) and *Circus aeruginosus* (Marsh Harrier).	621
Playford Mere CWS consists of a number of artificial ponds linked by a series of channels and areas of tall fen vegetation interspersed with *Salix sp*. (Willow) scrub and *Populus sp*. (Poplar) plantation. This site is a mosaic of undisturbed habitats which provide a valuable refuge for wildlife particularly birds, in an otherwise intensively-farmed landscape. Good numbers of *Ardea cinerea* (Heron), *Tadorna tadorna* (Shelduck), *Fulica atra* (Coot), *Gallinula chloropus* (Moorhen) and Aythya fuligula (Tufted Duck) shelter in the tall waterside vegetation which fringes the pond and dykes. Uncommon wetland plants, for example *Lythrum salicaria* (Purple-loosestrife) and *Pulicaria dysenterica* (Common Fleabane) are abundant amongst the tall fen community.	638
Queech Wood CWS is dominated by mature *Fraxinus excelsior* (Ash) with frequent *Quercus sp*. (Oak) and *Acer campestre* (Field Maple) and a dense scrub layer is provided by *Corylus avellana* (Hazel), *Prunus spinosa*	641

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(Blackthorn), *Rosa sp.* (Rose) and *Sambucus nigra* (Elder). Tangles of *Lonicera periclymenum* (Honeysuckle) and *Hedera helix* (Ivy) in the trees are widespread.	
Great Blakenham Pit CWS is being excavated at the present time, it will be largely filled with domestic rubbish but certain areas will be retained for their wildlife value. The chalky banks and hedges around the older parts of the pit have stabilised and now support a species-diverse flora including many plants characteristic of a chalk grassland community. A number of scarce Suffolk species namely *Blackstonia perfoliata* (Yellow-wort) and *Anacamptis pyramidalis* (Pyramidal Orchid) have also been recorded. Invertebrates, particularly butterflies are attracted to the numerous wild flowers. Furthermore, large populations of molluscs occur on the chalky banks. Some sections of bank have been colonised by a dense growth of scrub. This provides suitable nesting habitat for birds. The site is noted for its population of Raptors; *Accipiter nisus* (Sparrowhawk), *Falco tinnunculus* (Kestrel) and Owls are frequently recorded. Immediately adjacent to the pit is Claypit Grove which is a fragment of a more extensive ancient woodland. It is dominated by *Fraxinus excelsior* (Ash), *Quercus robur* (Pedunculate Oak), *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) coppice whilst the ground flora includes *Hyacinthoides non-scripta* (Bluebell), *Circaea lutetiana* (Enchanter's-nightshade) and *Mercurialis perennis* (Dog's Mercury). Deer have been reported in this wood.	699
RNR 106 CWS is a Roadside Nature Reserve with a chalk flora; species of note include *Anacamptis pyramidalis* (Pyramidal Orchid) and *Ophrys apifera* (Bee Orchid).	803
Bloomfield's Farm Meadow CWS contains a wide diversity of wetland plants, and supports large colonies of *Dactylorhiza maculata* (Heath Spotted Orchid)and *Dactylorhiza praetermissa* (Southern Marsh Orchid).	805
Blunts Wood ASNW, PAW & CWS is a remnant of a once larger ancient woodland. It has a ditch and bank along the southern boundary, with shallower ditches along all the other boundaries. A well-developed mixed deciduous hedge surrounds the woodland. The wood itself is mixed deciduous woodland with a considerable amount of former *Corylus avellana* (Hazel) coppice, and some more recent coppicing. *Prunus avium* (Wild Cherry) standards are located frequently along the strip of woodland adjacent to the road. The eastern half of the wood has been cleared and replanted with both native and exotic species including *Fagus sylvatica* (Beech), *Castanea sativa* (Sweet Chestnut) and *Pinus nigra* (Corsican Pine). The ground flora is fairly diverse though it is limited in distribution. This is probably due to earlier disturbance and the dense shade cast by the canopy. Of special interest is the presence of *Orchis mascula* (Early-purple Orchid) and *Dactylorhiza fuchsii* (Common Spotted-orchid).	829
Playford Alder Carr CWS is an area of deciduous woodland in the Fynn valley consisting of *Alnus glutinosa* (Alder), *Fraxinus excelsior* (Ash), *Quercus sp*. (Oak), *Carpinus betulus* (Hornbeam) and *Acer pseudoplatanus* (Sycamore) with wet areas of sedges and reeds. An area planted with hybrid *Populus sp.* (Poplar) is also included within the site boundary as it contains	849

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standing water fed by springs and also the occasional *Quercus robur* (Pedunculate Oak) and *Alnus glutinosa* (Alder). Spring pond is overgrown with little open water but the ground is not water-logged with the springs flowing as streams. There is a diverse age structure with regrowth of *Alnus glutinosa* (Alder) and *Carpinus betulus* (Hornbeam) of considerable age. The flora includes *Hyacinthoides non-scripta* (Bluebell) on the slope rising to the railway line and some plants normally indicative of ancient woodland for example *Melica uniflora* (Wood Melick), *Sanicula europaea* (Sanicle) and *Adoxa moschatellina* (Moschatel). Wetland species occur in the boggy flushes.	
Woodbridge Old Cemetery CWS comprises mature trees and unimproved dry grassland over nutrient poor soil. The higher ground and slopes of the cemetery support parched grassland with characteristic species such as *Agrostis capillaris* (Common Bent), *Vulpia bromoides* (Squirreltail Fescue), *Trifolium glomeratum* (Clustered Clover), *Galium verum* (Lady's Bedstraw), *Rumex acetosa* (Common Sorrel) and *Salvia verbenaca* (Wild Clary). In places, where conditions are really parched vegetation is comprised almost entirely of lichens and bryophytes. At the base of the slopes where conditions are more mesotrophic species such as *Leucanthemum vulgare* (Oxeye Daisy) and *Rumex acetosa* (Common Sorrel) are found. *Saxifraga granulata* (Meadow Saxifrage) (considered occasional in Suffolk) occurs in clusters throughout the cemetery. The trees on the site are important for birds, bats and invertebrates, species of note include *Lucanus cervus* (Stag Beetle).	851
Blunt's Wood Meadow CWS is a horse-grazed meadow with a diverse plant community. Species of note include *Pimpinella major* (Greater Burnet-saxifrage), of which there are only three other records in east Suffolk. The meadow lies adjacent to Blunt's Wood which has also been designated as a County Wildlife Site.	854
RNR 92 CWS is a Roadside Nature Reserve that supports *Trifolium ochroleucon* (Sulphur Clover) and *Orchis anthropophora* (Man Orchid).	881
Culpho Wood ASNW, PAW & CWS was clear-felled in the early 1940s and replanted by the Forestry Commission with mainly *Quercus sp*. (Oak) and some conifers.	903
Hogfield Grove CWS comprises a small woodland which is thought to be a fragment of ancient woodland. Situated in the parish of Little Blakenham, it is bordered in the south by a chalk pit which is designated as a Site of Special Scientific Interest. The dominant species are *Fraxinus excelsior* (Ash), *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) coppice in the scrub layer with *Quercus sp.* (Oak) and Ash standards forming the tree canopy. A notable feature of the wood is a few overmature *Prunus* sp. (Cherry) trees. *Mercurialis perennis* (Dog's Mercury) dominates about two thirds of the flora of the wood; *Hyacinthoides non-scripta* (Bluebell) interspersed with patches of *Rubus fruticosus* agg. (Bramble) cover the rest of the area. A number of uncommon plants, for example *Iris foetidissima* (Stinking Iris) and *Orchis mascula* (Early-purple Orchid) have been recorded in a few places in the wood.	937
Pogson's Farm Meadow CWS comprises of herb-rich grazed meadows with	859

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areas of *Ulex europaeus* (Gorse) and *Rubus fruticosus* agg. (Bramble) scrub, hedges, wetter areas and some planted trees. The trees include *Castanea sativa* (Sweet Chestnut), *Betula pendula* (Silver Birch), *Larix sp.* (Larch) and *Pinus sp*. (Pine) and the old hedges are dominated by *Crataegus monogyna* (Hawthorn) with *Fraxinus excelsior* (Ash), *Ilex aquifolium* (Holly) and *Acer pseudoplatanus* (Sycamore). A wide variety of grasses grow in the meadows reflecting the unimproved nature of the grasslands. Species include *Anthoxanthum odoratum* (Sweet Vernal-grass), *Cynosurus cristatus* (Crested Dog's-tail), *Alopecurus pratensis* (Meadow Foxtail), *Phleum pratense* (Timothy) and *Festuca rubra* (Red Fescue). The very wet areas add further variety with several rushes and horsetails, *Veronica beccabunga* (Brooklime), and in open water, *Berula erecta* (Lesser Water-parsnip), *Nasturtium officinale* (Water-cress) and *Lemna minor* (Common Duckweed) are present.	
*Flowtonhall Grove ASNW & CWS i*s a small ancient woodland composed almost entirely of *Quercus sp.* (Oak), *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) coppice with scattered *Quercus robur* (Pedunculate Oak) and *Fraxinus excelsior* (Ash) standards throughout. Below the tree layer is an understorey composed largely of *Crataegus monogyna* (Hawthorn). The shrub layer is particularly dense in the south western corner where some old large *Crataegus monogyna* (Hawthorn) and *Malus sylvestris* (Crab Apple) trees are present. The shrub layer provides a good habitat for nesting birds, particularly warblers. *Hyacinthoides non-scripta* (Bluebell), *Orchis mascula* (Early-purple Orchid) and *Paris quadrifolia* (Herb-Paris) have been recorded in the ground layer.	998
Tuddenham Hall Wood ASNW & CWS is a small ancient woodland containing mainly *Querus sp.* (Oak), *Fraxinus excelsior* (Ash) and *Acer campestre* (Field Maple) with *Corylus avellana* (Hazel) as an understorey. The ground flora contains plants indicative of ancient woodlands including *Lamiastrum galeobdolon* (Yellow Archangel), *Milium effusum* (Wood Millet) and *Sanicula europaea* (Sanicle). The site is important for woodland birds.	1004
Pumping Station Meadows CWS is a small unmanaged grassland in the Fynn valley. The site lies on a slope with scrub encroaching on the drier ground. At the foot of the slope, the ground is quite boggy and it is here that the main floristic interest lies. Species include the uncommon *Dactylorhiza praetermissa* (Southern Marsh Orchid).	1024
Lux Wood ASNW & CWS supports a wide range of decisuous tree species, including *Fagus sylvatica* (Beech), *Quercus* sp. (Oak), *Ulmus* sp. (Elm), *Acer pseudoplatanus* (Sycamore), *Prunus avium* (Wild Cherry) and *Carpinus betulus* (Hornbeam). Small areas of *Corylus avellana* (Hazel) and *Tilia cordata* (Small-leaved Lime) can also be found. Lux Wood is also an important site for birds, species of note inlucde *Luscinia megarhynchos* (Nightingale) and *Coccothraustes coccothraustes* (Hawfinch).	1052
Paul's Rough Ground CWS is a small, wet, unimproved meadow which lies adjacent to Kirton Brook. It supports a good range of marshland plants including *Lotus pedunculatus* (Greater Bird's-foot-trefoil), *Silene flos-cuculi* (Ragged-Robin) and *Pulicaria dysenterica* (Common Fleabane). *Dactylorhiza fuchsii* (Common Spotted-orchid) grows in good numbers amongst the rush	1052

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clumps along the western side. The meadow is managed by occasional cattle grazing.	
Kings Fleet CWS comprises an extensive area of open water situated close to the Deben Estuary. It is a former tributary creek that is now separated from the tidal estuary by the sea wall. It is fed by springs and is mainly freshwater, although there is some brackish seepage. A large number of birds use the area in late Summer / Autumn including *Tachybaptus ruficollis* (Little Grebe), *Aythya fuligula* (Tufted Duck), *Motacilla flava* (Yellow Wagtail), *Panurus biarmicus* (Bearded Tit) and *Hirundo rustica* (Swallow). The water quality of Kingsfleet is very good and as a consequence the aquatic flora and invertebrate fauna, particularly dragonflies is abundant and varied. The site also provides good habitat for *Arvicola amphibius* (European Water Vole) and *Lutra lutra* (Otter).	1089
RNR 119 CWS is a Roadside Nature Reserve that supports *Orchis anthropophora* (Man Orchid).	1089
Barham Pits CWS comprise a series of old gravel pits with steep sides that are important for birds. They provide food and shelter for significant numbers of wintering wildfowl. Large populations of *Aythya ferina* (Pochard) and *Aythya fuligula* (Tufted Duck) are regularly seen, with smaller numbers of other ducks, for example *Bucephala clangula* (Goldeneye). In Summer, the pits are used by a variety of breeding water birds including good numbers of Tufted Duck and *Podiceps cristatus* (Great Crested Grebe). In addition, the pits are a regular stop over for birds on passage, for example *Sterna hirundo* (Common Tern), *Actitis hypoleucos* (Common Sandpiper) and *Pandion haliaetus* (Osprey) are frequent visitors. *Alcedo atthis* (Kingfisher) and *Ardea cinerea* (Heron) are regularly observed feeding in or around the lakes.	1224
Martlesham Common CWS comprises heathland and diverse acid grassland, interspersed with larger areas of *Pteridium aquilinum* (Bracken) and *Ulex europaeus* (Gorse). The site is important for its population of *Plebejus argus* (Silver-studded Blue) butterflies.	1259
Kirton Reservoir CWS comprises wet meadow, open water and woodland. The site supports a wide range of wetland plants including the rare *Dactylorhiza maculata* (Heath Spotted Orchid). There is a narrow band of mature deciduous woodland along the north shore of the reservoir dominated by *Quercus* sp. (Oak) and *Fraxinus excelsior* (Ash) with a few large *Fagus sylvatica* (Beech).	1267
Somersham Park ASNW & PAW	1292
Column Field Upper Quarry CWS comprises an unusual mosaic of habitats due to quarrying. The central area of the site comprises rank grassland, ponds, scrub and successional vegetation that is important for a wide range of birds including breeding *Charadrius dubius* (Little Ringed Plover). The shallow nature of the ponds and surrounding grassland scrub mosaic also make this an important over wintering site for wildfowl and waders. *Riparia riparia* (Sand martin) are confirmed to be breeding in the sand cliff to the east of the central area. The ponds and associated terrestrial habitat are known to support a medium (11-100) resident breeding population of *Triturus cristatus* (Great Crested Newt) and a good breeding population of *Natrix natrix* (Grass Snake). The	1297

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site is important for bats, *Myotis daubentoni* (Daubenton's Bat) are regularly seen foraging over the pond area of the pit.The site is also important for invertebrates, particulary hymenoptera. Two of these species, *Philanthus triangulum* (Bee Wolf) and *Cerceris quinquefasciata* (5 Banded Digger Wasp) are nationally rare. The exposures of chalk and sand and thin soils have been colonised by an interesting combination of plants associated with early successional, chalk and dry grasslands including species such as *Erigeron acris* (Blue Fleabane), *Centaurium erythraea* (Common Centaury), *Ophrys apifera* (Bee Orchid) and *Anacamptis pyramidalis* (Pyramidal Orchid) and *Blackstonia perfoliata* (Yellow-wort).	
Bramford Meadows CWS consists of a series of low-lying wet meadows which are separated by a number of drainage ditches with margins of rank vegetation and bare mud. The water in these ditches is of a high quality and they support a diverse aquatic and emergent flora. The ditch edges support several rare species inlcuding *Butomus umbellatus* (Flowering-rush). The site is also of importance for its invertebrate populations, particularly butterflies and crickets.	1336
Somersham Park ASNW & PAW	1339
Felixstowe Ferry CWS comprises a number of different linked habitats: The Tomline Wall runs along the west of the site, and is a man-made flood defence bank with dykes either side. Rough grassland on the bank provides important habitat for *Anguis fragilis* (Slow-worm), *Natrix natrix* (Grass Snake), several species of birds and a wide range of invertebrates. The dykes themselves are a stronghold for *Arvicola amphibius* (Water Vole). At the northern end of the Tomline wall there is an area of rough grassland and scrub that is partially inundated by brackish water giving rise to an interesting mix of species suited to both freshwater and brackish environments. An area of *Ulex europaeus* (Gorse) and dry grassland is important for reptiles with *Lacerta vivipara* (Common Lizard) recorded. To the east of the seawall there is a large area vegetated shingle supporting the characteristic plants of this nationally rare habitat such as *Lathyrus japonicus* (Sea Pea), *Glaucium flavum* (Yellow Horned Poppy), and *Crambe maritima* (Sea Kale).	1401
Rede Wood ASNW & CWS is an important historical feature of the landscape. Rede Wood is a typical boulder clay woodland consisting of *Fraxinus excelsior* (Ash), *Quercus sp*. (Oak) and *Corylus avellana* (Hazel) in a coppice with standards structure. Over one hundred and one species of flowering plant have been recorded in the wood. Species of note include *Anemone nemorosa* (Wood Anemone), *Euphorbia amygdaloides* (Wood Spurge) and *Neottia nidus-avis* (Bird's-nest Orchid). The site also supports a diverse assemblage of fungi and birds.	1418
Ramsholt Marshes and Lodge Plantation CWS comprises agriculturally-improved, grazing marshes drained by a network of dykes and a small area of plantation woodland. The marshes are used by a large number of waders and wildfowl, in particular, *Anas platyrhynchos* (Mallard), *Anas penelope* (Wigeon) and *Anas crecca* (Teal) with fewer *Anas clypeata* (Shoveler). Lodge Plantation supports a good sized heronry.	1427

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Cliff Farm Meadows & Nettle Hill Wood CWS comprise two small horse-grazed fields close to the Deben estuary near Sutton. They are linked by a stream which flows along the base of the slope. Wader species, for example, *Tringa totanus* (Redshank), *Vanellus vanellus* (Lapwing) and *Gallinago gallinago* (Snipe) breed in the meadows during the summer. *Tyto alba* (Barn Owl) use these meadows as prime hunting ground. Much the flora of the site is of conservation importance. Wetter marginal areas along the stream are colonised by *Veronica beccabunga* (Brooklime), *Caltha palustris* (Marsh-marigold) and *Apium nodiflorum* (Fool's Water-cress). Further away from the stream, *Dactylorhiza praetermissa* (Southern Marsh Orchid) and *Lychnis flos-cuculi* (Ragged-robin) are abundant. The pond which is fed by a stream is well used as a breeding site for amphibians. There are also areas of acid grassland. *Lepus europaeus* (Hares) are abundant in this part of the meadow. In addition, an area of mixed woodland known as Nettle Hill Wood situated to the south of Cliff Farm Meadows supports one of the largest Heronries in the county; approximately 24 nests were occupied in 1991.	1439
Osier Bed and Martlesham Plantation Meadows CWS consists of two unimproved, wet grassland meadows and a former osier bed adjacent to Butlers Brook. The ground flora is rich and includes some noteworthy species such as *Dactylorhiza praetermissa* (Southern Marsh Orchid) and *Chrysosplenium oppositifolium* (Opposite-leaved Golden-saxifrage). The site is important for wading birds.	1463
*Valley Lodge Meadow CWS*is south facing and is situated on a gentle slope. A large proportion of the northern half of the meadow was at one time colonised by patches of *Crataegus monogyna* (Hawthorn) scrub. Recent removal of this scrub has enabled a species rich flora to develop on the chalky soils of the site. A wide range of chalkland plants can be seen here including *Blackstonia perfoliata* (Yellow-wort), *Centaurium erythraea* (Common Centaury) and *Sanguisorba minor* (Salad Burnet). *Anacamptis pyramidalis* (Pyramidal Orchid) are a notable feature of the site and frequently occur on the steeper parts of the slope. The species diversity of the meadow is maintained by careful management regime which involves grazing by goats and horses.	1463
Witnesham Thicks PAW & CWS is a small woodland that consists mainly of large neglected *Carpinus betulus* (Hornbeam) coppice with mature *Quercus sp.* (Oak) standards scattered throughout. The tree canopy forms a dense layer beneath which is an understorey composed of *Corylus avellana* (Hazel) coppice and *Crataegus monogyna* (Hawthorn). It is bordered along its southern roadside boundary by a thick hedge of Hornbeam, *Sambucus nigra* (Elder), Hawthorn and *Prunus spinosa* (Blackthorn). A ditch and bank, a feature associated with medieval woods, encloses the entire site. Very little light reaches the woodland floor through the dense tree canopy and as a result the ground flora is sparse.	1483
Nut Tree Cottage Meadow CWS comprises a floraly diverse meadow including a wide range of fairly common wild flowers, for example *Primula veris* (Cowslip) and *Agrimonia eupatoria* (Agrimony) and rare species such as *Blackstonia perfoliata* (Yellow-wort), *Anacamptis pyramidalis* (Pyramidal	

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Orchid) and *Trifolium ochroleucon* (Sulphur Clover). Nut Tree Cottage Meadow represents a valuable fragment of agriculturally unimproved grassland which is the most threatened habitat in Suffolk.	
Martlesham Plantation Acid Grassland CWS comprises a small area of acid grassland that is a fragment of the once extensive Martlesham Heath. The sward is dominated by *Agrostis capillaris* (Creeping Bent Grass), *Festuca orvina* (Sheep's Fescue) and *Rumex acetosella* (Sheep's Sorrel).	1569
River Gipping (Sections) CWS supports a diverse emergent fringe consisting of *Phragmites australis* (Common Reed), Pond Sedge and *Sparganium erectum* (Branched Bur-reed). Channel vegetation is dominated by *Nuphar lutea* (Yellow Water-lily) but also contains some uncommon plants, for example *Myriophyllum spicatum* (Spiked Water-milfoil). A river corridor survey carried out in 1990 showed that *Alcedo atthis* (Kingfisher), *Emberiza schoeniclus* (Reed Bunting), *Acrocephalus scirpaceus* (Reed Warbler), *A. schoenobaenus* (Sedge Warbler) and *Aythya fuligula* (Tufted Duck) breed on the River Gipping. In addition *Motacilla cinerea* (Grey Wagtail) are known to breed in old river structures, mainly locks, including Baylham Mill Lock and Sharmford Lock. Furthermore the River Gipping supports a valuable mixed coarse fishery (Class A).	1582
Great Wood ASNW & CWS comprises mainly *Fraxinus excelsior* (Ash) with smaller numbers of *Quercus sp.* (Oak) standards. Neglected *Corylus avellana* (Hazel) coppice forms a dense understorey throughout. A number of old Hazel coppice stools can still be seen and are evidence of the wood's antiquity. The field layer is covered in a thick growth of *Rubus fruticosus* agg. (Bramble).	1653
Great Blakenham Churchyard CWS supports a species-rich plant community of conservation importance. In 1992, over one hundred and ten species of flowering plants were recorded here. In addition to a wide range of common wild flowers and garden escapes, the churchyard also supports a number of uncommon Suffolk species for example, *Saxifraga granulata* (Meadow Saxifrage), *Myosotis ramosissima* (Early Forget-me-not) and *Pimpinella saxifraga* (Burnet-saxifrage). Of particular interest is a small population of *Thalictrum minus* (Lesser Meadow-rue), a rare plant which has only been recorded from a few sites in Suffolk, mainly in Breckland.The site is also important for insects.	1692
Kesgrave Wood and Sinks Valley CWS comprises an early 19th century plantation, parkland with mature trees, acid grassland, heathland, Alder woodland and scrub. Scarce Suffolk species recorded in the valley include *Juncus squarrosus* (Heath Rush), and *Valeriana dioica* (Marsh Valerian). The site is importants for birds and bats.	1711
Church Farm Meadow CWS is a semi-improved horse-grazed field close to Church Farm. A corer of the field is more waterlogged than the remainder of the site, and as a consequence is less heavily grazed. This has enabled a herb-rich flora to flourish and unusual wetland plants, for example, *Dactylorhiza praetermissa* (Southern Marsh Orchid) (50 spikes), *Carex otrubae* (False Fox-sedge) and *Stellaria graminea* (Lesser Stitchwort) grow here in good numbers.	1758
Martlesham Heath Wood CWS comprises *Betula pendula* (Silver Birch), *Quercus sp. (*Oak) and *Pinus sylvestris* (Scot's Pine) with mainly *Pteridium*	1913

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aquilinum (Bracken) under the trees. There are also a areas of *Ulex europaeus* (Gorse) thicket and a number of heath land remnants and grass glades which are invaded by *Betula sp*. (Birch) regeneration and some garden escapes and planted exotics are also present. Many of the paths which cross the site are well-worn and are often fringed with *Calluna vulgaris* (Heather). There are many pits and small trenches especially in the southern half of the wood, colonised with *Juncus effusus* (Soft-rush).	
Bramford Churchyard CWS. A botanical survey of the churchyard in 1993 recorded nearly one hundred species of flowering plants, although a number of these plants are introduced species and garden escapes. In addition to many common wild flowers the site also supports a number of uncommon Suffolk plants for example *Pimpinella saxifraga* (Burnet-saxifrage), *Sanguisorba minor* (Salad Burnet) and *Geranium rotundifolium* (Round-leaved Crane's-bill).	1936
Hasketon Meadow CWS is one of four meadows situated to the west of the village which have recently been denotified as a Site of Special Scientific Interest. The meadow supports two distinct plant communities. Over half the meadow is herb-poor sward dominated by *Alopecurus pratensis* (Meadow Foxtail), *Holcus lanatus* (Yorkshire-fog) and *Dactylis glomerata* (Cock's-foot). This is interspersed with areas of species-rich grassland. Amongst the more common wild flowers are a number of scarce Suffolk species for example *Anacamptis morio* (Green-winged Orchid) and *Silaum silaus* (Pepper Saxifrage). Hasketon Meadow is managed by an annual hay cut.	1963
Brightwell Grazing Meadows CWS comprises a herb rich, cattle grazed meadows of considerable botanical interest adjoining both sides of the River Mill. A new straight channel has been cut for the river, upstream of Brightwell Bridge and the abandoned meandering watercourse forms a valuable habitat for plants such as *Nasturtium officinale* (Watercress) and *Veronica beccabunga* (Brooklime). Downstream of the bridge, the meadows are spring fed and the high water table throughout the summer provides ideal conditions for a wide range of wetland species including *Dactylorhiza praetermissa* (Southern Marsh Orchid), *Saxifraga granulata* (Meadow Saxifrage), *Lychnis flos-cuculi* (Ragged-robin) and *Carex distans* (Distant Sedge). *Vanellus vanellus* (Lapwing) and *Tringa totanus* (Redshank) are known to have bred on the meadow. Furthermore, amphibians are abundant in the marshy conditions.	1977

APPENDIX 2

Protected Species Records

Table 5 displays protected and noteworthy species records that are located within the 2 km search area, extending to 5 km for bats. These species records were obtained from the Royal Society for the Protection of Birds (RSPB) and Suffolk Biological Record Centre. The Latin and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in *Table 7.1, Appendix C*. This table does not constitute a comprehensive list. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but rather that it has not been recorded in these locations.

Table 5. Protected and noteworthy species records within the 2 km search area, extending to 5 km for bats

Latin Name	Common Name	Designation
Amphibians		
Bufo bufo	Common Toad	WCA5.9.5, UKBAP, LBAP
Lissotriton vulgaris	Smooth Newt	WCA5.9.5
Rana temporaria	Common Frog	WCA5.9.5
Triturus cristatus	Great Crested Newt	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
Birds		
Actitis hypoleucos	Common Sandpiper	Amber
Alauda arvensis	Sky Lark	Red, LBAP
Alca torda	Razorbill	Amber
Alcedo atthis	Common Kingfisher	WCA1.1, Amber
Anas acuta	Northern Pintail	WCA1.2, Amber
Anas clypeata	Northern Shoveler	Amber
Anas crecca	Eurasian Teal	Amber
Anas platyrhynchos	Mallard	Amber
Anas querquedula	Garganey	WCA1.1, Amber
Anas strepera	Gadwall	Amber
Anser anser	Greylag Goose	WCA1.2, Amber
Anser brachyrhynchus	Pink-footed Goose	Amber
Anser fabalis	Bean Goose	Amber
Anthus pratensis	Meadow Pipit	Amber
Anthus spinoletta	Water Pipit	Amber
Anthus trivialis	Tree Pipit	Red, UKBAP, LBAP

Latin Name	Common Name	Designation
Apus apus	Common Swift	Amber
Arenaria interpres	Ruddy Turnstone	Amber
Asio flammeus	Short-eared Owl	Amber
Aythya ferina	Common Pochard	Amber
Aythya fuligula	Tufted Duck	Amber
Aythya marila	Greater Scaup	WCA1.1, Red, UKBAP
Botaurus stellaris	Great Bittern	WCA1.1, Red, UKBAP, LBAP
Branta bernicla	Brent Goose	Amber
Branta leucopsis	Barnacle Goose	Amber
Bucephala clangula	Common Goldeneye	WCA1.2, Amber
Calcarius lapponicus	Lapland Longspur	WCA1.1
Calidris alpina	Dunlin	Red
Calidris canutus	Red Knot	Amber
Calidris maritima	Purple Sandpiper	WCA1.1, Amber
Calidris temminckii	Temminck's Stint	WCA1.1, Red
Caprimulgus europaeus	European Nightjar	Red, UKBAP, LBAP
Carduelis cabaret	Lesser Redpoll	Red,UKBAP, LBAP
Carduelis cannabina	Common Linnet	Red, LBAP
Carduelis flavirostris	Twite	Red, LBAP
Charadrius dubius	Little Plover	WCA1.1
Chlidonias niger	Black Tern	WCA1.1, Amber
Circus aeruginosus	Eurasian Marsh Harrier	WCA1.1, Amber
Circus cyaneus	Hen Harrier	WCA1.1, Red
Circus pygargus	Montagu's Harrier	WCA1.1, Amber
Coccothraustes coccothraustes	Hawfinch	Red, UKBAP, LBAP
Columba oenas	Stock Pigeon	Amber
Coturnix coturnix	Common Quail	WCA1.1, Amber
Crex crex	Corn Crake	WCA1.1, Red, UKBAP
Cuculus canorus	Common Cuckoo	Red, UKBAP, LBAP
Cygnus columbianus	Tundra Swan	WCA1.1, Amber
Cygnus cygnus	Whooper Swan	WCA1.1, Amber
Delichon urbicum	House Martin	Amber
Dendrocopos minor	Lesser Spotted Woodpecker	Red, LBAP
Egretta garzetta	Little Egret	Amber
Emberiza calandra	Corn Bunting	Red
Emberiza citrinella	Yellowhammer	Red, UKBAP
Emberiza schoeniclus	Reed Bunting	Amber,

Latin Name	Common Name	Designation
		UKBAP, LBAP
Falco columbarius	Merlin	WCA1.1, Amber
Falco tinnunculus	Common Kestrel	Amber
Ficedula hypoleuca	Pied Flycatcher	Amber
Fratercula arctica	Atlantic Puffin	Amber
Fulmarus glacialis	Northern Fulmar	Amber
Gallinago gallinago	Common Snipe	Amber
Gavia arctica	Black-throated Diver	WCA1.1, Amber, UKBAP
Gavia immer	Great Northern Diver	WCA1.1, Amber
Gavia stellata	Red-throated Diver	WCA1.1, Amber
Grus grus	Common Crane	Amber
Haematopus ostralegus	Eurasian Oystercatcher	Amber
Himantopus himantopus	Black-winged Stilt	WCA1.1
Hirundo rustica	Barn Swallow	Amber
Hydrobates pelagicus	European Storm-petrel	Amber
Jynx torquilla	Eurasian Wryneck	WCA1.1, Red, UKBAP
Lanius collurio	Red-backed Shrike	WCA1.1, Red, UKBAP
Larus argentatus	Herring Gull	Red, LBAP
Larus canus	Mew Gull	Amber
Larus fuscus	Lesser Black-backed Gull	Amber
Larus glaucoides	Iceland Gull	Amber
Larus hyperboreus	Glaucous Gull	Amber
Larus marinus	Great Black-backed Gull	Amber
Larus melanocephalus	Mediterranean Gull	WCA1.1, Amber
Larus minutus	Little Gull	WCA1.1, Amber
Larus ridibundus	Black-headed Gull	Amber
Limosa lapponica	Bar-tailed Godwit	Amber
Limosa limosa	Black-tailed Godwit	WCA1.1, Red, UKBAP, LBAP
Locustella naevia	Common Grasshopper Warbler	Red, UKBAP, LBAP
Lullula arborea	Wood Lark	WCA1.1, Amber, UKBAP, LBAP
Luscinia megarhynchos	Common Nightingale	Amber
Lymnocryptes minimus	Jack Snipe	Amber
Melanitta fusca	Velvet Scoter	WCA1.1, Amber
Melanitta nigra	Common Scoter	WCA1.1, Red, UKBAP
Mergellus albellus	Smew	Amber
Milvus milvus	Red Kite	WCA1.1, Amber

Latin Name	Common Name	Designation
Morus bassanus	Northern Gannet	Amber
Motacilla cinerea	Grey Wagtail	Amber
Motacilla flava	Yellow Wagtail	Red, LBAP
Muscicapa striata	Spotted Flycatcher	Red, UKBAP, LBAP
Numenius arquata	Eurasian Curlew	Amber, UKBAP
Numenius phaeopus	Whimbrel	WCA1.1, Red
Oenanthe oenanthe	Northern Wheatear	Amber
Oriolus oriolus	Eurasian Golden Oriole	WCA1.1, Red
Pandion haliaetus	Osprey	WCA1.1, Amber
Panurus biarmicus	Bearded Tit	WCA1.1, Amber
Passer domesticus	House Sparrow	Red, UKBAP, LBAP
Passer montanus	Eurasian Tree Sparrow	Red, UKBAP, LBAP
Perdix perdix	Grey Partridge	Red, UKBAP, LBAP
Pernis apivorus	European Honey-buzzard	WCA1.1, Amber
Phalacrocorax aristotelis	European Shag	Amber
Philomachus pugnax	Ruff	WCA1.1, Red
Phoenicurus ochruros	Black Redstart	WCA1.1, Amber
Phoenicurus phoenicurus	Common Redstart	Amber
Phylloscopus sibilatrix	Wood Warbler	Red, UKBAP, LBAP
Phylloscopus trochilus	Willow Warbler	Amber
Picus viridis	Green Woodpecker	Amber
Plectrophenax nivalis	Snow Bunting	WCA1.1, Amber
Pluvialis apricaria	European Golden Plover	Amber
Pluvialis squatarola	Grey Plover	Amber
Podiceps auritus	Slavonian Grebe	WCA1.1, Amber
Podiceps grisegena	Red-necked Grebe	Amber
Podiceps nigricollis	Black-necked Grebe	WCA1.1, Amber
Poecile montanus	Willow Tit	Red, LBAP
Poecile palustris	Marsh Tit	Red
Prunella modularis	Hedge Accentor	Amber, LBAP
Puffinus griseus	Sooty Shearwater	Amber
Puffinus mauretanicus	Balearic Shearwater	RDB (CR), Red, UKBAP
Pyrrhula pyrrhula	Common Bullfinch	Amber, LBAP
Recurvirostra avosetta	Pied Avocet	WCA1.1, Amber
Regulus ignicapilla	Firecrest	WCA1.1, Amber
Riparia riparia	Sand Martin	Amber

Latin Name	Common Name	Designation
Rissa tridactyla	Black-legged Kittiwake	Amber
Saxicola rubetra	Whinchat	Amber
Scolopax rusticola	Eurasian Woodcock	Amber
Somateria mollissima	Common Eider	Amber
Stercorarius parasiticus	Arctic Skua	Red, UKBAP
Stercorarius skua	Great Skua	Amber
Sterna hirundo	Common Tern	Amber
Sterna paradisaea	Arctic Tern	Amber
Sterna sandvicensis	Sandwich Tern	Amber
Sternula albifrons	Little Tern	WCA1.1, Amber
Streptopelia turtur	European Turtle Dove	Red, UKBAP, LBAP
Sturnus vulgaris	Common Starling	Red, LBAP
Sylvia communis	Common Whitethroat	Amber
Sylvia undata	Dartford Warbler	WCA1.1, Amber
Tachybaptus ruficollis	Little Grebe	Amber
Tadorna tadorna	Common Shelduck	Amber
Tringa erythropus	Spotted Redshank	Amber
Tringa glareola	Wood Sandpiper	WCA1.1, Amber
Tringa ochropus	Green Sandpiper	WCA1.1, Amber
Tringa totanus	Common Redshank	Amber
Turdus iliacus	Redwing	WCA1.1, Red
Turdus philomelos	Song Thrush	Red, LBAP
Turdus pilaris	Fieldfare	WCA1.1, Red
Turdus torquatus	Ring Ouzel	Red, UKBAP
Turdus viscivorus	Mistle Thrush	Amber
Tyto alba	Barn Owl	WCA1.1, Amber, LBAP
Uria aalge	Common Guillemot	Amber
Vanellus vanellus	Northern Lapwing	Red, UKBAP, LBAP
Fish		
Anguilla anguilla	European Eel	UKBAP
Flowering plants		
Aceras anthropophorum	Man Orchid	RDB (EN), UKBAP, NS, LBAP
Althaea officinalis	Marsh-mallow	NS
Anthemis arvensis	Corn Chamomile	RDB (EN)
Anthemis cotula	Stinking Chamomile	RDB (VU)
Arabis glabra	Tower Mustard	RDB (EN), UKBAP, NS, LBAP
Brassica oleracea	Wild Cabbage	NS
Carex divisa	Divided Sedge	RDB (VU),

Latin Name	Common Name	Designation
		UKBAP, NS, LBAP
Carum carvi	Caraway	RDB (EN), UKBAP, NS
Centaurea cyanus	Cornflower	UKBAP, LBAP
Chenopodium bonus-henricus	Good-King-Henry	RDB (VU)
Chenopodium murale	Nettle-leaved Goosefoot	RDB (VU)
Clinopodium calamintha	Lesser Calamint	RDB (VU), NS
Crassula tillaea	Mossy Stonecrop	NS
Dianthus armeria	Deptford Pink	WCA8, RDB (EN), UKBAP, NS
Festuca arenaria	Rush-leaved Fescue	NS
Glebionis segetum	Corn Marigold	RDB (VU)
Helleborus foetidus	Stinking Hellebore	NS
Hippophae rhamnoides	Sea-buckthorn	NS
Hordeum marinum	Sea Barley	RDB (VU), UKBAP, NS, LBAP
Hyoscyamus niger	Henbane	RDB (VU)
Hypochaeris glabra	Smooth Cat's-ear	RDB (VU)
Inula crithmoides	Golden-samphire	NS
Lathyrus japonicus	Sea Pea	NS
Lepidium latifolium	Dittander	NS
Linum perenne	Perennial Flax	NS
Medicago minima	Bur Medick	RDB (VU), NS
Medicago polymorpha	Toothed Medick	NS
Medicago sativa subsp. falcata	Sickle Medick	NS
Mentha pulegium	Pennyroyal	WCA8, RDB (EN), UKBAP, NS
Minuartia hybrida	Fine-leaved Sandwort	RDB (EN), UKBAP, NS, LBAP
Misopates orontium	Weasel's-snout	RDB (VU)
Muscari neglectum	Grape-hyacinth	RDB (VU), UKBAP, NR, LBAP
Nymphoides peltata	Fringed Water-lily	NS
Ophrys insectifera	Fly Orchid	RDB (VU), UKBAP, LBAP
Papaver argemone	Prickly Poppy	RDB (VU)
Parapholis incurva	Curved Hard-grass	NS
Poa bulbosa	Bulbous Meadow-grass	NS
Potentilla fruticosa	Shrubby Cinquefoil	NR
Puccinellia rupestris	Stiff Saltmarsh-grass	NS
Salvia pratensis	Meadow Clary	WCA8, NS
Sarcocornia perennis	Perennial Glasswort	NS
Scandix pecten-veneris	Shepherd's-needle	RDB (CR), UKBAP
Scleranthus annuus	Annual Knawel	RDB (EN), UKBAP, LBAP

Latin Name	Common Name	Designation
Silene noctiflora	Night-flowering Catchfly	RDB (VU)
Spartina maritima	Small Cord-grass	RDB (EN), UKBAP, NS
Spergula arvensis	Corn Spurrey	RDB (VU)
Stellaria palustris	Marsh Stitchwort	RDB (VU), UKBAP, LBAP
Suaeda vera	Shrubby Sea-blite	NS
Trifolium glomeratum	Clustered Clover	NS
Trifolium ochroleucon	Sulphur Clover	NS
Trifolium suffocatum	Suffocated Clover	NS
Vicia lutea	Yellow-vetch	NS
Vicia parviflora	Slender Tare	RDB (VU), NS
Vulpia ciliata subsp. ambigua	Bearded Fescue	NS
Vulpia unilateralis	Mat-grass Fescue	NS
Fungi		
Carbonea vitellinaria	a fungus	NR
Cyrtidula hippocastani	a fungus	NS
Leptorhaphis maggiana	a fungus	NS
Insects		
Acronicta psi	Grey Dagger	UKBAP, LBAP
Acronicta rumicis	Knot Grass	UKBAP, LBAP
Agrochola helvola	Flounced Chestnut	UKBAP, LBAP
Agrochola litura	Brown-spot Pinion	UKBAP, LBAP
Agrochola lychnidis	Beaded Chestnut	UKBAP
Allophyes oxyacanthae	Green-brindled Crescent	UKBAP, LBAP
Amphipoea oculea	Ear Moth	UKBAP, LBAP
Amphipyra tragopoginis	Mouse Moth	UKBAP, LBAP
Anania verbascalis	Golden Pearl	Notable:B
Ancylosis oblitella	Saltmarsh Knot-horn	Notable
Andrena (Hoplandrena) trimmerana	a hymenopteran insect	Notable:B
Andrena (Poecilandrena) labiata	a hymenopteran insect	Notable:A
Anobium inexspectatum	a beetle	Notable:B
Apamea anceps	Large Nutmeg	UKBAP, LBAP
Apamea remissa	Dusky Brocade	UKBAP, LBAP
Aporophyla lutulenta	Deep-brown Dart	UKBAP, LBAP
Archanara neurica	White-mantled Wainscot	UKBAP, LBAP
Arctia caja	Garden Tiger	UKBAP, LBAP
Asteroscopus sphinx	Sprawler	UKBAP, LBAP
Atethmia centrago	Centre-barred Sallow	UKBAP, LBAP
Bombus (Megabombus) ruderatus	a hymenopteran insect	UKBAP, Notable:B
Bombus (Psithyrus) rupestris	a hymenopteran insect	Notable:B
Bombus (Thoracombus) muscorum	a hymenopteran insect	UKBAP
Brachylomia viminalis	Minor Shoulder-knot	UKBAP, LBAP
Calamotropha paludella	Bulrush Veneer	Notable:B
Calathus (Calathus) ambiguus	a beetle	Notable:B
Caradrina morpheus	Mottled Rustic	UKBAP, LBAP

Latin Name	Common Name	Designation
Catapion pubescens	a beetle	Notable:B
Celaena leucostigma	Crescent	UKBAP, LBAP
Cerceris quinquefasciata	a hymenopteran insect	UKBAP, LBAP
Ceutorhynchus resedae	a beetle	Notable:B
Chesias legatella	Streak	UKBAP, LBAP
Chiasmia clathrata	Latticed Heath	UKBAP, LBAP
Chortodes extrema	Concolorous	UKBAP, LBAP
Coenonympha pamphilus	Small Heath	UKBAP, LBAP
Cossus cossus	Goat Moth	UKBAP, LBAP
Crambus hamella	Dark Grass-veneer	Notable:B
Curculio betulae	a beetle	Notable:B
Dasypoda hirtipes	a hymenopteran insect	Notable:B
Deltote bankiana	Silver Barred	RDB (VU)
Diarsia rubi	Small Square-spot	UKBAP, LBAP
Diloba caeruleocephala	Figure of Eight	UKBAP, LBAP
Ecliptopera silaceata	Small Phoenix	UKBAP, LBAP
Elaphropus parvulus	a beetle	Notable:B
Ennomos fuscantaria	Dusky Thorn	UKBAP, LBAP
Ennomos quercinaria	August Thorn	UKBAP, LBAP
Ethmia bipunctella	Bordered Ermel	RDB (VU)
Ethmia quadrillella	Comfrey Ermel	Notable:A
Ethmia terminella	Five-spot Ermel	RDB (VU)
Eugnorisma glareosa	Autumnal Rustic	UKBAP, LBAP
Eugnorisma glareosa subsp. glareosa	a insect - moth	UKBAP
Eulamprotes wilkella	Painted Neb	Notable:B
Eulithis mellinata	Spinach	UKBAP, LBAP
Euroleon nostras	Ant Lion	LBAP
Euxoa nigricans	Garden Dart	UKBAP, LBAP
Euxoa tritici	White-line Dart	LBAP
Evergestis extimalis	Marbled Yellow Pearl	Notable:B
Gymnancyla canella	Hoary Knot-horn	Notable:A
Hadroplontus trimaculatus	a beetle	Notable:B
Harpalus (Harpalus) pumilus	a beetle	Notable:A
Harpalus (Harpalus) serripes	a beetle	Notable:B
Hemistola chrysoprasaria	Small Emerald	UKBAP, LBAP
Hepialus humuli	Ghost Moth	UKBAP, LBAP
Hipparchia semele	Grayling	UKBAP, LBAP
Hoplodrina blanda	Rustic	UKBAP, LBAP
Hydraecia micacea	Rosy Rustic	UKBAP, LBAP
Hylaeus (Prosopis) signatus	a hymenopteran insect	Notable:B
Lasioglossum (Evylaeus) malachurum	a hymenopteran insect	Notable:B
Lasioglossum (Evylaeus) pauxillum	a hymenopteran insect	Notable:A
Lasioglossum (Evylaeus) puncticolle	a hymenopteran insect	Notable:B
Lasiommata megera	Wall	UKBAP, LBAP
Limenitis camilla	White Admiral	UKBAP, LBAP
Longitarsus anchusae	a beetle	Notable:B
Longitarsus quadriguttatus	a beetle	Notable:A
Lucanus cervus	Stag Beetle	WCA5.9.5, UKBAP,

Latin Name	Common Name	Designation
		Notable:B, LBAP
Lycia hirtaria	Brindled Beauty	UKBAP, LBAP
Macaria wauaria	V-moth	UKBAP, LBAP
Malacosoma neustria	Lackey	UKBAP, LBAP
Melanchra persicariae	Dot Moth	UKBAP, LBAP
Melanchra pisi	Broom Moth	UKBAP, LBAP
Melanthia procellata	Pretty Chalk Carpet	UKBAP, LBAP
Mesoligia literosa	Rosy Minor	UKBAP, LBAP
Monochroa palustrella	Wainscot Neb	Notable:B
Mythimna comma	Shoulder-striped Wainscot	UKBAP, LBAP
Nascia cilialis	Orange-rayed Pearl	Notable:A
Nemophora fasciella	Horehound Long-horn	UKBAP, LBAP
Neoascia obliqua	a fly	Notable
Nephopterix angustella	Spindle Knot-horn	Notable:B
Nicrophorus vestigator	a beetle	Notable:A
Noctua orbona	Lunar Yellow Underwing	UKBAP, LBAP
Nomada fucata	a hymenopteran insect	Notable:A
Nymphalis polychloros	Large Tortoiseshell	WCA5.9.5, RDB (EN)
Oncocera semirubella	Rosy-striped Knot-horn	Notable:B
Ophonus (Metophonus) schaubergerianus	a beetle	Notable:B
Ophonus (Ophonus) azureus	a beetle	Notable:B
Orthochaetes setiger	a beetle	Notable:B
Orthosia gracilis	Powdered Quaker	UKBAP, LBAP
Oxypoda exoleta	a beetle	Notable
Papilio machaon	Swallowtail	WCA5.9.1, RDB (VU)
Paroxyna absinthii	a fly	Notable
Pediasia aridella	Salt-marsh Grass-veneer	Notable:B
Pediasia contaminella	Waste Grass-veneer	Notable:B
Pediasia fascelinella	Banded Grass-veneer	RDB (VU)
Pelurga comitata	Dark Spinach	UKBAP, LBAP
Pempelia genistella	Gorse Knot-horn	Notable:A
Philanthus triangulum	a hymenopteran insect	RDB (VU)
Phyllocnistis xenia	Kent Bent-wing	RDB (VU)
Phytoecia cylindrica	a beetle	Notable:B
Platyedra subcinerea	Mallow Groundling	Notable
Plebejus argus	Silver-studded Blue	WCA5.9.5, UKBAP, LBAP
Podagrica fuscicornis	Mallow Flea Beetle	Notable:B
Prionus coriarius	Tanner Beetle	Notable:A
Protapion filirostre	a beetle	Notable:B
Rhizedra lutosa	Large Wainscot	LBAP
Satyrium w-album	White-letter Hairstreak	WCA5.9.5, UKBAP, LBAP
Scaphisoma boleti	a beetle	Notable:B
Schoenobius gigantella	Giant Water-veneer	Notable:B
Scopula marginepunctata	Mullein Wave	UKBAP, LBAP

Latin Name	Common Name	Designation
Scotopteryx chenopodiata	Shaded Broad-bar	UKBAP, LBAP
Scrobipalpa ocellatella	Beet Moth	Notable
Sitochroa palealis	Sulphur Pearl	Notable
Smicromyrme rufipes	a hymenopteran insect	Notable:B
Sphecodes crassus	a hymenopteran insect	Notable:B
Sphecodes miniatus	a hymenopteran insect	Notable:B
Sphecodes reticulatus	a hymenopteran insect	Notable:A
Spilosoma lubricipeda	White Ermine	UKBAP, LBAP
Spilosoma luteum	Buff Ermine	UKBAP, LBAP
Stratiomys longicornis	a fly	RDB (VU)
Stratiomys singularior	a fly	Notable
Synaphe punctalis	Long-legged Tabby	Notable:B
Tholera cespitis	Hedge Rustic	UKBAP, LBAP
Tholera decimalis	Feathered Gothic	UKBAP, LBAP
Timandra comae	Blood-Vein	UKBAP, LBAP
Trichiura crataegi	Pale Eggar	UKBAP, LBAP
Tyria jacobaeae	Cinnabar	UKBAP, LBAP
Volucella inanis	a fly	Notable
Volucella zonaria	a fly	Notable
Watsonalla binaria	Oak Hook-tip	UKBAP, LBAP
Xanthia gilvago	Dusky-lemon Sallow	UKBAP, LBAP
Xanthia icteritia	Sallow	UKBAP, LBAP
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	UKBAP, LBAP
Xestia agathina	Heath Rustic	UKBAP, LBAP
Zacladus exiguus	Bloody Cranesbill Weevil	Notable:B
Lichen		
Acarospora glaucocarpa	a lichen	NS
Acarospora nitrophila	a lichen	NR
Bacidia caligans	a lichen	NS
Bacidia neosquamulosa	a lichen	NR
Bacidia saxenii	a lichen	NS
Buellia stellulata	a lichen	NS
Caloplaca crenulatella	a lichen	NS
Candelariella aurella forma smaragdula	a lichen	NS
Candelariella medians forma steepholmensis	a lichen	NR
Catillaria atomarioides	a lichen	NS
Chaenotheca brachypoda	a lichen	NS
Cyphelium notarisii	a lichen	NS
Dirina massiliensis forma massiliensis	a lichen	NS
Dirina massiliensis forma sorediata	a lichen	NS
Lecania cyrtella	a lichen	NR
Lecania hutchinsiae	a lichen	NS
Lecanora campestris subsp. dolomitica	a lichen	NS
Lecanora stenotropa	a lichen	NS
Placynthiella dasaea	a lichen	NS

Latin Name	Common Name	Designation
Punctelia ulophylla	a lichen	NS
Pyrenocollema orustense	a lichen	NS
Ramonia interjecta	a lichen	NS
Strangospora pinicola	a lichen	NS
Strigula jamesii	a lichen	NS
Thelomma ocellatum	a lichen	NS
Xanthoria ucrainica	a lichen	NS
Xanthoria ulophyllodes	a lichen	NR
Liverworts		
Sphaerocarpos michelii	Micheli's Balloonwort	NS
Sphaerocarpos texanus	Texas Balloonwort	RDB (VU), UKBAP, NS, LBAP
Mammals		
Arvicola amphibius	European Water Vole	WCA5.9.4a, UKBAP
Barbastella barbastellus	Western Barbastelle	EPS (Sch2), WCA5.9.1, RDB (VU), UKBAP
Chiroptera	Unidentiied Bats	EPS (Sch2)
Eptesicus serotinus	Serotine	EPS (Sch2), WCA5.9.1
Erinaceus europaeus	West European Hedgehog	UKBAP, LBAP
Lepus europaeus	Brown Hare	UKBAP, LBAP
Lutra lutra	European Otter	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
Meles meles	Eurasian Badger	BA
Micromys minutus	Harvest Mouse	UKBAP, LBAP
Myotis sp.	Myotis bat	EPS (Sch2), WCA5.9.1
Myotis brandtii	Brandt's Bat	EPS (Sch2), WCA5.9.1
Myotis daubentonii	Daubenton's Bat	EPS (Sch2), WCA5.9.1
Myotis mystacinus	Whiskered Bat	EPS (Sch2), WCA5.9.1
Myotis nattereri	Natterer's Bat	EPS (Sch2), WCA5.9.1
Nyctalus leisleri	Lesser Noctule	EPS (Sch2), WCA5.9.1
Nyctalus noctula	Noctule Bat	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
Nyctalus sp.	Nyctalus bat	EPS (Sch2)
Phoca vitulina	Common Seal	UKBAP
Phocoena phocoena	Common Porpoise	EPS (Sch2), WCA5.9.1, RDB (VU), UKBAP, LBAP

Latin Name	Common Name	Designation
Pipistrellus sp.	Pipistrelle bat	EPS (Sch2), WCA5.9.1
Pipistrellus nathusii	Nathusius's Pipistrelle	EPS (Sch2), WCA5.9.1
Pipistrellus pipistrellus	Common Pipistrelle	EPS (Sch2), WCA5.9.1
Pipistrellus pygmaeus	Soprano Pipistrelle	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
Plecotus auritus	Brown Long-eared Bat	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
Plecotus sp.	Long-eared bat	Plecotus sp.
Molluscs		
Vertigo (Vertilla) angustior	a mollusc	UKBAP
Helix (Helix) pomatia	Roman Snail	WCA5.9.1
Moss		
Bryum pallescens	Tall-clustered Thread-moss	NS
Didymodon umbrosus	Shady Beard-moss	NS
Leptobarbula berica	Beric Beard-moss	NS
Microbryum davallianum	Smallest Pottia	NS
Pterygoneurum ovatum	Oval-leaved Pottia	NS
Schistidium confertum	Compact Grimmia	NS
Tortula vahliana	Chalk Screw-moss	RDB (VU), UKBAP, NR, LBAP
Reptiles		
Anguis fragilis	Slow-worm	WCA5.9.1, UKBAP, LBAP
Natrix natrix	Grass Snake	WCA5.9.1, UKBAP, LBAP
Vipera berus	Adder	WCA5.9.1, UKBAP, LBAP
Zootoca vivipara	Common Lizard	WCA5.9.1, UKBAP, LBAP

APPENDIX 3

Abbreviations of Protected Species Legislation

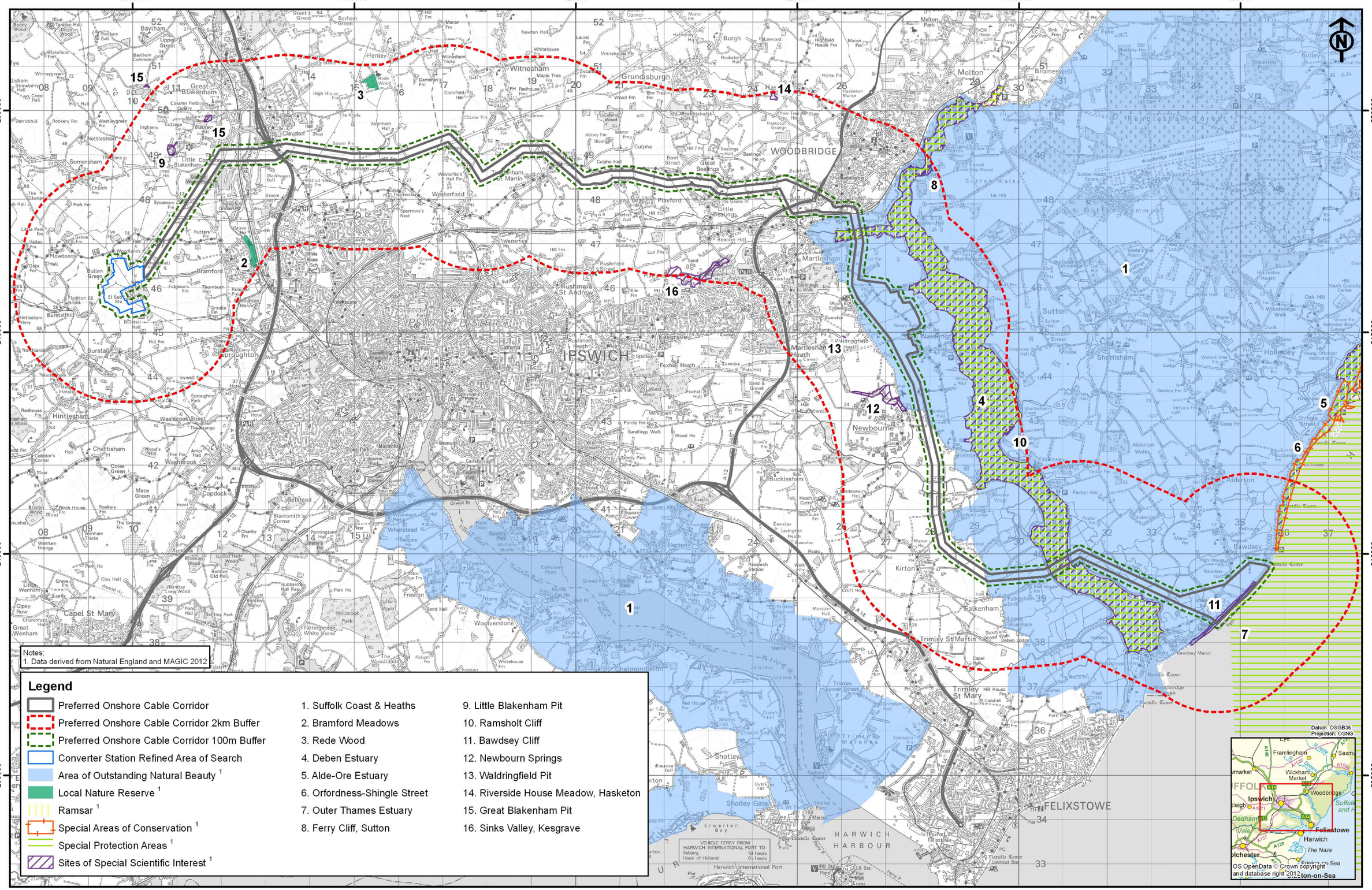
Table 6. Glossary of Abbreviations Used in this Report

Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in the UK of medium conservation concern.
BA	The Protection of Badgers Act 1992	Legislation making it an offence to kill, injure or take a Badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority.
BAP	Biodiversity Action Plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
EPS (Sch2)	European Protected Species (Schedule 2)	Animals protected on *Schedule 2* of *The Conservation of Habitats and Species Regulations 2010*
HAP	Habitat Action Plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural Resources (also known as The World Conservation Union)	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
LBAP	Local Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
LHAP	Local Habitat Action Plan	A plan that identifies threats to a locally important priority habitat and sets out targets and actions to enhance or maintain that habitat.
LSAP	Local Species Action Plan	A plan that identifies threats to locally important species, and sets out targets and actions to prevent losing that species from the local area.
Marine NR	Provisional list of rare and scarce marine species (Sanderson, 1996)	Species which occur in eight or fewer 10km 10 km × 10 km grid squares containing sea (or water of marine saline influence) within

		the three mile territorial limit.
Notable	Scarce and threatened invertebrates	Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
Notable:A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
NR	Nationally Rare	Species in 15 or fewer hectads in Great Britain.
NS	National Scarce	Species in 16-100 hectads in Great Britain.
RDB	Red Data Book Species	Species identified in one of the UK Red Data books.
RDB(EN)	Endangered	An IUCN Red List designation for species at a very high risk of extinction.
RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
Red	Red List	Red listed species have a population status in the UK with high conservation concern.
SAP	Species Action Plan	A plan that identifies threats to significantly important species, and sets out targets and actions to prevent losing that species to extinction.
UKBAP	UK Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity in the UK.
UKSAP	UK Species Action Plan	A plan that identifies threats to nationally important species, and sets out targets and actions to prevent the decline or extinction of the species in the UK.
WCA	*The Wildlife and Countryside Act 1981* (as amended)	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way. All wild plants in Britain are protected from intentional uprooting by an unauthorized person, but land owners, land occupiers, persons authorized by either of these or

		persons authorized in writing by the Local Authority for the area are exempt. Protection for some species may be limited to certain Sections of the Act (*e.g.* S13(2).
WCA1.1	Schedule 1 of *The Wildlife and Countryside Act 1981* (as amended)	This Schedule lists birds protected by special penalties at all times, but virtually all wild birds have some protection in law. Acts which are prohibited for all wild birds (except derogated 'pest' species) include intentional killing, injuring or taking; taking, damaging or destroying nests in use or being built; taking or destroying eggs; possessing or having control of (with certain exceptions but including live for dead birds, parts or derivative); setting or permitting certain traps, weapons, decoys or poisons. Selling, offering or exposing for sale, possessing or transporting for sale any live wild bird, egg or part of an egg or advertising any of these for sale, or dead wild bird including parts or derivatives are also prohibited. Many birds must be formally registered and ringed if kept in captivity. Schedule I WCA birds are additionally protected from intentional or reckless disturbance while building a nest, or when such a bird is in, on or near a nest containing eggs or young, or intentional or reckless disturbance of dependent young.
WCA1.2	Schedule 1 of *The Wildlife and Countryside Act 1981* (as amended)	Birds protected by special penalties (as above) during close season.
WCA5	Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended)	Schedule 5 animals are protected from intentional killing, injuring or taking; possessing (including parts or derivatives); intentional or reckless damage, destruction or obstruction of any structure or place used for shelter or protection; selling, offering or exposing for sale, possessing or transporting for the purpose of sale (alive or dead, including parts or derivatives). Protection of some species is limited to certain Sections of the Act (*e.g.* S9(1), S9(4a), S9(4b), S9(5)).
WCA5.9.1	Section 9 (1) under Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended)	Protection limited to intentional killing, injury or taking.
WCA5.9.4a	Section 9 (4a) under Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended)	Protection limited to damaging, destroying, or obstructing access to, any structure or place used by the animal for shelter or protection.
WCA5.9.5	Section 9 (5) under Schedule 5 of	Protection limited to selling, offering for sale,

	The Wildlife and Countryside Act 1981 (as amended)	possessing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from, such animal. Note that all cetaceans (whales and dolphins) and the Basking Shark (*Cetorhinus maximus*) are now protected form intentional or reckless disturbance.
WCA8	Schedule 8 of *The Wildlife and Countryside Act 1981* (as amended)	Plants and fungi protected from intentional picking, uprooting, destroying, trading (including parts or derivatives), *etc*.



Rev	Date	By	Comment
02	07/09/12	AJ	Updated layout and figure number
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Original A3
Plot Scale
1:80,000

0 2 4 km

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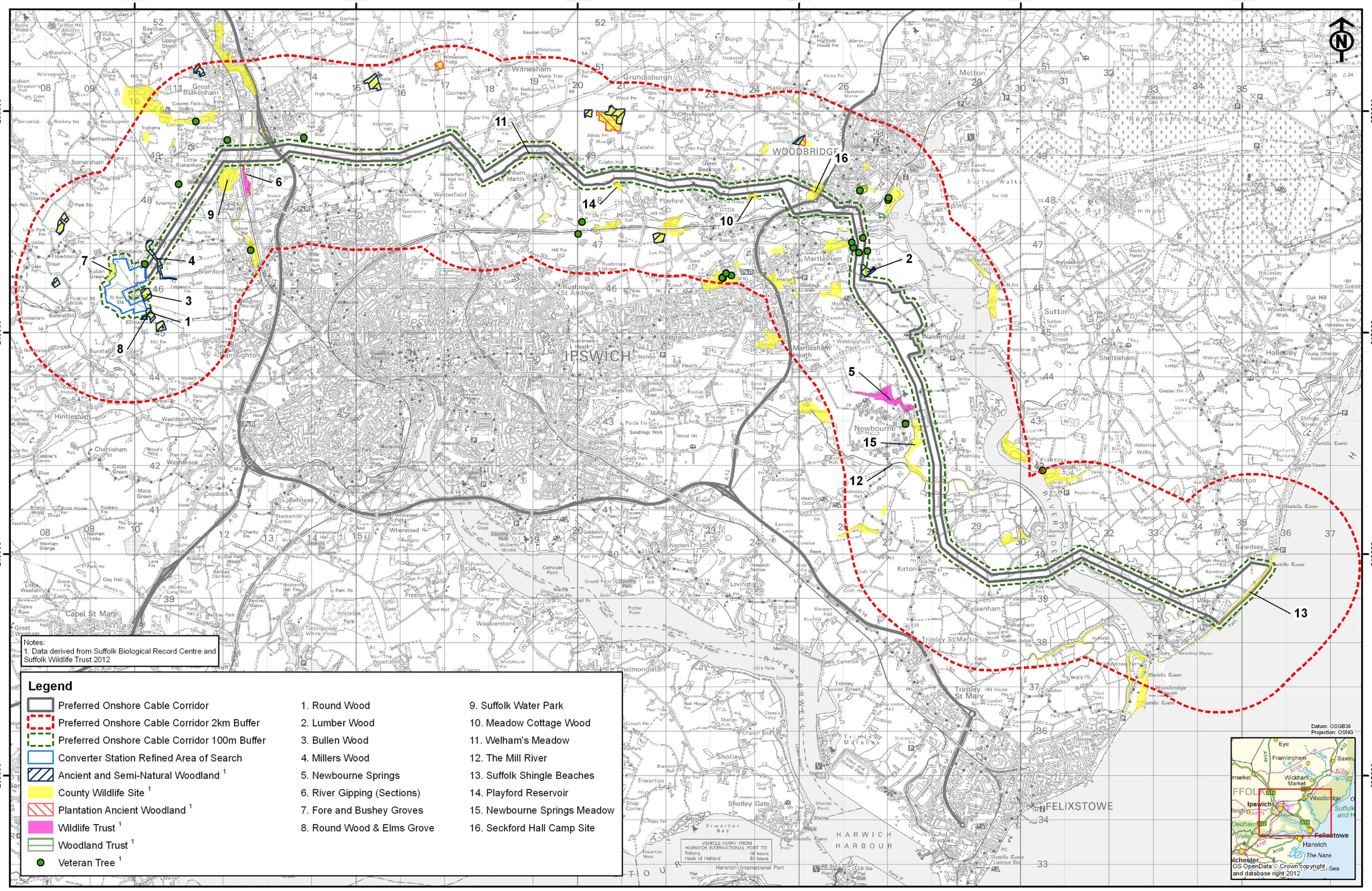
Statutory Designations

Drg No	41388-A24.1-24.1.1
Rev	02
Date	07/09/12
Layout	N/A

Appendix 24.1

Figure 24.1.1

Ref: \\he-nas4\projects2\04-EA-Landscape\P41388 - East Anglia ONE Offshore Wind\05 GIS\ES Stat Designations.mxd



Notes:
1. Data derived from Suffolk Biological Record Centre and Suffolk Wildlife Trust 2012

Legend

- Preferred Onshore Cable Corridor
- Preferred Onshore Cable Corridor 2km Buffer
- Preferred Onshore Cable Corridor 100m Buffer
- Converter Station Refined Area of Search
- Ancient and Semi-Natural Woodland [1]
- County Wildlife Site [1]
- Plantation Ancient Woodland [1]
- Wildlife Trust [1]
- Woodland Trust [1]
- Veteran Tree [1]

1. Round Wood
2. Lumber Wood
3. Bullen Wood
4. Millers Wood
5. Newbourne Springs
6. River Gipping (Sections)
7. Fore and Bushey Groves
8. Round Wood & Elms Grove
9. Suffolk Water Park
10. Meadow Cottage Wood
11. Welham's Meadow
12. The Mill River
13. Suffolk Shingle Beaches
14. Playford Reservoir
15. Newbourne Springs Meadow
16. Seckford Hall Camp Site

SCOTTISHPOWER RENEWABLES

VATTENFALL

Rev	Date	By	Comment
02	07/09/12	AJ	Updated layout and figure number
01	31/05/12	AJ	Updated non-stat sites
00	27/09/11	AJ	First issue

Original A3
Plot Scale
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0 2 4 km

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Non-statutory Designations

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Appendix 24.1

Figure 24.1.2

Ref: \\he-nas4\projects2\04-EA-Landscape\P41388 - East Anglia ONE Offshore Wind\05 GIS\ES Non-stat Designations.mxd

Phase 1 Habitat Survey Report

Appendix 24.2

Phase 1 Habitat Survey Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.2 - Phase 1 Habitat Survey Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE Offshore Windfarm: Botanical Phase 1 Habitat Survey

Client: East Anglia Offshore Wind Limited

Date: 28th August 2012

Office: Helsby

Status: Draft

Author	Charles Campbell	**Technical reviewer**	Sarah Harmer
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Date:	28th August 2012	Date:	

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Purpose of this report

This report details the results of initial botanical ecological surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. The Onshore Cable Route runs from a landfall north of the River Deben at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km.

This document forms Appendix 24.2 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown on *Figure 24.2.1.*

The surveys comprised an extended Phase 1 Habitat Survey and an assessment of habitat suitability for protected vertebrates carried out during September and October 2011 and April 2012. Information provided by these surveys includes an up-to-date habitat map, description of habitats and a brief evaluation of their nature conservation value, as well as their suitability for protected vertebrates and invertebrates. Where further surveys would provide more accurate information regarding habitats and species, this is highlighted in the conclusions.

1.2 Ecological Context

The Onshore Cable Route begins at Bawdsey runs north-west, crossing Bawdsey marshes and the river Deben. The route then turns north crossing Martlesham Creek skirting south-wester edge of Woodbridge through several fields of calcifugous grassland. It crosses the A12 and travels west towardsTuddenham St Martin across many arable fields. Continuing west it crosses the river Gipping at Claydon before passing through more arable fields to the south-west and to the substation to the west of Bramford.

Much of the land crossed is arable farmland, but the Onshore Cable Route does cross many field drains and ditches, several rivers and streams, areas of grassland (calcifugous and mesotrophic), some areas of coastal habitats including marsh and salt marsh, and will pass through some lines of trees and hedgerows. In some areas, the Onshore Cbale Route also crosses previously-developed land.

1.3 Structure of this Report

The remainder of this document is set out as follows:

- *Section 2* describes survey methods;
- *Section 3* presents a description of the vegetation types encountered;

- *Section 4* evaluates results;
- *Section 5* provides references; and
- *Section 6* lists the Phase 1 target notes.

Vascular plant nomenclature in this report follows Stace (2010). Scientific names are given first, followed by the English name in brackets. Mosses and liverworts follow Hill et al. (2008)

2 METHODS

2.1 Phase 1 Habitat Survey

The Phase 1 Habitat Survey is the most widely-used UK methodology for cataloguing and mapping wildlife habitat resources over extensive areas. The extended Phase 1 protocol is used for formal Environmental Impact Assessment and other ecological surveys relating to the planning process. All habitats within the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search were surveyed and mapped (Figures 24.2.2a – 24.2.2q) using standard colour codes. The survey corridor (typically 160 m) was extended in certain areas where there were potential constraints on the routing (eg road crossings). Target Notes describe habitats and ecological features of interest. Methodology for this survey follows guidance given in the Handbook for Phase 1 Habitat Survey: A technique for environmental audit (JNCC, 2010).

3 RESULTS

3.1 Habitat Types

3.1.1 Overview

The following habitat types are present in survey area:

- woodland, scrub, hedgerows and mature trees;
- semi-improved neutral grassland;
- species-poor improved and amenity grassland;
- unimproved and species-poor calcifugous grassland;
- ephemeral and shortlived perennial vegetation;
- saltmarsh;
- coastal strandline vegetation;
- coastal grassland;
- maritime cliff and slopes;
- ponds, streams, ditches and swamps;
- arable farmland; and
- ruderal vegetation.

3.1.2 Woodland, Scrub and Hedgerows

3.1.2.1 Habitat Description

Semi-natural woodland occurs at *Target Notes 1h, 1s, 3, 137, 160, 172, 177 204, 209, 216, 252, 255, 263, 268, 270, 273, 276, 279, 263, 285, 291, 323* and *339.* A strip of ancient semi-natural *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) woodland described in *Target Note 3* is crossed by the Onshore Cable Route but otherwise woodland has been avoided. It contains areas dominated by the ancient woodland indicator (Kirby 2006) *Mercurialis perennis* (Dog's Mercury). A small wood of *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) at *Target Note 137* has a field-layer mostly dominated by *Urtica dioica* (Common Nettle) however its southern most tip contains many woodland species including large patches of *Hyacinthoides non-scripta* (Bluebell) and scattered individuals of *Polypodium vulgare* (Polypody). Most other woods have species poor field-layers dominated by *Urtica dioica* (Common Nettle) and other ruderal herbs.

There are many areas of mixed and broadleaved plantation, described in *Target Notes 7, 15, 25, 26, 29, 35, 166, 173, 184, 181, 221* and *296*. Most were 20 to 30 year old mixed plantations with 10 to 15 m high canopies and species-poor field-layers.

The woodland described in *Target Note 296* is contains many planted trees including *Castanea sativa* (Sweet Chestnut) and *Prunus avium* (Wild Cherry), however there is an abundance of ancient woodland indicator species (Kirby 2006) under the canopy including *Hyacinthoides non-scripta* (Bluebell), *Moehringia trinervia* (Three-nerved Sandwort) and *Stellaria holostea* (Greater Stitchwort). Large 25 m *Quercus robur* (Pedunculate Oak) trees do not appear to have been part of the plantation occurring at random throughout the woodland. The combination of large oaks and woodland species imply that likely that this has been a semi-natural woodland that has been mostly cleared and replanted as a broadleaf plantation.

There is scrub in scattered patches, largely comprising *Crataegus monogyna* (Hawthorn) and *Rubus fruticosus* agg. (Bramble). Extensive areas of scrub vegetation are described in *Target Note 158 and 239.*

Many hedges are crossed by the Onshore Cable Route. Typically, hedges follow field and property boundaries, track ways and ditches. Most of these hedges are dominated by native species such as *Crataegus monogyna* (Hawthorn) and *Ulmus species* (Elm) with smaller amounts of other woody species such as *Rosa* species (Rose species) and *Sambucus nigra* (Elder). Lines of trees also occur along field boundaries and track ways (often as part of very old and mature hedgerows). These typically comprise recently planted trees or very mature *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) trees that may once have been part of a hedgerow.

3.1.3 Neutral Grassland

3.1.3.1 Habitat Description

Rough grassland occurs in many places along the Onshore Cable Route such as verges and at the base of hedgerows. The vast majority is unmanaged and dominated by coarse grasses with semi-ruderals and referable to the **MG1b *Arrhenatherum elatius* grassland, *Urtica dioica* sub-community** NVC type.

Target Note 23 refers to species rich mesotrophic grassland that contains many *Ophrys apifera* (Bee Orchid) and *Orobanche minor* (Common Broomrape). The sward is approximately 20 cm and contains many herb species with relatively few grasses. Grass species include *Agrostis stolonifera* (Creeping Bent), *Anisantha sterilis* (Barren Brome), *Bromus hordeaceus* (Soft-brome), *Dactylis glomerata* (Cock's-foot), *Festuca rubra* (Red Fescue), *Holcus lanatus* (Yorkshire-fog), *Phalaris arundinacea* (Reed Canary-grass), *Phleum bertolonii* (Smaller Cat's-tail), *Phleum pratense* (Timothy) and

Poa trivialis (Rough Meadow-grass). The greatest proportion which is *Festuca rubra* (Red Fescue). The grassland is referable to the NVC type **MG6 *Lolium perenne-Cynosurus cristatus* grassland**.

3.1.4 Agricultural and Amenity Grassland

3.1.4.1 Habitat Description

All of the agricultural grassland is agriculturally-improved and very species-poor. It is typically dominated by *Lolium perenne* (Perennial Rye-grass) with other species, such as *Festuca rubra* (Red Fescue), *Phleum pratense* (Timothy) and *Plantago lanceolata* (Ribwort Plantain), only occurring occasionally in the sward.

Much of the amenity grassland in the survey area is associated with golf course. Elsewhere, it is restricted to gardens and shared green space. This type of grassland is characterised by a dominance of *Festuca rubra* (Red Fescue) and/or horticultural cultivars of fine-leaved grasses such as *Agrostis* species (Bent grasses). Herbs in the sward typically include common lawn weeds such as *Bellis perennis* (Daisy), *Trifolium repens* (White Clover) and *Taraxacum* agg. (Dandelion).

3.1.5 Unimproved and Species Poor Calcifugous Grassland

3.1.5.1 Habitat Description

Calcifugous grassland occurs at many sites along the Onshore Cable Route. Those described in *Target Notes 372, 373* and *374* are generally species-poor and dominated by *Agrostis capillaris* (Common Bent). The calcifugous herbs present in these habitats are generally common and widespread and include *Erodium cicutarium* (Common Stork's-bill), *Filago vulgaris* (Common Cudweed) and *Rumex acetosella* (Sheep's Sorrel).

A series of species-rich unimproved calcifugous grassland are described in *Target Notes 187a, 187b 194, 374 and 379.* The most species-rich of which is *Target Note 194* and is a mosaic of grass and bryophyte dominated areas. *Agrostis capillaris* (Common Bent) and *Festuca ovina* (Sheep’s-fescue) are the most frequent grasses of the site with many bryophyte species occupying large areas including the typical calcifugous species *Dicranum scoparium* and *Polytrichum juniperinum*. Calcifugous herb species occur throughout the site including *Ornithopus perpusillus* (Bird's-foot) *Rumex acetosella* (Sheep's Sorrel) and *Teucrium scorodonia* (Wood Sage) as well as the uncommon *Potentilla argentea* (Hoary Cinquefoil).

Target Notes 187a, 187b, 374 and *379* have developed on acid sandy soils in abandoned or unused fields the fertility of which has leached out allowing calcifuges to

become established such as *Ornithopus perpusillus* (Bird's-foot) and *Rumex acetosa* (Common Sorrel). *Target Note 187b* supports a small population of *Potentilla argentea* (Hoary Cinquefoil).

3.1.6 Saltmarsh

3.1.6.1 Habitat Description

The western and eastern banks (*Target Notes 246* and *315*) of the River Deben includes a 30 m wide strip of saltmarsh vegetation at the base of a bank. The vegetation is broadly referable to the NVC type **SM13f *Puccinellia maritima* salt-marsh community, *Puccinellia maritima-Spartina maritima* sub-community** and is likely to occur on the eastern shore as well. The nationally scarce species *Aster tripolium (*Sea Aster*)* was occasionally present throughout the area.

3.1.7 Coastal Strandline Vegetation

3.1.7.1 Habitat Description

Coastal strandline vegetation occurs at the highest extent of the tides on shingle beaches and areas of which are described in *Target Note 250*. Typically the structure of this habitat is very scattered plants such as *Crambe maritima* (Sea-kale) occurring regularly. The habitat present on the pebble beach at *Target Note 250* is a species poor example of the **SD1 *Rumex crispus-Glaucium flavum* shingle community**.

3.1.8 Maritime Cliff and Slopes.

Target Notes 251a-d, 252 and *253* describe vegetation on a soft cliff face. The cliff is composed of sand and is covered in vegetation comprising semi-natural *Acer pseudoplatanus* (Sycamore) woodland, scrub, ruderals and a mosaic of grasses and rosette herbs. The cliff suffers from regular erosion and contains many patches of *Carpobrotus edulis* (Hottentot-fig), an invasive plant (listed on *Schedule 9* of the *Wildlife and Countryside Act 1981*).

3.1.9 Ponds, Rivers, Streams, Ditches, Drains, Swamps and Mudflats

3.1.9.1 Habitat Description

The ponds described in *Target Notes 45, 263* and *291* are all shaded by trees and bushes. Consequently their aquatic vegetation is either non-existent or consists solely of *Lemna minor* (Common Duckweed). Where marginal vegetation is present, it consists of common and ruderal species such as *Epilobium hirsutum* (Great Willowherb) and *Urtica dioica* (Common Nettle). A temporary pond contains a stand of *Phalaris arundinacea* (Reed Canary-grass) at *Target Note 21.*

The Onshore Cable Route crosses numerous field drains and ditches. Field drains typically have steeply-sloping earth banks that are vegetated by coarse grasses and common weeds, often in association with some scattered scrub. Where emergent

vegetation is present, it is typically dominated by dense *Phragmites australis* (Common Reed) growth. Where drains contain water the water depth is typically shallow. Some characteristic field drains are described in *Target Note 207* and *286*. Ditches along the Onshore Cable Route are typically associated with other boundary features, such as hedges, lines of trees, tracks and roads. A large ditch is described in *Target Note 305a* which runs parallel to Kirton creek. Its banks are dominated by *Phragmites australis* (Common Reed) with occasional *Schoenoplectus lacustris* (Common Club-rush). The aquatic vegetation is comprises the *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed) with small areas of *Lemna minor* (Common Duckweed).

The Onshore Cable Route crosses the Queens fleet, River Deben and the River Gipping. The Queens fleet is a small river surrounded by a series of ditches and arable fields. It is approximately 30 m wide and contains abundant *Potamogeton* species (Pondweed). These comprise *Potamogeton berchtoldii* (Small Pondweed), *Potamogeton crispus* (Curled Pondweed) and *Potamogeton pectinatus* (Fennel Pondweed). The *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed) forms a significant proportion of the aquatic vegetation.The River Deben is tidal and bounded by two 3 m high bunds with a channel approximately 400 m wide at the crossing point. Saltmarsh vegetation is present along the shoreline which quickly becomes mud and silt flats. The River Gipping is a slow-flowing river described in *Target Note 19* and supports an abundant but species-poor aquatic community comprising the *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed) with *Nymphaea alba* (White Water-lily) and *Oenanthe fluviatilis* (River Water-dropwort).

The Onshore Cable Route crosses numerous small streams (shown in Figures 24.2.2a – 24.2.2q) and described in *Target Notes 22, 26, 126, 150* and *158*). Many contain no aquatic vegetation and have stream beds of mud and silt. Where aquatic vegetation is present comprises common species such as *Apium nodiflorum* (Fool's Water-cress). Bank vegetation is either scrub or ruderal vegetation.

Two large creeks are crossed by the Onshore Cable Route (described in *Target Notes 210, 211, 212* and *384*) both of which are tributaries of the River Deben. Martlesham Creek comes into the survey area at *Target Note 384* where it has a sparse aquatic vegetation of *Potamogeton natans* (Broadleaved Pondweed) and *Ranunculus penicillatus* (Stream Water-crowfoot) however it is not crossed at this point. Descriptions of habitats where Martlesham Creek is crossed are given in *Target Note 210, 211* and *212.* At this point the creek is tidal and forms the inlet used by a boat yard. At low tide large areas of mud flats are exposed with associated green algal beds. Small patches of *Spartina anglica* (Common Cord-grass) are present along the shoreline which on the southern bank becomes an extensive area of *Phragmites australis* (Common Reed) swamp. The King's Fleet has a channel 6-7m across with aquatic vegetation comprising algae and *Lemna minor* (Common Duckweed). The banks are dominated by *Phragmites australis* (Common Reed).

Swamp vegetation, usually dominated by *Phragmites australis* (Common Reed), occurs along many of the drainage ditches along the Onshore Cable Route. Extensive areas of *Phragmites australis* (Common Reed) swamps are described in *Target Notes 185* and *210*. More species rich areas of swamp vegetation are present at *Target Notes 305* and *306*. whilst still dominated by *Phragmites australis* (Common Reed) there are several associate species present including *Angelica sylvestris* (Wild Angelica) and *Phalaris arundinacea* (Reed Canary-grass) with large areas of *Carex acutiformis* (Lesser Pond-sedge) swamp.

3.1.10 Arable Farmland

3.1.10.1 Habitat Description

The Onshore Cable Route crosses large areas of arable farmland (shown as white and labelled 'A' on Figures 24.2.2a – 24.2.2q many of which had recently been harvested. These fields are intersected by linear boundary features such as strips of rough grassland at field margins, ditches, drains, hedges and lines of trees, all of which form ecological corridors.

4 EVALUATION

4.1 General

Despite the diversity of habitats, the majority of the Onshore Cable Route passes through intensively farmed arable land. Habitats of nature conservation value in these areas are generally restricted to linear features such as hedges and watercourses with other habitats occurring in discrete land parcels. Further description and evaluation of habitats crossed by the route are given in the East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012)

4.2 Habitats

4.2.1 Woodland, Scrub, Hedgerows and Mature Trees

Woodland and hedgerows are recognised as nationally important habitat under the UK Biodiversity Action Plan (UKBAP), which lists Lowland Mixed Deciduous Woodland and Hedgerows as 'Priority Habitats' for conservation and enhancement. Mixed Broadleaved Woodland and Plantation and Ancient or Species-rich Hedgerows are also listed as Priority Habitats on the Suffolk Biodiversity Action Plan (LBAP) and so all woodland and hedgerow habitats should be considered to have at least local importance and possibly national importance for the better examples. Woodland and hedgerow habitats crossed by the cable are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.2 Rough Neutral Grassland

Species-rich grasslands are important habitats and should be protected during cable installation. Grassland on seawalls can contain very rare and legally protected plants and is a very restricted habitat. All areas of unimproved and semi-improved grassland are covered in more detail in East Anglia Offshore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.3 Agricultural and Amenity Grassland

Agricultural and amenity grasslands are common and ubiquitous throughout the UK. These habitats are easily re-creatable and so can be considered to have negligible ecological value. No further botanical survey work is needed in these areas.

4.2.4 Unimproved and Species Poor Calcifugous Grassland

Calcifugous grasslands are listed on the UKBAP and LBAP as a priority habitat. They therefore should be considered to have at least local importance and possibly national importance for the better examples. All areas of calcifugous grassland are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.5 Ephemera/short Perennial

These habitats are common and widespread. Though covered by the UKBAP in the Open Mosaic Habitats on Previously Developed Land the continuous areas present along the Onshore Cable Route are not large enough (>0.25ha) to have anything more than value at site-level.

4.2.6 Saltmarsh

Saltmarshes are listed on the UKBAP and LBAP as a priority habitat and so this area must be considered to have national importance. The saltmarsh are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.7 Coastal Strandline Vegetation

Coastal vegetated shingle is listed as a UKBAP and LBAP priority habitat and so this are must be considered to have national importance. Vegetated shingle is a scarce habitat worldwide being restricted to only a few coastlines outside Britain, consequently all vegetated shingle should be regarded as possibly having international significance. Areas that will be affected (directly or indirectly) are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.8 Coastal Grassland

Coastal grassland is listed as a UKBAP and LBAP priority habitat and so this are must be considered to have national importance. The high density of nationally scarce species makes these areas especially important. Areas that will be affected (directly or indirectly) are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.9 Maritime Cliff and Slopes

Maritime cliff and slope vegetation is listed as a UKBAP and LBAP priority habitat and so must be considered to have national importance. Areas of the cliff vegetation are covered in *Carpobrotus edulis* (Hottentot-fig), which is listed under *Schedule 9* of *The Wildlife and Countryside Act 1981*. It is an offence to cause the spread of this species in the wild. Areas that will be affected (directly or indirectly) are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.10 Ponds, streams, ditches, drains and swamps

Standing Open Water (including ponds) and Reed beds are listed on the UKBAP and LBAP as priority habitats and so all ponds have ecological importance of up to national level. Areas that will be affected (directly or indirectly) are covered in more detail in East Anglia Offshhore Windfarm: Phase 2 Botanical report (RSK, 2012).

Rivers and streams are listed on the UKBAP and LBAP as a priority habitat and the better examples have ecological importance of up to national level. Ditches and drains are also important habitats for many species, particularly as connecting habitats.

Detailed surveys carried out along the Onshore Cable Route are covered in more detail in East Anglia Offshore Windfarm: Phase 2 Botanical report (RSK, 2012).

4.2.11 Arable Farmland

Arable farmland is a common habitat throughout the UK. These habitats are easily re-creatable and so can be considered to have negligible ecological value. Arable field margins are a UKBAP and LBAP priority habitat. Field margins along the Onshore Cable Route were improved and species-poor.

4.2.12 Ruderal Vegetation

Ruderal vegetation, such as that found within the survey area is common and ubiquitous throughout the UK. These habitats will quickly re-colonise in unmanaged areas and so can be considered to have neglibible ecological value.

4.2.13 Plant species

Red list Species

Two species listed as 'Near Threatened' in Cheffing & Farrell (2005). The classification of 'Near Threatened' relates to species that are close becoming classified as threatened taxa. In the context of the county of Suffolk these taxa are well distributed and typically occur on disturbed soils. Consequently the Onshore Cable Route is unlikely to have an adverse effect on the species as a whole

- *Filago vulgaris* (Common Cudweed) is species of disturbed acidic soils and occurs throughout the Onshore Cable Route on waste ground.
- *Potentilla argentea* (Hoary Cinquefoil) occurs occasionally in the grasslands covered by *Target Notes 139, 189b, 194* and *304.* It is classified as being locally frequent by *Simpson* (1982).

Nationally Scarce

Three species are listed as 'Nationally Scarce' *i.e.* found in less than 100 ten-kilometre grid-squares nationally in *Stewart et al.* (1994).

- *Crassula tillaea* (Mossy Stonecrop) was found in *Target Notes 197, 194, 201, 374* and *379.* It is concentrated on compacted disturbed soils on sands around Woodbridge.
- *Sarcocornia perennis* (Perennial Glasswort) occurs in both areas of saltmarsh along the River Deben *Target Notes 216* and *315.*
- *Trifolium suffocatum* (Suffocated Clover) was found abundantly at *Target Note 191.*

Both of these species are typical of disturbed sandy soils. *Crassula tillaea* (Mossy Stonecrop) was commonly observed in suitable habitat around Woodbridge *i.e.* most farm tracks and abandoned fields and waste areas. *Trifolium suffocatum* (Suffocated Clover) was restricted to areas around *Target Note 191.* It is possible that these species may benefit from the disturbed soils that would result from the Onshore Cable

Route however the restricted nature of the population of *Trifolium suffocatum* (Suffocated Clover) means that should the soils of *Target Note 191* be too greatly disturbed this population may be lost.

Invasive species

Four non-native invasive species that are listed on *the Wildlife and Countryside Act 1981 Schedule 9*. These comprise *Carpobrotus edulis* (Hottentot-fig), *Elodea canadensis* (Canadian Waterweed), *Impatiens glandulifera* (Indian Balsam) and *Rosa rugosa* (Japanese Rose). It is an offence to cause to grow or spread these species in the wild.

- *Carpobrotus edulis* (Hottentot-fig) was found on the cliff face at the land fall but is on the southerly limit of the survey area behind the M.O.D. site and consequently unlikely to be affected by the route.
- *Elodea canadensis* (Canadian Waterweed) was found in the Queens Fleet (*Target Note 286c*), the River Gipping (*Target Note 19*) and in the ditch at *Target Note 305a.*
- *Impatiens glandulifera* (Indian Balsam) was found growing as isolated stems along the banks at *Target Note 150.*
- *Rosa rugosa* (Japanese Rose) has been widely planted on roadside embankments at *Target Notes 194, 195, 196* and *197.*

5 REFERENCES

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6 APPENDIX A – TARGET NOTES

6.1 Target Notes

Target Note 1. A field hedge about 4.5 m high and 3 m wide with clipped sides and an adjacent dry ditch. The southern end comprises mainly *Crataegus monogyna* (Hawthorn) *and Prunus spinosa* (Blackthorn) with some *Corylus avellana* (Hazel) and *Rosa canina* (Dog-rose).

Target Note 1a. A field hedge approximately 6 m high and 4 m wide on a 0.5 m earth bank. Comprising sorsanz, *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Rosa* species (a Rose) and *Sambucus nigra* (Elder). The field-layer is predominantly arable ruderal species such as *Arrhenatherum elatius* (False Oat-grass) and *Cirsium arvense* (Creeping Thistle) but some woodland herbs such as *Brachypodium sylvaticum* (False Brome) and *Geum urbanum* (Wood Avens) are present.

Target Note 1b. An 8 m high hedge predominantly *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) with occasional *Crataegus monogyna* (Hawthorn) and *Fraxinus excelsior* (Ash). The field-layer comprises ruderal species such as *Heracleum sphondylium* (Hogweed) and *Urtica dioica* (Common Nettle).

Target Note 1c. A hedgerow with a good mix of native species including *Cornus sanguinea* (Dogwood) *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder). Standard trees are present comprising *Acer campestre* (Field Maple), *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak). The field-layer is referable to the NVC type **OV24 *Urtica dioica-Galium aparine* community**.

Target Note 1d. A trimmed *Corylus avellana* (Hazel) dominated hedge with a wet internal ditch and occasional *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn) *Prunus avium* (Wild Cherry), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak) and *Sambucus nigra* (Elder).

Target Note 1e. A species-rich 1.5 m high hedge including *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel) and *Prunus spinosa* (Blackthorn). The field-layer contains an abundance of *Brachypodium sylvaticum* (False Brome). There is flowing wet ditch present.

Target Note 1f. An *Acer campestre* (Field Maple) dominated hedge approximately 4 m in height. The field-layer is referable to the NVC type to **MG1b *Arrhenatherum elatius* grassland, *Urtica dioica* sub-community**.

Target Note 1g. A species-rich 3.5 m high hedgerow comprising *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Daphne laureola* (Spurge-laurel), *Euonymus europaeus* (Spindle), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Rosa* species (a Rose) and *Ulmus procera* (English Elm). The field-layer is referable to the NVC type to **MG1b *Arrhenatherum elatius* grassland, *Urtica dioica* sub-community**.

Target Note 1h. A strip of semi-natural and plantation woodland surrounding the south-west corner of a sub-station. The great majority is planted *Fraxinus excelsior* (Ash) with a species-poor *Arrhenatherum elatius* (False Oat-grass) dominated grassland as a field-layer. The western end is more species-rich with a canopy reaching 18 m in height including *Acer campestre* (Field Maple), *Castanea sativa* (Sweet Chestnut), *Fraxinus excelsior* (Ash) and *Quercus rubra* (Red Oak). The field-layer is species-rich and includes several woodland herbs such as *Circaea lutetiana* (Enchanter's-nightshade), *Geum urbanum* (Wood Avens) and *Mercurialis perennis* (Dog's Mercury).

Target Note 1i. A 3 m tall hedge comprising several woody species including *Acer campestre* (Field Maple), *Corylus avellana* (Hazel) and *Prunus avium* (Wild Cherry). Though the hedge is clipped and dense there are several substantial gaps.

Target Note 1j. A 5 m tall hedgerow containing *Corylus avellana* (Hazel), *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder). There is a dry ditch beneath the hedge, which is approximately 1.5 m in width. The field-layer is referable to the NVC type **MG1 *Arrhenatherum elatius* grassland.**

Target Note 1k. A leggy, unmanaged hedge 5 m tall with an internal dry ditch. The hedge comprises *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Rosa* species, *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm).

Target Note 1l. A species-rich 4 m high unmanaged hedge with a dry internal ditch. The field-layer is a mix of vegetation referable to **MG1 *Arrhenatherum elatius* grassland** and **OV24 *Urtica dioica-Galium aparine* community**.

Target Note 1m. A 6 m high hedge with a good mix of species including *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn).

The field-layer includes *Brachypodium sylvaticum* (False Brome) and *Mercurialis perennis* (Dog's Mercury).

Target Note 1n. An *Acer campestre* (Field Maple) dominated hedge with a field-layer referable to the NVC type **MG1 *Arrhenatherum elatius* grassland.**

Target Note 1o. A moderately species-rich 8 m high hedgerow on a 0.5 m high earth bank with an internal dry ditch.

Target Note 1p. A hedgerow similar to that described in *Target Note 1d.*

Target Note 1q. A hedgerow 4 m in height dominated by *Prunus spinosa* (Blackthorn) with occasional *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Fraxinus excelsior* (Ash), *Rosa* species (a Rose) and *Sambucus nigra* (Elder).

Target Note 1r. A hedgerow similar to that described in *Target Note 1n.*

Target Note 1s. A small wood with a canopy to 10 m of *Acer campestre* (Field Maple) and *Populus ×canadensis* (Hybrid Black-poplar). The shrub-layer contains *Corylus avellana* (Hazel), *Daphne laureola* (Spurge-laurel) and *Salix caprea* (Goat Willow). There is a species-poor field layer of scattered *Poa trivialis* (Rough Meadow-grass) with large patches of *Mercurialis perennis* (Dog's Mercury).

Target Note 1t. A hedgerow similar to that described in *Target Note 1q*

Target Note 1u. Ruderal vegetation on recently cleared and disturbed ground containting *Cirsium arvense* (Creeping Thistle), *Helminthotheca echioides* (Bristly Oxtongue), *Sinapis arvensis* (Charlock) and *Sisymbrium officinale* (Hedge Mustard).

Target Note 2a. A hedge trimmed to about 2.5 m high and 2 m wide and have dense shrub-layers with no gaps. At the southern end it is dominated by *Acer campestre* (Field Maple) together with *Corylus avellana* (Hazel) and the climber *Clematis vitalba* (Traveller's-joy).

Target Note 2b. A hedge similar to *Target Note 2a.*

Target Note 2c. A hedge containing *Acer campestre* (Field Maple), *Fraxinus excelsior* (Ash), and *Quercus robur* (Pedunculate Oak) approximately 2.5 m in height.

Target Note 2d. A hedge similar to *Target Note 2c.*

Target Note 2e. A hedge similar to *Target Note 2c.*

Target Note 2f. A hedge similar to *Target Note 2c.*

Target Note 3. Semi-natural woodland with a bank along its south-western edge supporting ancient woodland indicator species including *Mercurialis perennis* (Dog's Mercury) in abundance. The interior of the woodland has a canopy comprising mature *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) standards or, locally, moribund *Aesculus hippocastanum* (Horse-chestnut) coppice. The field-layer appears to be mostly leaf litter, though certain spring-flowering herbs may not have been evident at the time of survey.

Target Note 4. An unmanaged hedge about 5-10 m tall (excluding trees) and several metres wide with a large internal ditch that was dry at the time of survey. The shrub-layer is a mixture of *Prunus spinosa* (Blackthorn) with *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Euonymus europaeus* (Spindle) and other woody species, and there are a couple of trees including a large, mature *Quercus robur* (Pedunculate Oak).

Target Note 5. A newly-planted, ornamental hedge with species including *Crataegus monogyna* (Hawthorn), *Prunus avium* (Wild Cherry), *Prunus domestica* (Wild Plum) and *Pyrus communis* (Pear).

Target Note 6. A stand of mature trees including *Fraxinus excelsior* (Ash) and *Populus* cf. *nigra* (Black-poplar).

Target Note 6a. A hedge trimmed to about 2.5 m high and 2 m wide and have dense shrub-layers with no gaps. At the southern end it is dominated by *Acer campestre* (Field Maple) together with *Corylus avellana* (Hazel).

Target Note 7. Broadleaved plantation woodland about 15-20 years old comprising species such as *Betula* cf. *pendula* (Silver Birch), *Fagus sylvatica* (Beech) and *Prunus avium* (Wild Cherry).

Target Note 7a. A shallow stream with a water depth of 20 cm above a small dam formed from a track crossing and 2 cm below this dam. The stream bed is formed of sand and silt. At the time of survey the stream had recently been cleared of vegetation but there were scattered emergent and marginal species such as *Apium nodiflorum* (Fool's Water-cress) *Epilobium hirsutum* (Great Willowherb) and *Nasturtium officinale* (Water-cress). The banks were approximately 1.5 m in height and dominated by ruderal weeds typical of agricultural areas such as *Ballota nigra* (Black Horehound), *Galium aparine* (Cleavers), *Sinapis arvensis* (Charlock) and *Urtica dioica* (Common Nettle).

Target Note 7b. An area of *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) scrub with a field-layer of ruderal herbs such as *Ballota nigra* (Black Horehound) and *Urtica dioica* (Common Nettle). At the western end there is an 18 m mature *Quercus robur* (Pedunculate Oak).

Target Note 7c. A small area of woodland over a large man made depression. The canopy trees comprise *Alnus glutinosa* (Alder), *Fraxinus excelsior* (Ash) and *Ulmus minor* ssp. *minor* (Small-leaved Elm). The shrub-layer contains *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) with a field-layer dominated by *Urtica dioica* (Common Nettle).

Target Note 8. A road hedge about 2.5 - 4 m high and 1.5 m wide comprising mostly *Crataegus monogyna* (Hawthorn) with *Acer campestre* (Field Maple). The eastern end is very gappy and appears to have been planted relatively recently as there are still tree guards on some of the shrubs.

Target Note 8a. A road hedge of variable height consisting mainly of *Ulmus procera* (English Elm) suckers together with a mixture of *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn). It is on a half bank which is dominated by semi-ruderal herbs such as *Ballota nigra* (Black Horehound) and chenopod species.

Target Note 9. Broadleaved and coniferous plantations about 20 years old dominated by *Prunus* cf. *avium* (Wild Cherry) and *Pinus* cf. *nigra* ssp. *laricio* (Corsican Pine), respectively.

Target Note 10. Scrub vegetation comprising a mixture of *Clematis vitalba* (Traveller's-joy), *Rosa canina* (Dog-rose) and *Rubus fruticosus* agg. (Bramble) with scattered tree saplings.

Target Note 11. A road hedge dominated by *Ulmus procera* (English Elm), which is about 8 m high and 5 m wide in part, and elsewhere very gappy, comprising mostly dead English Elm suckers with *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle) in the gaps.

Target Note 12. A gappy, leggy *Crataegus monogyna* (Hawthorn) hedge with abundant *Urtica dioica* (Common Nettle) at the base.

Target Note 13. Grassland that may be secies-rich. It was short-mown at the time of survey and few species could be positively identified from a distance, including the fine-leaved grass *Festuca rubra* (Red Fescue) and the forbs *Reseda lutea* (Wild Mignonette) and *Silene latifolia* ssp. *alba* (White Campion).

Target Note 13a. A line of mature *Populus* species (a Poplar) trees along a field boundary.

Target Note 14. An area of amenity grassland with ornamental hedges along two boundaries; one is dominated by tall, leggy *Prunus* cf. *domestica* (Wild Plum); and the other is a recently planted conifer hedge.

Target Note 15. Ornamental woodland dominated by mature *Fagus sylvatica* (Beech) and *Quercus robur* (Pedunculate Oak) with a field-layer of short-mown grassland.

Target Note 16. A series of irregular, defunct field boundaries comprising dry watercourses with associated scrub and trees ranging from scattered *Crataegus monogyna* (Hawthorn) bushes to dense *Prunus spinosa* (Blackthorn) to a group of *Alnus glutinosa* (Alder) trees. The field-layer is typically dominated by *Urtica dioica* (Common Nettle).

Target Note 17. Floodplain meadows dominated by the rough grass *Arrhenatherum elatius* (False Oat-grass) together with the tall herb *Urtica dioica* (Common Nettle). Other locally prominent species include *Alopecurus pratensis* (Meadow Foxtail), *Cirsium arvense* (Creeping Thistle), *Cirsium vulgare* (Spear Thistle) and *Rumex obtusifolius* (Broad-leaved Dock).

Target Note 18. A side channel of the River Gipping, which is controlled by a weir or sluice gate. The banks have been recently regraded and support weedy vegetation with abundant *Cirsium arvense* (Creeping Thistle). The channel was flowing at the time of survey and 2-3 m wide at water-level with abundant *Nasturtium* cf. *officinale* (Water-cress).

Target Note 19. A slow-flowing river about 8-10 m wide at water-level with 1 m high banks. The river supports a fringe of marginal vegetation including *Phalaris arundinacea* (Reed Canary-grass), *Sparganium erectum* (Branched Bur-reed) and *Typha latifolia* (Bulrush) together with some emergent *Sagittaria sagittifolia* (Arrowhead) and aquatic *Oenanthe* cf. *aquatica* (Fine-leaved Water-dropwort) and cf. *Nymphaea alba* (White Water-lily).

Target Note 20. A stand of planted *Salix alba* (White Willow) trees.

Target Note 21. A shallow, temporary pond in a floodplain meadow marked by a stand of *Phalaris arundinacea* (Reed Canary-grass).

Target Note 22. A slow-flowing stream about 1-2 m wide. It is locally dominated by *Apium nodiflorum* (Fool's Water-cress) with bank vegetation comprising rough grasses and tall-ruderal herbs.

Target Note 23. A mesotrophic grassland compring a good mix of fine leaved grasses such as *Festuca rubra* (Red Fescue) and mesotrophic herbs including *Ophrys apifera* (Bee Orchid), *Orobanche minor* (Common Broomrape) and *Potentilla reptans* (Creeping Cinquefoil).

Target Note 24. An overgrown hedge of *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder).

Target Note 25. A continuation of the stream in *Target Note 22,* however shading by the surrounding woodland has resulted in there being nor aquatic or marginal vegetation.

Target Note 26. Tall ruderal herbs on former arable land dominated by *Cirsium arvense* (Creeping Thistle) and *Senecio jacobaea* (Common Ragwort).

Target Note 27. Scrubby, plantation woodland along the north side of the stream described in *Target Note 22* comprising species such as *Acer platanoides* (Norway Maple), *Fraxinus excelsior* (Ash) and *Prunus avium* (Wild Cherry).

Target Note 28. Grassland of unknown origin, which appears to have a short, fine sward containing lots of *Centaurea nigra* (Common Knapweed).

Target Note 29. Roadside plantation woodland similar to *Target Note 25.*

Target Note 30. Horse pasture comprising a short, open turf with scattered *Senecio jacobaea* (Common Ragwort) and taller *Arrhenatherum elatius* (False Oat-grass) tussocks. It has much bare ground and a high moss cover with additional herbs including *Achillea millefolium* (Yarrow), cf. *Pastinaca sativa* (Wild Parsnip) and *Plantago* species (Plantains).

Target Note 31. A species-poor road hedge dominated by one or other of *Crataegus monogyna* (Hawthorn) and *Ulmus procera* (English Elm).

Target Note 32. A species-poor *Crataegus monogyna* (Hawthorn) hedge that widens at its northern end into a scrubby mixture of *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), Malus *domestica* (Apple) and *Ulmus procera* (English Elm).

Target Note 33. A mature *Populus* species (Poplar) plantation.

Target Note 34. Wasteground with new hedges planted along the boundaries.

Target Note 35. Mixed plantation woodland containing *Pinus* species (a Pine) and *Betula pendula* (Silver Birch) together with other broad-leaves. There are mature *Quercus robur* (Pedunculate Oak) and *Ulmus* species (an Elm) trees along the east side, probably marking an old hedge line.

Target Note 36. An overgrown hedge comprising mainly *Ulmus* species (an Elm) including mature trees.

Target Note 37. A scrubby hedge dominated by *Ulmus* species (an Elm) trees about 15 m tall with a field-layer characterised by rough grasses and *Urtica dioica* (Common Nettle). To the south, the hedge is reduced to a strip of rough grassland with scattered *Ulmus procera* (English Elm) shrubs.

Target Note 38. A hedge dominated by *Ulmus* species (an Elm) shrubs and trees, varying in height from about 4 to 15 m.

Target Note 38a. Hedge of similar species to that described in *Target Note 38.*

Target Note 38b. Hedge of similar species to that described in *Target Note 38.*

Target Note 38c. Hedge of similar species to that described in *Target Note 38.*

Target Note 38d. Hedge of similar species to that described in *Target Note 38.*

Target Note 38e. Hedge of similar species to that described in *Target Note 38.*

Target Note 39. A track with mown grass verges and a row of planted trees about 10-15 years old.

Target Note 40. A scrubby, untidy hedge dominated by *Ulmus* species (an Elm) with abundant *Urtica dioica* (Common Nettle) at the hedge base.

Target Note 41. A hedge similar to *Target Note 40,* but with taller *Ulmus* species (an Elm) trees and gaps where diseased trees have died.

Target Note 42. A hedge connecting two areas of mature woodland. From a distance it appears to be similar to *Target Note 40*, though maps show a stream running alongside it.

Target Note 43. Improved pasture dominated by *Lolium perenne* (Perennial Rye-grass).

Target Note 44. A tall, leggy hedge comprising abundant *Crataegus monogyna* (Hawthorn) with frequent *Prunus spinosa* (Blackthorn) and *Rosa canina* (Dog-rose), and two *Fraxinus excelsior* (Ash) trees. The field-layer is disturbed and includes bare soil, *Glechoma hederacea* (Ground-ivy) and *Urtica dioica* (Common Nettle) together with some *Arum maculatum* (Lords-and-Ladies) and *Brachypodium sylvaticum* (False Brome).

Target Note 45. A field pond shaded by trees and shrubs including mature *Fraxinus excelsior* (Ash) and *Salix alba* (White Willow) trees, and *Salix* cinerea (Grey Willow) bushes.

Target Note 46. An overgrown hedge featuring two mature *Fraxinus excelsior* (Ash) trees over a gappy shrub-layer of *Crataegus monogyna* (Hawthorn) with *Rosa canina* (Dog-rose).

Target Note 47. A field hedge typically about 3 m high with numerous taller, young *Fraxinus excelsior* (Ash) trees. The shrub-layer comprises *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn) together with other species including *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm).

Target Note 48. A field hedge with a dense shrub-layer trimmed to about 3 m high and wide. The dominant species are *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn), though there are small amounts of *Acer campestre* (Field Maple), *Prunus domestica* (Wild Plum), *Rosa canina* (Dog-rose) and *Ulmus* species (an Elm), and a few mature *Quercus robur* (Pedunculate Oak) standards.

Target Note 49. Scattered bushes and two mature *Quercus robur* (Pedunculate Oak) trees along a field boundary.

Target Note 50. Grassland with a lush, green sward that is probably improved.

Target Note 51. A hedge similar to described in *Target Note 48.*

Target Note 52. A hedge that appears similar to *Target Note 48* from a distance.

Target Note 53. A road hedge about 2 m high and wide comprising a mixture of *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn) with *Rosa canina* (Dog-rose) and *Ulmus procera* (English Elm). There are two mature *Quercus robur* (Pedunculate Oak) and a *Fraxinus excelsior* (Ash) at its northern end.

Target Note 54. A very gappy hedge around 2 m high containing a mixture of *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Rosa canina* (Dog-rose) and *Ulmus procera* (English Elm).

Target Note 55. A dense, clipped field hedge about 2.5 m high comprising a mixture of *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Prunus spinosa* (Blackthorn) and *Ulmus procera* (English Elm).

Target Note 56. A road hedge trimmed to about 2.5 m high and wide with two mature *Quercus robur* (Pedunculate Oak) standards at its southern end. It is dominated by *Prunus spinosa* (Blackthorn) with *Acer campestre* (Field Maple), *Corylus avellana* (Hazel) and *Ulmus procera* (English Elm).

Target Note 57. A clipped, 2-2.5 m high road hedge comprising a mixture of *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn) and *Rosa canina* (Dog-rose).

Target Note 58. A gappy, 2 m high hedge containing *Crataegus monogyna* (Hawthorn) and *Ulmus procera* (English Elm).

Target Note 59. Species-poor horse pasture.

Target Note 60. A flailed, 3 m high hedge with a few taller, young *Fraxinus excelsior* (Ash) trees.

Target Note 61. A *Crataegus monogyna* (Hawthorn) hedge trimmed to about 2.5 m high and 2 m wide.

Target Note 61a. A hedge 5 m tall and 3 m wide comprising *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm).

Target Note 62. A field hedge which appears to be about 2 m tall, leggy at the base and dominated by *Crataegus monogyna* (Hawthorn).

Target Note 63. A hedge similar to *Target Note 62,* but with several small gaps.

Target Note 64. A hedge similar to *Target Note 68.*

Target Notes 65 - 123. NUMBERS NOT USED.

Target Note 124. A line of planted trees about 20-30 years old along a farm track including *Castanea sativa* (Sweet Chestnut).

Target Note 125. Mature mixed plantation. Viewed from afar it appears to contain frequent *Pinus sylvestris* (Scots Pine), though there are some broadleaf species.

Target Note 126. A small stream, which is overgrown by *Urtica dioica* (Common Nettle) with *Epilobium hirsutum* (Great Willowherb) at the roadside. Small *Alnus glutinosa*

(Alder) and a mature *Quercus robur* (Pedunculate Oak) can be seen growing alongside it to the north. Pasture to the north of the stream is damp and dominated by rough grasses, while the pasture to the south is improved with frequent tall ruderals such as *Cirsium arvense* (Creeping Thistle) and *Urtica dioica* (Common Nettle).

Target Note 126a. A species-poor pond approximate 10 m in width and 30 m long. *Typha latifolia* (Bulrush) forms the emergent vegetation with the *The Wildlife and Countryside Act 1981 Schedule 9 listed* species *Myriophyllum aquaticum* (Parrot's-feather) growing abundantly between the *Typha latifolia* (Bulrush) stems. Between these two species there are small patches of *Iris pseudacorus* (Yellow Iris), *Ranunculus sceleratus* (Celery-leaved Buttercup) and *Scrophularia nodosa* (Common Figwort). The steep banks are dominated by species typical of improved grasslands including *Cirsium arvense* (Creeping Thistle) and *Dactylis glomerata* (Cock's-foot). There is no aquatic vegetation.

Target Note 126b. A continuation of the stream described in *Target Note 126* and broadly similar in its species composition and physiognomy.

Target Note 129. A trimmed field hedge about 1.6 m tall dominated by *Crataegus monogyna* (Hawthorn) with several semi-mature *Quercus robur* (Pedunculate Oak) trees.

Target Notes 130 – 132. NUMBERS NOT USED.

Target Note 133. A gappy, scruffy hedge comprising shrubs such as *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm) together with mature *Quercus robur* (Pedunculate Oak) trees.

Target Note 133a. A predominantly *Crataegus monogyna* (Hawthorn) hedge with *Quercus robur* (Pedunculate Oak) standard trees.

Target Note 134. Ruderal vegetation dominated by chenopod species and *Artemisia vulgaris* (Mugwort).

Target Note 135. A recently planted hedge with species including *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn) and *Prunus avium* (Wild Cherry).

Target Note 136. A large, mature *Quercus robur* (Pedunculate Oak) tree.

Target Note 137. Broadleaved woodland containing a few mature *Quercus robur* (Pedunculate Oak) trees, but otherwise scrubby and dominated by *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm). The field-layer is dominated by *Urtica dioica* (Common Nettle) under shrubs and *Hedera helix* (Ivy) under oaks.

Target Note 138. A scruffy road hedge consisting of *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm) with a field-layer dominated by *Urtica dioica* (Common Nettle).

Target Note 139. Sheep pasture dominated by *Lolium perenne* (Perennial Rye-grass).

Target Note 139a. A line of recently planted trees along a fence line.

Target Note 139b. An area of *Crataegus monogyna* (Hawthorn) scrub with a *Quercus robur* (Pedunculate Oak) tree with a diameter at breast height of 1 m.

Target Note 140. A gappy, planted hedge about 10-15 years old comprising *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn).

Target Note 141. A field boundary apparently consisting of scattered planted shrubs or a very gappy hedge. The western end appears to be ×*Cupressocyparis leylandii* (Leyland Cypress) and the eastern end broadleaved shrubs.

Target Note 142. A rough grassland road verge with several mature *Quercus robur* (Pedunculate Oak) scattered along it, and two *Ulmus* species (an Elm) trees.

Target Note 143. Rough grassland dominated by *Arrhenatherum elatius* (False Oat-grass) and other grasses with *Plantago lanceolata* (Ribwort Plantain), *Senecio jacobaea* (Common Ragwort) and *Trifolium pratense* (Red Clover). There are small amounts of the semi-ruderal species *Linaria repens* (Pale Toadflax) and *Silene latifolia* (White Campion).

Target Note 144. A bank dominated by *Pteridium aquilinum* (Bracken) and tall ruderals such as *Heracleum sphondylium* (Hogweed) and *Urtica dioica* (Common Nettle).

Target Note 145. A hedge of mostly dead *Ulmus* species (an Elm) shrubs with scattered live Elm trees.

Target Note 146. A species-poor *Crataegus monogyna* (Hawthorn) hedge trimmed to about 2.5 m high and wide.

Target Note 147. Small area of *Populus tremula* (Aspen) woodland with a species-poor *Urtica dioica* (Common Nettle) field-layer.

Target Note 148. Area of scrub comprising frequent *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) with occasional *Salix caprea* (Goat Willow). The field layer is dominated by *Urtica dioica* (Common Nettle).

Target Note 149. A line of semi-mature *Quercus robur* (Pedunculate Oak) trees reaching a height of approximately 15 m on an earth bank. The shrub layer comprises *Prunus spinosa* (Blackthorn), *Corylus avellana* (Hazel), *Sambucus nigra* (Elder) and *Ribes nigrum* (Black Currant) with *Lonicera periclymenum* (Honeysuckle) occasionally growing through the shrub canopy. There is a sparse field layer dominated by *Urtica dioica* (Common Nettle) with occasional seedlings of *Lonicera periclymenum* (Honeysuckle). Towards the edges of the shrub layer ruderal herbs such as *Arctium minus* (Lesser Burdock), *Cynoglossum officinale* (Hound's-tongue) and *Glechoma hederacea* (Ground-ivy).

Target Note 150. A stream approximately 15 to 20 cm deep and 2 to 3 m wide with a silt bed. The vegetation of the banks contains abundant *Urtica dioica* (Common Nettle) growth with frequent *Epilobium hirsutum* (Great Willowherb) and *Impatiens glandulifera* (Indian Balsam). Occasional stands of trees occur along the route of the stream containing *Alnus glutinosa* (Alder) and *Salix purpurea* (Purple Willow).

Target Note 150a. A ditch dominated by common and ruderal species including *Arctium minus* (Lesser Burdock) and *Urtica dioica* (Common Nettle) as well as *Myosoton aquaticum* (Water Chickweed). Scattered stems of *Impatiens glandulifera* (Indian Balsam) are present.

Target Note 151. A hedge with numerous gaps comprising *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak) and *Ulmus procera* (English Elm) with *Quercus robur* (Pedunculate Oak) standards becoming a *Fagus sylvatica* (Beech) garden hedge with a *Robinia pseudoacacia* (False-acacia) sapling. A sparse field-layer of *Arctium minus* (Lesser Burdock), *Glechoma hederacea* (Ground-ivy) and *Urtica dioica* (Common Nettle) is present.

Target Note 152. An extensive area of ruderal vegetation by a road side with small trees of *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm).

Target Note 153. Semi-improved neutral grassland with abundant scattered ruderals species including *Pastinaca sativa* (Wild Parsnip), *Reseda luteola* (Weld), *Senecio jacobaea* (Common Ragwort) and *Urtica dioica* (Common Nettle).

Target Note 153a. A hedge comprising *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak) and *Rosa* species (a Rose),

Target Note 153b. A hedge containing *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn) and *Quercus robur* (Pedunculate Oak).

Target Note 153c. A hedge similar to *Target Note 153b*.

Target Note 154. A *Prunus spinosa* (Blackthorn) hedge approximately 4 m tall, forming the boundary of residential property with abundant *Hedera helix* (Ivy) growth.

Target Note 155. A *Prunus spinosa* (Blackthorn) hedge with *Acer pseudoplatanus* (Sycamore) and *Quercus cerris* (Turkey Oak) standards along a roadside with a rough neutral grassland field layer dominated by *Arrhenatherum elatius* (False Oat-grass) with occasional *Anthriscus sylvestris* (Cow Parsley).

Target Note 156. A line of small trees comprising *Acer pseudoplatanus* (Sycamore), *Crataegus monogyna* (Hawthorn), *Fraxinus excelsior* (Ash), *Quercus cerris* (Turkey Oak) and *Ulmus procera* (English Elm) along a road verge. The field-layer comprises *Ulmus procera* (English Elm) saplings with ruderal and woodland herb species such as *Brachypodium sylvaticum* (False Brome), *Geum urbanum* (Wood Avens) and *Sonchus oleraceus* (Smooth Sow-thistle).

Target Note 157. The headland of an arable field dominated by *Arrhenatherum elatius* (False Oat-grass) refereable to the **NVC community MG1 *Arrhenatherum elatius* grassland**. *Quercus robur* (Pedunculate Oak) and *Tilia cordata* (Small-leaved Lime) have been planted along the roadside which have reached a height of 6 m.

Target Note 158. An area of scrub with co-dominant *Crataegus monogyna* and *Sambucus nigra* (Elder) reaching a height of 5 m. *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle) forms much of the field-layer with ruderal herbs and rough grass species such as *Artemisia vulgaris* (Mugwort) and *Dactylis glomerata* (Cock's-foot) becoming frequent towards the edges of the scrub. A small stream

approximately 1.5 to 2 m wide and 15 cm deep runs through this area which was dry at the time of survey.

Target Note 159. A hedgerow 2.5 to 3 m in height and 2 m wide on a an earth bank comprising frequent *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) with occasional *Acer campestre* (Field Maple). The climbing species *Hedera helix* (Ivy), Humulus lupulus (Hop) and *Rubus fruticosus* agg. occur throughout. The field layer contains species typical of mesotrophic and ruderal habitats such as *Ballota nigra* (Black Horehound), Galium aparine (Cleavers) and *Glechoma hederacea* (Ground-ivy). This becomes a dry ditch approximately 1 m deep with *Urtica dioica* (Common Nettle) vegetated banks.

Target Note 160. Mixed woodland of *Larix decidua* (European Larch), *Pinus nigra* (a Black Pine) and *Quercus robur* (Pedunculate Oak) with a canopy height to 13 m. The shrub layer appears to be dominated by *Pteridium aquilinum* (Bracken) with occasional *Crataegus monogyna* (Hawthorn). *Crataegus monogyna* (Hawthorn) becomes dominant at the woodland edge where it forms a dense understory with *Rubus fruticosus* agg. (Bramble). The field layer is formed from the adjacent arable field headland and contains the species *Agrostis capillaris* (Common Bent), *Bromus hordeaceus* (Soft-brome), *Elytrigia repens* (Common Couch) and *Lolium perenne* (Perennial Rye-grass).

Target Note 161. An area of dense *Pteridium aquilinum* (Bracken) growth with occasional areas containing *Arrhenatherum elatius* (False Oat-grass), *Dactylis glomerata* (Cock's-foot) and *Urtica dioica* (Common Nettle).

Target Note 162. Line of 15 m tall mature trees comprising *Acer campestre* (Field Maple), *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) on an earth bank with a 3 m tall field layer of *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) and field layer or *Pteridium aquilinum* (Bracken) and *Urtica dioica* (Common Nettle).

Target Note 163. A 2 m high hedge of *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn) and *Ulmus* species (an Elm) with a *Quercus robur* (Pedunculate Oak) standard.

Target Note 164. A hedge similar *Target Note 163.*

Target Note 165. A strip of rough *Arrhenatherum elatius* (False Oat-grass) dominated grassland with *Artemisia vulgaris* (Mugwort), *Convolvulus arvensis* (Field Bindweed),

Dactylis glomerata (Cock's-foot), *Phleum bertolonii* (Smaller Cat's-tail) and *Silene vulgaris* (Bladder Campion).

Target Note 166. A broadleaved plantation of *Fraxinus excelsior* (Ash) with self-sown *Alnus glutinosa* (Alder) to a height of 8 m. Occasional *Sambucus nigra* (Elder) shrubs occur throughout the woodland. The field-layer is dominated by dense *Urtica dioica* (Common Nettle) growth.

Target Note 167. Line of mature *Quercus robur* (Pedunculate Oak) approximately 12 m tall on a 2.5 m high slope. Occasional shrubs of 2 m tall *Sambucus nigra* (Elder) shrubs occur throughout and the field-layer is dominated by ruderal species such as *Arctium minus* (Lesser Burdock), *Arrhenatherum elatius* (False Oat-grass), *Chenopodium album* (Fat-hen), *Heracleum sphondylium* (Hogweed) and *Urtica dioica* (Common Nettle).

Target Note 168. An area or scrub comprising *Cornus sanguinea* (Dogwood), *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder) with an area of *Pteridium aquilinum* (Bracken) towards the southern end.

Target Note 169. Semi-improved neutral grassland with a large area dominated by *Urtica dioica* (Common Nettle).

Target Note 170. Line of *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) trees becoming a *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) hedge at its eastern end.

Target Note 171. *Crataegus monogyna* (Hawthorn) hedge with occasional *Sambucus nigra* (Elder) and *Rubus fruticosus* agg. (Bramble).

Target Note 171a. An ornamental hedge of *Acer campestre* (Field Maple) infront of a house.

Target Note 172. Strip of semi-natural *Quercus robur* (Pedunculate Oak) woodland with occasional *Ulmus* species (an Elm). No field layer was present.

Target Note 173. Mixed mature plantation woodland strip comprising *Castanea sativa* (Sweet Chestnut), *Crataegus monogyna* (Hawthorn), *Pinus* sylvestris (Scots Pine) and *Quercus robur* (Pedunculate Oak). The field layer comprises ruderal species including *Arctium minus* (Lesser Burdock), *Ballota nigra* (Black Horehound) and *Urtica dioica* (Common Nettle).

Target Note 174. *Corylus avellana* (Hazel) hedge with numerous gaps and *Quercus robur* (Pedunculate Oak) standards.

Target Note 175. *Corylus avellana* (Hazel) and *Crataegus monogyna* (Hawthorn) hedge to 4 m in height and 3 m deep with a 1 m deep ditch. At the time of survey the ditch had water flowing along it with a depth of 5 cm but no aquatic vegetation. The field-layer contains *Brachypodium sylvaticum* (False Brome), *Dactylis glomerata* (Cock's-foot) and *Equisetum telmateia* (Great Horsetail). *Rubus fruticosus* agg. (Bramble) and *Hedera helix* (Ivy) are throughout the hedge which has *Quercus robur* (Pedunculate Oak) standards.

Target Note 176. Semi-improved *Arrhenatherum elatius* (False Oat-grass) dominated grassland not accessed.

Target Note 177. Semi-natural broadleaved woodland comprising *Populus tremula* (Aspen) and *Salix alba* (White Willow) to a height of 25 m. The shrub-layer comprises *Prunus laurocerasus* (Cherry Laurel) and *Ulmus* species (an Elm) with *Hedera helix* (Ivy) growing throughout. The ground-layer is bare earth. Towards the woodland edge herbs increase in frequency and include *Brachypodium sylvaticum* (False Brome), *Geranium robertianum* (Herb-Robert), *Humulus lupulus* (Hop) and *Urtica dioica* (Common Nettle).

Target Note 178. *Crataegus monogyna* (Hawthorn) 4 m in height and 2 m deep with *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) standards. A 1 m deep ditch is present throughout with flowing water with a depth of 5 cm over a silt and mud bed. No aquatic vegetation was present.

Target Note 179. A ditch 1.5 m deep with an unknown water depth. The bankside vegetation is very dense comprising predominantly herbaceous species with occasional shrubs of *Crataegus monogyna* (Hawthorn). The species present include *Angelica sylvestris* (Wild Angelica), *Calystegia sepium* (Hedge Bindweed), *Cirsium arvense* (Creeping Thistle) *Epilobium hirsutum* (Great Willowherb) and *Nasturtium officinale* (Water-cress).

Target Note 180. A swathe of *Pteridium aquilinum* (Bracken) interdigitating with ruderal vegetation dominated by *Cirsium arvense* (Creeping Thistle) and *Urtica dioica* (Common Nettle). Occasional semi-mature *Quercus robur* (Pedunculate Oak) trees are present.

Target Note 181. A golf course not accessed.

Target Note 182. A ditch alongside a golf course with shallow sloping banks and flowing water with a depth of 5cm over a mud bed with no emergent vegetation. The right bank is the golf course and the left bank is densly vegetated with *Epilobium hirsutum* (Great Willowherb), *Phragmites australis* (Common Reed), *Rosa* species (a Rose) and *Rubus fruticosus* agg. (Bramble). Mature *Quercus robur* (Pedunculate Oak) and *Salix* viminalis (Osier) are occasionally present on the banks to a height of 16 m.

Target Note 183. Densely vegetated 1 m deep ditch with flowing water, 5 cm deep, over a mud bed. The bank vegetation contains abundant *Calystegia sepium* (Hedge Bindweed) with frequent *Eupatorium cannabinum* (Hemp-agrimony), *Mentha aquatica* (Water Mint) and *Urtica dioica* (Common Nettle). Occasional shrubs of *Cornus sanguinea* (Dogwood), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Salix purpurea* (Purple Willow) and *Sambucus nigra* (Elder).

Target Note 184. Broadleaved plantation woodland on a steep roadside embankment. The trees are 5 m in height and comprise *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Crataegus monogyna* (Hawthorn) and *Quercus robur* (Pedunculate Oak). Occasional shrubs of *Schedule 9* listed *Rosa rugosa* (Japanese Rose) are present throughout. The field-layer contains a sparse covering of woodland herbs such as *Anthriscus sylvestris* (Cow Parsley), *Geranium robertianum* (Herb-Robert), *Glechoma hederacea* (Ground-ivy) and *Silene dioica* (Red Campion) with an abundant covering of moss species comprising *Brachythecium rutabulum*, *Kinbergia praelonga* and *Pseudoscleropodium purum*. A path through the plantation contains some calcifugous herbs including *Filago vulgaris* (Common Cudweed) and *Rumex acetosella* (Sheep's Sorrel).

Target Note 185. A reed-bed dominated by *Phragmites australis* (Common Reed) not thoroughly accessed but *Calystegia sepium* (Hedge Bindweed), *Chamerion angustifolium* (Rosebay Willowherb) and *Heracleum sphondylium* (Hogweed) are present in drier areas.

Target Note 186. Dense *Pteridium aquilinum* (Bracken) cover with patches of *Rubus fruticosus* agg. (Bramble) and tree species including *Crataegus monogyna* (Hawthorn), *Betula pendula* (Silver Birch), *Quercus robur* (Pedunculate Oak) and *Sambucus nigra* (Elder).

Target Note 187. A line of planted *Pinus sylvestris* (Scots Pine).

Target Note 187a Ca;cifugous grassland with *Agrostis capillaris* (Common Bent) and *Rumex acetosella* (Sheep's Sorrel) forms the great majority of the sward with some areas having a greater covering of bryophyte species. Herb and bryophyte associates

typical of the sward include *Aphanes australis* (Slender Parsley-piert), *Crassula tillaea* (Mossy Stonecrop), *Myosotis ramosissima* (Early Forget-me-not), *Polytrichum juniperinum*, and *Veronica arvensis* (Wall Speedwell)

Target Note 187b Grassland similar to *Target Note 187a.*

Target Note 188. A patch of *Ulex europaeus* (Gorse) scrub by a path.

Target Note 189. Planted broadleaved woodland on a roadside embankment containing *Acer pseudoplatanus*, *Acer campestre* (Field Maple) and *Fraxinus excelsior* (Ash). This was not accessed.

Target Note 190. An area of dense *Pteridium aquilinum* (Bracken) at the bottom of an embankment. The occasional presence of *Phragmites australis* (Common Reed) and *Typha latifolia* (Bulrush) imply that this area gets very wet. Not accessed.

Target Note 191. An area of mixed vegetation comprising calcifugous grassland, ephemeral, and *Rubus fruticosus* agg. (Bramble) scrub in a small area used for storing road construction materials. An area of *Rubus fruticosus* agg. (Bramble) with *Urtica dioica* (Common Nettle) dominates the southern end of the site associated with a post and rail fence. This grades into a grassland containing frequent *Agrostis capillaris* (Common Bent) and *Festuca rubra* (Red Fescue) with scattered *Phleum pratense* (Timothy). Herb species present in this grassland are typical of calcifugous grassland habitats and include *Erodium cicutarium* (Common Stork's-bill), *Ornithopus perpusillus* (Bird's-foot) and *Sedum acre* (Biting Stonecrop). Around the road materials storage areas disturbance increases leading to a decrease in grass species and an increase in herb species including *Filago vulgaris* (Common Cudweed), *Medicago arabica* (Spotted Medick), *Trifolium arvense* (Hare's-foot Clover) and the nationally scarce *Trifolium suffocatum* (Suffocated Clover).

Target Note 192. Ephemeral vegetation on a road verge containing *Achillea millefolium* (Yarrow), *Lolium perenne* (Perennial Rye-grass), *Plantago coronopus* (Buck's-horn Plantain) and *Sonchus oleraceus* (Smooth Sow-thistle).

Target Note 193. Grassland in the central reservation of the A12 road, comprising abundant *Festuca rubra* (Red Fescue), frequent *Achillea millefolium* (Yarrow), *Arrhenatherum elatius* (False Oat-grass) and *Dactylis glomerata* (Cock's-foot), occasional *Malva sylvestris* (Common Mallow) and *Sonchus oleraceus* (Smooth Sow-thistle) and sparse *Ferula communis* (Giant Fennel).

Target Note 194. Extensive area of unimproved calcifugous grassland with scattered mature *Quercus robur* (Pedunculate Oak) trees, *Crataegus monogyna* (Hawthorn) shrubs and *Ulex europaeus* (Gorse) scrub. The grassland is rabbit grazed and such has a sward height of ranging between 1 and 3 cm. *Agrostis capillaris* (Common Bent) is the most abundant grass species but the presence of occasional *Festuca ovina* (Sheep's-fescue) implies that this area is unimproved. Calcifuges such as *Ornithopus perpusillus* (Bird's-foot), *Potentilla argentea* (Hoary Cinquefoil), *Teucrium scorodonia* (Wood Sage) and *Rumex acetosella* (Sheep's Sorrel) occur throughout. Large areas are dominated by bryophyte species including *Dicranum scoparium*, *Polytrichum juniperinum* and *Calliergonella cuspidatatum* with some small patches containing abundant *Cladonia furcata*.

Target Note 195. Broadleaved plantation similar to *Target Note 184.*

Target Note 196. Broadleaved plantation similar to *Target Note 184.*

Target Note 197. Broadleaved plantation similar to *Target Note 184.*

Target Note 198. Semi-improved uncut neutral grassland with a sward height of 20 cm containing *Achillea millefolium* (Yarrow), *Arrhenatherum elatius* (False Oat-grass) and *Galium verum* (Lady's Bedstraw) with shrubs of *Crataegus monogyna*, *Rosa canina* (Dog-rose) and *Ulex europaeus* (Gorse) and a small 2 m tall *Quercus robur* (Pedunculate Oak) tree.

Target Note 199. An unmanaged *Corylus avellana* (Hazel) 2 m in height with a semi mature *Quercus robur* (Pedunculate Oak) standard 6 m in height.

Target Note 200. An unmanaged *Acer campestre* (Field Maple) hedge 5 m in height with a field-layer dominated by *Hedera helix* (Ivy).

Target Note 201. A semi-improved *Arrhenatherum elatius* (False Oat-grass) dominated grassland with large patches of ruderal species such as *Chamerion angustifolium* (Rosebay Willowherb), *Senecio jacobaea* (Common Ragwort) and *Urtica dioica* (Common Nettle).

Target Note 202. A 1.5 m deep ditch with flowing water 5 cm deep. *Apium nodiflorum* (Fool's Water-cress) forms the emergent vegetation. The steep banks are covered in abundant *Festuca rubra* (Red Fescue) with frequent *Urtica dioica* (Common Nettle).

Target Note 203. Dense *Acer campestre* (Field Maple) copse 3 m in height with an *Arrhenatherum elatius* (False Oat-grass) dominated field-layer.

Target Note 204. An area of semi-natural woodland comprising *Acer campestre* (Field Maple), *Betula pendula* (Silver Birch) and *Populus alba* (White Poplar) with a canopy heoght of 13 m. .

Target Note 205. A garden lawn dominated by Festuca rubra (Red Fescue).

Target Note 206. A line of large trees reaching 18 m comprising *Acer pseudoplatanus* (Sycamore), *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak). A shrub-layer of *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder) is occasionally present with a field-layer of ruderal species such as *Ballota nigra* (Black Horehound*) Helminthotheca echioides* (Bristly Oxtongue) and *Urtica dioica* (Common Nettle). A dry 0.5 m deep ditch runs for three quarters of the length of the tree line.

Target Note 207. A 2 m deep ditch with 5 cm of still water over a mud bed. The bank vegetation is predominantly ruderal vegetation containing species such as *Calystegia sepium* (Hedge Bindweed), *Helminthotheca echioides* (Bristly Oxtongue) and *Heracleum sphondylium* (Hogweed). Occasional shrubs of *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder) are present. Dead individuals of these species are covered in dense *Hedera helix* (Ivy) growth.

Target Note 207a. A hedge on a bank comprising *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Fraxinus excelsior* (Ash), *Ilex aquifolium* (Holly), *Populus tremula* (Aspen), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Rosa canina* (Dog-rose),*Sambucus nigra* (Elder) and *Sorbus aucuparia* (Rowan). With stands of *Pteridium aquilinum* (Bracken).

Target Note 208. A line of 18 m high *Fraxinus excelsior* (Ash) trees with a shrub layer of 8 m tall *Quercus robur* (Pedunculate Oak) on a 1 m high bank.

Target Note 209. A semi-natural broadleaved woodland dominated by *Fraxinus excelsior* (Ash) with occasional *Aesculus hippocastanum* (Horse-chestnut) and *Quercus robur* (Pedunculate Oak) on a shallow slope. The canopy is 18 m tall with a shrub-layer comprising *Crataegus laevigata* (Midland Hawthorn), *Crataegus ×media* (Hybrid Hawthorn), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder). The field-layer is dominated by *Pteridium aquilinum* (Bracken) with occasional patches of *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle).

Target Note 210. An extensive area of *Phragmites australis* (Common Reed) swam on the edge of Martlesham Creek grading into *Spartina anglica* (Common Cord-grass) at the edges. Not accessed.

Target Note 211. Green algal beds on silt and mud.

Target Note 212. Small disjunct patches of *Spartina anglica* (Common Cord-grass) along the north bank of Martlesham Creek.

Target Note 213. A sea bund 5 m wide and 2.5 m in height dominated by the seaside grass *Elytrigia atherica* (Sea Couch) on the seaward edge. A path approximately 0.5 m wide is along the top of the bund with vegetation consisting of *Dactylis glomerata* (Cock's-foot), *Lolium perenne* (Perennial Rye-grass), *Plantago coronopus* (Buck's-horn Plantain) and Plantago lanceolata (Ribwort Plantain). This vegetation continues on the northern landward side of the bund but occasional shrubs and small trees on it including the species *Betula pendula* (Silver Birch), *Quercus ilex* (Evergreen Oak), *Quercus robur* (Pedunculate Oak) and *Ulex europaeus* (Gorse).

Target Note 214. A large channel approximately 20 m across with *Phragmites australis* (Common Reed) dominating the margins leaving a 3 m wide area of open water in the middle.

Target Note 215. Improved cattle grazed field with *Juncus effusus* (Soft-rush) and *Deschampsia cespitosa* (Tufted Hair-grass) present where it meets the channel described in *Target Note 214.*

Target Note 216. Strip of semi-natural woodland containing *Fraxinus excelsior* (Ash), *Quercus robur* (Pedunculate Oak), *Salix* cinerea (Grey Willow) and other *Salix* species (Willow) with a shrub-layer dominated by *Rubus fruticosus* agg. (Bramble). Not accessed

Target Note 217. An arable field.

Target Note 218. A 2 m high *Crataegus monogyna* (Hawthorn) hedge with a field-layer dominated by *Hedera helix* (Ivy).

Target Note 219. A roadside verge consisting of a large area of *Pteridium aquilinum* (Bracken), grassland referable to the **NVC community MG1 *Arrhenatherum elatius* grassland** and a 12 m tall *Quercus robur* (Pedunculate Oak).

Target Note 220. A strip of *Arrhenatherum elatius* (False Oat-grass) dominated grassland with patches of *Urtica dioica* (Common Nettle) and semi-mature 5 m high *Quercus robur* (Pedunculate Oak) trees.

Target Note 221. A small copse of 12 m tall *Quercus robur* (Pedunculate Oak) with a shrub-layer of *Corylus avellana* and *Sambucus nigra* (Elder) and a sparse field-layer of *Hyacinthoides non-scripta* (Bluebell) and *Urtica dioica* (Common Nettle),

Target Note 222. A strip of mesotrophic grassland with *Anthriscus sylvestris* (Cow Parsley), *Elytrigia repens* (Common Couch) and *Urtica dioica* (Common Nettle). Scattered shrubs of *Prunus spinosa* (Blackthorn) and *Ulmus* species (Elm) are present implying that it is an extremely defunct hedge.

Target Note 223. A semi-improved field with patches of ruderal vegetation dominated by *Rumex obtusifolius* (Broad-leaved Dock) and *Urtica dioica* (Common Nettle). Not accessed.

Target Note 224. A gappy hedge observed from a distance approximately 1.75 m in height with abundant *Crataegus monogyna* (Hawthorn) and locally frequent *Ulmus* species (an Elm).

Target Note 225. A semi-improved field edge referable to the MG1 *Arrhenatherum elatius* grassland NVC community.

Target Note 226. A very gappy 2 m *Crataegus monogyna* (Hawthorn) and *Ulmus* species (Elm) hedge with a field-layer comprising *Elytrigia repens* (Common Couch), *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle).

Target Note 226a. A stream lined with small trees of *Fraxinus excelsior* (Ash), *Ilex aquifolium* (Holly),and *Salix caprea* (Goat Willow). The stream has a moderate flow with a stream bed of sand and silt. There was no aquatic or emergent vegetation present and the 1.5 m stream banks were covered species common in field boundaries such as *Arrhenatherum elatius* (False Oat-grass) and *Urtica dioica* (Common Nettle).

Target Note 227. A defunct, gappy 3 m high *Ulmus procera* (English Elm) hedge. Many dead stems are present which are approximately 5 m tall. The field-layer is semi-improved and consists of *Anthriscus sylvestris* (Cow Parsley), *Cirsium arvense* (Creeping Thistle), *Dactylis glomerata* (Cock's-foot), *Heracleum sphondylium* (Hogweed), *Pteridium aquilinum* (Bracken) and *Rubus fruticosus* agg. (Bramble).

Target Note 228. Mixed plantation woodland comprising *Castanea sativa* (Sweet Chestnut), *Pinus sylvestris* (Scots Pine) and *Quercus robur* (Pedunculate Oak). The canopy is approximately 20 m in height. The shrub-layer is 2.5 m *Sambucus nigra* (Elder). A sparse field-layer of *Glechoma hederacea* (Ground-ivy) and *Hedera helix* (Ivy) is present. The western edge of the woodland has a dense ×*Cupressocyparis leylandii* (Leyland Cypress).hedge. The northern, southern and eastern edges are dominated by dense *Rubus fruticosus* agg. (Bramble) scrub.

Target Note 229. A recently cleared 1.5 m deep ditch with 5 cm deep running water. The bank vegetation had been recently removed but appeared to consist largely of *Rumex obtusifolius* (Broad-leaved Dock) and *Urtica dioica* (Common Nettle).

Target Note 230. A small patch of *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) scrub with abundant *Rubus fruticosus* agg. (Bramble) growth.

Target Note 231. A well maintained *Crataegus monogyna* (Hawthorn) hedge with an 18 m *Quercus robur* (Pedunculate Oak) standard. *Hedera helix* (Ivy), *Tamus communis* (Black Bryony) and *Rubus fruticosus* agg. (Bramble) occurs throughout and the field-layer is referable to the **NVC community OV24 Urtica dioica-Galium aparine community**.

Target Note 232. A 2.5 m hedge with some gaps comprising the species *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Crataegus monogyna* (Hawthorn), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn) and *Rosa canina* (Dog-rose).

Target Note 233. A *Crataegus monogyna* (Hawthorn) dominated hedge with *Prunus spinosa* (Blackthorn), *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm).

Target Notes 234 - 245. NUMBERS NOT USED.

Target Note 246. A 30 m strip of saltmarsh at the bottom of a bund. The vegetation is relatively species-rich and dense. It consists of abundant *Atriplex portulacoides* (Sea-purslane) and *Puccinellia maritima* (Common Saltmarsh-grass) with frequent *Salicornia europaea* (Common Glasswort) and *Suaeda maritima* (Annual Sea-blite). Other species present at lower frequencies include *Aster tripolium* (Sea Aster) and *Triglochin maritimum* (Sea Arrowgrass).

Target Note 247. A bund approximately 2.5 m in height with a 30° slope on the seaward and landward sides both dominated by *Elytrigia atherica* (Sea Couch). The landward side has occasional *Crataegus monogyna* (Hawthorn) shrubs on it. A 1 m wide path runs along the top of the bund associated with a grassland containing abundant *Arrhenatherum elatius* (False Oat-grass) with frequent *Lolium perenne* (Perennial Rye-grass). The herb species present are typical of mestrophic grasslands by the sea and include the species *Beta vulgaris* ssp. *maritima* (Sea Beet), *Helminthotheca echioides* (Bristly Oxtongue), *Taraxacum* agg. (Dandelion) and *Trifolium repens* (White Clover).

Target Note 248. An improved grassland dominated by *Lolium perenne* (Perennial Rye-grass) between *Target Note 248 and 250.*

Target Note 249. A large channel of water 12 m wide and of unknown depth running parallel to the bund of *Target Note 247.* Algal mats and *Lemna minor* (Common Duckweed) are the only aquatic vegetation present with occasional areas dominated by *Phragmites australis* (Common Reed).

Target Note 250. Scattered strandline vegetation comprising *Crambe maritima* (Sea-kale), *Glaucium flavum* (Yellow Horned-poppy) and *Rumex crispus* (Curled Dock).

Target Note 251a. A small relatively sheltered bay has developed due to the presence of a groyne constructed of limestone just to the north. The diffuse vegetation comprises a range of species associated with coastal, ruderal and mesotrophic habitats. Species associated with coastal habitats include *Atriplex laciniata* (Frosted Orache), *Atriplex littoralis* (Grass-leaved Orache), *Beta vulgaris* ssp. *maritima* (Sea Beet), *Cakile maritima* (Sea Rocket), *Elytrigia atherica* (Sea Couch), *Parapholis strigosa* (Hard-grass), *Suaeda maritima* (Annual Sea-blite) and *Tripleurospermum maritimum* (Sea Mayweed). These are interspersed with ruderal and mesotrophic species comprising *Agrostis stolonifera* (Creeping Bent), *Bromus hordeaceus* (Soft-brome), *Dactylis glomerata* (Cock's-foot), *Helminthotheca echioides* (Bristly Oxtongue), *Medicago lupulina (*Black Medick), *Potentilla reptans* (Creeping Cinquefoil), *Sonchus oleraceus* (Smooth Sow-thistle) and *Trifolium repens* (White Clover).

Target Note 251b. An eroding cliff face approximately 3 m in heigh. Ath the op of the cliff there is a strip of grassland approximately 1 to 2 m across dominated solely by *Festuca rubra* (Red Fescue). Where small sections of the cliff have been eroded and the soil substrate is still present, a small, highly disturbed section of soil has been colonised by many ruderal species. The most frequent species present include *Aira praecox* (Early Hair-grass), *Arrhenatherum elatius* (False Oat-grass), *Bromus hordeaceus* (Soft-brome), *Sinapis arvensis* (Charlock), *Smyrnium olusatrum* (Alexanders) and *Urtica dioica* (Common Nettle).

Target Note 251c. Areas of soft cliff co-dominated by *Sinapis arvensis* (Charlock), *Smyrnium olusatrum* (Alexanders) and *Urtica dioica* (Common Nettle). Other large ruderals are occasionally present including *Arctium lappa* (Greater Burdock) and *Rubus fruticosus* agg. (Bramble). Forming an understory beneath the canopy of tall ruderal species and at the edges of these areas there are several small annual and smaller ruderal species including *Anagallis arvensis* ssp. *arvensis* (Scarlet Pimpernel), *Anchusa arvensis* (Bugloss), *Anisantha sterilis* (Barren Brome) and *Mercurialis annua* (Annual Mercury). Where the vegetated cliff face meets the shingle there are scattered individuals of *Glaucium flavum* (Yellow Horned-poppy).

Target Note 251d. A sandy, 30 m high cliff face. Vegetation of the top 20 m is rabbit grazed. It comprises large areas dominated by a mixture of rosette herb species such as *Echium vulgare* (Viper's-bugloss), *Erodium cicutarium* (Common Stork's-bill) and *Plantago* coronopus (Buck's-horn Plantain)

Target Note 252. An area of *Acer pseudoplatanus* (Sycamore) woodland on the cliff face.

Target Note 253. Scattered patches of Schedule 9 listed *Carpobrotus edulis* (Hottentot-fig)

Target Note 254. An area of grassland similar to the top 20 m of the cliff face vegetation of *Target Note 251d.*

Target Note 255. *Acer pseudoplatanus* (Sycamore) dominated woodland with occasional *Castanea sativa* (Sweet Chestnut) and rare *Quercus cerris* (Turkey Oak). The canopy height reaches 10 m and the field-layer is dominated by *Urtica dioica* (Common Nettle).

Target Note 256. Broadleaved plantation of *Castanea sativa* (Sweet Chestnut), *Populus alba* (White Poplar), *Quercus robur* (Pedunculate Oak) and *Tamarix gallica* (Tamarisk) with very scattered *Pinus sylvestris* (Scots Pine). Many *Populus alba* (White Poplar) suckers are present and the field-layer is *Plantago lanceolata* (Ribwort Plantain).

Target Note 257. A line of 13 m tall *Pinus sylvestris* (Scots Pine).

Target Note 258. A defunct, gappy *Prunus domestica* (Wild Plum) hedge with a 1 m deep, 0.5 m wide dry ditch. The field layer is predominantly dense *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle) growth.

Target Note 259. An improved grassland track dominated by *Lolium perenne* (Perennial Rye-grass).

Target Note 260. A hedge similar to *Target Note 258.*

Target Note 261. A recently planted hedge comprising *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Ligustrum vulgare* (Wild Privet), *Prunus spinosa* (Blackthorn) and *Viburnum lantana* (Wayfaring-tree). Currently the vegetation is dominated by ruderal herbs such as *Arctium minus* (Lesser Burdock), *Artemisia vulgaris* (Mugwort), *Ballota nigra* (Black Horehound) and *Urtica dioica* (Common Nettle).

Target Note 262. A species-rich hedge containing *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Lonicera periclymenum* (Honeysuckle), *Prunus domestica* (Wild Plum), *Quercus ilex* (Holm Oak), *Quercus robur* (Pedunculate Oak), *Ulmus* cf. *plotii* (Plot's Elm) and *Ulmus procera* (English Elm). The field layer contains *Arrhenatherum elatius* (False Oat-grass), *Ballota nigra* (Black Horehound) and *Urtica dioica* (Common Nettle).

Target Note 263. A stagnant pond 20 m in diameter with *Lemna minor* (Common Duckweed) as the only aquatic vegetation. The pond margins are covered in ruderal vegetation containing the species *Cirsium arvense* (Creeping Thistle), *Epilobium hirsutum* (Great Willowherb), *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle). It is surrounded by semi-natural broadleaved woodland comprising *Acer pseudoplatanus* (Sycamore), *Alnus glutinosa* (Alder), *Salix cinerea* (Grey Willow) and *Salix purpurea* (Purple Willow).

Target Note 264. A 1 m deep by 1m wide ditch dominated by *Phragmites australis* (Common Reed) with a water depth of 20 cm.

Target Note 265. A line of planted semi-mature *Acer pseudoplatanus* (Sycamore), *Castanea sativa* (Sweet Chestnut) and *Tilia ×europaea* (Lime).

Target Note 266. A ditch by a roadside 1.5 m deep by 1m wide dominated by *Phragmites australis* (Common Reed) with occasional patches of *Cirsium arvense* (Creeping Thistle) and *Urtica dioica* (Common Nettle).

Target Note 267. A ditch 1 m wide with *Arrhenatherum elatius* (False Oat-grass) dominated banks and occasional emergent *Juncus effusus* (Soft-rush). Not accessed.

Target Note 268. Semi-natural broadleaved woodland with a canopy height of 12 m comprising *Acer pseudoplatanus* (Sycamore), *Alnus glutinosa* (Alder), *Castanea sativa* (Sweet Chestnut) and *Fraxinus excelsior* (Ash) with a shrub layer of *Crataegus monogyna* (Hawthorn). The field layer is dominated by *Urtica dioica* (Common Nettle) not accessed.

Target Note 269. A 5 m high leggy *Crataegus monogyna* (Hawthorn) hedge.

Target Note 270. Semi-natural broadleaved woodland comprising *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) with a canopy height of 14 m. The shrub-layer contains *Sambucus nigra* (Elder) and *Ulmus* species (Elm). *Urtica dioica* (Common Nettle) dominates the field-layer. Not accessed.

Target Note 271. Mixed plantation of *Acer pseudoplatanus* (Sycamore), *Castanea sativa* (Sweet Chestnut) and *Pinus sylvestris* (Scots Pine). Not accessed

Target Note 272. Ruderal vegetation comprising *Cirsium arvense* (Creeping Thistle) and *Urtica dioica* (Common Nettle).

Target Note 273. *Fraxinus excelsior* (Ash) dominated woodland with scattered *Pinus sylvestris* (Scots Pine) and *Quercus robur* (Pedunculate Oak). The canopy reaches 18 m with a shrub-layer dominated by *Sambucus nigra* (Elder) and a field-layer dominated by *Urtica dioica* (Common Nettle).

Target Note 274. A 5 m high gappy hedge dominated by *Prunus domestica* (Wild Plum) with occasional *Crataegus monogyna* (Hawthorn) on a 0.5 m earth bank with a field-layer of *Hedera helix* (Ivy).

Target Note 275. A hedge similar to *Target Note 274.*

Target Note 276. Semi-natural *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) woodland with a canopy height of 18 m. The shrub layer comprises *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) with patches of *Rubus fruticosus* agg. (Bramble). Not accessed.

Target Note 277. A *Crataegus monogyna* (Hawthorn) gappy hedge 3 m tall with 18 m *Fraxinus excelsior* (Ash) standards.

Target Note 278. A 5 m high very gappy *Crataegus monogyna* (Hawthorn) hedge.

Target Note 279. An area of *Acer pseudoplatanus* (Sycamore) woodland.

Target Note 280. A 5 m high gappy *Prunus domestica* (Wild Plum) hedge with a field-layer of *Rubus fruticosus* agg. (Bramble) mixed with *Urtica dioica* (Common Nettle).

Target Note 281. Semi-improved neutral grassland referable to the **NVC community MG1 *Arrhenatherum elatius* grassland** grading to the grassland of *Target Note 254* with occasional patches of ruderal species such as *Rumex obtusifolius* (Broad-leaved Dock) and *Senecio jacobaea* (Common Ragwort) and patches of *Rubus fruticosus agg.* (Bramble) and *Sambucus nigra* (Elder).

Target Note 282. A compact *Crataegus monogyna* (Hawthorn) hedge 2 m tall with an *Urtica dioica* (Common Nettle) field-layer by a roadside.

Target Note 283. Semi-natural broadleaved woodland comprising *Aesculus hippocastanum* (Horse-chestnut), *Fraxinus excelsior* (Ash), *Salix alba* (White Willow) and *Salix caprea* (Goat Willow). .

Target Note 283a. A pond that has become wholly dominated by stands of *Carex riparia* (Greater Pond-sedge) and *Phragmites australis* (Common Reed). The main water body of the pond is defined by the presence of *Phragmites australis* (Common Reed) which gives way to *Carex riparia* (Greater Pond-sedge) on the drier margins. There are scattered patches of other marginal species comprising *Epilobium hirsutum* (Great Willowherb), *Juncus inflexus* (Hard Rush) and *Schoenoplectus lacustris* (Common Club-rush) but these are extremely restricted

Target Note 284. An un-managed hedge of *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) with *Calystegia sepium* (Hedge Bindweed).

Target Note 285. *Pinus sylvestris* (Scots Pine) woodland with occasional trees of *Acer pseudoplatanus* (Sycamore), *Crataegus monogyna* (Hawthorn), *Corylus avellana* (Hazel) and *Salix alba* (White Willow) around its edges. .

Target Note 286. Ditch with banks dominated by *Phragmites australis* (Common Reed) and no aquatic vegetation.

Target Note 286a. Ditch similar to *Target Note 286.*

Target Note 286b. Ditch similar to *Target Note 286.*

Target Note 286c. The Queens Fleet is approximately 30 m across where the route crosses. The aquatic vegetation is dominated by *Potamogeton berchtoldii* (Small Pondweed) and *Potamogeton pectinatus* (Fennel Pondweed) with the *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed) occurring frequently throughout the channel. *Myriophyllum spicatum* (Spiked Water-milfoil) is abundant particularly close to the *Phragmites australis* (Common Reed) dominated banks. Large stands of *Phragmites australis* (Common Reed) occur in the middle of the channel approximately 50 m down from the proposed crossing point

Target Note 286d. Ditch similar to *Target Note 286.*

Target Note 286e. Ditch similar to *Target Note 286.*

Target Note 286f. Ditch similar to *Target Note 286.*

Target Note 286g. Ditch similar to *Target Note 286.*

Target Note 286h. Ditch similar to *Target Note 286.*

Target Note 286i. Ditch similar to *Target Note 286.*

Target Note 286j. Ditch similar to *Target Note 286.*

Target Note 286k. Ditch similar to *Target Note 286.*

Target Note 286l. Ditch similar to *Target Note 286.*

Target Note 286m. Ditch similar to *Target Note 286.*

Target Note 286n. Ditch similar to *Target Note 286.*

Target Note 287. Broadleaved plantation of *Fraxinus excelsior* (Ash) and *Prunus avium* (Wild Cherry) with a canopy approximately 8 m high..

Target Note 288. A 6 m high gappy *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder) hedge with *Hedera helix* (Ivy) growing throughout. The field layer is referable to the **NVC community MG1 *Arrhenatherum elatius* grassland**.

Target Note 289. An abandoned building surrounded by ruderal vegetation comprising *Arctium minus* (Lesser Burdock), *Arrhenatherum elatius* (False Oat-grass), *Artemisia vulgaris* (Mugwort), *Cirsium arvense* (Creeping Thistle), *Epilobium hirsutum* (Great Willowherb) and *Urtica dioica* (Common Nettle).

Target Note 290. A gappy 6 m high hedge containing *Crataegus monogyna* (Hawthorn), *Fraxinus excelsior* (Ash) and *Ulmus* species (Elm)

Target Note 291. A semi-natural broadleaved woodland with a canopy height of 13 m comprising *Acer pseudoplatanus* (Sycamore), *Fraxinus excelsior* (Ash) and *Salix alba* (White Willow). The shrub-layer contains *Ilex aquifolium* (Holly) and *Sambucus nigra* (Elder). *Ruscus aculeatus* (Butcher's-broom) is present but is likely to be a garden escape. The field-layer comprises ruderal species such as *Arctium minus* (Lesser Burdock), *Heracleum sphondylium* (Hogweed) and *Urtica dioica* (Common Nettle).

Target Note 291a. A 3.5 m tall hedge predominantly *Crataegus monogyna* (Hawthorn) with *Prunus spinosa* (Blackthorn). The field-layer is species-poor.

Target Note 291b. a 4.5 m hedge broadly similar in composition to *Target Note 291a.*

Target Note 291c. A very gapppy *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) hedgerow.

Target Note 292. A mesotrophic grassland strip along an un-mettled farm track. The vegetation is referable to **MG1 *Arrhenatherum elatius* grassland**.

Target Note 293. A unmanaged but densely growing hedge of *Prunus spinosa* (Blackthorn) and *Ulmus* species (Elm) 3.5 m in height with a sparse *Urtica dioica* (Common Nettle) field-layer.

Target Note 294. A leggy *Crataegus monogyna* (Hawthorn) dominated hedge 3 m in height with occasional *Malus sylvestris* (Crab Apple). The field-layer comprises ruderal species such as *Arrhenatherum elatius* (False Oat-grass), *Ballota nigra* (Black Horehound) and *Urtica dioica* (Common Nettle).

Target Note 295. A strip of ruderal vegetation surrounding a wet ditch along a field margin, down a south facing slope. The species present are typical of such habitats including *Artemisia vulgaris* (Mugwort), *Cirsium arvense* (Creeping Thistle) and *Heracleum sphondylium* (Hogweed). *Pteridium aquilinum* (Bracken) is present and becomes locally dominant at the base of the slope.

Target Note 295a. A wet ditch covered in ruderal vegetation with abundant *Urtica dioica* (Common Nettle) and patches of *Epilobium hirsutum* (Great Willowherb).

Target Note 296. A broadleaved plantation used to raise pheasants. The 8 m canopy comprises planted *Castanea sativa* (Sweet Chestnut), *Corylus avellana* (Hazel), *Fraxinus excelsior* (Ash), *Prunus avium* (Wild Cherry), *Quercus robur* (Pedunculate Oak) and *Sambucus nigra* (Elder) with occasional larger 12 m *Quercus robur* (Pedunculate Oak) trees which appear to be self-sown. Occasional 5 m tall *Prunus laurocerasus* (Cherry Laurel) bushes form the sparse shrub-layer. The field-layer is very sparse, *Glechoma hederacea* (Ground-ivy) and *Urtica dioica* (Common Nettle) are the most frequent species with the scattered patched of *Silene dioica* (Red Campion) and *Stellaria holostea* (Greater Stitchwort). Patches of dense *Prunus spinosa* (Blackthorn) occur at the woodland edges. Dry ditches cross this woodland in several places.

Target Note 297. Recently mown neutral grassland with scattered *Quercus robur* (Pedunculate Oak) trees and patches of *Prunus spinosa* (Blackthorn) along the south bank of Kirton Creek. The main grasses of the sward appear to be *Agrostis stolonifera* (Creeping Bent), *Dactylis glomerata* (Cock's-foot) and *Lolium perenne* (Perennial Rye-grass). Frequent patches of species associated with wet habitats such as *Phalaris arundinacea* (Reed Canary-grass) and *Phragmites australis* (Common Reed) imply that the area has a high water table and/or is subject to periodic flooding.

Target Note 298. Semi-improved neutral grassland above the marshy grassland of *Target Note 299.* The species present include *Achillea millefolium* (Yarrow), *Agrostis capillaris* (Common Bent), *Centaurea nigra* (Common Knapweed) and *Heracleum sphondylium* (Hogweed).

Target Note 299. Area of marshy grassland by Kirton Creek. Abundant *Phalaris arundinacea* (Reed Canary-grass) with very frequent *Juncus effusus* (Soft-rush) forms the great proportion of the vegetation. *Iris pseudacorus* (Yellow Iris) and *Phragmites australis* (Common Reed) occur as occasional patches.

Target Note 300. Kirton Creek. A creek with a channel 9 m across of un-determined depth. The creeks margins are dominated by *Phragmites australis* (Common Reed)

with occasional patched of *Carex acutiformis* (Lesser Pond-sedge). Open water is present in 4 m wide channel through the *Phragmites australis* (Common Reed).

Target Note 301. A 5 m wide ditch dominated by *Phragmites australis* (Common Reed). Wether the ditch contained water or not could not be established.

Target Note 302. Broadleaved plantation woodland dominated by *Castanea sativa* (Sweet Chestnut) with a canopy height of 20 m on a 20° slope. *Pinus sylvestris* (Scots Pine) and *Quercus robur* (Pedunculate Oak) occur occasionally. The *Sambucus nigra* (Elder) and *Crataegus monogyna* (Hawthorn) shrub-layer varies from 2 to 5 m in height. The sparse field-layer comprises common herbs such as *Glechoma hederacea*, *Silene dioica* (Red Campion) and *Urtica dioica* (Common Nettle).

Target Note 303. A patch of *Crataegus monogyna* (Hawthorn) and *Salix caprea* (Goat Willow) scrub.

Target Note 304. A semi-improved neutral field containing *Arrhenatherum elatius* (False Oat-grass), *Holcus lanatus* (Yorkshire-fog), *Hypochaeris radicata* (Cat's-ear) and *Taraxacum* sect. *Ruderalia* (Common Dandelion). The sward is dense with a height of 15 cm.

Target Note 305. A *Carex* cf. *acutiformis* (Lesser Pond-sedge) dominated swamp with *Phragmites australis* (Common Reed) dominating the wetter margins. A 15 m high *Salix alba* (White Willow) tree occurs in the centre. .

Target Note 305a. A large ditch approximately 10m across with marginal vegetation dominante by *Phragmites australis* (Common Reed) with occasional *Schoenoplectus tabernaemontani* (Grey Club-rush) and *Epilobium hirsutum* (Great Willowherb). In areas of open water the aquatic vegetation is dominated by the *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed).

Target Note 306. A recently sown field that appears to have had the same vegetation as *Target Note 305.*

Target Note 307. Crataegus monogyna (Hawthorn) dominated scrub. .

Target Note 308. An island formed from two 4 m wide drainage ditches dominated by *Phragmites australis* (Common Reed). Large 20 m tall *Salix alba* (White Willow) trees are present at the edges of the island. The surrounding channels are very slow flowing with margins dominated by *Phragmites australis* (Common Reed).

Target Note 309. Permenant grass dominated field headland bordering ditches of *Target Note 310.* Not accessed possibly Semi-improved.

Target Note 310. A series of ditches dominated by *Phragmites australis* (Common Reed). Not accessed.

Target Note 311. *Phragmites australis* (Common Reed) dominated swamp 20 m wide between arable fields and a farmland track at the base of a sea wall.

Target Note 312. A 20 m by 60 m brackish pool in the *Phragmites australis* (Common Reed) swamp of *Target Note 211.* No aquatic vegetation is present

Target Note 313. A grassy farmland track dominated by *Arrhenatherum elatius* (False Oat-grass) with occasional patches of *Phragmites australis* (Common Reed).

Target Note 314. Semi-improved vegetation of a 10 m wide, 3 m high sea wall dominated by *Elytrigia atherica* (Sea Couch) with a sward height of approximately 50 cm on the landward edge. The top of the bund comprises abundant *Arrhenatherum elatius* (False Oat-grass) and *Elytrigia atherica* (Sea Couch) with locally frequent *Phragmites australis* (Common Reed) and occasional *Cirsium arvense* (Creeping Thistle). The seaward edge is dominated by *Elytrigia atherica* (Sea Couch) with scattered *Beta vulgaris* ssp. *maritima* (Sea Beet).

Target Note 315. Salt-marsh on the east bank of the river Deben with similar vegetation to *Target Note 246.* *Aster tripolium* (Sea Aster) occurs less frequently than on the western bank.

Target Note 316. A semi-improved field sown with *Lolium perenne* (Perennial Rye-grass). Annual and ruderal herb species are present throughout implying the field is not particularly fertile. The herbaceous species present include *Medicago arabica* (Spotted Medick), *Veronica arvensis* (Wall Speedwell) and *Erodium cicutarium* (Common Stork's-bill). The field is bounded by a ditch system.

Target Note 317. A large recently dug lake with gravel/sand substrate. There was no aquatic or emergent vegetation present at the time of survey though the presence of large numbers of domesticated ducks implies that the water will suffer from eutrophication.

Target Note 318. A ditch system approximately 1 to 2 m wide. The water was vey turbid at the time of survey and did not appear to support any aquatic species. Marginal vegetation was very sparse but there were some small areas of *Carex acutiformis* (Lesser Pond-sedge) The banks were soil with a 15° slope supporting a vegetation comprising species associated with ruderal and marsh vegetation including *Phalaris arundinacea* (Reed Canary-grass), *Scrophularia nodosa* (Common Figwort) and *Urtica dioica* (Common Nettle). A line of *Populus* species (Poplar) trees are along the southern bank.

Target Note 319. A line of 18 m recently polarded mature *Populus ×canadensis* (Hybrid Black-poplar).

Target Note 320. A ditch system similar to *Target Note 318* with 15 m *Alnus glutinosa (Alder)* along the banks.

Target Note 321. A ditch running parallel to a railway approximately 30cm deep and 1.5 m wide dominated by *Phragmites australis* (Common Reed) with small areas of *Carex acutiformis* (Lesser Pond-sedge) and *Typha latifolia* (Bulrush). The bankside vegetation is referable to the National Vegetation Classification community **OV24 *Urtica dioica-Galium aparine* community.** Several *Alnus glutinosa* (Alder) saplings are present

Target Note 322. Ditch similar to 319 with larger areas of *Carex acutiformis* (Lesser Pond-sedge).

Target Note 323. An area *Alnus glutinosa* (Alder) and *Salix* species (Willow) carr with *Carex acutiformis* (Lesser Pond-sedge) and *Phragmites australis* (Common Reed) swamp forming the field-layer.

Target Note 324. A gappy hedge comprising *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn), *Rosa* species (a Rose), *Salix* species (a Willow), *Sambucus nigra* (Elder) and *Ulmus glabra* (Wych Elm) with *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) standards. The field-layer is dominated by ruderal herbs including *Galium aparine* (Cleavers), *Rumex obtusifolius* (Broadleaved Dock) and *Urtica dioica* (Common Nettle).

Target Note 325. A clipped species-rich hedge including the species *Cornus sanguinea* (Dogwood), *Malus sylvestris* (Crab Apple) and *Quercus robur* (Pedunculate Oak) with a field-layer dominated by *Urtica dioica* (Common Nettle).

Target Note 326. A hedge dominated by *Ulmus procera* (English Elm).

Target Note 327. A gappy and leggy hedge co-dominated by *Crataegus monogyna* (Hawthorn) and *Ulmus* species (an Elm). The field-layer is dominated by *Urtica dioica* (Common Nettle).

Target Note 328. A predominantly *Prunus spinosa* (Blackthorn) hedge with a field-layer of *Hedera helix* (Ivy).

Target Note 329. A species-rich hedgerow comprison *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Euonymus europaeus* (Spindle), *Fraxinus excelsior* (Ash), *Quercus robur* (Pedunculate Oak), *Rosa* species (a Rose), and *Ulmus* species (an Elm). The hedge has been mechanically cut recently.

Target Note 330. A leggy predominantly *Crataegus monogyna* (Hawthorn) hedge with significant gaps.

Target Note 331. A stock proof, trimmed predominantly *Prunus spinosa* (Blackthorn) hedge with *Arum maculatum* (Lords-and-Ladies) and *Brachypodium sylvaticum* (False Brome) in the field-layer.

Target Note 332. A species-rich hedge including *Cornus sanguinea* (Dogwood) *Euonymus europaeus* (Spindle) and *Sambucus nigra* (Elder),

Target Note 333. A hedge 8-10 m in height containing *Acer campestre* (Field Maple), *Corylus avellana* (Hazel) and *Ulmus* species (an Elm) with *Arum maculatum* (Lords-and-Ladies) and *Brachypodium sylvaticum* (False Brome) in the field-layer.

Target Note 334. A clipped hedge dominated by *Acer campestre* (Field Maple) with *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Euonymus europaeus* (Spindle) and *Fraxinus excelsior* (Ash).

Target Note 335. A hedge similar to that described in *Target Note 333.*

Target Note 336. A hedge dominated by *Crataegus monogyna* (Hawthorn) on a 0.5 m earth bank with siginificant gaps and a *Quercus robur* (Pedunculate Oak) standard.

Target Note 337. Semi-improved neutral grassland on a floodplain bounded on the western edge by a river described in *Target Note 150.* The northern and southern edges are bounded by wet drains. The grassland is relatively species-rich with the grass species *Agrostis capillaris* (Common Bent), *Alopecurus pratensis* (Meadow Foxtail), *Festuca rubra* (Red Fescue) and *Holcus lanatus* (Yorkshire-fog). The most frequent herb species present include *Carex hirta* (Hairy Sedge), *Equisetum palustre* (Marsh Horsetail), *Ficaria verna* (Lesser Celandine), *Geranium dissectum* (Cut-leaved Crane's-bill), *Luzula campestris* (Field Wood-rush) and *Urtica dioica* (Common Nettle).

Target Note 338. Marshy grassland dominated by *Carex acutiformis* (Lesser Pond-sedge).

Target Note 339. Deciduous wet woodland with an open canopy that includes 18 m high *Acer pseudoplatanus* (Sycamore) and *Salix* species (Willow). The 5 m high shrub-layer comprises *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Salix purpurea* (Purple Willow) and *Sambucus nigra* (Elder). The field-layer is a mixture of **OV24 *Urtica dioica-Galium aparine* community** and species typical of wet habitats including *Angelica sylvestris* (Wild Angelica), *Caltha palustris* (Marsh-marigold), *Iris pseudacorus* (Yellow Iris) and *Mentha aquatica* (Water Mint).

Target Note 340. A 1.5 m wide wet ditch with no aquatic vegetation between *Target Note*s 337 and 339. Emergent vegetation includes *Carex acutiformis* (Lesser Pond-sedge) and *Iris pseudacorus* (Yellow Iris) with scattered areas of *Phragmites australis* (Common Reed). The banks are shallow, approximately 15 cm high, with *Urtica dioica* (Common Nettle) along the field edge of *Target Note 337* and a mix of woodland shrubs and field-layer species of *Target Note 339.*

Target Note 341. Scrub of *Sambucus nigra* (Elder) and tall *Prunus spinosa* (Blackthorn) with *Quercus robur* (Pedunculate Oak) and *Acer campestre* (Field Maple) standards around the edge. The scrub forms a dense canopy with *Prunus spinosa* (Blackthorn) reaching 7 m and *Sambucus nigra* (Elder) forming a dense understory approximately 3.5 m in height. The field-layer comprises areas dominated by *Urtica dioica* (Common Nettle) and *Claytonia perfoliata* (Springbeauty) with large areas of bare ground and leaf litter. Other mesotrophic species are present including *Glechoma hederacea* (Ground-ivy), the moss *Kinbergia praelonga* and *Stellaria media* (Common Chickweed). There is a flowing stream at the along the boundary of the scrub and *Target Note 337.* The stream is approximately 0.5 m wide and has steep 0.5 m deep banks. The stream bread comprises gravel, silt and leaf litter. Vegetation of of the banks is derived from the field-layer of the surrounding scrub but also include *Dryopteris dilatata* (Broad Buckler-fern).

Target Note 342. Swamp vegetation dominated by *Carex acutiformis* (Lesser Pond-sedge) associated species include *Angelica sylvestris* (Wild Angelica), *Caltha palustris* (Marsh-marigold) and *Carex paniculata* (Greater Tussock-sedge).

Target Note 343. A drain between *Target Notes 342* and *344.* It is well vegetated and approximately 30 cm wide. The drain is un-managed to the extent that it is mostly filled with mud and silt however it was flowing with a depth of 2 cm. The vegetation includes species typical of swamp habitats including *Angelica sylvestris* (Wild Angelica), *Caltha palustris* (Marsh-marigold), *Epilobium palustre* (Marsh Willowherb) and *Mentha aquatica* (Water Mint).

Target Note 344. Swamp vegetation similar to *Target Note 342.*

Target Note 345. A line of diffuse scrub comprising *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder) with a 20 m tall oak standard. The scrub follows the line of a damp drain approximately 20 cm deep filled with leaf litter.

Target Note 346. Semi-improved neutral grassland including *Agrostis capillaris (*Common Bent*)* and *Festuca rubra (*Red Fescue*)* with associated mesotrophic herb species including *Carex hirta (*Hairy Sedge*), Glechoma hederacea (*Ground-ivy*) and Veronica chamaedrys (*Germander Speedwell*).*

Target Note 346 a. A *Crataegus monogyna* (Hawthorn) dominated hedgerow 3 m in height.

Target Note 346 b. A *Corylus avellana* (Hazel) dominated hedge with occasional *Crataegus monogyna* (Hawthorn) and *Quercus robur* (Pedunculate Oak). The field-layer is referable to the NVC type **OV24 *Urtica dioica-Galium aparine* community**.

Target Note 346 c. Defunct *Ulmus procera* (English Elm) hedge with occasional *Sambucus nigra* (Elder).

Target Note 346 d. *Crataegus monogyna* (Hawthorn) dominated hedge with a ruderal dominated field-layer containing *Dactylis glomerata* (Cock's-foot) and *Urtica dioica* (Common Nettle).

Target Note 346 e. A hedge broadly similar to *Target Note 346d.*

Target Note 346f. Defuct hedges comprising *Crataegus monogyna* (Hawthorn), *Sambucus nigra* (Elder) and *Ulmus procera* (English Elm) with 18 m *Quercus robur* (Pedunculate Oak) standards. The field-layer is dominated by *Pteridium aquilinum* (Bracken).

Target Note 346 g. A hedge broadly similar to *Target Note 346f.*

Target Note 346 h. A 3 m hedge with *Crataegus monogyna* (Hawthorn) and *Ulmus procera* (English Elm) as alternating dominants.

Target Note 346 i. An *Ulmus procera* (English Elm) dominated hedge.

Target Note 346 j. A hedge comprising *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) with a ditch choked with *Urtica dioica* (Common Nettle).

Target Note 346 k. A mesotrophic grassland possibly semi-improved or sown. Dominated by *Festuca rubra* (Red Fescue) with *Hypochaeris radicata* (Cat's-ear).

Target Note 346 l. *Crataegus monogyna* (Hawthorn) scrub with occasional *Quercus robur* (Pedunculate Oak) standards. The field-layer is dominated by *Urtica dioica* (Common Nettle).

Target Note 346 m. A plantation of *Castanea sativa* (Sweet Chestnut) with an *Urtica dioica* (Common Nettle) dominated field-layer.

Target Note 346 n. A line of mature *Quercus robur* (Pedunculate Oak) with a field-layer dominated by *Hedera helix* (Ivy).

Target Note 346 o. A defunct gappy hedge to 12 m containing *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Quercus petraea* (Sessile Oak).

Target Note 346 p. A hedge with a line of 15 m *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak) at its northen extent with a shrub-layer of *Crataegus monogyna* (Hawthorn). Several sections comprise dead 8 m tall *Ulmus procera* (English Elm) stems with moderate *Hedera helix* (Ivy) cover.

Target Note 346q. A *Crataegus monogyna* (Hawthorn) hedge 4 m tall with several sections where the *Crataegus monogyna* (Hawthorn) shrubs has been subsumed by *Hedera helix* (Ivy).

Target Note 346r. A hedge similar to *Target Note 346q.*

Target Note 346s. A hedge to 9 m comprising large sections of *Ulmus glabra* (Wych Elm) with scattered *Crataegus monogyna* (Hawthorn) with a field-layer of *Hedera helix* (Ivy).

Target Note 346t. A hedge similar to *Target Note 346q.*

Target Note 346u. A hedge similar to *Target Note 346q.*

Target Note 346v. . A hedge similar to *Target Note 346q.*

Target Note 347. A roadside hedge containing *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn) and *Ulmus* species (an Elm). The field-layer is referable to the NVC type **OV24 *Urtica dioica-Galium aparine* community**.

Target Note 348. A hedge similar in species composition to *Target Note 347.*l

Target Note 349. A pollarded mature *Quercus robur* (Pedunculate Oak) approximately 2 m in diameter at breast height.

Target Note 350. A mature *Quercus robur* (Pedunculate Oak) on the route.

Target Note 351. A short hedge, less than 30m in length, comprising leggy *Crataegus monogyna* (Hawthorn) shrubs

Target Note 351a. An unmanged hedge of predominantly *Crataegus monogyna* (Hawthorn).

Target Note 351b. A hedge similar to *Target Note 351a.*

Target Note 351c. A hedge similar to *Target Note 351a.*

Target Note 352. Grassland dominated by *Festuca rubra* (Red Fescue) and *Holcus lanatus* (Yorkshire-fog) with frequent *Rumex acetosella* (Sheep's Sorrel).

Target Note 353. A small river approximately 3 m wide. It is fast flowing the turbidity at the time of survey was such that the structure of the bed could not be established nor could the presence of aquatic vegetation. The bank vegetation on the left and right banks was ruderal including *Alliaria petiolata* (Garlic Mustard), *Epilobium palustre* (Marsh Willowherb) and *Urtica dioica* (Common Nettle).

Target Note 354. Rough grassland derived from long-term set-aside or agricultural grassland previously under cultivation including the species *Arrhenatherum elatius* (False Oat-grass), *Helminthotheca echioides* (Bristly Oxtongue) and *Holcus lanatus* (Yorkshire-fog).

Target Note 355. A hedge to 6 m dominated by *Ulmus glabra* (Wych Elm) with a standard *Quercus robur* (Pedunculate Oak) and scattered woody species such as *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Euonymus europaeus* (Spindle) and *Prunus spinosa* (Blackthorn).

Target Note 356. A 1.75 m high hedge with alternating *Corylus avellana* (Hazel) and *Prunus spinosa* (Blackthorn) as dominants.

Target Note 357. A 3 m tall defunct *Crataegus monogyna* (Hawthorn) hedge with significant gaps.

Target Note 358. An *Acer campestre* (Field Maple) hedge 2.5 m in height by a roadside with a species-poor field-layer.

Target Note 359. A hedge broadly similar to *Target Note 358.*

Target Note 360. An *Acer campestre* (Field Maple) with scattered *Ulmus procera* (English Elm) suckers and many dead stems of same. The field-layer is species-poor.

Target Note 361. A very gappy defunct hedge comprising *Acer campestre* (Field Maple), *Cornus sanguinea* (Dogwood), *Corylus avellana*, *Crataegus laevigata* (Midland Hawthorn), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak) and *Sambucus nigra* (Elder). The field-layer is dominated by *Hedera helix* (Ivy).

Target Note 362. A 6 m talle hedge contating *Acer campestre* (Field Maple), *Crataegus laevigata* (Midland Hawthorn) and *Ilex aquifolium* (Holly). The field-layer is broadly referable to **MG1 *Arrhenatherum elatius* grassland** with scattered plants of *Brachypodium sylvaticum* (False Brome) and *Mercurialis perennis* (Dog's Mercury).

Target Note 363. A *Crataegus monogyna* (Hawthorn) dominated hedge with several standard trees comprising *Ilex aquifolium* (Holly), *Quercus robur* (Pedunculate Oak) and *Ulmus* species (an Elm).

Target Note 364. A 5 m tall *Crataegus monogyna* (Hawthorn) and *Ulmus* species (an Elm) hedge on a 0.75 m hedge bank next to a road.

Target Note 364a. Predominantly *Crataegus monogyna* (Hawthorn) hedge with occasional *Quercus robur* (Pedunculate Oak) standards

Target Note 364b. A hedge comprising mostly *Corylus avellana* (Hazel) with occasional *Crataegus monogyna* (Hawthorn), *Prunus avium* (Wild Cherry), *Quercus robur* (Pedunculate Oak), *Rosa* species (a Rose) and *Sambucus nigra* (Elder).

Target Note 364c. A hedge dominated by *Ulmus procera* (English Elm) with scattered *Sambucus nigra* (Elder).

Target Note 364d. A *Crataegus monogyna* (Hawthorn) dominated hedge.

Target Note 364e. A hedge co-dominated by *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn) with *Brachypodium sylvaticum* (False Brome) in the field-layer.

Target Note 364f. A *Crataegus monogyna* (Hawthorn) dominated hedge.

Target Note 364g.

Target Note 364h. A hedge dominated by *Prunus spinosa* (Blackthorn) with scattered *Crataegus monogyna* (Hawthorn), *Quercus robur* (Pedunculate Oak) and *Sambucus nigra* (Elder).

Target Note 364i. A hedge similar to *Target Note 364e.*

Target Note 364j A hedge similar to *Target Note 364e.*

Target Note 364k. An area of *Festuca rubra* (Red Fescue) dominated grassland with

Target Note 364l. A strip of *Crataegus monogyna* (Hawthorn) dominated scrub.

Target Note 364m. A strip of *Castanea sativa* (Sweet Chestnut) plantation.

Target Note 364n A hedge similar to *Target Note 364e..*

Target Note 364o. A hedge similar to *Target Note 364e.*

Target Note 364p. A hedge similar to *Target Note 364e.*

Target Note 364q. A hedge similar to *Target Note 364e.*

Target Note 364r. A hedge similar to *Target Note 364e.*

Target Note 364s. A hedge similar to *Target Note 364e.*

Target Note 364t. A hedge similar to *Target Note 364e.*

Target Note 364u. A hedge similar to *Target Note 364e.*

Target Note 364v. A hedge similar to *Target Note 364e.*

Target Note 364w. A hedge similar to *Target Note 364e.*

Target Note 365. An *Acer campestre* (Field Maple) hedge to 2 m.

Target Note 365a. A 2.5 m high hedge with *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn) and *Quercus robur* (Pedunculate Oak).

Target Note 366. A defunct gappy hedge comprising overgrown *Crataegus monogyna* (Hawthorn), *Sambucus nigra* (Elder) and *Acer campestre* (Field Maple). The field-layer is dominated by ruderal herbs such as *Ballota nigra* (Black Horehound), *Heracleum sphondylium* (Hogweed), *Sinapis arvensis* (Charlock) and *Urtica dioica* (Common Nettle).

Target Note 366a.. A field drain that supports a range of vegetation. At its most western point the channel is dominated by *Alopecurus geniculatus* (Marsh Foxtail) with a scattering of *Hydrocotyle vulgaris* (Marsh Pennywort). Further east, species-richness increases with tall marginal species dominating the channel. These comprise *Bolboschoenus maritimus* (Sea Club-rush), *Epilobium hirsutum* (Great Willowherb), *Juncus effusus* (Soft-rush), *Juncus inflexus* (Hard Rush), *Schoenoplectus tabernaemontani* (Grey Club-rush), *Sparganium erectum* (Branched Bur-reed) and *Typha latifolia* (Bulrush). The last 10 m where it meets the ditch of *Target Note 249* the channel turns into open water with aquatic vegetation comprising *Potamogeton pectinatus* (Fennel Pondweed) and *Lemna minor* (Common Duckweed). At this point the marginal vegetation is dominated by *Phragmites australis* (Common Reed)

Target Note 367. A *Crataegus monogyna* (Hawthorn) dominated hedge 2 m in height with a *Quercus robur* (Pedunculate Oak) standard.

Target Note 368. A concrete-lined ditch, approximately 1.5 m deep with 30° sloping banks, acting as a runoff channel for the adjacent A12 dual carriageway. The ditch is predominantly dry with scattered populations of the ruderal species *Urtica dioica* (Common Nettle) and *Claytonia perfoliata* (Springbeauty). The bank vegetation is *Rubus fruticosus* agg. (Bramble) scrub. At the western end at the confluence with the River Flynn there is an area of standing water present with the emergent plant species *Typha latifolia* (Bulrush) and *Juncus inflexus* (Hard Rush).

Target Note 369. *Salix alba* (White Willow) plantation woodland with *Urtica dioica* (Common Nettle) field-layer.

Target Note 370. A wooden shed with three 5 m high *Quercus robur* (Pedunculate Oak) trees. The shed is surrounded by *Urtica dioica* (Common Nettle) with a small patch of *Rubus fruticosus* agg. (Bramble) scrub.

Target Note 370a. Recent, within the last 15 years, Mixed plantation containing *Acer pseudoplatanus* (Sycamore), *Castanea sativa* (Sweet Chestnut), *Corylus avellana* (Hazel) and *Crataegus monogyna* (Hawthorn). The field-layer includes ephemeral and

ruderal weed species such as *Cirsium arvense* (Creeping Thistle), *Helminthotheca echioides* (Bristly Oxtongue) and *Vulpia bromoides* (Squirreltail Fescue).

Target Note 370b. Mixed plantation containing *Acer pseudoplatanus* (Sycamore), *Betula pendula* (Silver Birch), and *Ulmus procera* (English Elm). The shrub-layer contains *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn) with a field-layer dominated by *Urtica dioica* (Common Nettle) with occasional *Glechoma hederacea* (Ground-ivy).

Target Note 371. A strip of predominantly *Pinus sylvestris* (Scots Pine) plantation with a scattering of broad leaved trees including *Fagus sylvatica* (Beech), *Tilia ×europaea* (Lime) and *Quercus robur* (Pedunculate Oak). The field-layer comprises *Glechoma hederacea* (Ground Ivy), *Urtica dioica* (Common Nettle) and bare ground.

Target Note 372. Semi-improved rabbit grazed acid grassland containing *Agrostis capillaris* (Common Bent), *Erodium cicutarium* (Common Stork's-bill), *Holcus lanatus* (Yorkshire-fog), *Rumex acetosella* (Sheep's Sorrel) and *Senecio jacobaea* (Common Ragwort). *Urtica dioica* (Common Nettle) dominates the grassland edges.

Target Note 373. Semi-improved rabbit-grazed calcifugous grassland dominated by *Agrostis capillaris* (Common Bent) with occasional *Rumex acetosella* (Sheep's Sorrel).

Target Note 374. A complex of shrub and acid grassland communities. The scrub is formed of a mixture of *Rubus fruticosus* agg. (Bramble), *Ulex europaeus* (Gorse) and young *Quercus robur* (Pedunculate Oak) with scattered *Pteridium aquilinum* (Bracken). The grassland is co-dominated by *Agrostis capillaris* (Common Bent) and *Rumex acetosella* (Sheep's Sorrel) with small areas of *Polytrichum juniperinum*.

Target Note 374a. A species-poor calcifugous grassland with abundant of *Agrostis capillaris* (Common Bent) with other frequent calcifugous species such as *Ornithopus perpusillus* (Bird's-foot), *Rumex acetosella* (Sheep's Sorrel) and *Hypochaeris radicata* (Cat’s-ear).

Target Note 375. Marshy grassland at the base of a valley with abundant *Arrhenatherum elatius* (False Oat-grass) and *Filipendula ulmaria* (Meadowsweet) with large areas of *Carex acutiformis* (Lesser Pond-sedge). The grassland is crossed by two small largely defunct drains.

Target Note 376. *Populus tremula* (Aspen) plantation with a ruderal field-layer of *Galium aparine* (Cleavers, *Glechoma hederacea* (Ground-ivy) and *Urtica dioica* (Common Nettle). There are some small areas of *Adoxa moschatellina* (Moschatel).

Target Note 377. Recently cleared area of *Ulex europaeus* (Gorse) scrub now dominated by species-poor *Agrostis capillaris* (Common Bent) grassland

Target Note 378. Line of 5 mature 18 m high *Quercus robur* (Pedunculate Oak) trees.

Target Note 379. A rabbit-grazed calcifugous grassland bounded fences on the north and east sides and a defunct hedge running along a farm track to the south west. The grass species present include abundant *Agrostis capillaris* (Common Bent), with frequent *Festuca ovina* (Sheep's-fescue) and *Holcus lanatus* (Yorkshire-fog). The herb species include species typical of acid grassland such as *Erodium cicutarium* (Common Stork's-bill), *Hypericum perforatum* (Perforate St John's-wort) and *Rumex acetosella* (Sheep's Sorrel). Patches of 3 m high *Ulex europaeus* (Gorse) are present along the eastern fenceline.

Target Note 380. An area of 3 m tall scrub comprising *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Larix decidua* (European Larch) and *Ulex europaeus* (Gorse) with a field-layer of *Rubus fruticosus* agg. (Bramble) and *Urtica dioica* (Common Nettle).

Target Note 381. A small broadleaved plantation comprising *Acer campestre* (Field Maple), *Aesculus hippocastanum* (Horse-chestnut), *Crataegus monogyna* (Hawthorn), *Ilex aquifolium* (Holly), *Pinus sylvestris* (Scots Pine), *Quercus robur* (Pedunculate Oak) and *Rosa* species (a Rose). The field-layer comprises *Claytonia perfoliata* (Springbeauty) and *Urtica dioica* (Common Nettle) with areas of bare ground and leaf litter.

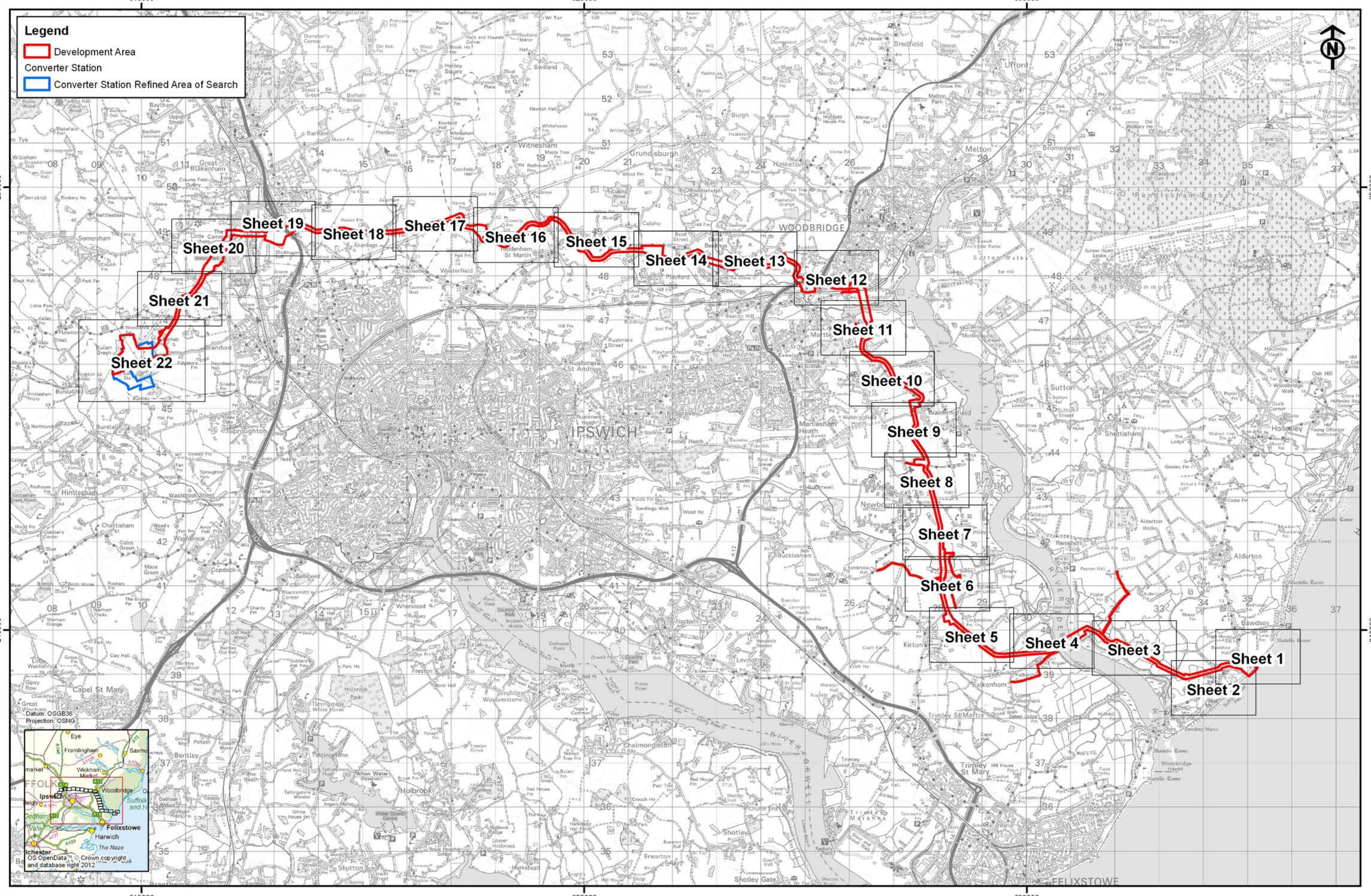
Target Note 382. Occasionally-mown rough grassland within the inundation zone of the adjacent river Flynn containing the species *Arrhenatherum elatius* (False Oat-grass), *Festuca rubra* (Red Fescue) and *Phalaris arundinacea* (Reed Canary-grass).

Target Note 383. Broad-leaved plantation with young, 15 m high trees, comprising the species *Acer campestre* (Field Maple), *Betula pendula*, *Prunus avium* (Wild Cherry) and *Sambucus nigra* (Elder). The field-layer is dominated by *Urtica dioica* (Common Nettle).

Target Note 384. The River Flynn approximately 6 m wide and fast flowing with no aquatic vegetation present at the time of survey. The emergent vegetation is mostly *Typha latifolia* (Bulrush) with patches of *Sparganium erectum* (Branched Bur-reed). The river banks are lined with trees including *Acer pseudoplatanus* (Sycamore), *Alnus glutinosa* (Alder) and *Salix caprea* (Goat Willow). The bank vegetation is dominated by *Urtica dioica* (Common Nettle).

Target Note 385. Semi-improved neutral grassland on a 10° south west facing slope. The grassland is fairly species-rich including the species *Achillea millefolium* (Yarrow), *Centaurea nigra* (Common Knapweed), *Equisetum arvense* (Field Horsetail), *Festuca rubra* (Red Fescue), *Leucanthemum vulgare* (Oxeye Daisy) and *Schedonorus arundicaceus* (Tall Fescue).

7 APPENDIX B – FIGURES



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02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:80,000

0 1 2 4 km

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Phase 1 Habitat Survey
Onshore Cable Route - Overview

Drg No	41388-A24-24.2.1(1)
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Layout	N/A

Appendix 24.2

Figure 24.2.1

Ref: T:\All GIS RSK\41388 - East Anglia ONE Offshore Windfarm\Figures\Arc_Workspaces\Phase 2

Phase 1 Habitat Key Sheet

- Broad-Leaved Semi-Natural Woodland
- Broad-Leaved Plantation Woodland
- Coniferous Semi-Natural Woodland
- Coniferous Plantation Woodland
- Mixed Semi-Natural Woodland
- Mixed Plantation Woodland
- Dence / Continuous Scrub
- Scattered Broad-Leaved Tree
- Scattered Coniferous Tree
- Scattered Scrub
- Unimproved Acid Grassland
- SI Semi-Improved Acid Grassland
- Unimproved Neutral Grassland
- SI Semi-Improved Neutral Grassland
- I Improved Grassland
- Marsh / Marshy Grassland
- Continuous Bracken
- Tall Ruderal
- Swamp
- Standing Water
- Running Water / Ditch
- Ga Intertidal Green Algal Beds
- Dence Continuous Saltmarsh
- Strand Line Vegetation
- Maritime Cliff
- C Coastal Grassland
- A Arable
- A Amenity Grassland
- Emphemeral / Short Perennial
- Broad-Leaved Intact Hedge
- Broad-Leaved Gappy Hedge
- Coniferous Intact Hedge
- Coniferous Gappy Hedge
- Fence
- Dry Ditch
- Boundary Removed
- Habitat Boundary
- Botanical target note

SCOTTISHPOWER RENEWABLES VATTENFALL

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Phase 1 Habitat Survey Key Sheet

Appendix 24.2		Figure 24.2.2	
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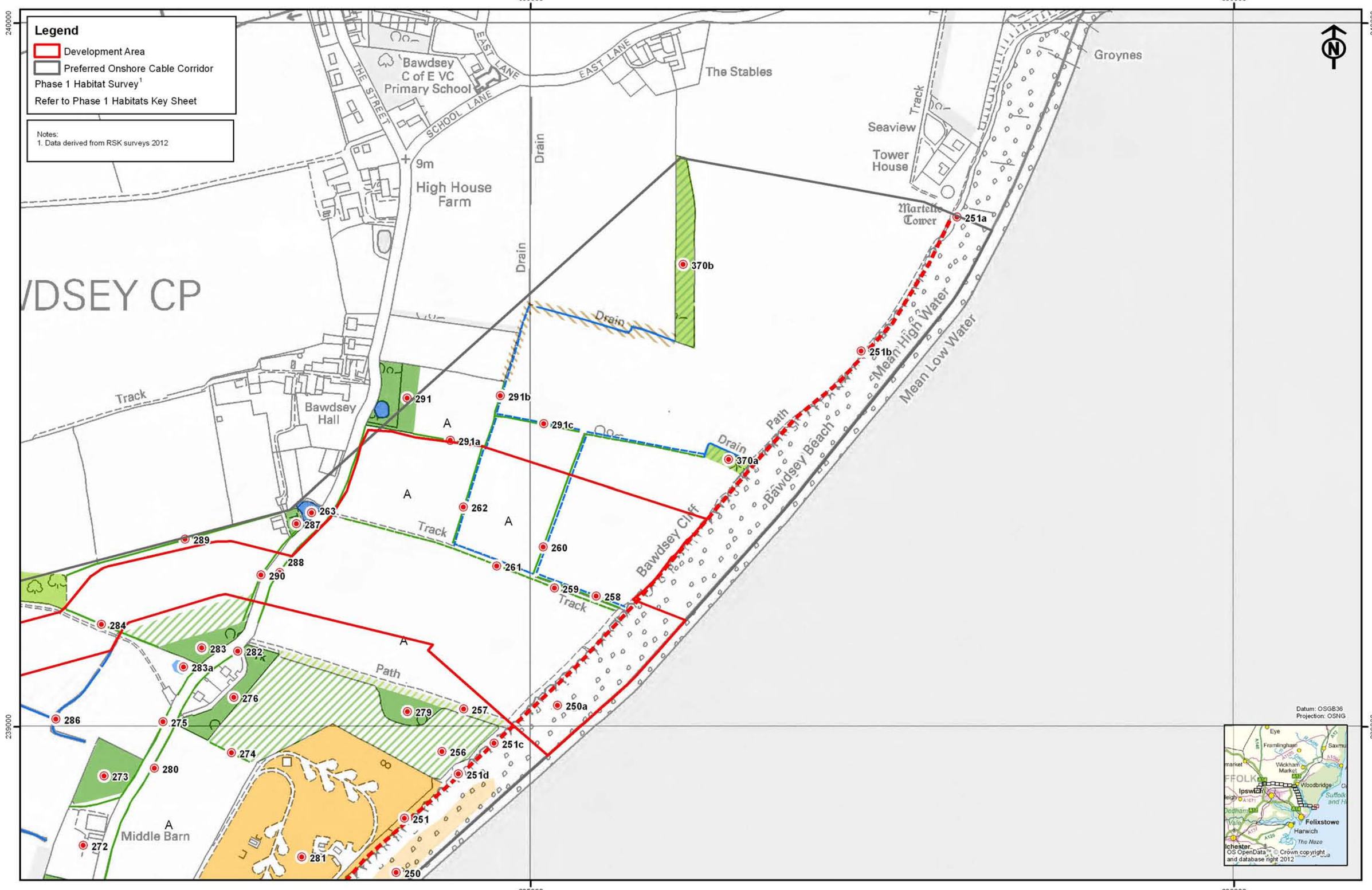

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:5,000

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Appendix 24.2

Figure 24.2.2

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634000
635000
239000

Bawdsey Marshes
Drain
Track
Path
Middle Barn
Lodge
Car Park
FERRY ROAD
Bawdsey Cliff
Bawdsey Beach
Mean Low Water
Marsh Cottages
Farm Cottages
1m
2m
4m

Legend

- Development Area
- Preferred Onshore Cable Corridor
- Phase 1 Habitat Survey[1]
- Refer to Phase 1 Habitats Key Sheet

Notes:
1. Data derived from RSK surveys 2012

Datum: OSGB36
Projection: OSNG

Rev	Date	By	Comment
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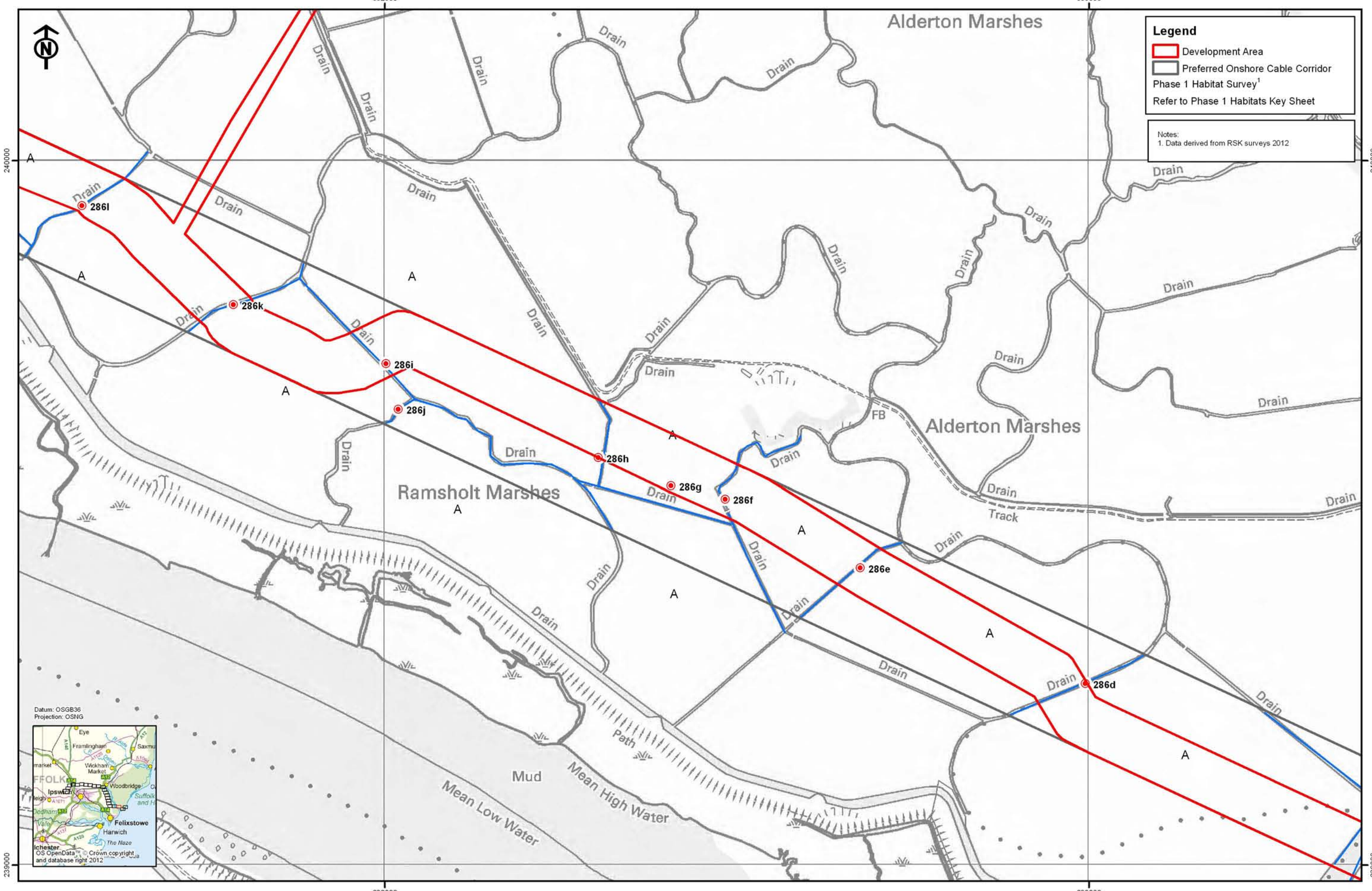

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SCOTTISHPOWER RENEWABLES VATTENFALL

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Date	01/10/12	Figure 24.2.2
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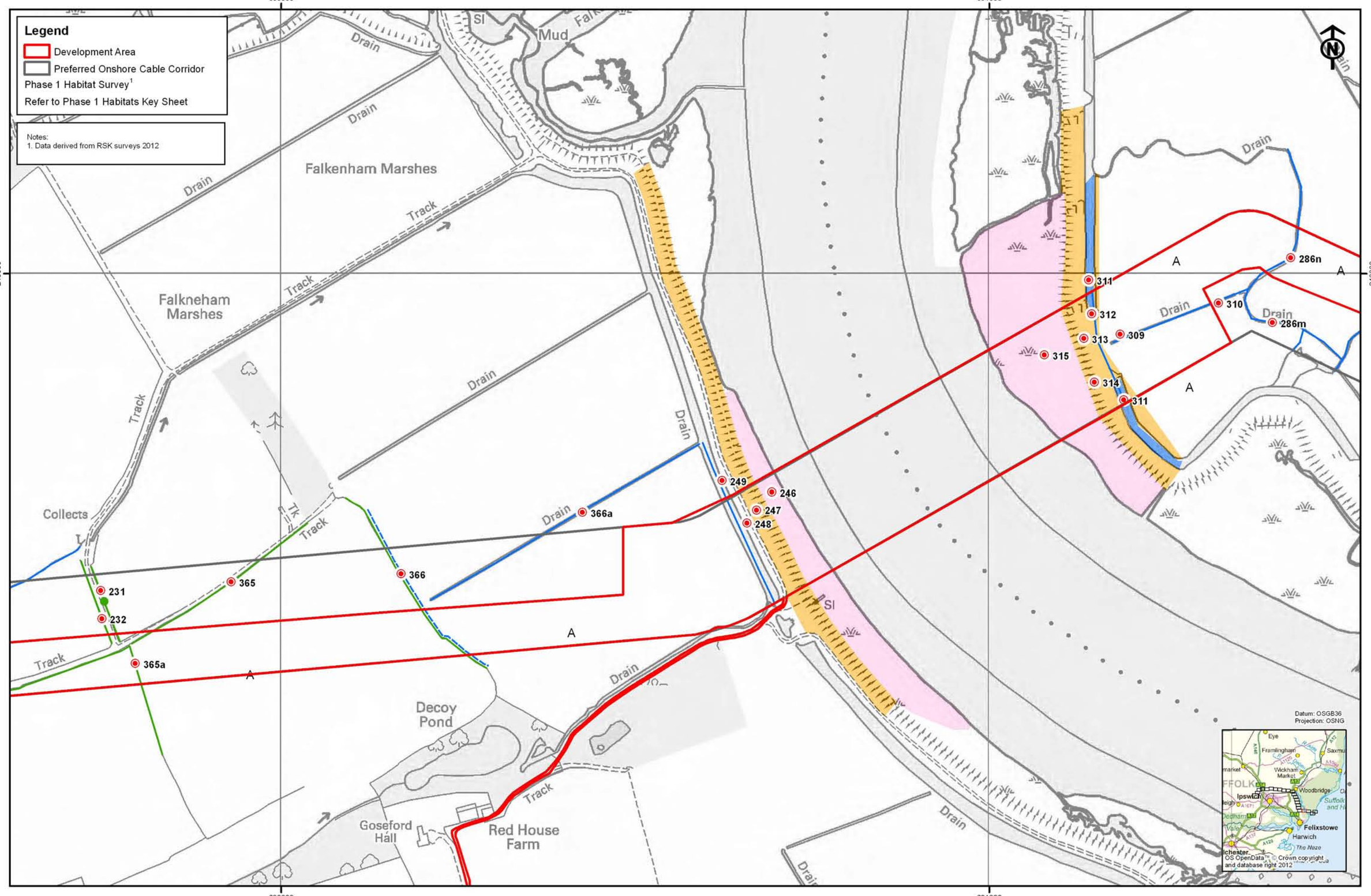

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00	15/08/12	SP	First issue

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Appendix 24.2

Figure 24.2.2

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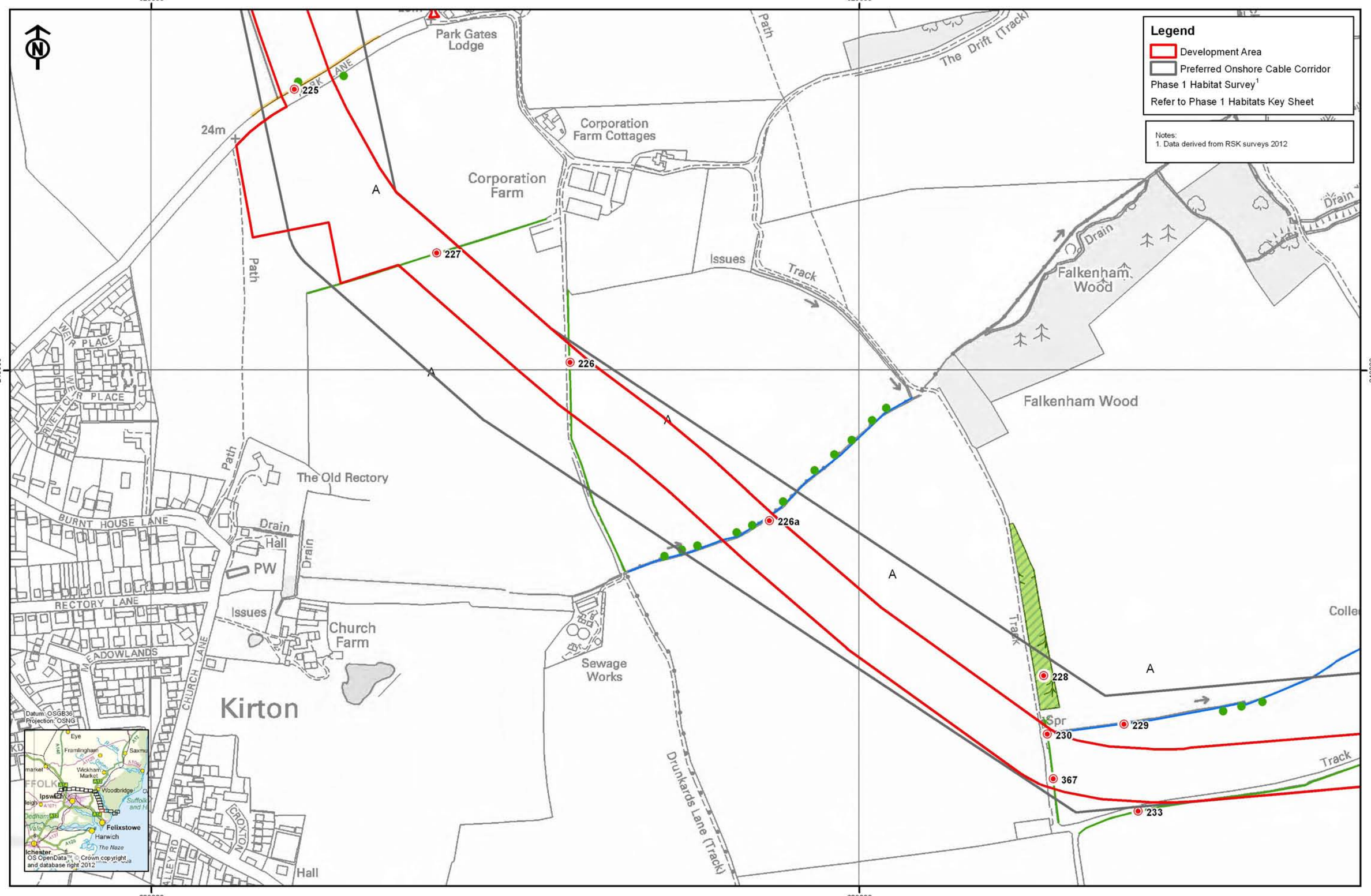

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01	30/08/12	SP	Updated cable route
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Figure 24.2.2

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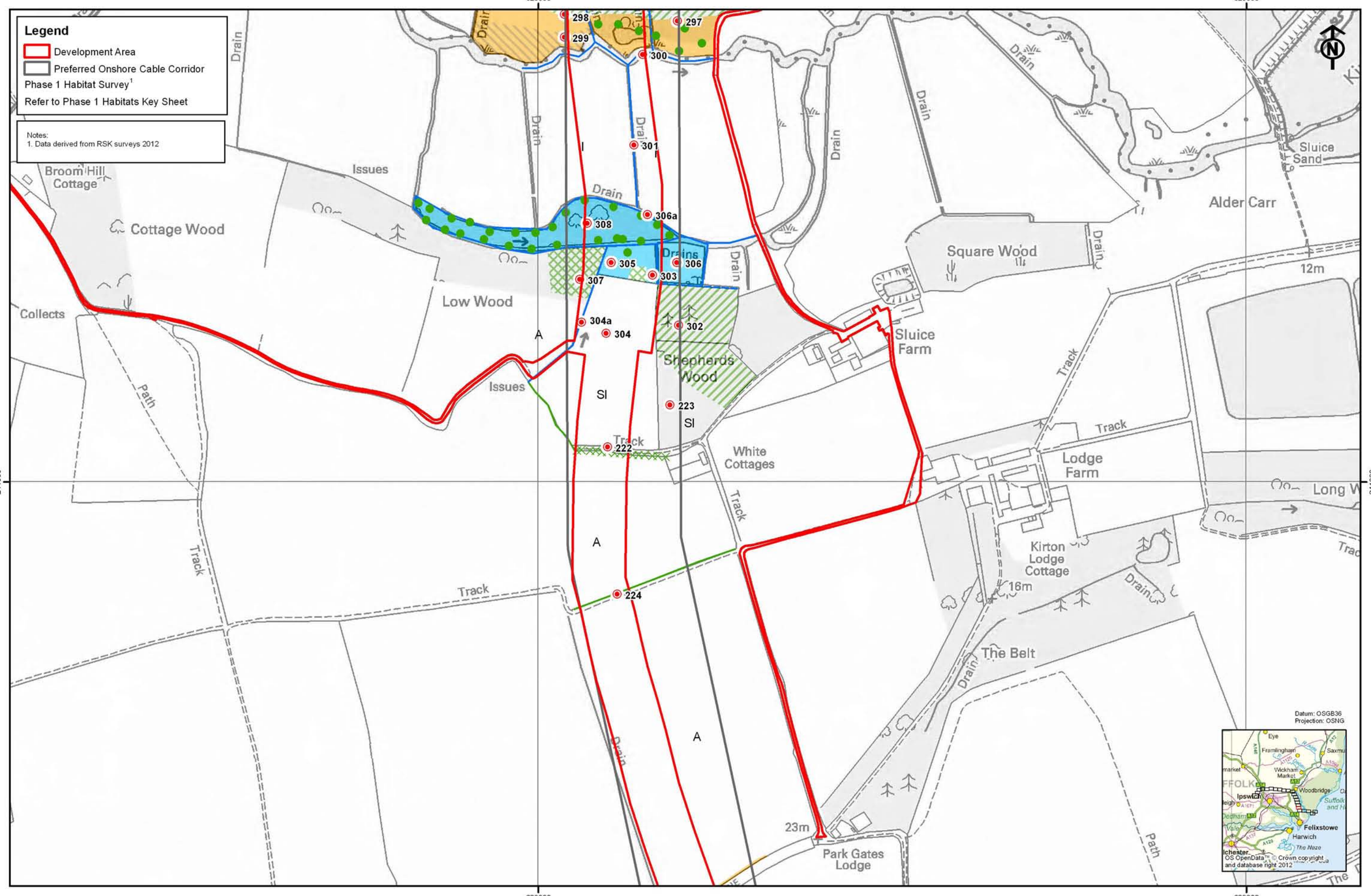

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Figure 24.2.2

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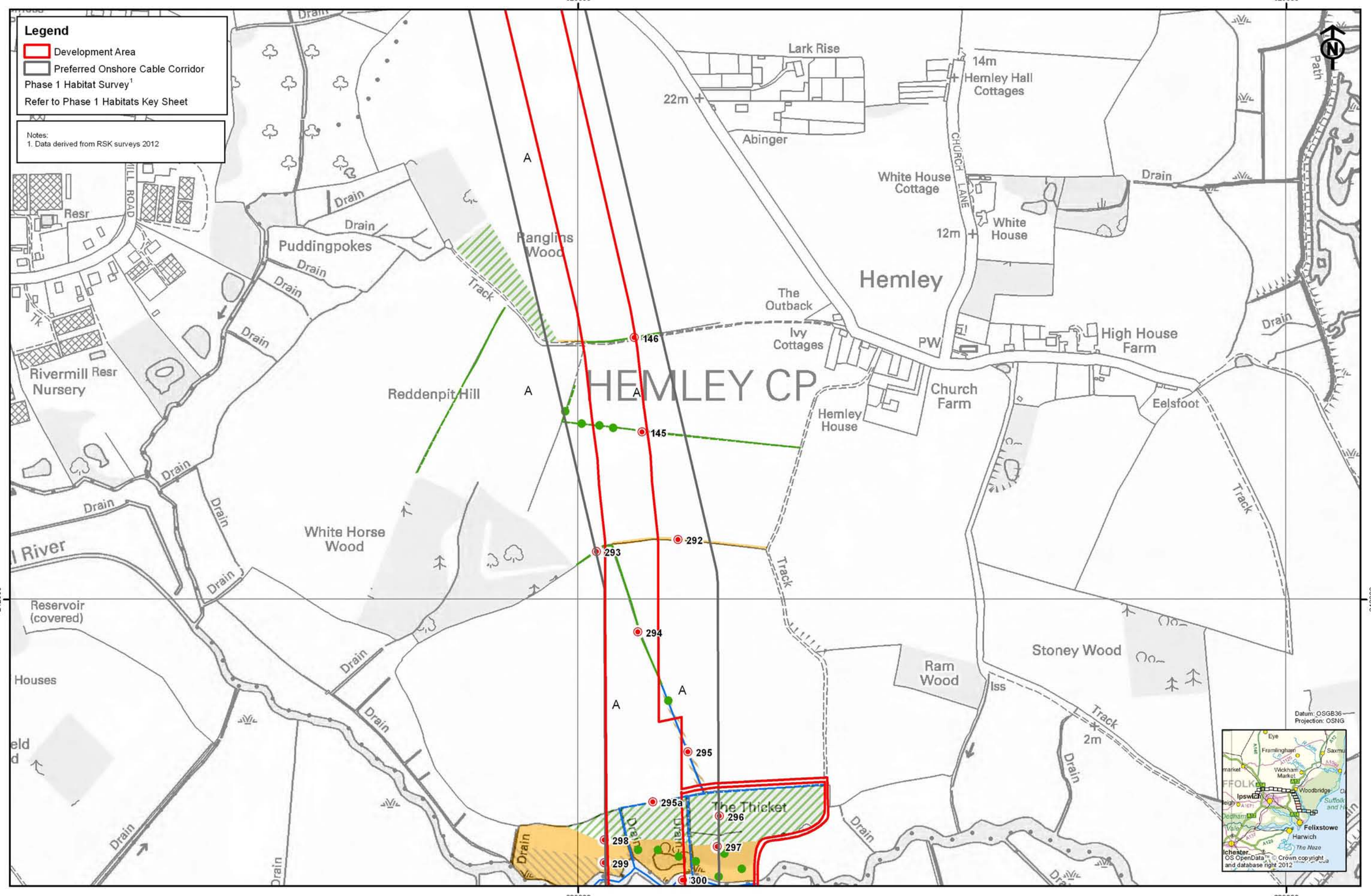

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Figure 24.2.2

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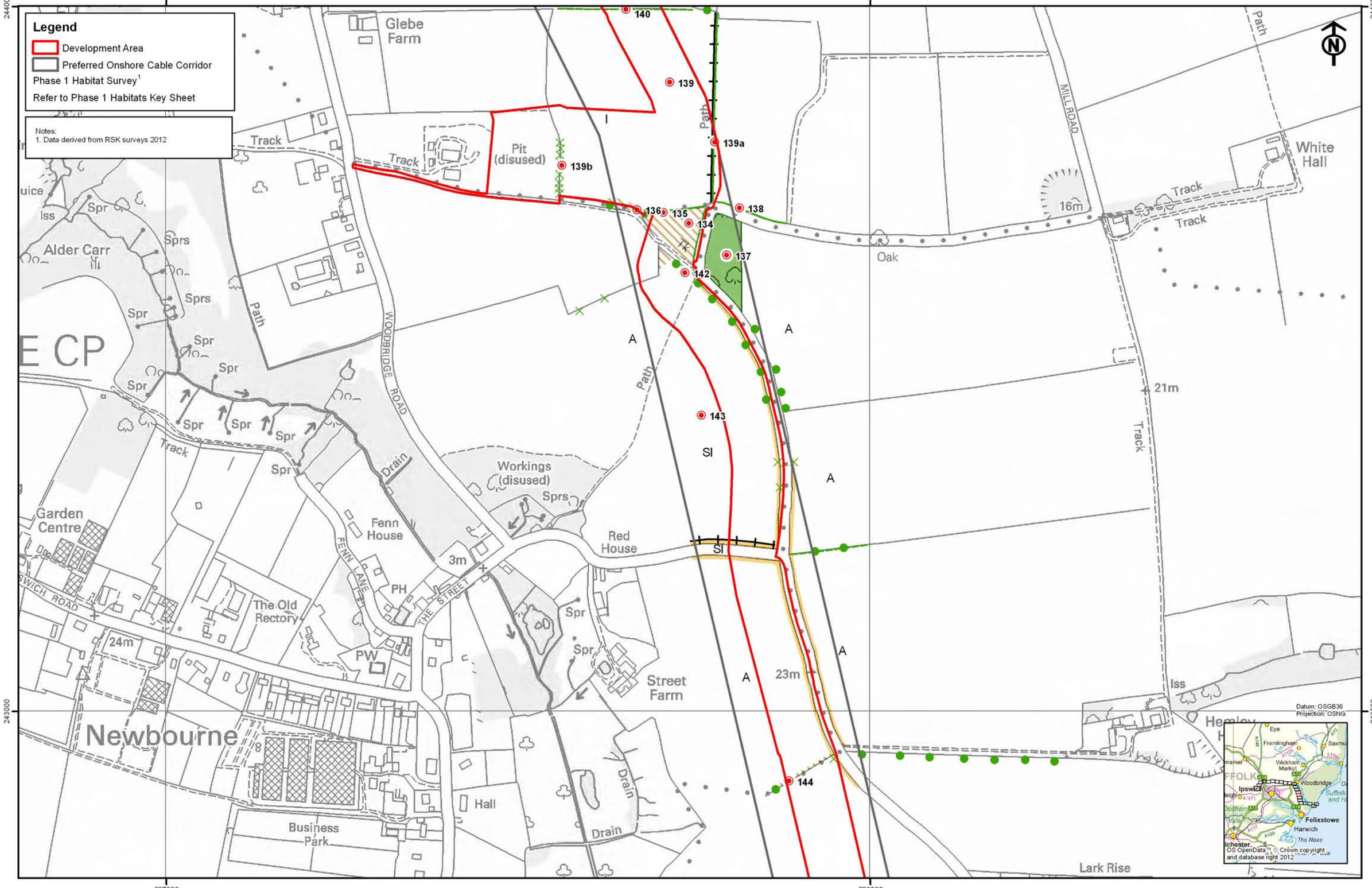

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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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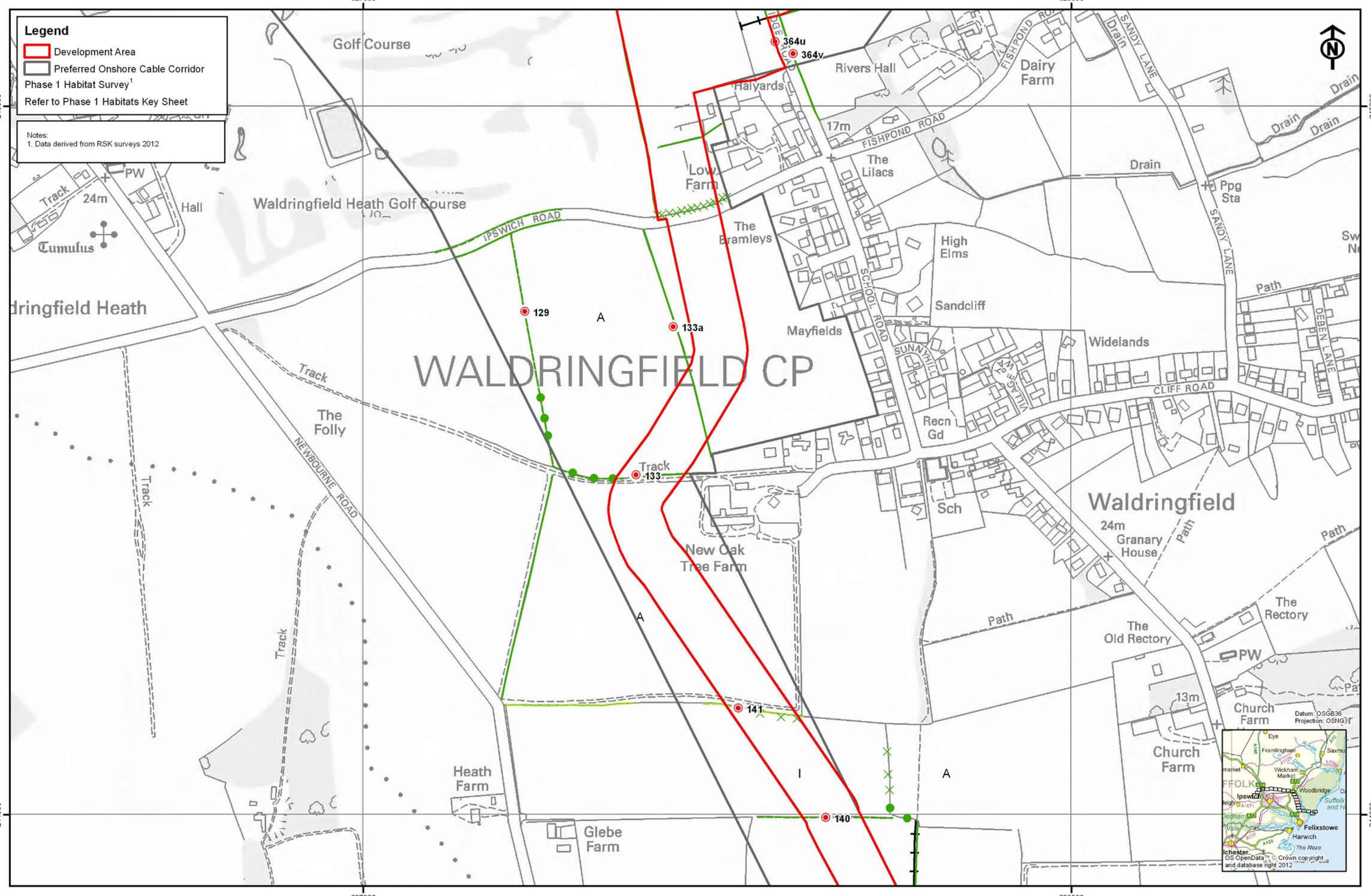

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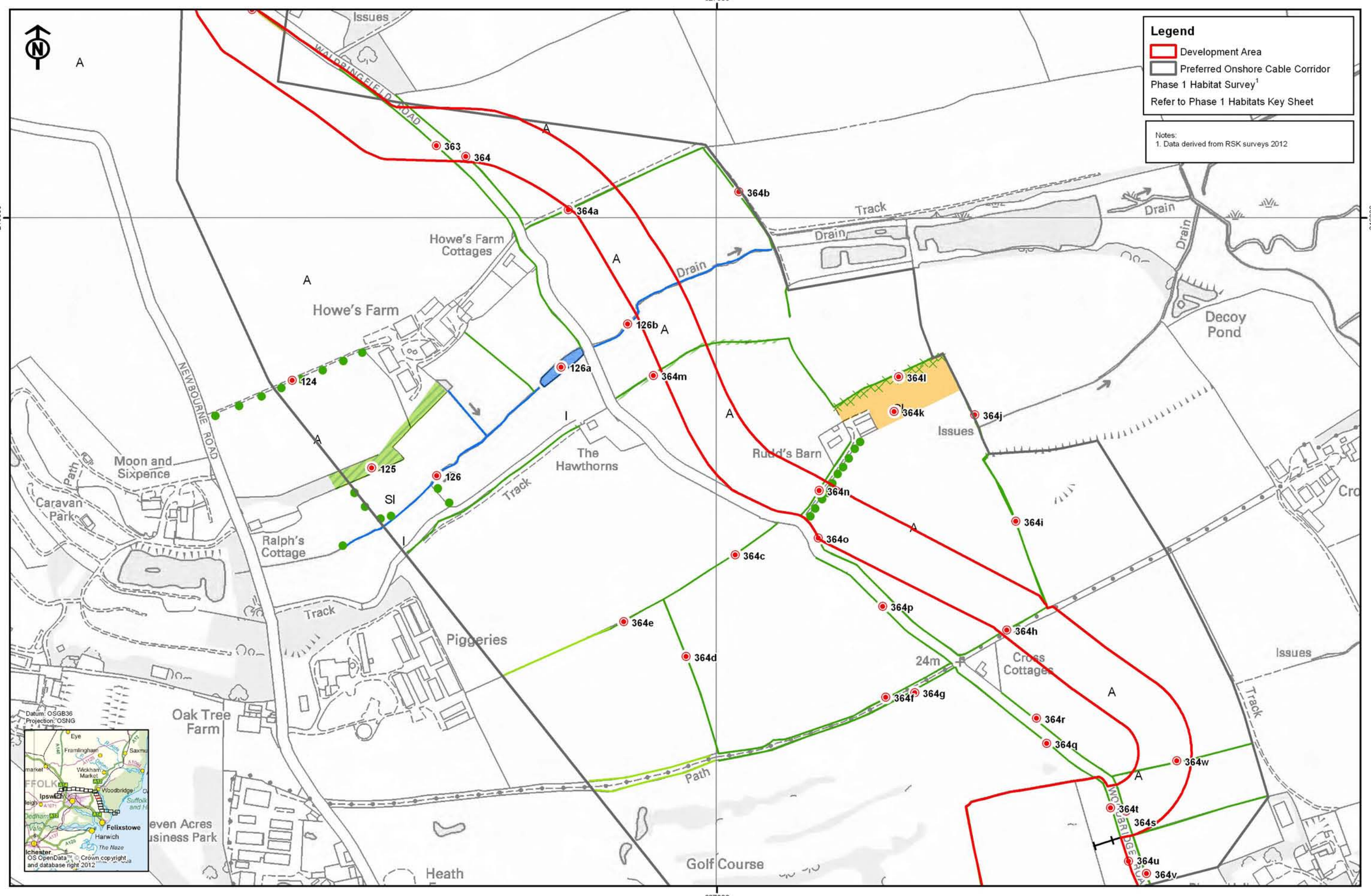

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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Figure 24.2.2

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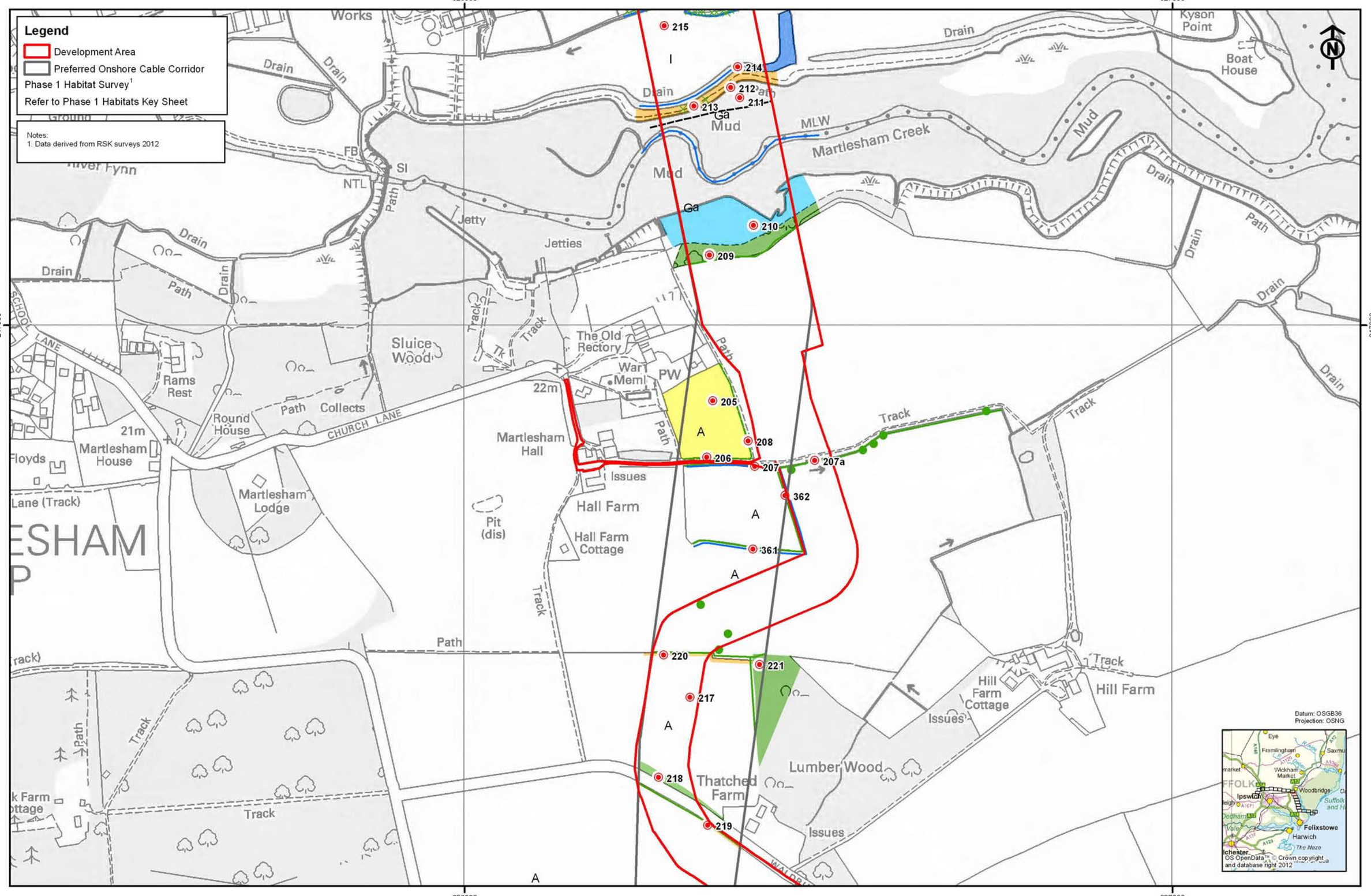

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Appendix 24.2

Figure 24.2.2

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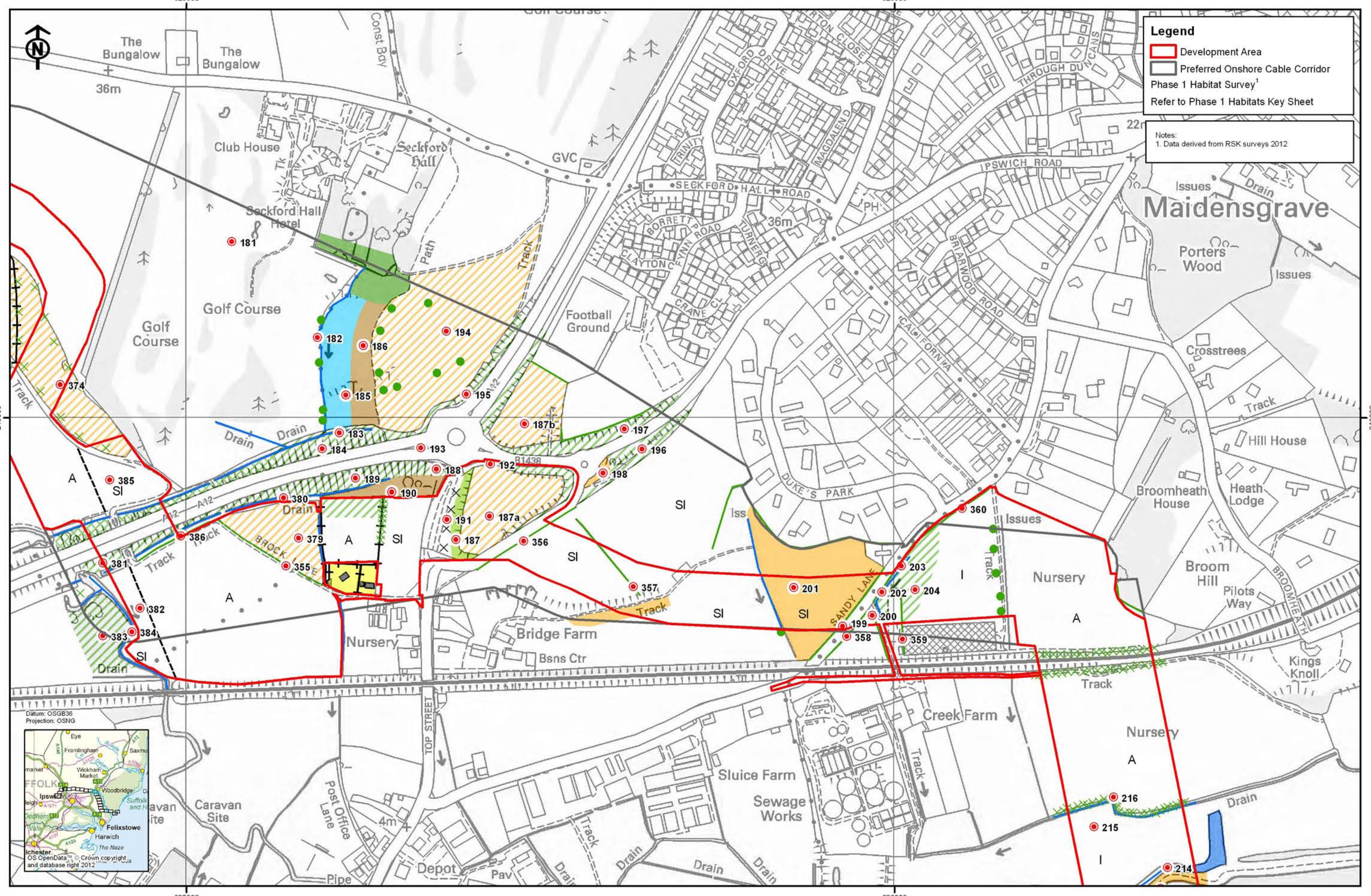

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Appendix 24.2

Figure 24.2.2

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Legend

- Development Area
- Preferred Onshore Cable Corridor
- Phase 1 Habitat Survey[1]
- Refer to Phase 1 Habitats Key Sheet

Notes:
1. Data derived from RSK surveys 2012

623000 624000 248000

The Old Rectory
Track
Kiln Farm
Path
LOWER STREET
ROSERY LANE
Bealings House
Great Bealings
Drain
The Rosery
23m
Rosery Farm
Birds Hill
Issues
Green Close
Garrods Hill
ORCHARD LANE
The Lodge
Oakhollow Farm
7m
LODGE ROAD
Fynn Bridge
Playing Field
Hall
Brimar House
Manor Farm
Manor House
Track
Meadow Cottage
Cherry Tree Cottage
Cherry Tree Farm
Reservoir
The Grove
Dower House
Path
Drain

SI A 168 169 170 171 171a 172 173 175 174 176 177 178 179 180 353 354 369 370 371 372 373 374a 375 376 377 378

Datum: OSGB36
Projection: OSNG

Eye, Framlingham, Saxmundham, Wickham Market, Woodbridge, Ipswich, Felixstowe, Harwich, The Naze, Ichester

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Appendix 24.2

Figure 24.2.2

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Legend

- Development Area
- Preferred Onshore Cable Corridor
- Phase 1 Habitat Survey[1]
- Refer to Phase 1 Habitats Key Sheet

Notes:
1. Data derived from RSK surveys 2012

622000 623000 249000 248000

Oak Pollard
Boot Street
Track
GRUNDISBURGH ROAD
9m
River Lark
Farrows End
Playford Corner
Clematis Cottage
Shilston
Annesley House
41m
Drain
348
347
A
160
161
162
158
157
163
164
165
166
167
168
Path
Issues
Track
159
CHURCH ROAD
HOLLY LANE
HOLLY CLOSE
Branson's
Nightingales Hill
Holly Cottages
Poultry Houses
Archway House
The Courts
The Ridge
PW
Obelisk
21m
CHURCH LANE
SPRING MEADOW
BROOK LANE
HILL FARM ROAD
Hall
Playford
Leawood House
The Old Rectory
RICHARDS DRIVE
SANDY
Pipeline
Datum: OSGB36
Projection: OSNG
Eye
Framlingham
Saxmu
Wickham Market
Woodbridge
Ipswich
Felixstowe
Harwich
The Naze
Colchester
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Appendix 24.2

Figure 24.2.2

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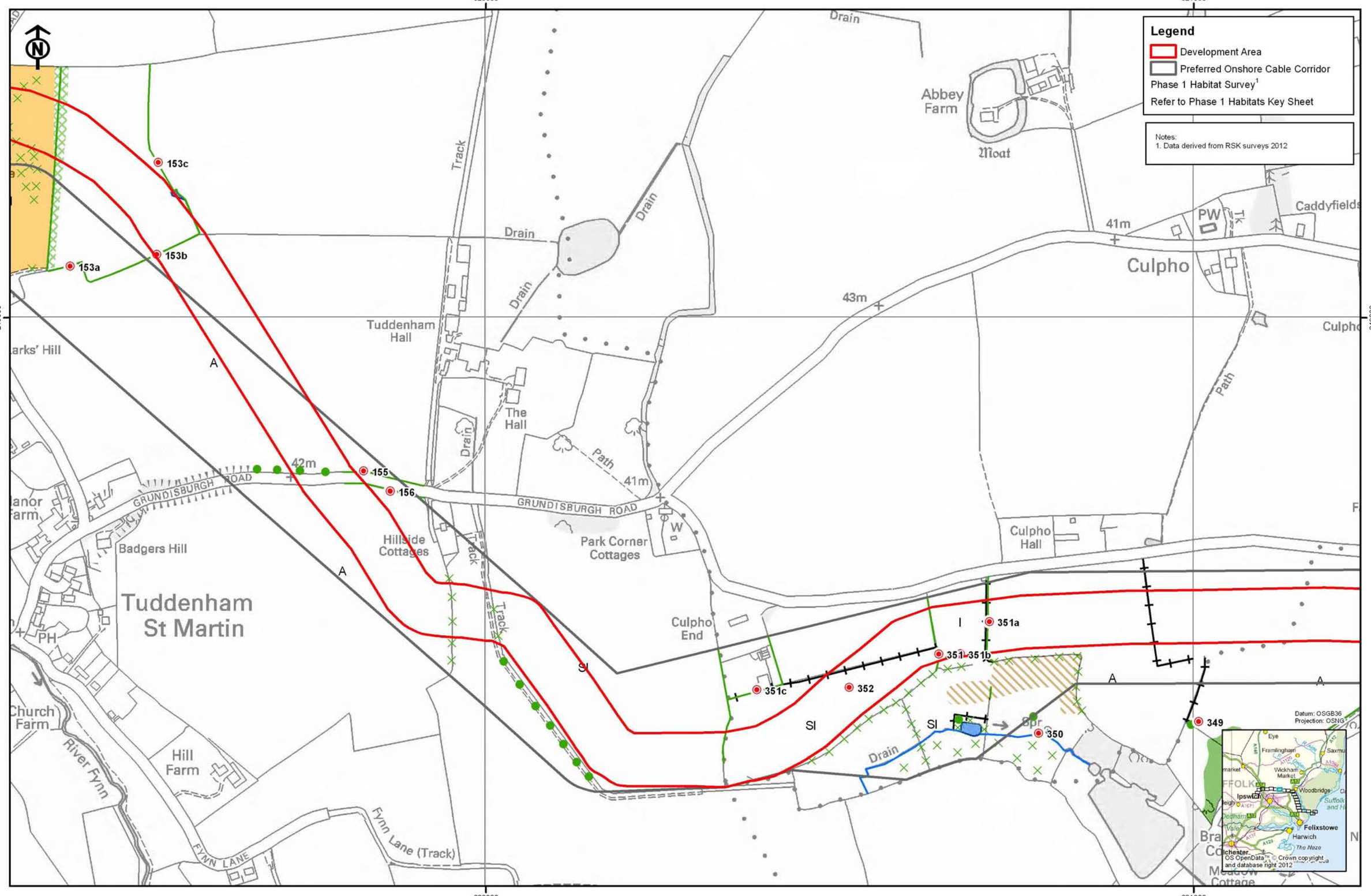

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Appendix 24.2

Figure 24.2.2

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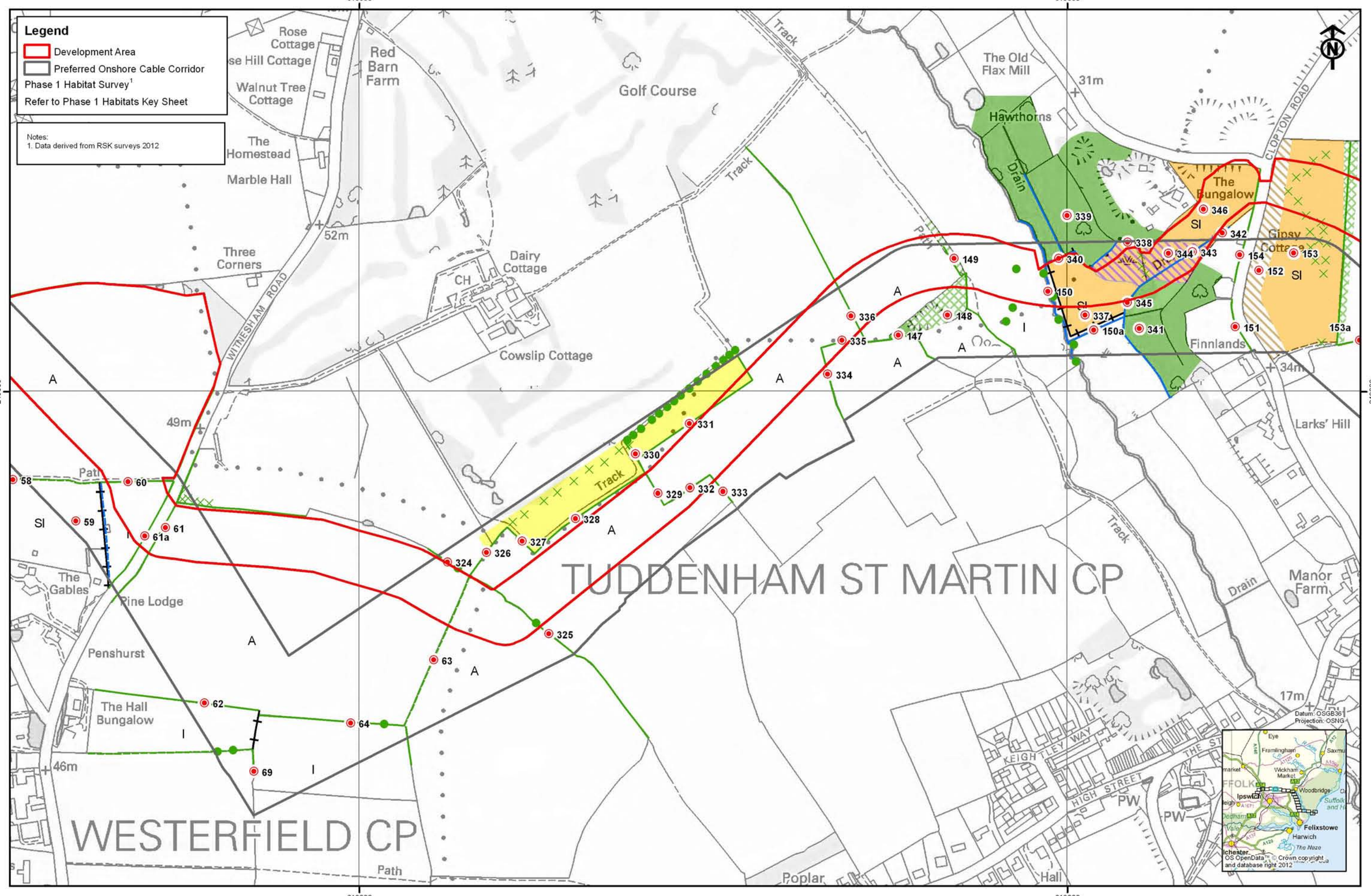

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01	30/08/12	SP	Updated cable route
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Appendix 24.2

Figure 24.2.2

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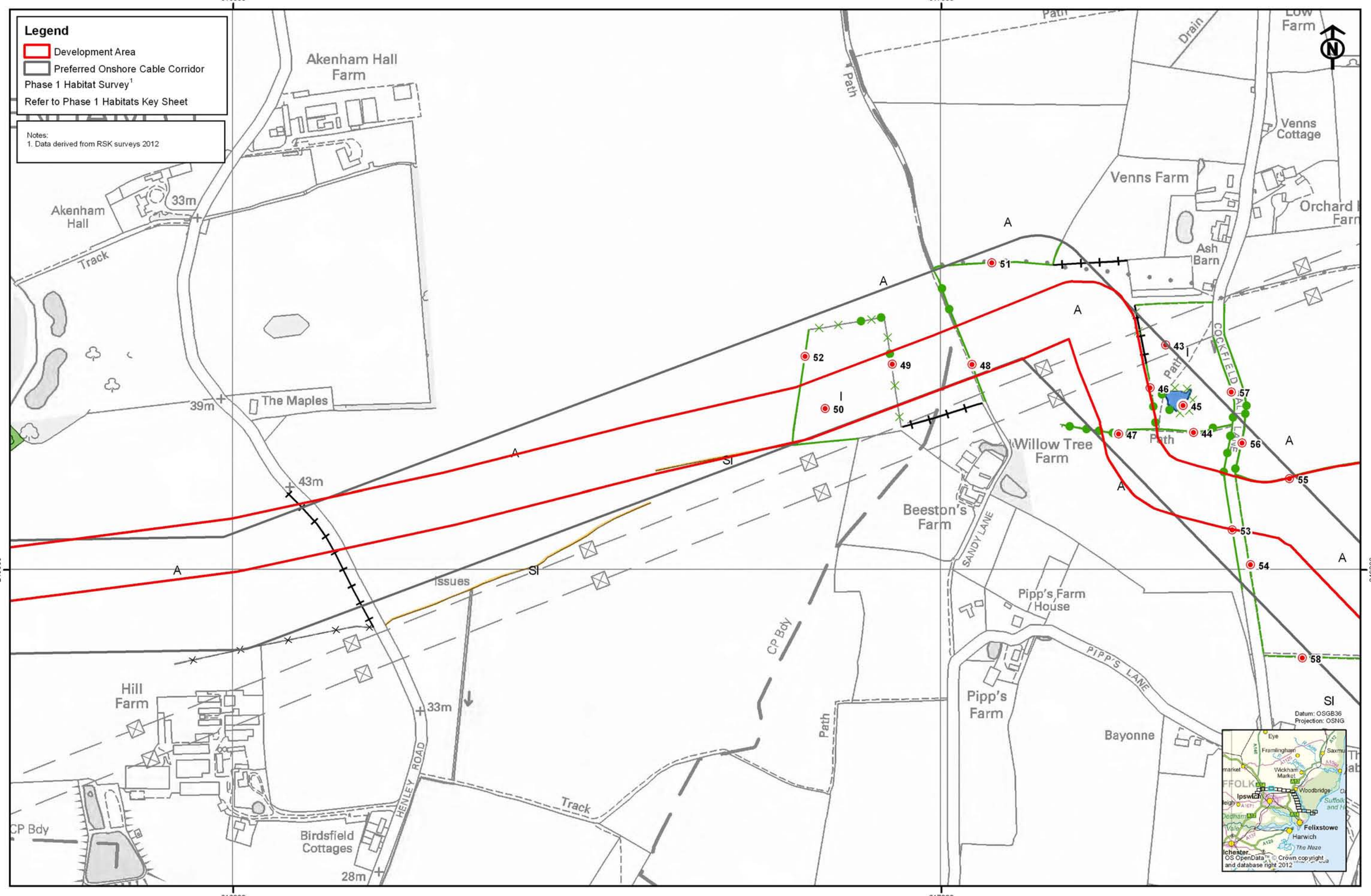

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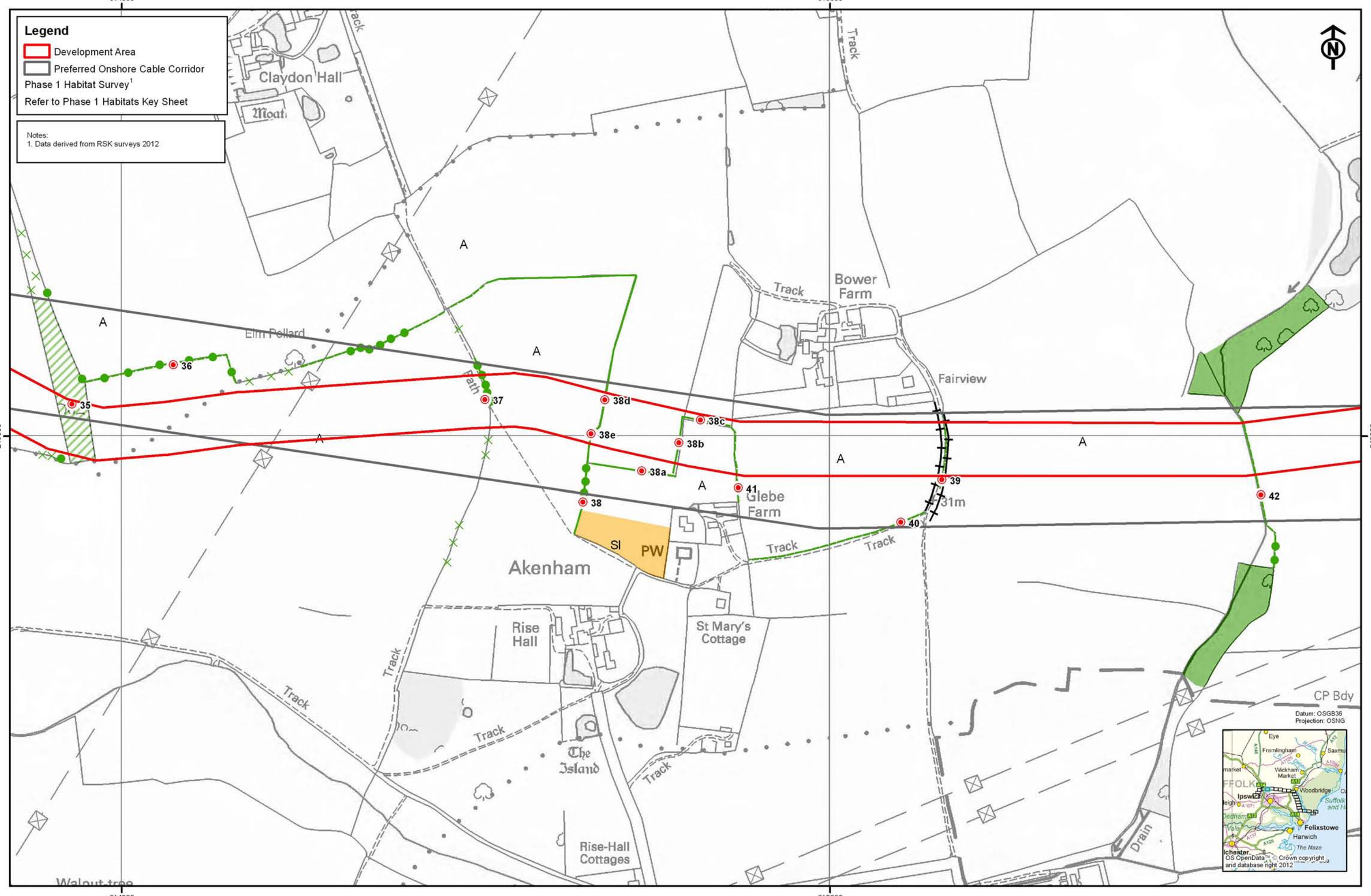

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Figure 24.2.2

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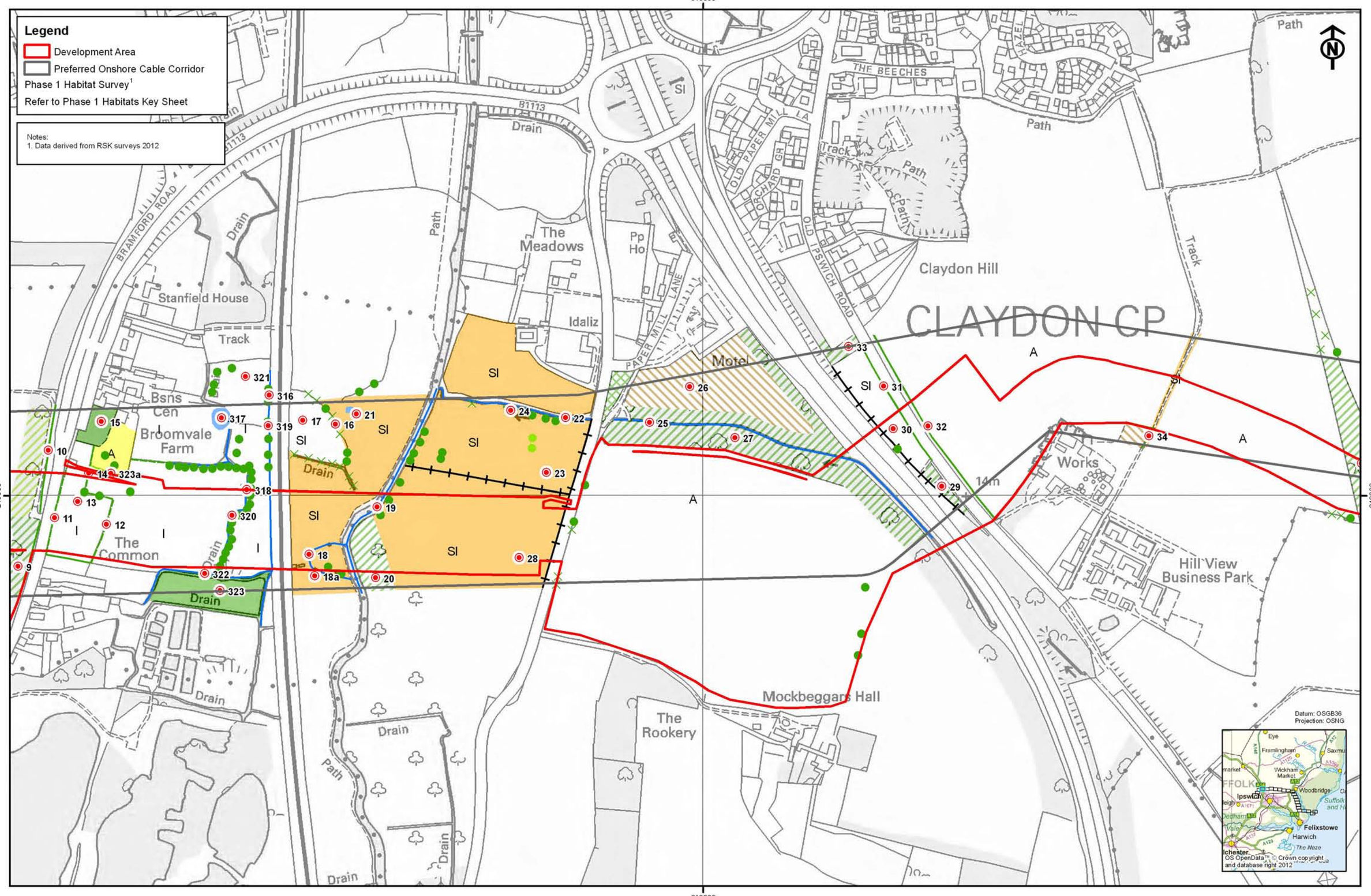

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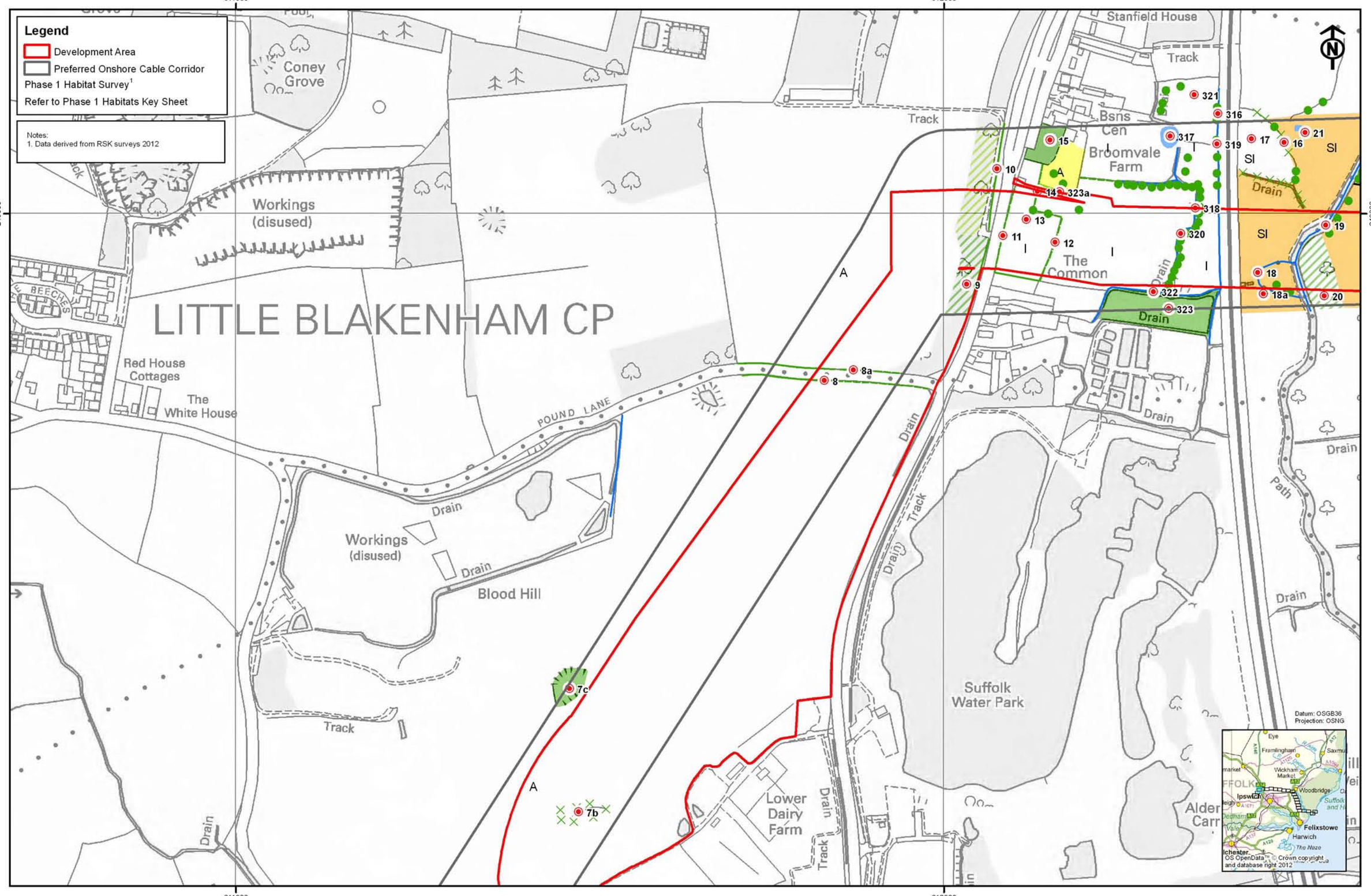

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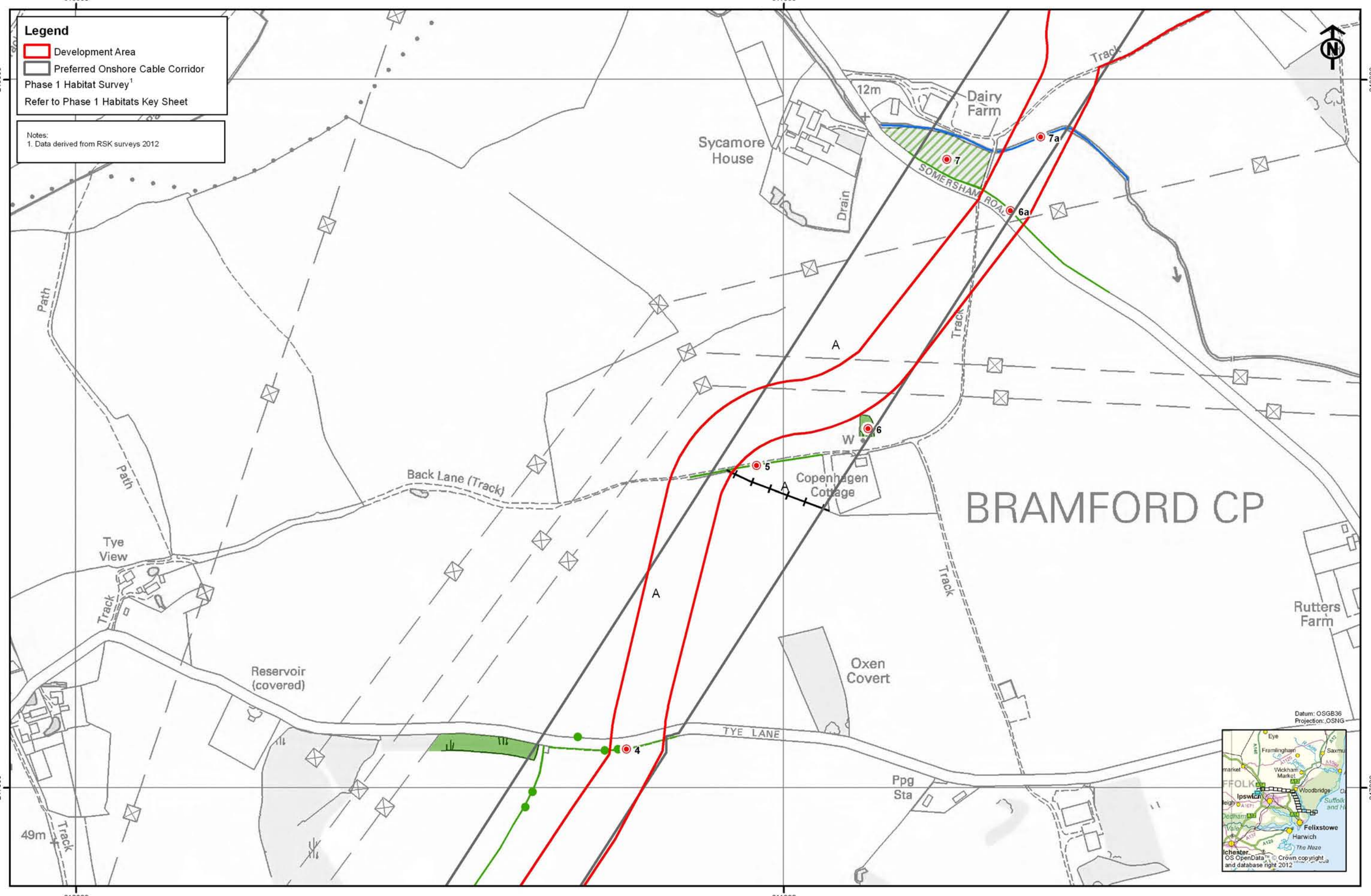

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0 50 100 200 Meters

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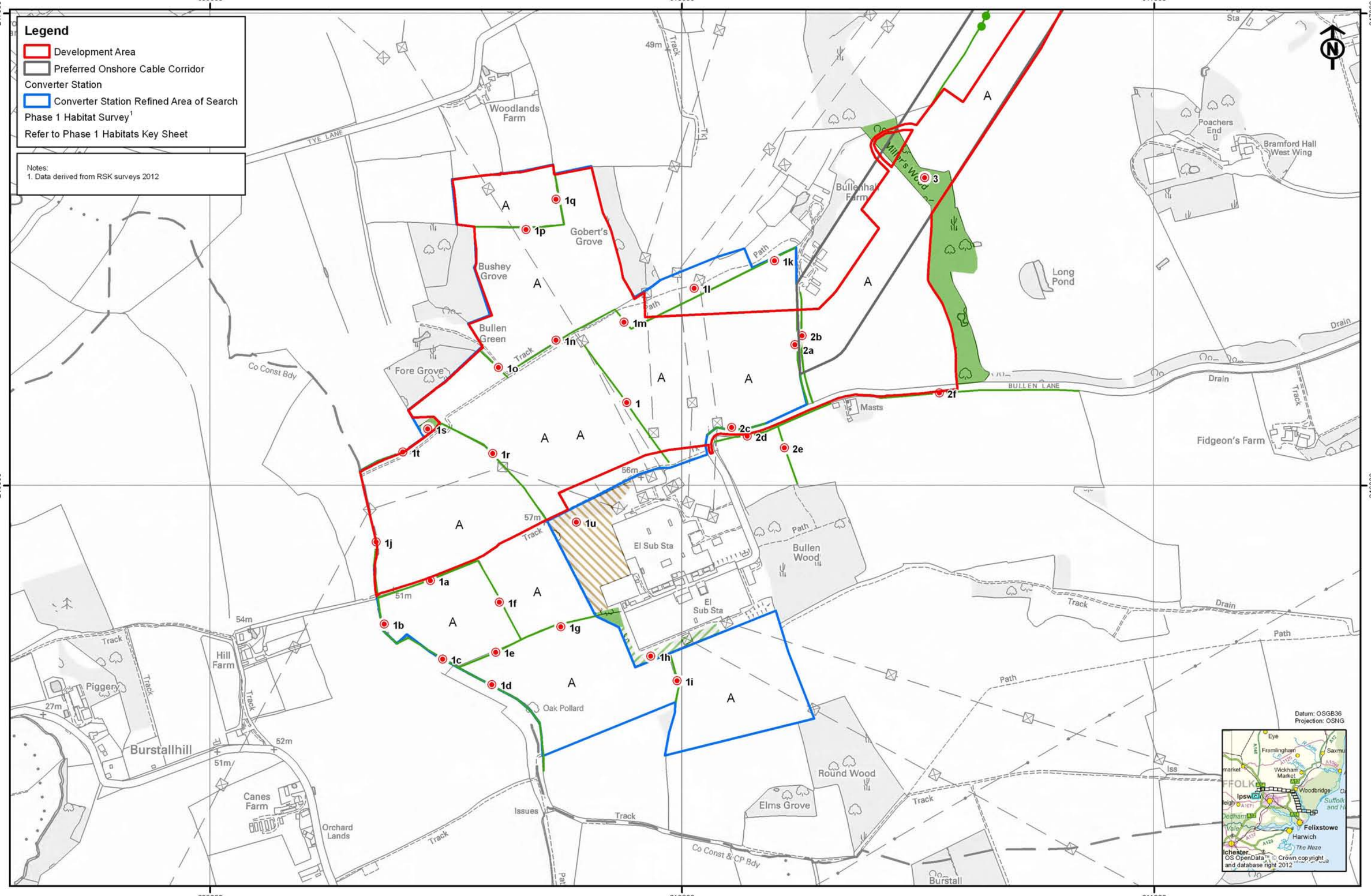

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Original A3 Plot Scale 1:7,500

0 75 150 300 Meters

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Phase 2 Botanical Survey Report

Appendix 24.3

Phase 2 Botanical Report

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Appendix 24.3 - Phase 2 Botanical Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Phase 2 Botanical Survey Report Technical Report

Client: East Anglia Offshore Wind Limited

Date: 28th August 2012

Office: Helsby

Status: Final

Author	Charles Campbell	**Technical reviewer**	Sarah Harmer
Signature [delete row if not required]		Signature [delete row if not required]	
Date:	28th August 2012	Date:	28th August 2012
Project manager	Tom Smith	**Quality reviewer [optional]**	
Signature [delete row if not required]		Signature [delete row if not required]	
Date:	28th August 2012	Date:	

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This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of detailed botanical surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. The Onshore Cable Route runs from a landfall to the east of Ipswich, north of the River Deben at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km.

This document forms Appendix 24.3 to V*olume 3, Chapter 24: Ecology and Orntihtology* of the Environmental Statement. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.3.1*.

The detailed botanical surveys comprised a National Vegetation Classication (NVC) Survey, an assessment of hedgerows in relation to '*the Hedgerow Regulations 1997'* and surveys of all watercourses involving species-listing and modified River Corridor Survey. Methods and assessment criteria are detailed in *Section 3.*

1.2 Ecological Context

The onshore cable route begins at Bawdsey runs north-west, crossing Bawdsey marshes and the river Deben. The route then turns north crossing Martlesham Creek skirting south-wester edge of Woodbridge through several fields of calcifugous grassland. It crosses the A12 and travels west towards Tuddenham St Martin across many arable fields. Continuing west it crosses the river Gipping at Claydon before passing through more arable fields to the south-west and to the sub-station to the west of Bramford.

Much of the land crossed is arable farmland, but the route does cross many field drains and ditches, several rivers and streams, areas of grassland (calcifugous and mesotrophic), some areas of coastal habitats including marsh and salt marsh, and will pass through some lines of trees and hedgerows. In some areas, the onshore cable route also crosses previously-developed land.

1.3 Structure of this Report

The remainder of the report is set out as follows:

- *Section 2* describes survey and evaluation methods;
- *Section 3* presents a description of the vegetation types encountered;
- *Section 4* evaluates results;
- *Section 5* provides references;
- *Section 6* contains the figures;

- *Section 7 - 9* provide tables of botanical data (*Section 7* - floristic tables and NVC diagnoses, *Section 8* - species lists and *Section 9* - hedgerow tables).

Vascular plant nomenclature in this report follows Stace (2010). Scientific names are given first, followed by the English name in brackets. Mosses and liverworts follow Hill *et al*. (2008); lichens follow Smith *et al*. (2009).

2 METHODS

2.1 General

The detailed surveys were mostly carried out in late May and June, which is an excellent time of year for botanical recording. Surveys were conducted by a team of botanists from RSK led by Charles Campbell, a botanist with two years consultancy experience.

2.2 Site Selection

Information from the Phase 1 Habitat Survey was appraised, and areas potentially requiring further survey were identified. These are indicated by polygons outlined in red in *Figure 24.3.2*. The polygons indicate land-parcels selected for re-visit, and within these areas various methods were used to gather appropriate information, ranging from species listing to detailed quadrat recording; in many cases they were further subdivided or amalgamated for detailed recording. All habitats crossed in designated sites were included in the detailed surveys. Beyond that, all examples of calcifugous grassland, unimproved neutral grassland, marshy grassland, woodland and coastal habitats were surveyed, along with hedges and watercourses, only excluding the very species-poor examples. In addition, the better semi-improved grasslands and examples of amenity grassland and arable communities were surveyed.

2.3 Species Lists

Vascular plant species were listed in most of the detailed survey sites or sub-compartments thereof. So too were the principal bryophyte species to a reasonably thorough standard, though on a routine basis it was impractical to search exhaustively for every last species in every site. At any given time a few plants in a site will not be in evidence for serendipitous reasons, e.g. over-topping, temporary removal by grazing. Walk-through surveys should therefore never be regarded as exhaustive, though the lists presented here do adequately indicate the character of the vegetation. Plant species were identified carefully, but at any time of year some species will be indeterminable because they are not in flower, or because only scrappy plants are available. Doubtful identifications are preceded in this report by 'cf.' where the plant is very probably the species indicated, but it is impossible to distinguish it from similar members of the genus with certainty.

Subjective estimates of the relative abundance of species were added to the plant species lists using a modified DAFOR scale. The DAFOR scale ranks species according to their relative abundance in a given parcel of land as follows: d – dominant, a – abundant, f – frequent, o – occasional, r – rare. In addition, the following prefixes are used: l – locally, v – very[1]. The terms 'abundant' and 'rare' are used by convention,

[1] Few plants if any are technically dominant in the vegetation types that occur on the route, and we therefore used the convention A- abundant, F – frequent, O – occasional, R – rare, VR – very rare, which amounts to the same thing as the DAFOR scale, i.e. a five-point ranking on relative abundance.

and apply only to relative-abundance within the recorded area. It does not mean that species are 'rare' in the district or the UK at large.

2.4 NVC Surveys

The methodology of the National Vegetation Classification (NVC) was used to describe the woodland vegetation types (Rodwell 1991a, 1991b, 1992, 1995, 2000, 2006; Rodwell *et al.* 200o). NVC types were largely identified on the basis of observation and experience. Quadrat sampling was not generally carried out where vegetation could be assigned to appropriate NVC types by inspection alone. But quadrat data were nevertheless collected in many sites for the following reasons:

- to support interpretation of the main NVC types in the survey area; and
- to identify the more difficult vegetation types, especially transitions between NVC types, and types poorly-covered in the NVC system (Rodwell *et al*. 2000).

Quadrat data were collected from homogeneous stands of vegetation, which were subjectively selected to represent key vegetation types or difficult vegetation types. The cover of each species in a quadrat was estimated by eye and recorded on the Domin Scale (10 - over 90% cover, 9 - 76-90%, 8 - 51-75%, 7 - 34-50%, 6 - 26-33%, 5 - 11-25%, 4 - 5-10%, 3 - under 5% yet abundant, 2 - under 5% and occasional, 1 - under 5% and rare). Wherever possible, 5 quadrats were recorded in each sampled vegetation type, so that not only cover but also frequency estimates were available for each species (i.e. percentage occurrence in a quadrat - a species in 3 quadrats out of 5 has 60% frequency). Because NVC communities are determined primarily in terms of species-frequency, this facilitates the identification of NVC types, and especially improves computer matching to identify NVC types (Rodwell 2006). Two-metre square quadrats were used for grassland and mire vegetation types as recommended in Rodwell (2006) and larger quadrats were used in woodland (4 m in the field-layer, and up to 50 m in the shrub-layer and canopy – not always possible in woodland strips).

The data are presented in Section 7 as floristic tables in the style of the definitive NVC tables given in British Plant Communities (Rodwell 1991). Species are ordered by their relative abundance, first by frequency class (class I – 0-20%, II – 21-40%, III -41-60%, IV – 61-80%, V – 81-100%), and then by maximum cover value on the Domin Scale; any remaining ties are then ordered alphabetically.

Stands of vegetation were identified from quadrat data with the assistance of the computer-program MATCH (Malloch 1999), which computes similarity-coefficients between quadrat data and the published NVC tables that define the NVC communities and sub-communities. This gives only an initial indication of which NVC types the data are most likely to have been drawn from – the highest coefficient does not necessarily indicate the correct NVC diagnosis. It was then necessary to identify the NVC type through careful consideration of the NVC descriptions in British Plant Communities (Rodwell 1991). In floristic tables in Section 7, matching coefficients highlighted in bold text are acceptable NVC diagnoses, while coefficients highlighted in italics are informative but unacceptable.

2.5 Linear Features

2.5.1 Hedgerows

All hedges crossed by the route are described in target notes in Section 7, and the majority were surveyed in detail to identify 'Important' hedges within the meaning of the *Hedgerow Regulations 1997*[2], and to provide information on their nature conservation value. They were evaluated only in respect of wildlife and landscape criteria in the *Regulations - Paragraphs 6 to 8 of Part II of Schedule 1*, but excluding *Sub-paragraph 6(1)(b)* and *6(2).* Hedges of ornamental origin or less than 30 years old, which are outside the scope of the Regulations, or species-poor *Crataegus monogyna* (Hawthorn) hedges that clearly would not qualify as 'Important', were not selected for further survey. The following information was collected for each Phase 2 hedge.

- *Counts of the woody species found in a 30 m stretch of hedge*. The first 30 m stretch was recorded at the approximate crossing point, if relevant, or otherwise stretches were centred in the middle of any hedge under 100 m, in each half of any hedge under 200m, and in each third of any hedge over 200 m. The species found in each 30 m section were recorded together with indicative % abundances from the first section only. Only species listed in *Schedule 3* of the *Regulations* were used in calculations relating to hedgerow importance.

- *Observations on hedge-features*. These include the presence of a ditch, bank, or wall, the percentage by length of gaps, the number of standard trees, the presence of a parallel hedge within 15 m, the presence of woodland herbs (*Schedule 2 of the Regulations*) and the number of connections with other hedges, woods and ponds.

- *Observations on hedge-features that have special significance*. Certain hedge-features modify threshold levels of data that determine whether or not a hedge is Important. They include footpaths alongside, and the presence of special woody species of significance in relation to hedgerow history.

Hedges may qualify as Important on historical as well as ecological grounds, but we only consider here whether hedges qualify on ecological grounds. Under the *Regulations* a hedgerow qualifies if it contains any of the following:

- any species in *Schedule 1(Part 1)*, *5* or *8* of the *Wildlife and Countryside Act 1981*;
- certain birds categorised as declining breeders (not considered here);
- any species categorised as 'endangered', 'extinct', 'rare' or 'vulnerable' in any of the British Red Data Books;
- 7 *Schedule 3* woody species in an average 30m stretch; or
- 6 woody species in an average 30m stretch and 3 of the hedge-features listed in the *Regulations*, or 5 species and 4 features; or

[2] Statutory Instruments 1997 No. 1160.

- 6 woody species in an average 30m stretch plus one of four 'qualifying' species; or
- if it is adjacent to a footpath, bridleway or byway, at least 4 woody species and 2 or more hedgerow features.

2.5.2 Water courses

All watercourses crossed by the route are described in target notes in Section 7. In addition, all river and stream crossings and most ditches were selected for further survey, which involved detailed inspection upstream and downstream of the crossing point and the compilation of species lists. Where possible, rivers and large streams were surveyed 50 m upstream and 100 m downstream, and small streams and ditches were surveyed 25 m upstream and 50 m downstream. A few very species-poor streams and ditches were excluded where information from the Phase 1 Habitat Survey was sufficient. Individual species lists were produced for all rivers, stream and ditches surveyed in detail, but very occasionally species recorded from small streams forming an integral part of some wider habitat were subsumed in species lists for those habitats, e.g. a small stream in wet willow carr.

2.6 Assessment Criteria

2.6.1 Habitats

The scientific value of habitats for nature conservation is assessed according to widely accepted criteria of which the most important are naturalness, extent, rarity, and diversity. These and others are described in an extensive literature (Ratcliffe 1977, Usher 1986). In addition, the following criteria were used.

- Priority habitat types have been identified in connection with UK implementation of the EC 'Habitats Directive'[3] . Other important habitats and species are identified in National Biodiversity Action Plans (UK BAP website: www.ukbap.org.uk) and the Suffolk Biodiversity Action Plan.

- Special importance attaches to ancient semi-natural habitats that depend for their survival on traditional types of land management, especially where these have suffered large reductions over the last fifty years due to agricultural intensification and extensification. Habitats in these categories are discussed in Rackham (1986).

2.6.2 Noteworthy Species

Noteworthy species are defined as follows:

- species protected by the Wildlife and Countryside Act 1981;
- species protected by European Directives and transposed into UK legislation;
- Red Data species (Cheffings and Farrell 2005);
- species mentioned in UK Biodiversity Action Plans (BAPs) or the Suffolk BAP (LBAP);

[3] Council Directive 92/43 EEC on the conservation of natural habitats and of wild flora and fauna.

- species listed as nationally scarce or notable in literature issued by conservation organisations or learned societies, e.g. ‘Nationally Scarce’ species found in less than 100 ten-kilometre grid-squares nationally (e.g. Stewart et al. 1994); and
- species described as rare or very rare in the Suffolk Plant Atlas (Simpson 1982).

3 RESULTS

3.1 Habitats and Vegetation Types

3.1.1 Overview

The following habitat types were recorded from the survey corridor of the onshore cable route and are shown in the Phase 1 Report (RSK 2012):

- woodland, scrub, hedgerows and mature trees;
- semi-improved neutral grassland;
- species-poor improved and amenity grassland;
- unimproved and species-poor calcifugous grassland;
- ephemeral and shortlived perennial vegetation;
- saltmarsh;
- coastal strandline vegetation;
- coastal grassland;
- maritime cliff and slopes;
- ponds, streams, ditches and swamps;
- arable farmland; and
- ruderal vegetation.

3.2 Woodland, Scrub and trees

3.2.1 Semi-natural Woodland

Woodland is generally avoided along the cable route. Where woodlands are crossed they mostly exhibit features of plantation woodland *i.e.* the trees in regular rows, all of a similar age, or non-native species. The woodland at *Target Notes 1s, 3* and *209* are examples of semi-natural woodland. Both have been re-planted in part, but these are relatively small areas beneath a semi-natural canopy.

Target Note 1s relates to small parcel of woodland. Its canopy is mostly formed of 10 m-tall *Ulmus procera* (English Elm) and *Crataegus monogyna* (Hawthorn) trees with a large 18 m tall *Populus ×canadensis* (Hybrid Black-poplar). Scattered individual stems of *Malus sylvestris* (Crab Apple) and *Salix caprea* (Goat Willow) are present. Whilst the field-layer is species-poor and sparse, it contains several ancient woodland indicators including *Arum maculatum* (Lords-and-Ladies), *Brachypodium sylvaticum* (False Brome), *Daphne laureola* (Spurge-laurel) *Mercurialis perennis* (Dog's Mercury) and *Viola* cf. *riviniana* (Common Dog-violet).

Millers wood (*Target Note 3*) is a strip of ancient semi-natural woodland near Bullenhall Farm to the west of Brampton. Its canopy comprises a range of native and non-native

species including *Acer pseudoplatanus* (Sycamore), *Aesculus hippocastanum* (Horse-chestnut), *Fraxinus excelsior* (Ash), *Quercus ilex* (Evergreen Oak), *Quercus robur* (Pedunculate Oak), *Tilia ×europaea* (Lime) and *Ulmus glabra* (Wych Elm). Throughout the canopy *Fraxinus excelsior* (Ash) remains a constant and in some places dominant species. Other species occur as scattered individuals, such as *Quercus robur* (Pedunculate Oak) and *Ulmus glabra* (Wych Elm), or as discrete blocks dominating the canopy either as a result of planting, as in the case of *Aesculus hippocastanum* (Horse-chestnut), or as natural succession, as in the case of *Acer pseudoplatanus* (Sycamore). The shrub-layer is equally varied with the most species-rich areas located in the south of the woodland strip. *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) occur throughout with patches of *Ligustrum vulgare* (Wild Privet) and *Ulmus procera* (English Elm) located to the north. The southern portion of the woodland strip contains a greater diversity of shrub species including *Daphne laureola* (Spurge-laurel), *Euonymus europaeus* (Spindle), *Ilex aquifolium* (Holly), *Salix caprea* (Goat Willow) and *Ribes uva-crispa* (Gooseberry). This increase in diversity from north to south is reflected in the field-layer. Northern sections are dominated by *Urtica dioica* (Common Nettle) with occasional *Stachys sylvatica* (Hedge Woundwort). The southern end is far more species-rich with several ancient woodland indicators such as *Carex sylvatica* (Wood-sedge), *Euphorbia amygdaloides* (Wood Spurge) and *Stellaria holostea* (Greater Stitchwort). This woodland is referable to the NVC type **W8e *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Geranium robertianum* sub-community**. An NVC table is for *Target Note 3* is presented in *table Table* 7.1*.*

The broadleaved woodland at *Target Note 209* is a woodland strip which the route crosses to the south of Martlesham Creek. Its western edge comprises a 20 m canopy dominated by *Fraxinus excelsior* (Ash) with scattered *Quercus robur* (Pedunculate Oak) and *Aesculus hippocastanum* (Horse-chestnut). The shrub-layer is approximately 5 m in height containing *Acer campestre* (Field Maple), *Crataegus monogyna* (Hawthorn), *Corylus avellana* (Hazel) and *Sambucus nigra* (Elder). The field-layer of this western section is species-poor comprising *Galium aparine* (Cleavers), *Glechoma hederacea* (Ground-ivy), *Hedera helix* (Ivy), *Mercurialis perennis* (Dog's Mercury) and *Rubus fruticosus* agg. (Bramble). The central belt of the woodland is dominated by the shrub species *Crataegus laevigata* (Midland Hawthorn), *Crataegus monogyna* (Hawthorn) and *Prunus spinosa* (Blackthorn) with occasional standard *Aesculus hippocastanum* (Horse-chestnut), *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak). The field-layer of this section is dominated by *Pteridium aquilinum* (Bracken) and *Rubus fruticosus* agg. (Bramble) The western edge is more species-rich in the field-layer. The canopy is similar to the eastern edge, with the addition of *Tilia* × *europaea* (Lime) trees. The shrub-layer contains the additional species *Ilex aquifolium* (Holly) and *Ulmus procera* (English Elm) and the field-layer contains the woodland herbs *Adoxa moschatellina* (Moschatel), *Hyacinthoides non-scripta* (Bluebell), *Mercurialis perennis* (Dog's Mercury) and *Rumex sanguineus* (Wood Dock). This woodland is referable to the NVC type **W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Hedera helix* sub-community**. An NVC table is for *Target Note 209* is presented in *table Table* 7.2

Species lists of these semi-natural woodlands are given in *Table 8.1.*

3.2.2 Plantation

Plantation woodland of varying ages occurs throughout the Preferred Onshore Cable Corridor. Most, like *Target Notes 7, 27, 256, 370a* and *370b* are relatively young (approximately 20-30 years old) some are older with species-poor field layers such as *Target Notes* 270, *273* and *302.*

The woodland described in *Target Note 1h* is predominantly species-poor *Acer pseudoplatanus* (Sycamore) plantation with a field-layer dominated by *Arrhenatherum elatius* (False Oat-grass). However, at the western end it becomes more species-rich.comprising a canopy of native and non-native trees including *Acer campestre* (Field Maple), *Acer pseudoplatanus* (Sycamore), *Fraxinus excelsior* (Ash), *Juglans regia* (Persian Walnut) *and Quercus rubra* (Red Oak) with a field layer containing *Circaea lutetiana* (Enchanter's-nightshade), *Carex divulsa* (Grey Sedge), *Carex sylvatica* (Wood-sedge), *Mercurialis perennis* (Dog's Mercury) and *Viola riviniana* (Common Dog-violet). The presence of many woodland species in a relatively small area implies that at least some of this woodland is semi-natural in origin. This possible area of semi-natural woodland is referable to NVC type **W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgari-Gelchoma hederacea* sub-community.** An NVC table is for *Target Note 1h* is presented in *table Table* 7.3*.*

The wood described in *Target Note 137* is broadleaved woodland with several large oaks that have been underplanted with *Acer pseudoplatanus* (Sycamore), *Fraxinus excelsior* (Ash), *Fagus sylvatica* (Beech), *Ilex aquifolium* (Holly) and *Populus alba* (White Poplar) in the last 20 years. Most of the field-layer is dominated by *Urtica dioica* (Common Nettle) with occasional ruderal herbs and rough grasses such as *Galium aparine* (Cleavers) and *Holcus lanatus* (Yorkshire-fog). The field-layer of the southern tip of this woodland contains several ancient woodland indicator species (Kirby 2006) including *Arum maculatum* (Lords-and-Ladies), *Hyacinthoides non-scripta* (Bluebell) and *Polypodium vulgare* (Polypody). The presence of large oaks and woodland species implies that this site has been wooded for a long time, even though the overall character of the site is as plantation woodland.

The plantation woodland described in *Target Note 296* contains many planted trees including *Castanea sativa* (Sweet Chestnut) and *Prunus avium* (Wild Cherry). However, there is an abundance of ancient woodland indicator species (Kirby 2006) in the field-layerI including *Hyacinthoides non-scripta* (Bluebell), *Moehringia trinervia* (Three-nerved Sandwort) and *Stellaria holostea* (Greater Stitchwort). Large 25 m-tall *Quercus robur* (Pedunculate Oak) trees do not appear to have been part of the plantation and occur at random throughout the woodland. The combination of large oaks and woodland species imply that likely that this has been a semi-natural woodland that has been mostly cleared and replanted as a broadleaved plantation. The presence of the ancient woodland indicators implies that this has been a wooded site for a long period of time though it is not designated as ancient woodland.

Species lists for plantations are included in *Tables Table* 8.2 and *Table* 8.3*.*

3.2.3 Scrub

Small scrub patches commonly occur along field boundaries and watercourses, and inland parcels where management is relaxed or absent, for example ungrazed grasslands. Typically they comprise one or more of *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Rubus fruticosus* agg. (Bramble) and *Sambucus nigra* (Elder).

Low-growing patches of scrub dominated by *Rubus fruticosus* agg. (Bramble) are widespread, though seldom very extensive, and are broadly referable to the NVC type **W24 *Rubus fruticosus-Holcus lanatus* underscrub**.

A small area of *Sambucus nigra* (Elder) scrub with species-poor field-layers consisting of the moss *Kindbergia praelonga* and the tall herb *Urtica dioica* (Common Nettle) is present at *Target Notes 14*. This is referable to the proposed NVC type ***Sambucus nigra-Urtica dioica* scrub**.

3.2.4 Trees

Individual, mature trees are frequently associated with hedges and other linear features crossed by the route, such as watercourses, and they occasionally occur scattered in fields. The majority of these open-grown trees are of one species, *Quercus robur* (Pedunculate Oak) - examples are given in *Target Notes 136* and *349*. *Target Note 349* is a large pollarded *Quercus robur* (Pedunculate Oak) with a diameter at breast height of 2 m. Trees with such large diameters, major hollowing or cavities, and dead wood in the canopy are likely to be veteran trees.

3.3 Hedgerows

Over 100 hedges were recorded from the survey area. Table 3.1, below, lists the hedges crossed by the route and *Section 87* contains data tables for each hedge surveyed. Out of 166 hedges, 30 were found to be 'Important' based on wildlife and landscape criteria set out in the *Hedgerow Regulations 1997*.

Hedegrows are scattered across the cable route. Major concentrations are present at the landfall at Bawdsey, the fields around Waldringield, fields to the north of Westerfield and around the sub-station to the west of Bramford. *Ulmus procera* (English Elm) is the commonest species in hedgerows across the cable route and many hedges contain large sections of dead *Ulmus procera* (English Elm) stems with multiple suckers growing through. None of the hedgerows show signs of being particularly ancient (*e.g.* evidence of management practices such as hedge-laying) which was born out by the generally poor field-layers. *Brachypodium sylvaticum* (False Brome) was the most commonly associated *Schedule 2* species followed by *Mercurialis perennis* (Dog's Mercury)

Table 3.1. Table of important hedges.

Target note no.	Hedge Number	Important / Not Important[4]	Avg. No. of Schedule 3 species	No. of features	No. Of schedule 2 species
291a	1	Not Important	3	3	0
291b	2	Not Important	4	2	0
291c	3	Not Important	2	2	0
262	4	Not Important	2.33	2	0
261	5	Not Important	5	1	0
260	6	Not Important	2.33	2	0
258	7	Not Important	1	2	0
288	8a	Not Important	3.33	4	0
290	8b	Not Important	3	2	0
290	8	Not Important	2.33	4	0
282	9	Not Important	2	1	0
280	10	Not Important	1	1	0
277	11	Not Important	3	2	0
278	12	Not Important	2	2	0
269	13	Not Important	1	2	1
284	14	Not Important	2.5	2	0
366	15	Not Important	3.67	2	0
365a	16a	Not Important	3.33	2	0
365	16	Not Important	1.33	0	0
367	17	Not Important	2	1	0
231	18	Not Important	4	1	1
232	19	Not Important	3.5	2	0
233	20	Not Important	1.67	2	0
230	21	Not Important	4.33	3	4
226	22	Not Important	1.5	2	0
227	23	Not Important	1	0	0
224	24	Not Important	1.33	1	0
294	25	Not Important	2	1	0
145	26	Not Important	1.67	0	1
146	27	Not Important	2	1	0
135	28	Not Important	5	1	0
139a	28a	N/A			
134	29	Not Important	4.33	3	1
140	30	Not Important	1	1	0
141	31	Not Important	0.5	1	0
133a	32a	Not Important	4	2	0
133	32	Not Important	4	2	1
129	33	Not Important	2.33	1	0
364u	34	**Important**	7	4	3
364v	35	**Important**	8	3	2
364t	36	**Important**	6	4	3
364w	37a	Not Important	1.5	1	0
364s	37	Not Important	1	0	1
364r	38	**Important**	5.33	4	2
364q	39	**Important**	6	4	2

[4] Hedges listed as N/A are hedges of ornamental origin or less than 30 years old, which are outside the scope of the *Regulations,* or species-poor *Crataegus monogyna* (Hawthorn) hedges that clearly would not qualify as important hedges, and, as such, were not selected for further survey.

364h	40	Not Important	5.5	1	1
364p	41	Not Important	2	2	0
364o	42	Not Important	3	3	1
364i	43	**Important**	6	3	1
364j	44	Not Important	4.5	3	2
364c	45	Not Important	2	1	0
364e	46	Not Important	2	2	1
364d	47	Not Important	1	0	0
364b	48	Not Important	3.5	3	0
364a	48a	Not Important	2.33	1	0
364	49	**Important**	2	4	1
363	50	**Important**	3.33	4	1
218	51	Not Important	3	2	1
206	52	**Important**	6	4	2
361	53	Not Important	3	2	2
207a	54a	**Important**	5.33	4	0
362	54	Not Important	3.5	2	2
207	55	Not Important	3	4	3
358	56	Not Important	1	2	1
200	56a	N/A			
359	57	**Important**	5	3	1
199	58	Not Important	1.5	2	2
360	59	Not Important	1.5	3	1
357	60	Not Important	1.5	2	0
356	61	Not Important	1.5	2	2
355	62	Not Important	2	1	2
178	63	Not Important	2	3	1
175	64	Not Important	2	3	2
174	65	Not Important	2.33	2	2
171	66	Not Important	3.33	3	1
171a	66a	N/A			
163	67	Not Important	4	1	1
164	68	Not Important	4	3	1
347	69	Not Important	4	1	0
348	70	Not Important	3.33	3	2
351a	71a	Not Important	3	1	1
351b	71b	Not Important	2	3	1
351c	71c	Not Important	0.5	1	0
351	71	Not Important	4.5	3	3
153b	72	Not Important	3	3	3
153c	72a	Not Important	5	3	0
153a	73	Not Important	2	2	1
154	74	Not Important	4	3	1
151	75	Not Important	5.5	1	1
336	76	Not Important	3.33	0	1
335	77	Not Important	5	1	1
334	78	**Important**	6.5	3	2
333	79	**Important**	6	3	2
325	80	**Important**	5.33	4	2
327	81	Not Important	4	1	1
331	82	Not Important	5	2	2
332	83	**Important**	8	3	2
330	84	Not Important	3	1	1
329	85	**Important**	6	4	3

328	86	Not Important	4.5	2	2
326	88	Not Important	5	1	2
324	89	Not Important	3.67	3	1
63	90	Not Important	4.33	2	0
64	91	Not Important	3.67	2	0
62	92	Not Important	1.67	3	0
61	93	Not Important	2	2	0
61a	93a	**Important**	7	4	2
58	94	Not Important	4.5	3	2
60	95	Not Important	3	3	1
55	96	Not Important	5.5	1	1
54	97	Not Important	2	2	1
53	98	Not Important	3	3	3
56	99	**Important**	6	3	1
44	100	**Important**	5.5	4	2
46	101	**Important**	5	3	2
47	102	**Important**	8.5	3	2
48	103	Not Important	4.33	3	4
52	104	Not Important	2	2	0
51	105	Not Important	4.5	3	3
42	106	**Important**	6	4	0
41	107	Not Important	1.33	2	0
38b	107a	Not Important	2	2	0
38c	107b		3	2	
40	108	Not Important	1	1	1
38a	109	Not Important	1	0	0
38d	109a	Not Important	1.5	1	0
38e	109b	Not Important	4	0	0
38	110	Not Important	2	1	1
37	111	Not Important	2	3	0
36	112	Not Important	0	0	0
32	113	Not Important	1.67	4	2
31	114	Not Important	2	2	0
323	115	Not Important	1	0	1
10	116	Not Important	3.5	3	0
11	117	Not Important	1	1	1
12	118	Not Important	2	0	0
8a	119	Not Important	2.5	2	2
8	120	Not Important	3.33	2	2
6a	120a	Not Important	4	2	0
5	120b	N/A			
4	121	Not Important	5.33	4	3
2b	122	Not Important	4.33	4	4
2a	123	**Important**	5.33	5	3
2c	123a	Not Important	4	3	0
2f	123b	Not Important	4	3	0
2d	123c	Not Important	3	5	2
2e	123d	Not Important	3	5	0
1	124	Not Important	2	1	2
1k	125	**Important**	5	3	0
1l	126	**Important**	7	1	1
1m	127	**Important**	6	3	2
1n	128	Not Important	2	2	1
1p	129	Not Important	3	3	2

1q	130	Not Important	4	1	2
1o	131	**Important**	4	4	2
1t	132	Not Important	5	2	1
1j	133	Not Important	5	2	1
1r	134	Not Important	4.5	2	2
1a	135	**Important**	5	5	4
1b	136	Not Important	5	2	2
1c	137	Not Important	4.5	3	0
1e	138	Not Important	4	3	1
1d	139	Not Important	3	3	1
1f	140	**Important**	5	3	2
1g	141	**Important**	6.5	4	2
1i	142	Not Important	5.5	3	2

3.4 Grassland

3.4.1 Unimproved and Semi-improved Neutral Grassland

Most areas of semi-improved grassland crossed by the cable route comprise rough, rank grass species and ruderal herbs. Specific examples are grasslands located at *Target Note 17, 201* and *304.*

Target Note 17 describes a series of fields used for cattle grazing. *Poa trivialis* (Rough Meadow-grass) and *Hordeum vulgare* (Six-rowed Barley) are the most frequent grasses Associate species include the coarse grasses *Alopecurus pratensis* (Meadow Foxtail), *Dactylis glomerata* (Cock's-foot) and *Elytrigia repens* (Common Couch). Small patches of *Deschampsia cespitosa* (Tufted Hair-grass) occur throughout area. Herb species present include common species such as *Cirsium arvense* (Creeping Thistle), *Geranium dissectum* (Cut-leaved Crane's-bill) and *Rumex obtusifolius* (Broad-leaved Dock). The grasslands are referable to the NVC type **MG9a *Holcus lanatus – Deschampsia cespitosa* grassland, *Poa trivialis* sub-community.** An NVC table for *target note 17* is included in *Table 7.4.*

Target note 201 describes a series of abandoned arable fields to the south of Woodbridge. They are species-poor being dominated by *Elytrigia repens* (Common Couch) and *Holcus lanatus* (Yorkshire-fog). Old tracks between the fields provide areas for uncommon species associated with disturbed areas to grow including *Crassula tillaea* (Mossy Stonecrop) and *Filago vulgaris* (Common Cudweed). This field system cannot be ascribed to any one NVC community.

Target Note 304 describes a field on a slope with zonation in the vegetation according to the slope. The lower slopes and much of the field is dominated by a very species-poor *Holcus lanatus* (Yorkshire-fog) dominated sward. At the top of the slope (the southern edge of the field) the sward becomes more species-rich. These comprise species typically associated with soil disturbance such as *Arenaria serpyllifolia* (Thyme-leaved Sandwort), *Chamerion angustifolium* (Rosebay Willowherb) and *Vulpia bromoides* (Squirreltail Fescue) as well as calcifuges such as *Ornithopus perpusillus*

(Bird's-foot), *Filago vulgaris* (Common Cudweed) and *Rumex acetosella* (Sheep's Sorrel). This change in species composition is probably a result of disturbance leading to a loss of soil fertility due to leaching of the sandy soils. This grassland is referable to a species-poor version of **MG6 *Lolium perenne-Cynosurus cristatus* grassland**.

Species lists for *Target Notes 17, 201* and *304* are included in *Table 8.4. Species* lists for rough grasslands at Target *Notes 17, 201 and* 304

Despite the overwhelming number of rank grasslands along the route there are some mesotrophic grasslands of note.

Target Note 23 relates to grassland mainly formed of the co-dominants *Festuca rubra* (Red Fescue), *Taraxacum officinale* agg. (Dandelion) and *Trifolium repens* (White Clover). Common associates include *Centaurea nigra* (Common Knapweed), *Trifolium dubium* (Lesser Trefoil) and *Vicia sativa* (Common Vetch). Amongst the 25 cm high sward there are patches of *Anacamptis pyramidalis* (Pyramidal Orchid), *Ophrys apifera* (Bee Orchid) and *Orobanche minor* (Common Broomrape). This grassland is referable to the NVC type **MG6a *Lolium perenne – Cynosurus cristatus* grassland, Typical sub-community.**

3.4.2 Calcifugous Grassland

Calcifugous grasslands of the route occur most frequently around Woodbridge and comprise *Target Notes, 187a, 187b, 372, 373, 374a,* and *379.* These grasslands are typified by the abundance of *Agrostis capillaris* (Common Bent) with other frequent calcifugous species such as *Ornithopus perpusillus* (Bird's-foot), *Rumex acetosella* (Sheep's Sorrel) and *Hypochaeris radicata* (Cat’s-ear).

Target Note 372, 373 and *374a* are species-poor examples. *Target Notes* 372 and *373* are grasslands dominated by *Agrostis capillaris* (Common Bent) with scattered calcifuges such as *Rumex acetosa* (Common Sorrel) and *Erodium cicutarium* (Common Stork's-bill). This vegetation is best described as being referable to the NVC type **U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland** but is so species-poor it cannot be attributed to any one sub-community. *Target Note 374a is* only moderately richer in species, containing a slightly more diverse assemblace with mildly calcifuge species including *Filago vulgaris* (Common Cudweed), *Myosotis ramosissima* (Early Forget-me-not) and *Ornithopus perpusillus* (Bird's-foot). An NVC Table and a species list for *Target Note 374a* is included in *Table Table* 7.10 and *Table Table* 8.6

Target Note 187a, 187b, 194, 374 and *379* comprise a mixture of *Crataegus monogyna* (Hawthorn) and *Ulex europaeus* (Gorse) scrub with species-rich calcifugous grassland. *Agrostis capillaris* (Common Bent) and *Rumex acetosella* (Sheep's Sorrel) forms the great majority of the sward with some areas having a greater covering of bryophyte species. Herb and bryophyte associates typical of the sward include *Aphanes australis* (Slender Parsley-piert), *Crassula tillaea* (Mossy Stonecrop), *Myosotis ramosissima* (Early Forget-me-not), *Polytrichum juniperinum*, and *Veronica arvensis* (Wall Speedwell). These grasslands are referable to the NVC type **U1b *Festuca ovina-***

***Agrostis capillaris-Rumex acetosella* grassland, Typical sub community.** NVC tables for *Target Notes 187a, 187b, 194* and *374* are given in *tables Table* 7.6*, Table* 7.7*, Table* 7.8 and *Table 7.9* Floristic table (NVC Style) for 5 two metre quadrats grassland at *Target Note 374.*respectively and species lists are given in *Table Table* 8.7*.*

Target Note 346 refers to calcifugous grassland though whilst is it has developed on sand similar to the calcifugous grasslands of Woodbridge there are several herbs typical of more mesotrophic grasslands. *Agrostis capillaris* (Common Bent) remains the most frequent grass in the 5 cm sward but mesotrophic herbs such as *Carex hirta* (Hairy Sedge), *Lotus corniculatus* (Common Bird's-foot Trefoil) and *Rumex acetosa* (Common Sorrel) are reasonably common in amongst calcifuges such as *Aphanes australis* (Slender Parsley-piert), *Erodium cicutarium* (Common Stork's-bill) and *Rumex acetosella* (Sheep's Sorrel). This grassland is referable to the NVC type **U1d *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, *Anthoxanthum odoratum – Lotus corniculatus* sub-community.** A species list is included in *Table 8.8* and an NVC table in *Table 7.11.*

3.4.3 Marshy Grassland and Swamp

The sandy free-draining soils of Suffolk are not pre-disposed to the formation of marshy grassland due to impedance of drainage. As such, swamp vegetation is generally restricted to the sides of watercourses. Extensive areas of swamp include *Target Notes 185* and *210* which are both species-poor, dominated by *Phragmites australis* (Common Reed) and therefore referable to the NVC type **S4 *Phragmites australis* swamp and reed-beds**.

Two areas of notable swamp are present along the cable route. These comprise an area of swamp described in *Target Notes 342* and *344* and a field described in *Target Note 375.* Both are at the bottom of small valleys to the west of Woodbridge.

*Target Note*s *342* and *344* describe an area of tall herb swamp centered around a clogged drain described in *Target Note 343.* Despite *Carex acutiformis* (Lesser Pond-sedge) being the most frequent species, there are several broad-leaved herbs and so it is more species-rich than is usual in *Carex acutiformis* (Lesser Pond-sedge) swamp. Species such as *Angelica sylvestris* (Wild Angelica) and *Filipendula ulmaria* (Meadowsweet) regularly reach cover values within samples equal to *Carex acutiformis* (Lesser Pond-sedge). The presence of several species associated with wet rich habitats such as *Myosoton aquaticum* (Water Chickweed), *Pulicaria dysenterica* (Common Fleabane) and *Silene flos-cuculi* (Ragged-robin) similarly makes this vegetation referable to the NVC type **M27 *Filipendula ulmaria – Angelica sylvestris* mire.** NVC tables for *Target Notes 342* and *344* are give in *tables Table* 7.12 and *Table* 7.13 respectively.

Target Note 375 is an area of swamp at the bottom of a small valley co-dominated by *Arrhenatherum elatius* (False Oat-grass) and *Filipendula ulmaria* (Meadowsweet). F*icaria verna* (Lesser Celandine), *Lathyrus pratensis* (Meadow Vetchling) and *Rumex acetosa* (Common Sorrel) are common herb associates. Most of the species present,

such as *Heracleum sphondylium* (Hogweed), *Poa pratensis* (Smooth Meadow-grass) and *Veronica chamaedrys* (Germander Speedwell) are common and widespread species. The presence of *Saxifraga granulata* (Meadow Saxifrage) in the sward is indicative of moist base rich soils. The vegetation is referable to the NVC type **M27b *Filipendula ulmaria – Angelica sylvestris* mire, *Urtica dioica – Vicia cracca* sub-community**. An NVC table for *Target Note 375* is given in *table* Table 7.15.

Species lists for *target notes 342, 344* and *375* are included in *Table 8.9.*

3.4.4 Tall Herb and Fern

3.4.4.1 Bracken

Species-poor vegetation dominated by *Pteridium aquilinum* (Bracken) was recorded at *Target Notes 161* and *186. Target Note 161* is referable to the NVC type **W25a *Pteridium aquilinum-Rubus fruticosus* underscrub, *Hyacinthoides non-scripta* sub-community** and *Target Note 186* to **W25b *Pteridium aquilinum-Rubus fruticosus* underscrub, *Teucrium scorodonia* sub-community**.

3.4.4.2 Tall Ruderal

Areas of tall ruderal vegetation were largely confined to ditch banks and as field-layers of the more species-poor woodlands.

3.5 Coastal Habitats

3.5.1 Shingle

Much of the shingle at the landfall (*Target Note 250a*) is unvegetated. For much of the area of survey the beach remains relatively narrow and is probably too heavily disturbed by waves for coastal plant species to become established. At *Target Note 250* the shingle becomes wider and less disturbed by the waves, consequently coastal vegetation referable to a very species-poor **SD1a *Rumex crispus-Glaucium flavum* shingle community, typical sub-community** has become established. This vegetation zone is relatively large varying from 5 to 40 m across and extends along the beach from OS Grid Ref. TM 34899 38966 to TM 34167 38198 roughly parallel to the Ministry of Defence (MOD) land at the top of the cliff. It comprises mostly *Crambe maritima* (Sea-kale) scattered across the beach with occasional *Glaucium flavum* (Yellow Horned-poppy) and extremely scarce *Rumex crispus* (Curled Dock). A species list is given in *Table 8.10.* Plant species recorded from the shingle at *Target Note 250*

3.5.2 Maritime cliff vegetation

The maritime cliff vegetation at described in *Target Notes 251a*, 251b, 251c and 251d is highly variable in it species content. This variation is related to the amount of erosion by the sea that has occurred in the recent past. The substrate of the cliff comprises layers of gravel and a sand/soil matrix that has been colonised or seeded with plant species

At *Target Note 251a* a small relatively sheltered bay has developed due to the presence of a groyne constructed of limestone just to the north. This has allowed the establishment of an assemblage of plant species that was not present anywhere else in the survey area. The diffuse vegetation comprises a range of species associated with coastal, ruderal and mesotrophic habitats. Species associated with coastal habitats include *Atriplex laciniata* (Frosted Orache), *Atriplex littoralis* (Grass-leaved Orache), *Beta vulgaris* ssp. *maritima* (Sea Beet), *Cakile maritima* (Sea Rocket), *Cakile maritima* (Sea Rocket), *Elytrigia atherica* (Sea Couch) , *Parapholis strigosa* (Hard-grass), *Suaeda maritima* (Annual Sea-blite) and *Tripleurospermum maritimum* (Sea Mayweed). These are interspersed with ruderal and mesotrophic species comprising *Agrostis stolonifera* (Creeping Bent), *Bromus hordeaceus* (Soft-brome), *Dactylis glomerata* (Cock's-foot), *Helminthotheca echioides* (Bristly Oxtongue), *Medicago lupulina* (Black Medick), *Potentilla reptans* (Creeping Cinquefoil), *Sonchus oleraceus* (Smooth Sow-thistle) and *Trifolium repens* (White Clover). Due the confluence of differing environmental influences and the apparent relative recentness of the vegetation it is not referable to any one NVC type. A species list is included *in Table 8.11*.

Travelling south down the coast much of the cliff is eroding with no vegetation present on the cliff face. At the top of the cliff there is a strip of grassland approximately 1 to 2 m across dominated solely by *Festuca rubra* (Red Fescue). Where small sections of the cliff have been eroded and the soil substrate is still present, a small, highly disturbed section of soil has been colonised by many ruderal species. The most frequent species present include *Aira praecox* (Early Hair-grass), *Arrhenatherum elatius* (False Oat-grass), *Bromus hordeaceus* (Soft-brome), *Sinapis arvensis* (Charlock), *Smyrnium olusatrum* (Alexanders) and *Urtica dioica* (Common Nettle). These areas represent a mixture of the NVC types **OV24b *Urtica dioica-Galium aparine* community, *Arrhenatherum elatius-Rubus fruticosus* sub-community**. Rather than listing each area individually a composite species list was created and included in *Table 8.11* under *Target Note 251b.* These areas are ephemeral in nature being on a frequently eroding area of cliff.

Further to the south the cliff becomes less eroded and the establishment of two distinct vegetation types occurs. Large areas become co-dominated by *Sinapis arvensis* (Charlock), *Smyrnium olusatrum* (Alexanders) and *Urtica dioica* (Common Nettle). Other large ruderals are occasionally present including *Arctium lappa* (Greater Burdock) and *Rubus fruticosus* agg. (Bramble). Forming an understory beneath the canopy of tall ruderal species and at the edges of these areas there are several small annual and smaller ruderal species including *Anagallis arvensis* ssp. *arvensis* (Scarlet Pimpernel), *Anchusa arvensis* (Bugloss), *Anisantha sterilis* (Barren Brome) and *Mercurialis annua* (Annual Mercury). Where the vegetated cliff face meets the shingle there are scattered individuals of *Glaucium flavum* (Yellow Horned-poppy). These areas are referable to **OV24a *Urtica dioica-Galium aparine* community, typical sub-community** and a species list is included in *Table 8.11*. under *Target Note 251c.*

Between the areas dominated by tall ruderals are areas comprising short swarded grassland and small annual and rosette herbs. Dominated by *Agrostis capillaris* (Common Bent) and referable to the NVC type **U1 *Festuca ovina-Agrostis capillaris-***

***Rumex acetosella* grassland.** A species list is included in *Table 8.11*. under *Target Note 251d.*

3.5.3 Saltmarsh

Along the east and west banks of the river Deben at *Target Notes 246* and *315* respectively. there are strips of saltmarsh vegetation. Where the cable route crosses, these areas range from 5 to 50 m in width and are dissected by several small creeks. The vegetation is raised from the mudflats associated with the river by approximately 10 to 15 cm with very little variation in slope resulting in no vegetation zonation typical of larger, more extensive saltmarshes. *Puccinellia maritima* (Common Saltmarsh-grass) forms the majority of the vegetation cover with frequent patches of *Limonium vulgare* (Common Sea-lavender) and *Atriplex portulacoides* (Sea-purslane). Scattered amongst the sward are the perennial species *Aster tripolium* (Sea Aster), *Sarcocornia perennis* (Perennial Glasswort), *Spartina anglica* (Common Cord-grass) and *Spergularia media* (Greater Sea-spurrey). The annual species *Salicornia europaea* (Common Glasswort) and *Suaeda maritima* (Annual Sea-blite) occur frequently amongst the vegetation with smaller areas of bare mud and algae. Both areas of saltmarsh are referable to the NVC type **SM13f *Puccinellia maritima* salt-marsh community, *Puccinellia maritima-Spartina maritima* sub-community** which is considered as vegetation characteristic of mudflat/saltmarsh transition zones. Floristic tables for *Target Note* 246 and *Target Note* 315 are given in *Table 7.15* and *Table 7.16* respectively and species lists are given in *Table 8.12.*

3.6 Watercourses and Ponds

3.6.1 Rivers and Streams

The cable route crosses several watercourses. These comprise the Rivers Deben, Fynn, Gipping and Lark at *Target Notes 315, 246, 150, 19* and *170a,* respectively, as well as Kirton and Martlesham creeks (*Target Notes 300* and *211*), the Queens Fleet (*Target Note 286c*) and small un-named streams at *target notes* 7a, *126b* and 226a*.* At *Target Notes* 315, 246 and *211* the river Deben and Martlesham Creek are crossed and are both tidal stretches contained by earth embankment flood defences. Their channels are dominated by extensive mud flats with algal beds. The river Deben has narrow bands of salt marsh communities along the east and west banks, described in *Section 3.5.3*. Descriptions of other watercourses are as follows:

- The River Fynn, crossed at *Target Note 150*, is a small river with a bed comprising sand, gravel and silt running approximately 3 to 20 cm deep. There is no aquatic vegetation but patches of marginal *Phragmites australis* (Common Reed) occur occasionally along its route. The banks are approximately 1.5 m in height and have vegetation dominated by ruderal species including *Rumex obtusifolius* (Broad-leaved Dock), *Symphytum ×uplandicum* (Russian Comfrey) and *Urtica dioica* (Common Nettle) with patches of trees comprising *Alnus glutinosa* (Alder), *Crataegus monogyna* (Hawthorn) and *Salix alba* (White Willow). There are scattered plants of *the Wildlife and Countryside Act 198, schedule 9* listed *Impatiens glandulifera* (Indian Balsam) occurring rarely along its banks.

- The River Gipping, crossed at *Target Note 19,* is a large river approximately 20 m wide and more than 1 m deep. Its aquatic vegetation is dominated by algae with frequently occurring *Nymphaea alba* (White Water-lily) and *Oenanthe fluviatilis* (River Water-dropwort). Small populations of the *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed) occur along sides of the river where its flow is slowed by marginal vegetation and tree routes. Marginal vegetation comprising patches of *Epilobium hirsutum* (Great Willowherb), *Phalaris arundinacea* (Reed Canary-grass), *Phragmites australis* (Common Reed), *Schoenoplectus lacustris* (Common Club-rush), *Sparganium erectum* (Branched Bur-reed) occur all along its banks. These are intermixed with more ruderal species such as *Symphytum ×uplandicum* (Russian Comfrey) and *Urtica dioica* (Common Nettle).
- The River Lark, crossed at *Target Note 170a* , has a bed comprising gravel, sand and silt. There are no aquatics. Marginal vegetation comprises scattered patches of *Filipendula ulmaria* (Meadowsweet) and *Phragmites australis* (Common Reed). The banks are approximately 1.5 m and steep with the vegetation comprising patches of *Symphytum ×uplandicum* (Russian Comfrey) and *Urtica dioica* (Common Nettle) with scattered individuals of *Raphanus raphanistrum* ssp. *raphanistrum* (Wild Radish) and *Scrophularia nodosa* (Common Figwort) and the *Schedule 9* listed *Impatiens glandulifera* (Indian Balsam).
- Kirton Creek, *Target Note 300*, is a 20 m wide water course of unknown depth and no aquatic vegetation has shallowly sloping banks wholly dominated by the tall grass *Phalaris arundinacea* (Reed Canary-grass) with scattered species of marginal habitats such as *Ranunculus sceleratus* (Celery-leaved Buttercup) and *Rumex hydrolapathum* (Water Dock).
- The Queens Fleet (*Target Note 286c*) is approximately 30 m across where the route crosses. The aquatic vegetation is dominated by *Potamogeton berchtoldii* (Small Pondweed) and *Potamogeton pectinatus* (Fennel Pondweed) with the *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed) occurring frequently throughout the channel. *Myriophyllum spicatum* (Spiked Water-milfoil) is abundant particularly close to the *Phragmites australis* (Common Reed) dominated banks. Large stands of *Phragmites australis* (Common Reed) occur in the middle of the channel approximately 50 m down from the proposed crossing point.
- The route skirts the side of Martlesham creek to the west of Woodbridge at *Target Note 384.* Here the creek is approximately 10 m across and 0.5 m deep with a several small flow deflectors. Here the creek bed comprises gravel, sand and silt and has scattered aquatic plants comprising *Potamogeton natans* (Broad-leaved Pondweed) and *Ranunculus* cf. *penicillatus* (Stream Water-crowfoot). Emergent vegetation comprises discrete dense stands of *Phragmites australis* (Common Reed), *Sparganium erectum* (Branched Bur-reed) and *Typha latifolia* (Bulrush). The bank vegetation is dominated by *Urtica dioica* (Common Nettle) and *Symphytum ×uplandicum* (Russian Comfrey) with small patches *Filipendula ulmaria* (Meadowsweet). Several mature *Alnus glutinosa* (Alder) trees are present on the left bank with a small plantation comprising *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Fraxinus*

excelsior (Ash), *Ilex aquifolium* (Holly) and *Prunus avium* (Wild Cherry) on the right.

- Unnamed streams were recorded at *Target Notes 7a, 126b* and *226a .* There was no aquatic vegetation present and with the emergent vegetation dominated by *Apium nodiflorum* (Fool's Water-cress) with patches of *Epilobium hirsutum* (Great Willowherb). Marginal vegetation of the of these watercourses was dominated by *Epilobium hirsutum* (Great Willowherb) With bank vegetation dominated by *Urtica dioica* (Common Nettle) and other ruderal species such *Rumex obtusifolius* (Broad-leaved Dock).

Species lists for these water courses are included in *Table 8.13*

3.6.2 Ditches

Most of the ditches crossed by the cable route were along or within hedgerows and were un-managed. Consequently vegetation associated with ditches was either shaded out by the associated hedge or comprrised an *Apium nodiflorum* (Fool's Water-cress) dominated channel, with occasional patches of *Lemna minor* (Common Duckweed), with ruderal vegetation referable to the NVC type **OV24b *Urtica dioica-Galium aparine* community, *Arrhenatherum elatius-Rubus fruticosus* sub-community.** Large concentrations of ditch systems or ditches of particular note are described below.

- The Alderton and Bawdsey marshes comprise an area of arable fields intersected by ditches to the west and east of the Queens Fleet. Despite the Queens Fleet being rich in aquatic vegetation these ditch systems remain species-poor. They are typically 3 m across and approximately 3 – 4 m deep. Aquatic vegetation is restricted to scattered patches *Lemna minor* (Common Duckweed). The marginal vegetation is dominated by *Phragmites australis* (Common Reed). With the bank vegetation dominated by *Arrhenatherum elatius* (False Oat-grass).
- The field drain at *Target Note 366a* supports a range of vegetation at its most western point the channel is dominated by *Alopecurus geniculatus* (Marsh Foxtail) with a scattering of *Hydrocotyle vulgaris* (Marsh Pennywort). Further east, species-richness increases with tall marginal species dominating the channel. These comprise *Bolboschoenus maritimus* (Sea Club-rush), *Epilobium hirsutum* (Great Willowherb), *Juncus effusus* (Soft-rush), *Juncus inflexus* (Hard Rush), *Schoenoplectus tabernaemontani* (Grey Club-rush), *Sparganium erectum* (Branched Bur-reed) and *Typha latifolia* (Bulrush). The last 10 m where it meets the ditch of *Target Note 249* the channel turns into open water with aquatic vegetation comprising *Potamogeton pectinatus* (Fennel Pondweed) and *Lemna minor* (Common Duckweed). At this point the marginal vegetation is dominated by *Phragmites australis* (Common Reed).
- A large ditch at *Target Note 249,* approximately 20 m across and of unknown depth, has aquatic vegetation comprising abundant *Potamogeton pectinatus* (Fennel Pondweed) and *Potamogeton berchtoldii* (Small Pondweed) with occasional *Schedule 9* listed *Elodea canadensis* (Canadian Waterweed). The banks are co-dominated by *Arrhenatherum elatius* (False Oat-grass)and

Elytrigia atherica (Sea Couch) with occasional ruderal species such as *Helminthotheca echioides* (Bristly Oxtongue).

- The ditch at *Target Note 306a* is approximately 10 m across and has banks dominated by *Phragmites australis* (Common Reed) with occasional *Carex acuta* (Slender Tufted-sedge) and *Filipendula ulmaria* (Meadowsweet) with a tussock of *Carex paniculata* (Greater Tussock-sedge). The aquatic vegetation is *Elodea canadensis* (Canadian Waterweed) with occasional *Lemna triscula* (Ivy-leaved Duckweed) at the edges.
- The ditch at *Target Note 150a* comprises common and ruderal species including *Arctium minus* (Lesser Burdock) and *Urtica dioica* (Common Nettle) as well as *Myosoton aquaticum* (Water Chickweed) which Simpson (1982) refers to as being associated with old marshes. This ditch also contains several stems of *Impatiens glandulifera* (Indian Balsam), which is listed on *Schedule 9* of *The Wildlife and Countryside Act 1981*.

Speceis lists for all surveyed ditches are included in *Tables* Table 8.14 and *Table* 8.15*.*

3.6.3 Ponds

There are only a few ponds that could be directly affected by the route, together with a few on the edge of the survey corridor, as follows.

- A small pool is located at *Target Note 18a* amongst a small copse of *Alnus glutinosa* (Alder) and *Salix alba* (White Willow). The pool vegetation comprises emergent and marginal species with the floating aquatics *Callitriche stagnalis* (Common Water-starwort), *Lemna minor* (Common Duckweed) and *Spirodela polyrhiza* (Greater Duckweed). The emergent and marginal species present comprise *Carex riparia* (Greater Pond-sedge), *Juncus inflexus* (Hard Rush), *Lycopus europaeus* (Gypsywort), *Mentha aquatica* (Water Mint), *Myosotis scorpioides* (Water Forget-me-not) and *Sparganium erectum* (Branched Bur-reed). This is surrounded by species of the surrounding species-poor grassland large amounts of *Urtica dioica* (Common Nettle).
- Ponds used to water cattle are present at *Target Notes 21* and *45.* Both have no aquatic vegetation. The shores of both ponds are heavily poached by cattle hooves to the extent that the only species that could be said to associated with these ponds are scattered plants of *Persicaria amphibia* (Amphibious Bistort) on the shores on *Target Note 21* and a single plant of *Veronica beccabunga* (Brooklime) at *Target Note 45.*
- The pond at *Target Note 126a* contains no aquatic vegetation. The pond's emergent vegetation is dominated by *Typha latifolia* (Bulrush) which has abundant growth of the *Schedule 9* listed *Myriophyllum aquaticum* (Parrot's-feather). Margins are a mixture of rough grassland species such as *Arrhenatherum elatius* (False Oat-grass) and *Heracleum sphondylium* (Hogweed) and species typical of damp pond margins, such as *Epilobium hirsutum* (Great Willowherb) and *Hypericum tetrapterum* (Square-stalked St John's-wort).
- *Target Note 283a* describes a pond that has become wholly dominated by stands of *Carex riparia* (Greater Pond-sedge) and *Phragmites australis*

(Common Reed). The main water body of the pond is defined by the presence of *Phragmites australis* (Common Reed) which gives way to *Carex riparia* (Greater Pond-sedge) on the drier margins. There are scattered patches of other marginal species comprising *Epilobium hirsutum* (Great Willowherb), *Juncus inflexus* (Hard Rush) and *Schoenoplectus lacustris* (Common Club-rush) but these are extremely restricted.

Species lists of ponds at *Target notes 18a, 126a* and *283a* are give in *Table Table* 8.16.

3.6.4 Vegetation Types

The following aquatic and wetland NVC types have been recorded from watercourses and ponds on the route.

- Vegetation of the main channel of the River Gipping is referable to NVC type **A7a *Nymphaea alba* community, species-poor sub-commmunity**.
- The Queens Fleet and the ditch at *Target Note 246* both comprise abundant *Potamogeton berchtoldii* (Small Pondweed) and *Potamogeton pectinatus* (Fennel Pondweed) growth with scattered plants of *Elodea canadensis* (Canadian Waterweed). Both are referable the NVC type **A11b *Potamogeton pectinatus-Myriophyllum spicatum* community, *Elodea canadensis* sub-community.**
- Eutrophic watercourses occasionally support tall bankside vegetation dominated *Phragmites australis* (Common Reed) with *Arrhenatherum elatius* (False Oat-grass) underneath is probably **S26b *Phragmites australis-Urtica dioica* tall-herb fen, *Arrhenatherum elatius* sub-community.**
- Very locally, *Epilobium hirsutum* (Great Willowherb) is abundant on banksides together with coarse herbs and grasses such as *Arrhenatherum elatius* (False Oat-grass) forming the NVC type **OV26d *Epilobium hirsutum* community, *Arrhenatherum elatius-Heracleum sphondylium* sub-community**.
- Tall herb vegetation dominated by *Phalaris arundinacea* (Reed Canary-grass) either as the sole species or with other coarse herbs such as *Epilobium hirsutum* (Great Willowherb) and *Urtica dioica* (Common Nettle) is referable to the NVC types **S28a *Phalaris arundinacea* tall-herb fen, *Phalaris arundinacea* sub-community** and **S28b *Phalaris arundinacea* tall-herb fen, *Epilobium hirsutum-Urtica dioica* sub-community**, and occurs frequently in mostly small stands.
- Stands of *Phragmites australis* (Common Reed) with virtually no other species are referable to the NVC type **S4a *Phragmites australis* swamp and reed-beds, *Phragmites australis* sub-community**. This is the dominant vegetation type in the drains at Alderton and Bawdsey marshes.
- Small areas of emergent *Sparganium erectum* (Branched Bur-reed) were erecorded from very few watercourse and includes **S14a *Sparganium erectum* swamp, *Sparganium erectum* sub-community**
- Most ditches support vegetation characterised by being dominated by the small perennial herb *Apium nodiflorum* (Fool's Water-cress), in many wet ditches this formed the sole emergent and marginal species present. Such ditches are referable to the NVC type **S23 Other water margin vegetation**.

- A few marshy streams and shallow ditches support species-poor stands of the tall sedges *Carex acutiformis* (Lesser Pond-sedge) or *Carex riparia* (Greater Pond-sedge), referable to the NVC types **S7 *Carex acutiformis* swamp** and **S6 *Carex riparia* swamp**, respectively.
- *Elodea canadensis* (Canadian Waterweed) is the only aquatic species present in the ditch at *Target Note 306a* which is **A15 *Elodea canadensis* community**.
- Floating mats of *Lemna minor* (Common Duckweed) recorded in a few wet ditches are the **A2 Lemna minor community**.

3.7 Semi-urban habitats

For the most part urban habitats present little to no botanical interest. At Woodbridge in an area defined by *Target Note 191* there is a large population of the nationally scarce *Crassula tillaea* (Mossy Stonecrop) and *Trifolium suffocatum* (Suffocated Clover). These small herbs favour disturbed areas. The area covered by *Target Note 191* is used as a storage area for the highways commission and so suffers from regular, patchy disturbance which is ideal for these two species. These species would likely thrive post-development, given their preference for disturbed soils, but would depend on the survival of viable populations during construction. A species list is included for this area in *Table 8.17.* Species list for Ephemeral/short perenial vegetation recorded at *Target Note 191.*

4 EVALUATION

4.1 General

Despite the diversity of habitats recorded, the majority of the onshore cable route passes through intensively farmed land including the open, arable landscape of Suffolk. Habitats of nature conservation value in these areas are generally restricted to linear features such as hedges and watercourses with other habitats occurring in discrete land parcels. The most significant of these are listed below, in order of land fall to sub-station.

- Shingle vegetation at *Target Note 250;*
- Eroding cliff vegetation at *Target Note 251d;*
- The Queens fleet at *Target Note* 286c;
- Salt marsh on the east and west bank of the Deben at *Target Note246* and *315;*
- An area of open vegetation at *Target Note 191* containing *Trifolium suffocatum* (Suffocated Clover);
- Calcifugous grassland at *Target Note 374;*
- Swamp at *Target Note 375, 342* and *344;*
- Mesotrophic grassland at *Target Note 23;*and
- The western corner of the plantation at *Target Note 1h.*

4.2 Habitats

4.2.1 Woodland, Scrub and Trees

The route generally avoids areas of semi-natural woodland, though it passes through ancient semi-natural woodland at *Target Note 3.* However the route will avoid the richer areas of woodland, only passing through areas where the field-layer is dominated by ruderal species such as *Urtica dioica* (Common Nettle). Though not designated as ancient woodland, evidence suggests that they have been woodland for a long time and it may be that they are not designated simply because they are very small areas. While small in extent, semi-natural woodland is a limited resource and a UK (Lowland Mixed Deciduous Woodland) and Suffolk (Woodland) BAP Priority Habitat and, as such, they have at least local conservation value.

Plantation woodland on the route is also mostly of recent origin and low conservation priority. However, woodland at *Target Note 1h* contains a small area containing many AWI species which may be of some local Nature conservation value.

Areas of scrub are very ordinary examples of the habitat type.

Large mature, possibly veteran, broad-leaved trees are important landscape features with intrinsic ecological value that cannot be replaced in the short-term. Veteran status is conferred to a tree not only for its age but also a variety of landscape and historical

features which were not included in this assessment. There may be veteran trees along the route with high value for wildlife, landscape and cultural significance.

4.2.2 Hedges

Hedges are important as landscape features, habitats and wildlife corridors in the generally intensively farmed land crossed by the route. Most of the hedges are only moderately species-rich in terms of shrub and field-layer species, but they typically support additional features such as standard trees and an adjacent ditch that increase their ecological value. It is likely that many of the hedges have ancient origins and 30 hedges in total qualify as 'Important' based on ecological criteria in the *Hedgerow Regulations 1997*. The UK and Suffolk BAPs for Hedges are primarily concerned with ancient and species-rich hedges such as these.

4.3 Grassland

4.3.1 Agricultural

Improved and poor semi-improved grasslands on the route are typically very species-poor and have low ecological value.

4.3.2 Unimproved and Semi-improved Neutral Grassland

Target Note 23 is the only area of species-rich neutral grassland along the cable route. The assemblage of species and their frequencies imply that this grassland has formed from natural colonisation rather than being derived from a seed mix. Whilst the species that comprise the sward are not of any national significance it may have some local nature conservation value.

4.3.3 Calcifugous grassland

Calcifugous grasslands are a UK and Suffolk BAP priority habitat. It is a fairly ubiquitous habitat type on abandoned grassland and waste ground around Woodbridge. The best examples of which are on the slope covered by *Target Notes 374a* and in the field to the east to the golf course covered by *Target Note 194.*

4.3.4 Marshy Grassland and Swamp

Swamp is rare in the local context and adds to the overall diversity of habitats crossed by the route, even if the examples are generally species-poor. Examples of species-rich swamps are present at *Target notes 342, 344* and *375* support a wider range of species and is associated with other habitats of botanical interest (described under unimproved and semi-improved neutral grassland).

4.3.5 Tall herb and Fern

Tall herb vegetation of the kinds recorded from the route is ubiquitous in the UK and typically of low ecological value

4.3.6 Coastal Habitats

Coastal Vegetated shingle is a UK and Suffolk BAP priority habitat. Vegetated shingle is a scarce habitat worldwide being restricted to only a few coastlines outside

Britain, consequently all vegetated shingle should be regarded as possibly having international significance. The shingle at the land fall remains mostly un-vegetated. Where shingle vegetation is present it is concentrated to the southerly end of the survey area parallel to the Ministry of Defence (MoD) site. This area is large in its extent though naturally species-poor.

Maritime Cliffs and Slopes are a UK and Suffolk BAP Priority habitat. Much of the cliff edge at the landfall is already eroding and consequently contains little to no vegetation. Vegetated areas are concentrated to the southern end of the survey area towards the MOD site. Much of the vegetated areas only include common, ruderal species. The cliff face running parallel to the MoD site is more diverse as a result of a shallower incline on the slope and the high level of rabbit-grazing. Due to the very sandy soils these areas are prone to erosion when disturbed.

Saltmarsh is also a UK and Suffolk BAP priority habitat. It is limited to narrow strips on the east and west bank of the River Deben.

4.3.7 Watercourses and ponds

The most significant watercourse crossed by the cable is the River Deben. It is a large tidal river with narrow strips of saltmarsh along its banks, so in effect it qualifies under the UK BAP Priority Habitats for **Rivers** and **Coastal Saltmarsh**.

Smaller rivers and streams crossed by the route do not meet BAP criteria, though the best examples are perhaps of local interest. These include the more semi-natural watercourses supporting certain wetland vegetation types or adjacent areas of marshy grassland, or those with wooded banks. They are eutrophic. The Queens Fleet (*Target Note 286c*) supports abundant aquatic vegetation and is of some value in the local contex.

Many of the ditches crossed are small and support very ordinary examples of wetland vegetation and no aquatics. A large wet ditch occurs immediately to the west of the River Deben (*Target Note* 246) which supports abundant aquatic vegetation and are of some value in the local contex.

Ponds are a UK BAP Priority Habitat. However the ponds of the route are of little botanical interest.

4.4 Plant Species

4.4.1.1 Red list Species

Two species listed as 'Near Threatened' in Cheffing & Farrell (2005). The classification of 'Near Threatened' relates to species that are close becoming classified as threatened taxa. In the context of the county of Suffolk these taxa are well-distributed and typically occur on disturbed soils. Consequently the cable route is unlikely to have an adverse effect on the species as a whole

- *Filago vulgaris* (Common Cudweed) is species of disturbed acidic soils and occurs throughout the cable route on waste ground.
- *Potentilla argentea* (Hoary Cinquefoil) occurs occasionally in the grasslands covered by *Target Notes 139, 189b, 194* and *304.* It is classified as being locally frequent by *Simpson* (1982).

4.4.1.2 Nationally Scarce

Three species are listed as 'Nationally Scarce' *i.e.* found in less than 100 ten-kilometre grid-squares nationally in *Stewart et al.* (1994).

- *Crassula tillaea* (Mossy Stonecrop) was found in *Target Notes 197, 194, 201, 374* and *379.* It is concentrated on compacted disturbed soils on sands around Woodbridge.
- *Sarcocornia perennis* (Perennial Glasswort) occurs in both areas of saltmarsh along the River Deben *Target Notes 246* and *315.*
- *Trifolium suffocatum* (Suffocated Clover) was found abundantly at *Target Note 191.*

Both of these species are typical of disturbed sandy soils. *Crassula tillaea* (Mossy Stonecrop) was commonly observed in suitable habitat around Woodbridge *i.e.* most farm tracks and abandoned fields and waste areas. *Trifolium suffocatum* (Suffocated Clover) was restricted to areas around *Target Note 191.* It is possible that these species may benefit from the disturbed soils that would result from the cable route however the restricted nature of the population of *Trifolium suffocatum* (Suffocated Clover) means that should the soils of *Target Note 191* be too greatly disturbed this population may be lost.

4.4.1.3 Invasive species

Four non-native invasive species that are listed on *the Wildlife and Countryside Act 1981 Schedule 9*. These comprise *Carpobrotus edulis* (Hottentot-fig), *Elodea canadensis* (Canadian Waterweed), *Impatiens glandulifera* (Indian Balsam) and *Rosa rugosa* (Japanese Rose). It is an offence to cause to grow or spread these species in the wild.

- *Carpobrotus edulis* (Hottentot-fig) was found on the cliff face at the land fall but is on the southerly limit of the survey area behind the M.O.D. site and consequently unlikely to be affected by the Preferred Onshore Cable Corridor route.

- *Elodea canadensis* was found in the Queens Fleet (*Target Note 286c*), the River Gipping (*Target Note 19*) and in the ditch at *Target Note 305a.*
- *Impatiens glandulifera* (Indian Balsam) was found growing as isolated stems along the banks at *Target Note 150* and in the ditch at *Target Note 150a*
- *Rosa rugosa* (Japanese Rose) has been widely planted on roadside embankments at *Target Notes 194, 195, 196* and *197.*

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6 FIGURES

Figure 24.3.1 - Phase 2 Botanical Survey Onshore Cable Route Overview

Figure 24.3.2 - Phase 2 Botanical Survey areas (Sheets 1-13)

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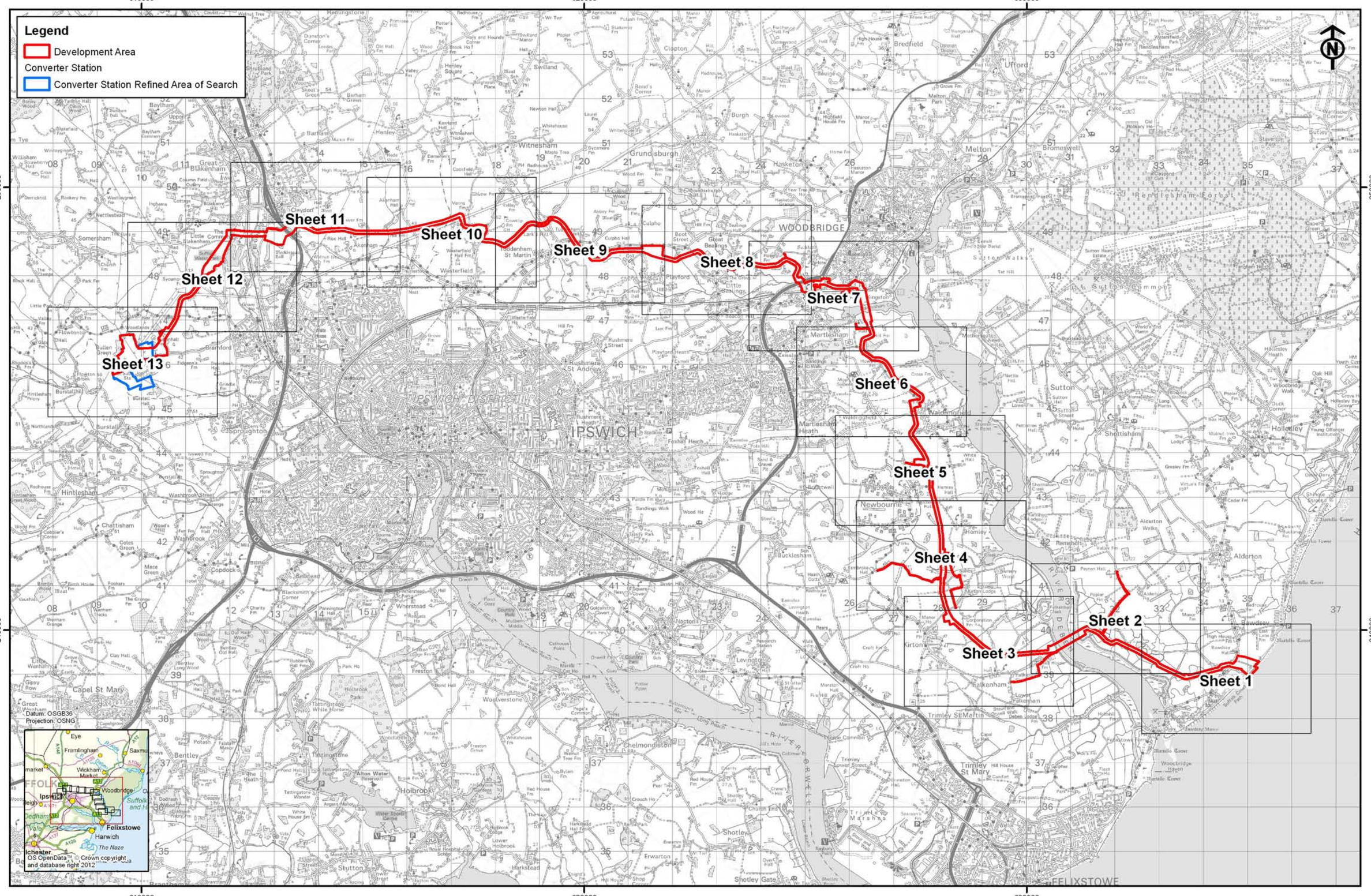

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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:80,000

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Phase 2 Botanical Survey
Onshore Cable Route - Overview

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Rev	02
Date	01/10/12
Layout	N/A

Appendix 24.3

Figure 24.3.1

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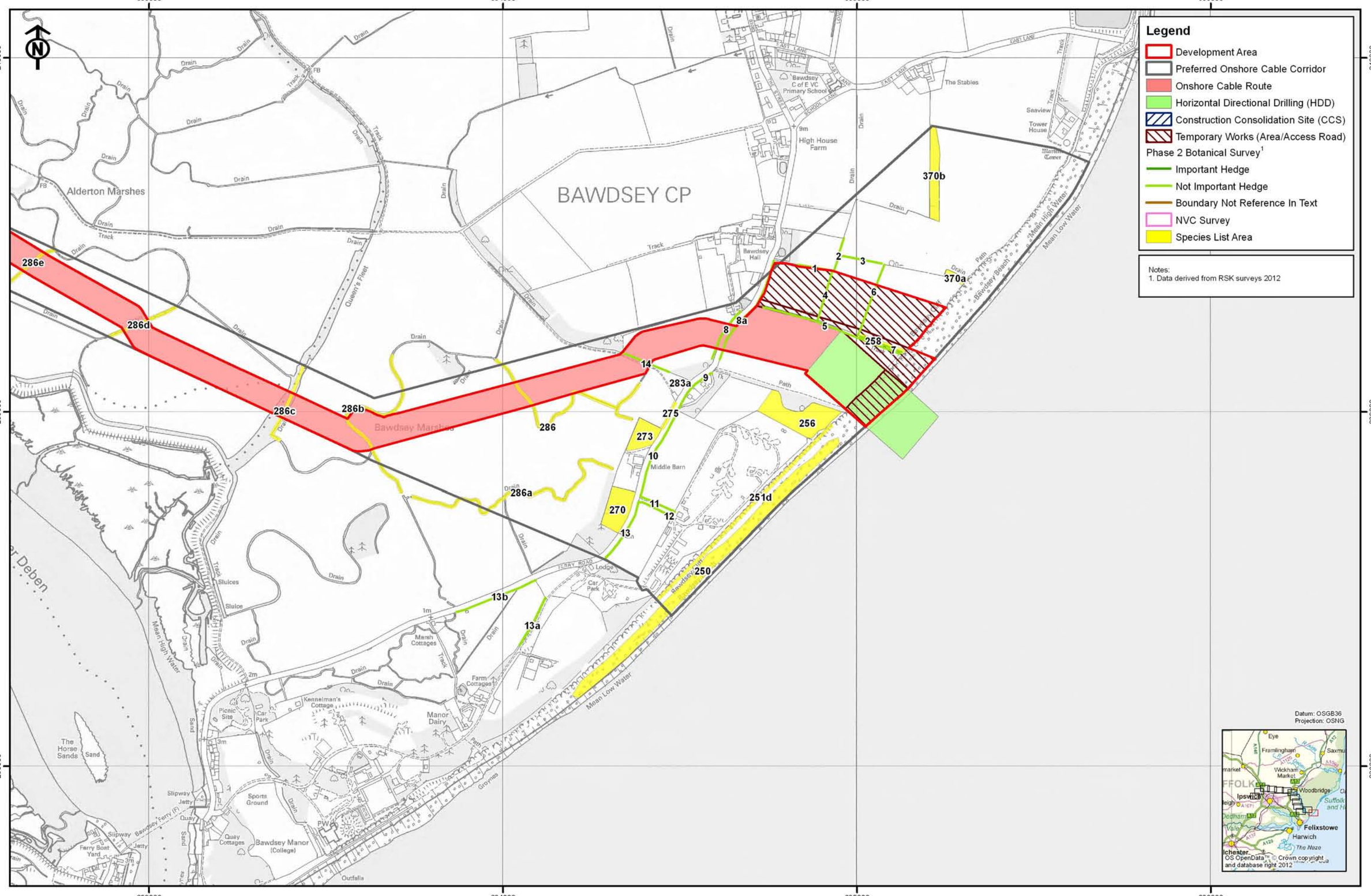

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Original A3 Plot Scale 1:10,000

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Phase 2 Botanical Survey Areas
Sheet 1 of 13

Drg No	41388-A24-24.3.2(1)
Rev	02
Date	01/10/12
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Appendix 24.3

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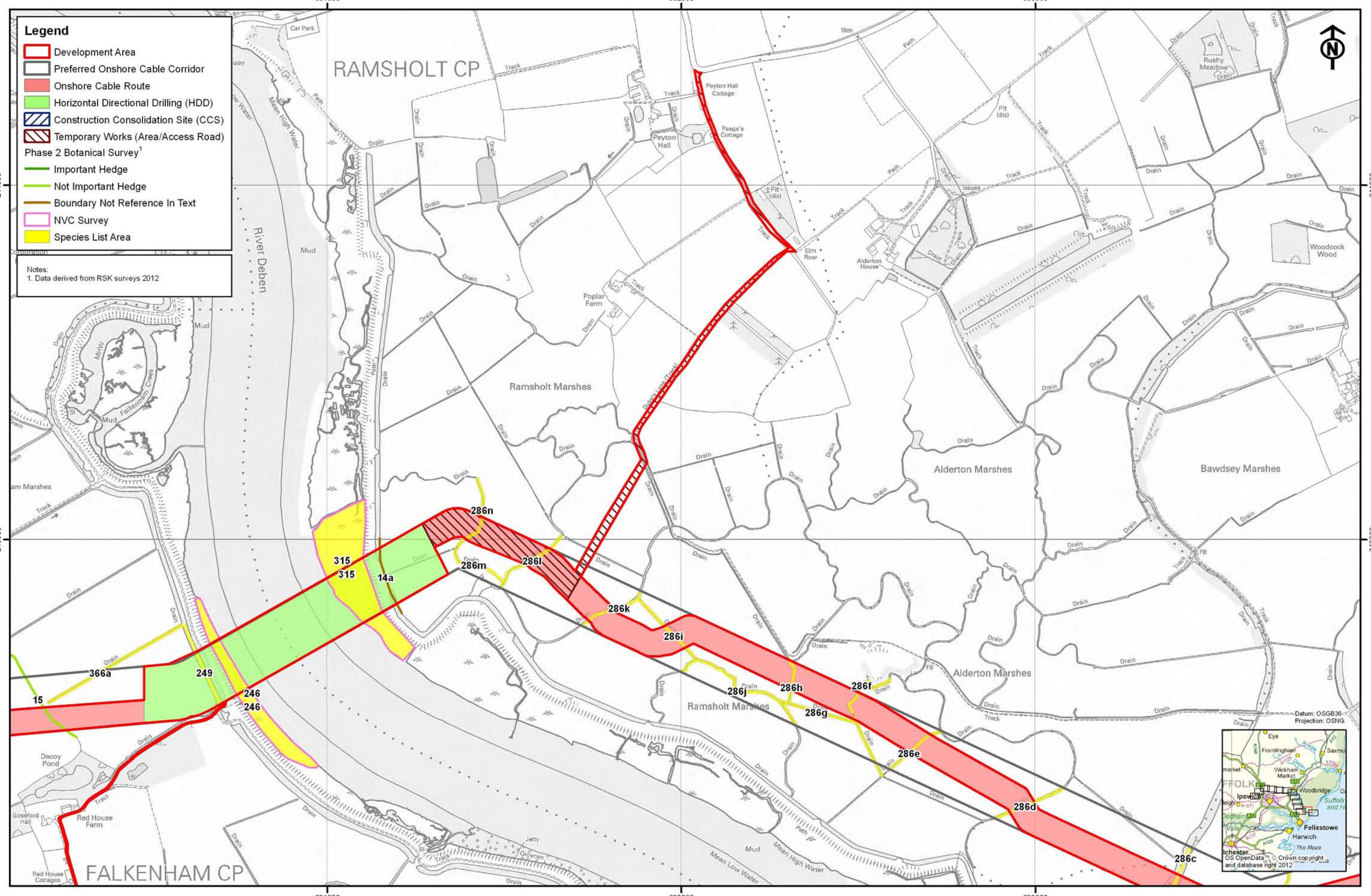
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Construction Consolidation Site (CCS)
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Not Important Hedge
Boundary Not Reference In Text
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Species List Area
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Paega's Cottage
Elm Row
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Poplar Farm
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SCOTTISHPOWER RENEWABLES
VATTENFALL
East Anglia Offshore Wind
Phase 2 Botanical Survey Areas
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Rev 02
Date 01/10/12
Layout N/A
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00 15/08/12 SP First issue
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240000 239000

KIRTON CP

Secondary CCS (Site G)

23b 23a 23 22 226a 229 21 17 20 18 19 16 16a 15 366a 249 246 246 315 315

Park Gates Lodge
Corporation Farm Cottages
Corporation Farm
The Drift (Track)
Corporation Marshes
Falkenham Wood
Falkenham Marshes
Falkneham Marshes
Falkenham Creek
Mud
The Old Rectory
Kirton Green
Kirton
Church Farm
Sewage Works
Drunkards Lane (Track)
Allot Gdns
Recreation Ground
The Cockles
Innocence Farm
Decoy Pond
Goseford Hall
Red House Farm
Red House Cottages
FALKENHAM CP
Falkenham
The Old Vicarage
Falkenham Lodge
Falkenham Sink
Freshfields
Yew Tree House
Swiss Farm
Ham's Farmhouse
The Cottage
Russell's Farm
Lower Falkenham
The Rookery
The Whynn
Everett's Corner

FALKENHAM ROAD
BACK ROAD
LOWER FALKENHAM ROAD
SHEEPGATE LANE
BACK LANE

Legend

- Development Area
- Preferred Onshore Cable Corridor
- Onshore Cable Route
- Horizontal Directional Drilling (HDD)
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- Species List Area

Notes:
1. Data derived from RSK surveys 2012

Datum: OSGB36
Projection: OSNG

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Rev	02
Date	01/10/12
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Appendix 24.3

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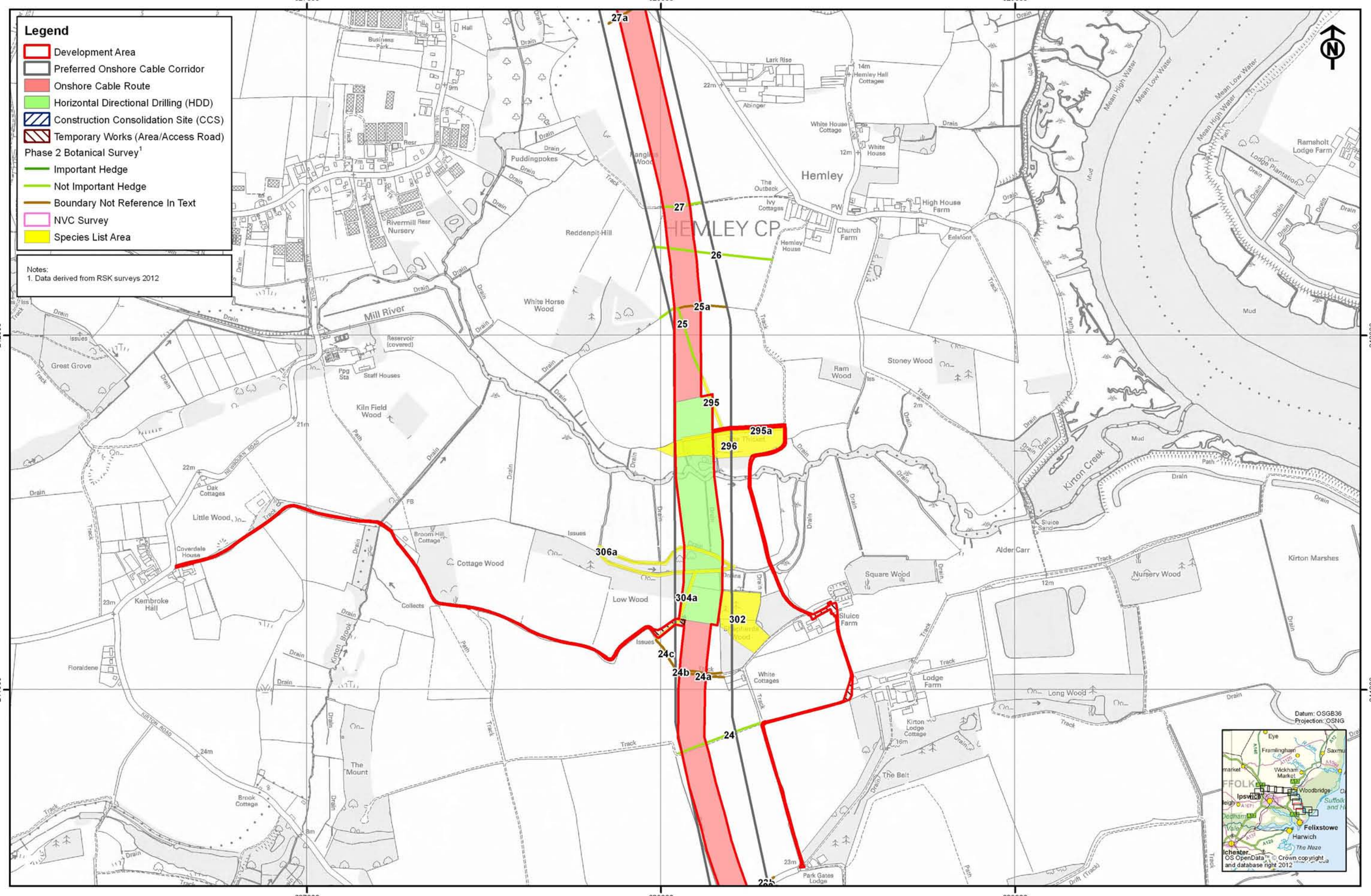

SCOTTISHPOWER RENEWABLES VATTENFALL

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Sheet 4 of 13

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Rev	02
Date	01/10/12
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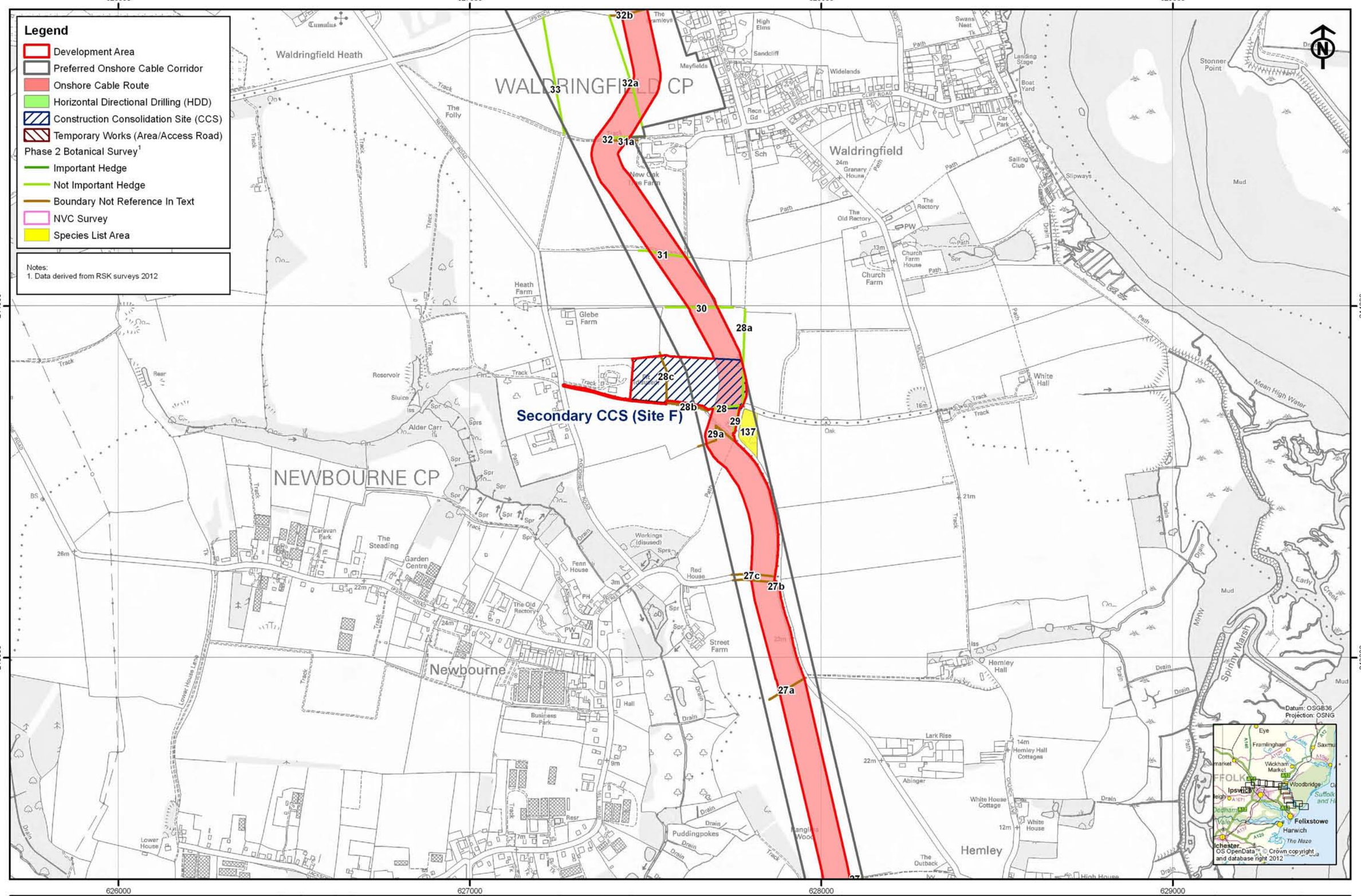
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Mean High Water
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Projection: OSNG
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SCOTTISHPOWER RENEWABLES
VATTENFALL
East Anglia Offshore Wind
Phase 2 Botanical Survey Areas
Sheet 5 of 13
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Rev 02
Date 01/10/12
Layout N/A
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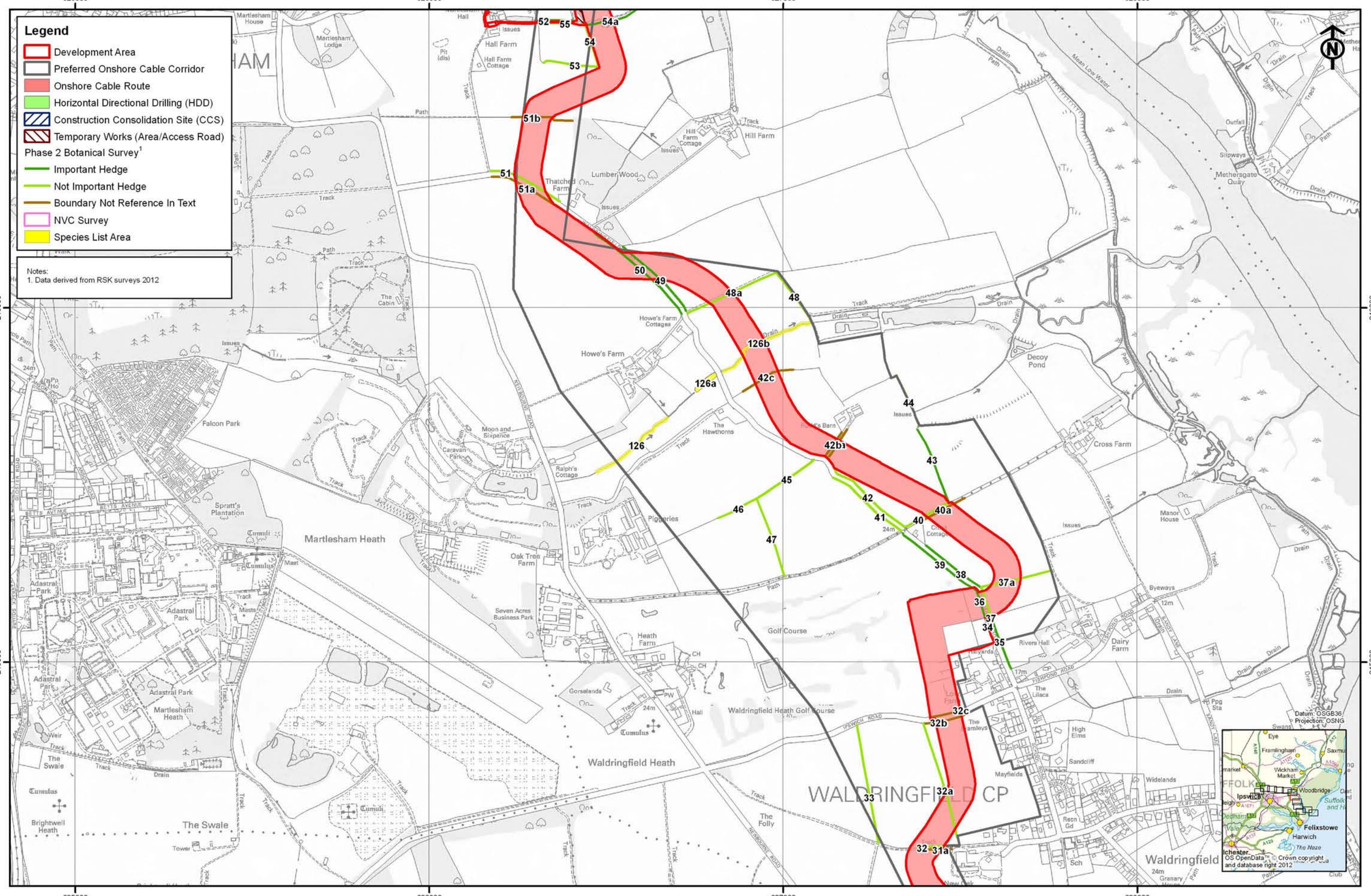

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Figure 24.3.2

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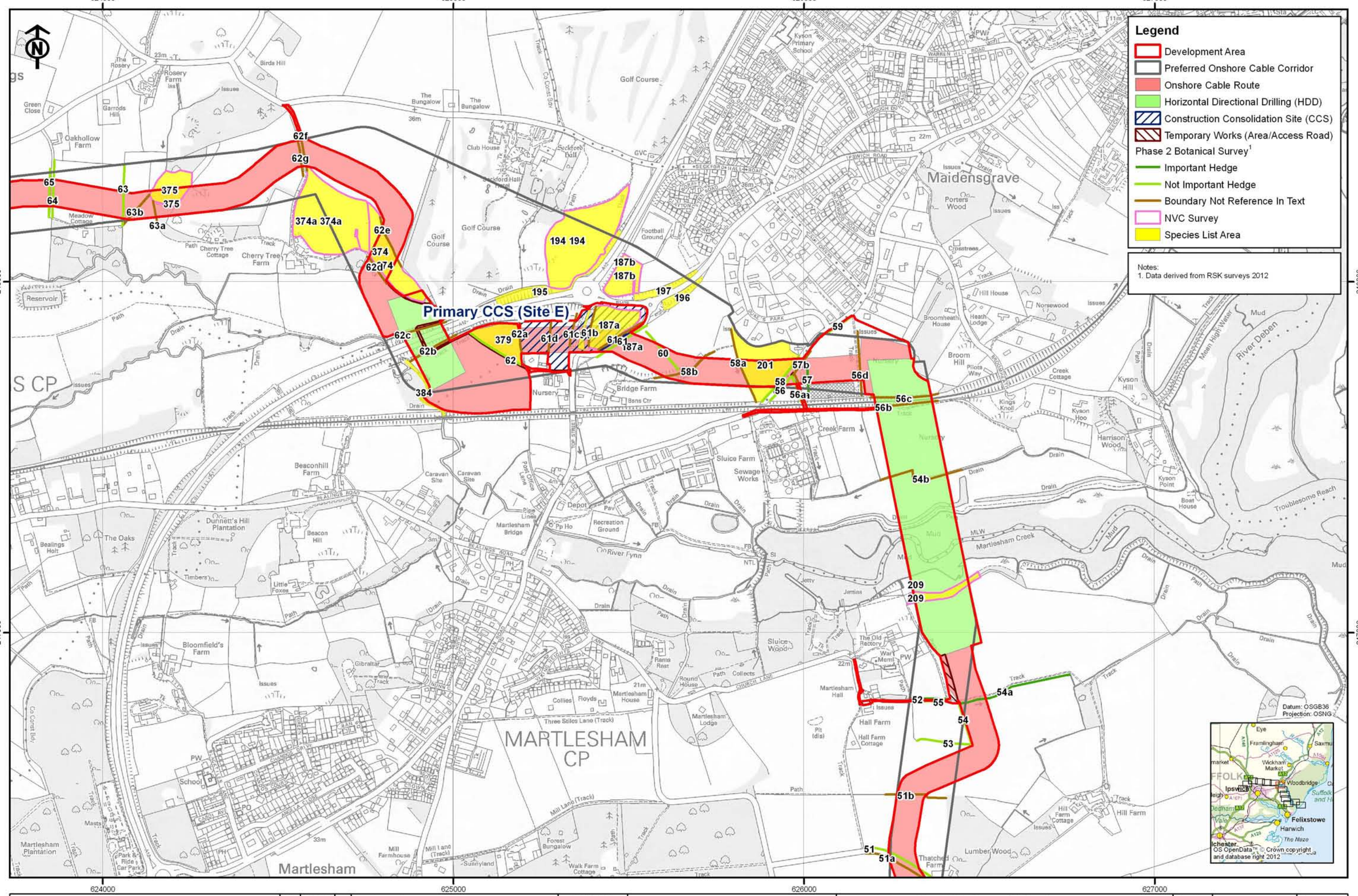

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
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Original A3 Plot Scale 1:10,000

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Appendix 24.3

Figure 24.3.2

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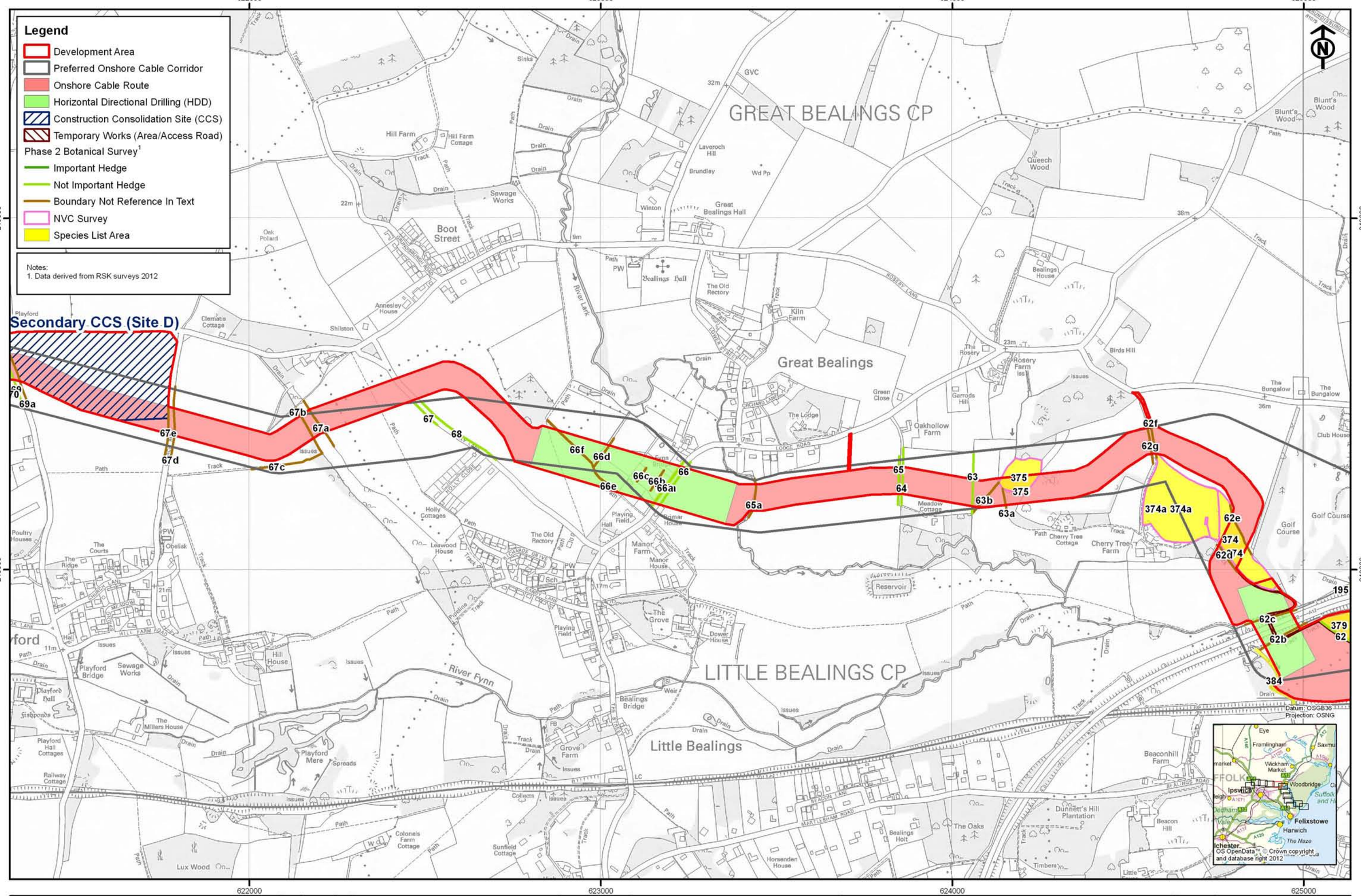

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Appendix 24.3

Figure 24.3.2

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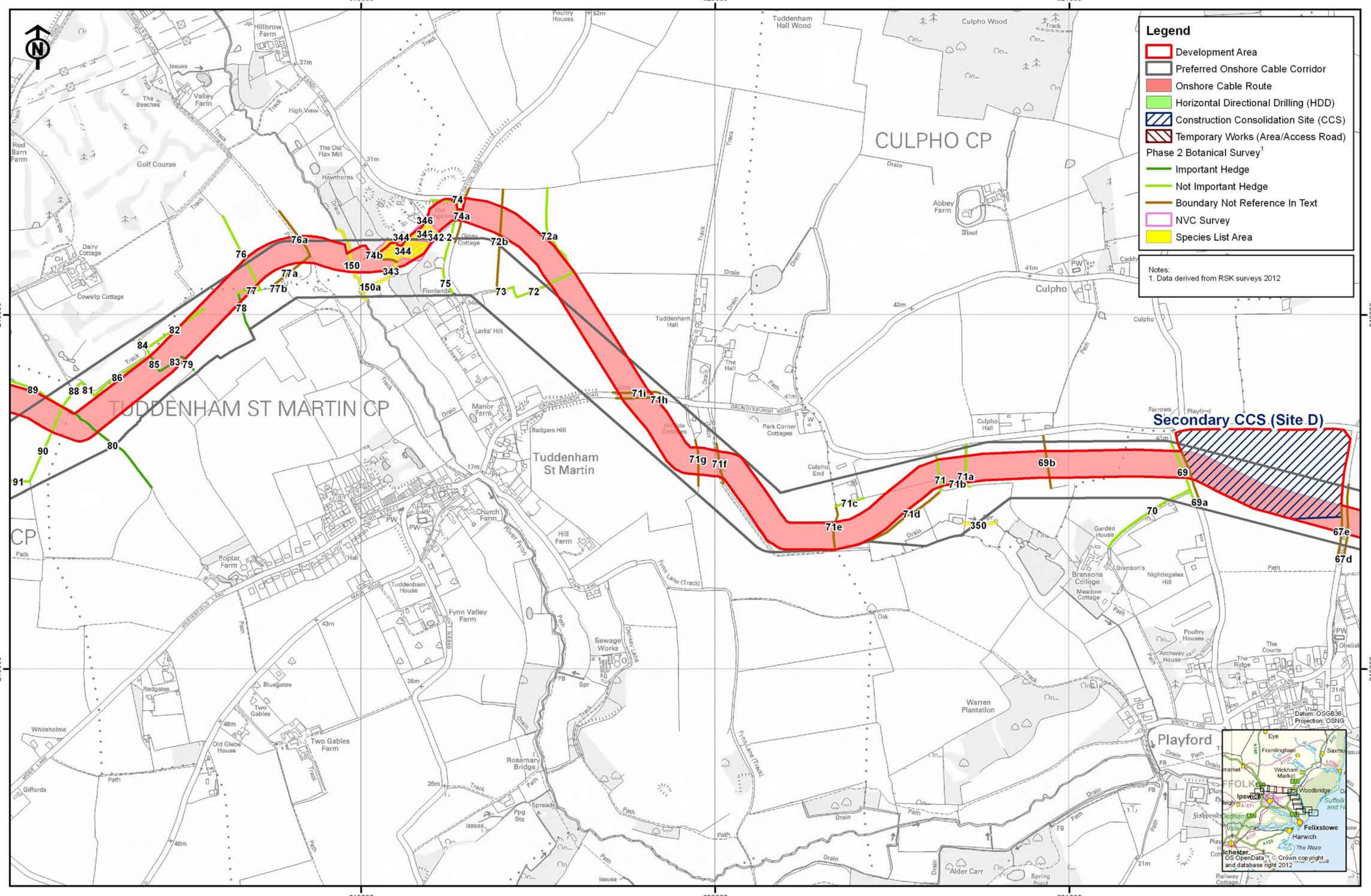

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Appendix 24.3

Figure 24.3.2

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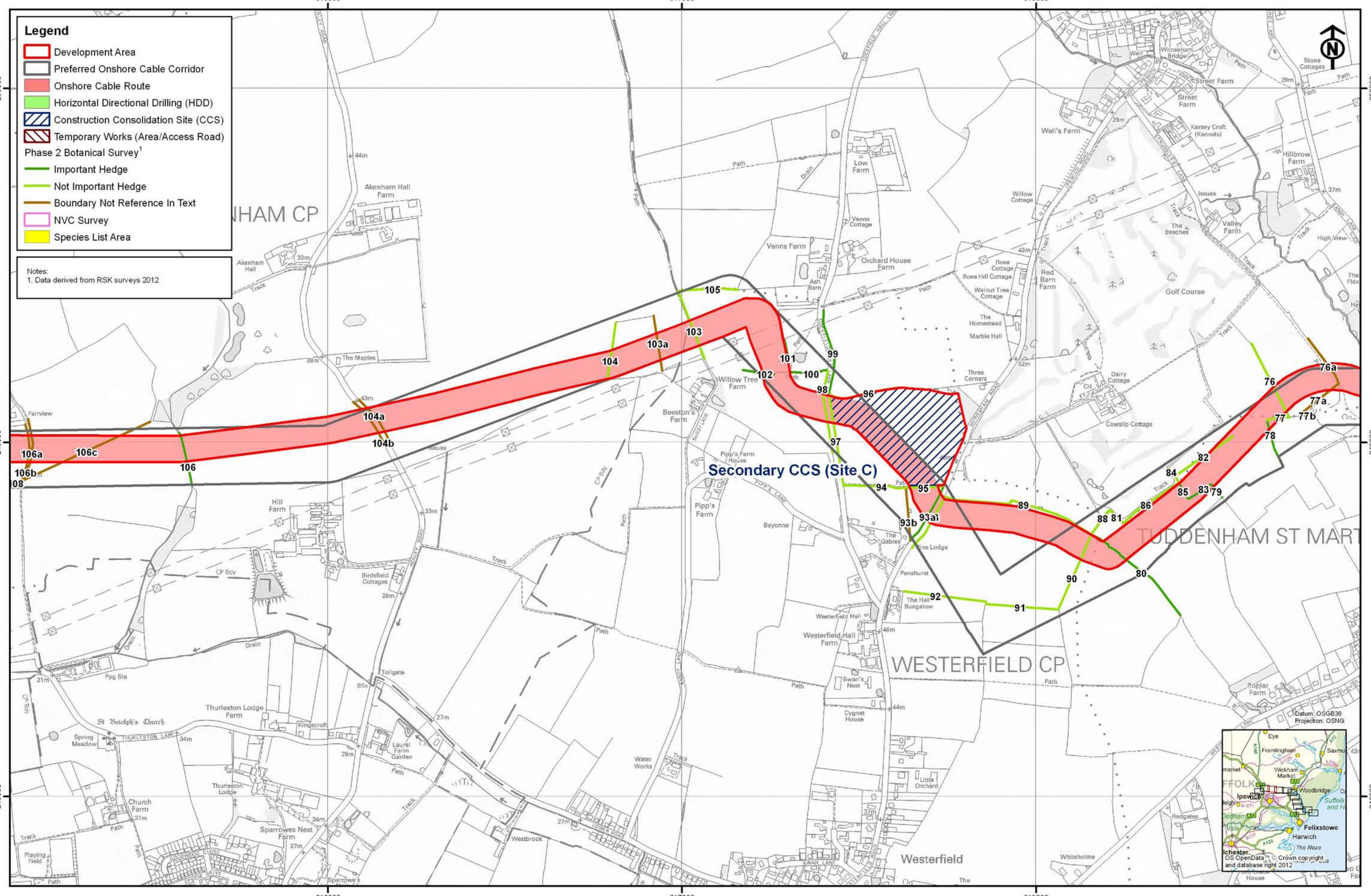

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Appendix 24.3

Figure 24.3.2

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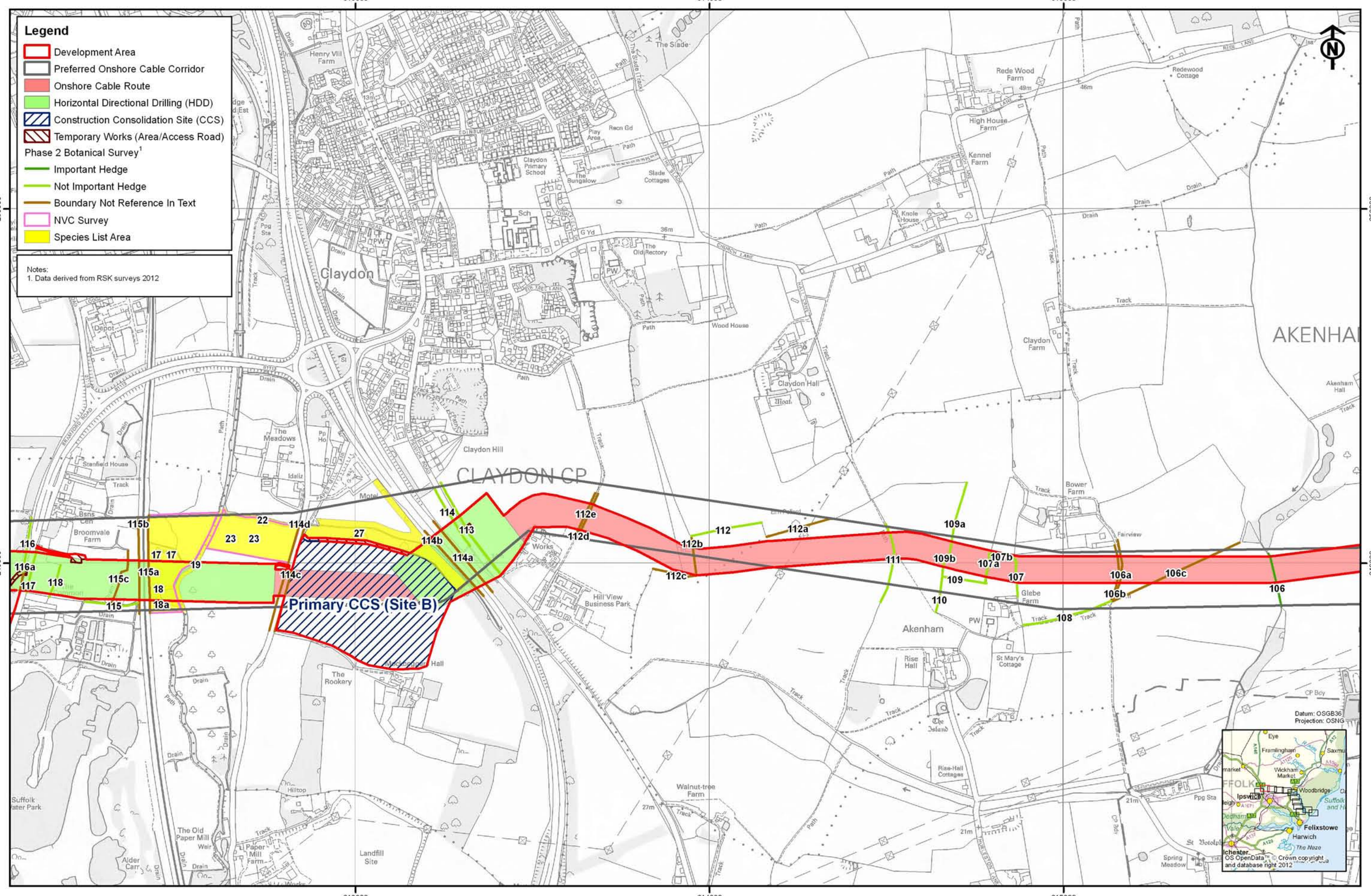

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Appendix 24.3

Figure 24.3.2

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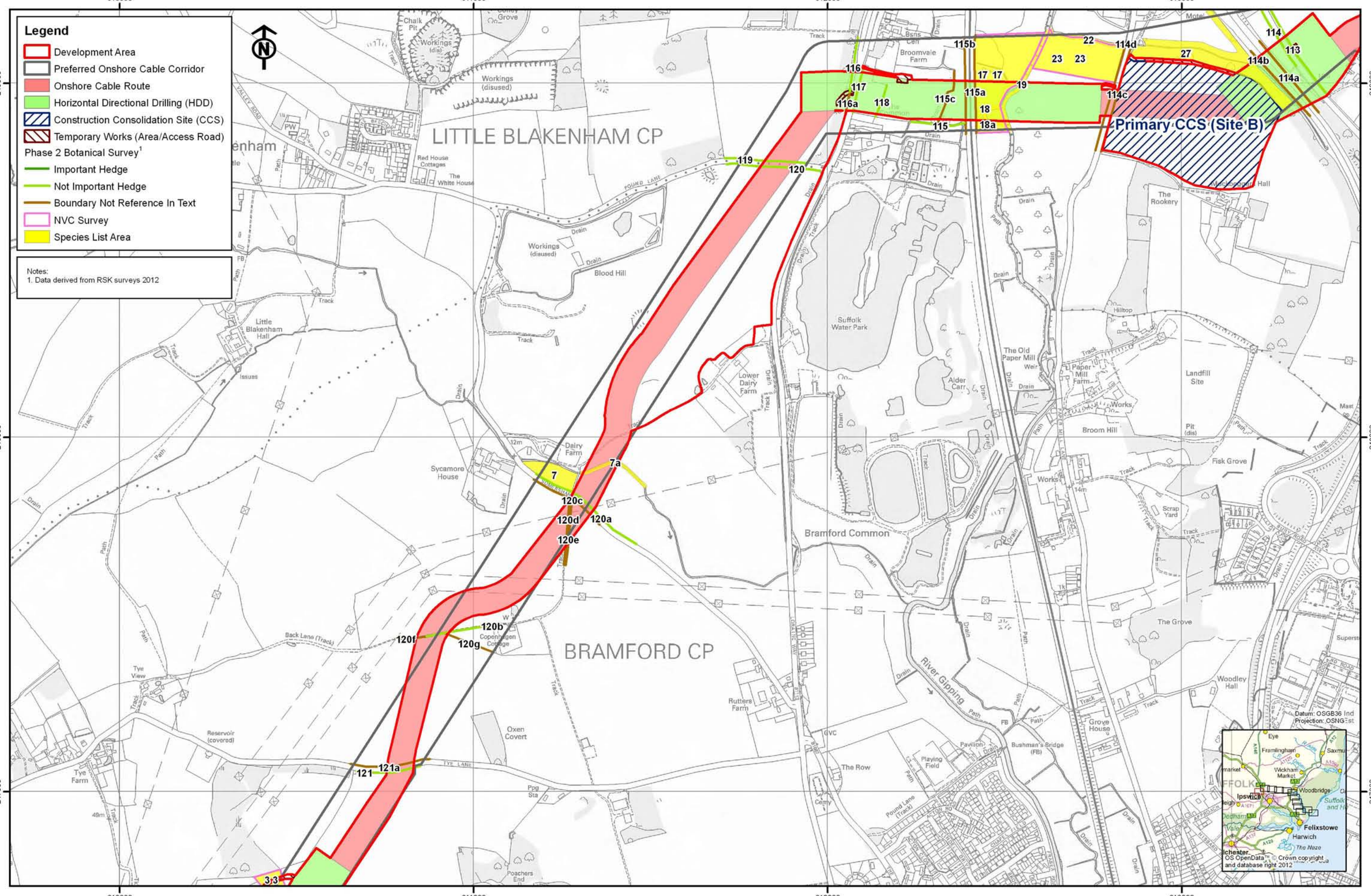

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Appendix 24.3

Figure 24.3.2

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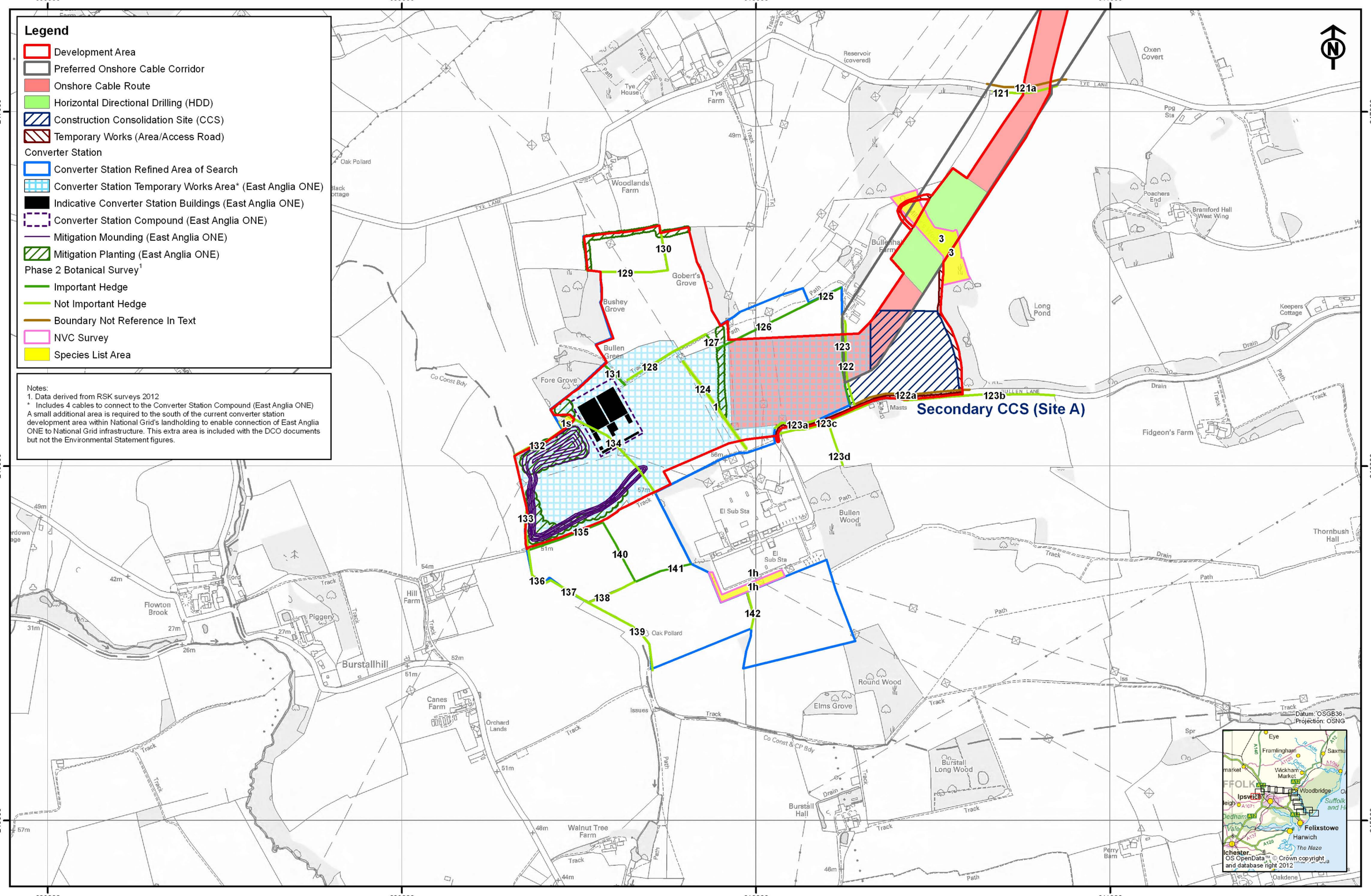

SCOTTISHPOWER RENEWABLES VATTENFALL

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Appendix 24.3

Figure 24.3.2

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7 FLORISTIC TABLES

Table 7.1 Floristic table (NVC style) for 5 two metre quadrats broad-leaved woodland located at *target note 3.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Acer pseudoplatanus (Sycamore)	9	6	6	8	10	V	6-10
Galium aparine (Cleavers)	3	6	6	7	2	V	2-7
Poa trivialis (Rough Meadow-grass)	4	4	5	4	6	V	4-6
Acer pseudoplatanus (Sycamore sapling)	6	4	3	1	4	V	1-6
Mercurialis perennis (Dog's Mercury)	8	7	7	-	7	IV	7-8
Rubus fruticosus agg. (Bramble)	1	1	1	4	-	IV	1-4
Brachythecium rutabulum	3	3	1	1	-	IV	1-3
Kinbergia praelonga	3	3	1	1	-	IV	1-3
Fraxinus excelsior (Ash)	-	5	5	4	-	III	4-5
Geum urbanum (Wood Avens)	3	-	3	-	5	III	3-5
Urtica dioica (Common Nettle)	-	3	5	1	-	III	1-5
Sambucus nigra (Elder)	3	-	-	4	2	III	2-4
Crataegus monogyna (Hawthorn)	-	1	-	5	-	II	1-5
Arum maculatum (Lords-and-Ladies)	-	-	4	3	-	II	3-4
Quercus robur (Pedunculate Oak)	-	4	-	-	2	II	2-4
Aesculus hippocastanum (Horse-chestnut)	-	-	-	4	1	II	1-4
Brachypodium sylvaticum (False Brome)	2	3	-	-	-	II	2-3
Acer pseudoplatanus (Sycamore seedling)	-	-	2	2	-	II	2
Carpinus betulus (Hornbeam)	-	-	-	-	7	I	7
Ilex aquifolium (Holly)	-	-	-	6	-	I	6
Ligustrum vulgare (Wild Privet)	-	6	-	-	-	I	6
Ribes uva-crispa (Gooseberry)	-	-	-	6	-	I	6
Stachys sylvatica (Hedge Woundwort)	-	6	-	-	-	I	6
Acer campestre (Field Maple)	-	-	-	5	-	I	5
Alliaria petiolata (Garlic Mustard)	-	-	5	-	-	I	5
Geranium robertianum (Herb-Robert)	-	-	-	5	-	I	5
Ulmus glabra (Wych Elm)	-	-	5	-	-	I	5
Euonymus europaeus (Spindle sapling)	-	-	-	4	-	I	4
Ficaria verna (Lesser Celandine)	4	-	-	-	-	I	4
Glechoma hederacea (Ground-ivy)	4	-	-	-	-	I	4
Pinus sylvestris (Scots Pine)	-	-	4	-	-	I	4
Veronica montana (Wood Speedwell)	4	-	-	-	-	I	4
Euonymus europaeus (Spindle)	-	-	-	3	-	I	3
Euphorbia amygdaloides (Wood Spurge)	-	-	-	3	-	I	3
Hyacinthoides non-scripta (Bluebell)	-	-	3	-	-	I	3
Ranunculus auricomus (Goldilocks Buttercup)	3	-	-	-	-	I	3
Viola hirta (Hairy Violet)	-	3	-	-	-	I	3
Anthriscus sylvestris (Cow Parsley)	-	2	-	-	-	I	2
Daphne laureola (Spurge-laurel)	-	-	-	1	-	I	1
Hedera helix (Ivy)	-	1	-	-	-	I	1
Sambucus nigra (Elder) (sapling)	1	-	-	-	-	I	1
Taraxacum agg. (Dandelion)	-	-	-	1	-	I	1

Table 7.2. Floristic table (NVC style) for 5 two metre quadrats broad-leaved woodland located at *target note 209*.

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Aesculus hippocastanum (Horse-chestnut)	4	4	5	4	5	V	4-5
Ilex aquifolium (Holly)	5	4	5	4	4	V	4-5
Sambucus nigra (Elder)	8	7	8	6	6	V	6-8
Quercus robur (Pedunculate Oak)	5	5	-	5	6	IV	5-6
Crataegus monogyna (Hawthorn)	7	7	-	5	4	IV	4-7
Hedera helix (Ivy)	6	8	-	-	4	III	4-8
Fraxinus excelsior (Ash)	7	8	5	-	-	III	5-8
Adoxa moschatellina (Moschatel)	-	-	9	9	-	II	9
Hyacinthoides non-scripta (Bluebell)	-	-	2	4	-	II	2-4
Acer campestre (Field Maple)	4	3	-	-	-	II	3-4
Rubus fruticosus agg. (Bramble)	5	-	-	1	-	II	1-5
Mercurialis perennis (Dog's Mercury)	3	7	-	-	-	II	3-7
Galium aparine (Cleavers)	6	7	-	-	-	II	6-7
Heracleum sphondylium (Hogweed)	-	-	1	-	-	I	1
Corylus avellana (Hazel)	-	-	4	-	-	I	4
Rumex sanguineus (Wood Dock)	4	-	-	-	-	I	4
Silene dioica (Red Campion)	-	-	-	5	-	I	5
Pteridium aquilinum (Bracken)	-	-	-	-	8	I	8
Tilia ×europaea (Lime)	-	-	8	-	-	I	8

Table 7.3. Floristic table (NVC style) for 4 two metre quadrats broad-leaved woodland located at *target note 1h.*

Species	Q1	Q2	Q3	Q4	Freq.	Cov.
Rubus fruticosus agg. (Bramble)	1	4	1	5	V	1-5
Geum urbanum (Wood Avens)	1	1	2	3	V	1-3
Primula vulgaris (Primrose)	5	8	4	-	IV	4-8
Rumex sanguineus (Wood Dock)	2	-	4	2	IV	2-4
Quercus rubra (Red Oak)	6	-	-	7	III	6-7
Fraxinus excelsior (Ash)	6	-	-	5	III	5-6
Prunus spinosa (Blackthorn)	4	-	-	5	III	4-5
Brachypodium sylvaticum (False Brome)	5	-	-	3	III	3-5
Carex sylvatica (Wood-sedge)	2	4	-	-	III	2-4
Poa trivialis (Rough Meadow-grass)	-	1	-	3	III	1-3
Viola riviniana (Common Dog-violet)	-	3	1	-	III	1-3
Quercus robur (Pedunculate Oak)	5	-	-	5	III	5
Acer campestre (Field Maple) (sapling)	4	-	-	4	III	4
Corylus avellana (Hazel)	7	-	-	-	II	7
Mercurialis perennis (Dog's Mercury)	7	-	-	-	II	7
Festuca rubra (Red Fescue)	-	-	-	6	II	6
Castanea sativa (Sweet Chestnut)	5	-	-	-	II	5
Prunella vulgaris (Selfheal)	-	-	-	5	II	5
Acer campestre (Field Maple)	4	-	-	-	II	4
Agrimonia eupatoria (Agrimony)	-	-	-	4	II	4
Arum maculatum (Lords-and-Ladies)	4	-	-	-	II	4
Ranunculus repens (Creeping Buttercup)	-	-	-	4	II	4
Veronica chamaedrys (Germander Speedwell)	-	-	3	-	II	3
Circaea lutetiana (Enchanter's-nightshade)	-	-	-	2	II	2
Dactylis glomerata (Cock's-foot)	-	-	-	2	II	2
Fragaria vesca (Wild Strawberry)	-	1	-	-	II	1
Glechoma hederacea (Ground-ivy)	-	-	1	-	II	1

Table 7.4. Floristic table (NVC style) for 5 two metre quadrats in rough grassland located at *target note 17.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
	-	-	-	-	-		
Hordeum vulgare (Six-rowed Barley)	6	5	6	6	4	V	4-6
Poa trivialis (Rough Meadow-grass)	5	4	5	4	3	V	3-5
	-	-	-	-	-		
Elytrigia repens (Common Couch)	4	-	5	5	4	IV	4-5
Alopecurus pratensis (Meadow Foxtail)	3	4	4	4	-	IV	3-4
	-	-	-	-	-		
Dactylis glomerata (Cock's-foot)	6	6	4	-	-	III	4-6
Agrostis stolonifera (Creeping Bent)	-	-	4	6	4	III	4-6
	-	-	-	-	-		
Ranunculus repens (Creeping Buttercup)	-	6	5	-	-	II	5-6
Urtica dioica (Common Nettle)	-	4	2	-	-	II	2-4
Cirsium arvense (Creeping Thistle)	-	5	4	-	-	II	4-5
	-	-	-	-	-		
Deschampsia cespitosa (Tufted Hair-grass)	4	-	-	-	-	I	4
Rumex obtusifolius (Broad-leaved Dock)	-	1	-	-	-	I	1
Geranium dissectum (Cut-leaved Crane's-bill)	-	-	1	-	-	I	1
Phalaris arundinacea (Reed Canary-grass)	-	-	-	-	7	I	7
Holcus lanatus (Yorkshire-fog)	-	-	-	-	2	I	2

Table 7.5. Floristic table (NVC style) for 5 two metre quadrats in rough grassland located at *target note 23.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Festuca rubra (Red Fescue)	8	6	7	8	8	V	6-8
Trifolium repens (White Clover)	4	4	5	5	5	V	4-5
Taraxacum officinale agg. (Dandelion)	1	2	1	1	1	V	1-2
Holcus lanatus (Yorkshire-fog)	4	4	4	2	-	IV	2-4
Trifolium dubium (Lesser Trefoil)	2	2	4	3	-	IV	2-4
Centaurea nigra (Common Knapweed)	4	1	-	1	1	IV	1-4
Crepis capillaris (Smooth Hawk's-beard)	-	3	3	2	3	IV	2-3
Vicia sativa (Common Vetch)	2	3	-	2	2	IV	2-3
Potentilla reptans (Creeping Cinquefoil)	3	6	6	-	-	III	3-6
Medicago lupulina (Black Medick)	4	2	-	-	6	III	2-6
Trifolium campestre (Hop Trefoil)	4	4	-	3	-	III	3-4
Cerastium fontanum (Common Mouse-ear)	1	2	3	-	-	III	1-3
Plantago lanceolata (Ribwort Plantain)	1	-	2	1	-	III	1-2
Agrostis stolonifera (Creeping Bent)	-	4	-	2	-	II	2-4
Vicia tetrasperma (Smooth Tare)	3	-	-	2	-	II	2-3
Anacamptis pyramidalis (Pyramidal Orchid)	3	-	-	1	-	II	1-3
Silene latifolia (White Campion)	-	1	-	-	2	II	1-2
Heracleum sphondylium (Hogweed)	1	-	-	-	1	II	1
Lolium perenne (Perennial Rye-grass)	-	1	1	-	-	II	1
Kindbergia praelonga	-	7	-	-	-	I	7
Pseudoscleropodium purum	6	-	-	-	-	I	6
Reseda luteola (Weld)	-	-	-	-	4	I	4
Rubus fruticosus agg. (Bramble)	4	-	-	-	-	I	4
Achillea millefolium (Yarrow)	-	-	-	-	3	I	3
Bellis perennis (Daisy)	-	-	-	3	-	I	3
Ophrys apifera (Bee Orchid)	3	-	-	-	-	I	3
Orobanche minor (Common Broomrape)	-	-	-	3	-	I	3
Ranunculus repens (Creeping Buttercup)	-	-	-	-	3	I	3
Veronica arvensis (Wall Speedwell)	-	-	3	-	-	I	3
Vicia hirsuta (Hairy Tare)	-	-	3	-	-	I	3
Crataegus monogyna (Hawthorn)	2	-	-	-	-	I	2
Poa trivialis (Rough Meadow-grass)	-	-	-	-	2	I	2
Prunella vulgaris (Selfheal)	-	2	-	-	-	I	2
Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	-	1	-	-	-	I	1
Geranium dissectum (Cut-leaved Crane's-bill)	1	-	-	-	-	I	1

Phleum bertolonii (Smaller Cat's-tail)	-	1	-	-	-	I	1
Viola hirta (Hairy Violet)	1	-	-	-	-	I	1

Table 7.6. Floristic table (NVC style) for 5 two metre quadrats calcifugous grassland located at *target note 187a.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Hypnum lacunosum	8	8	7	7	8	V	7-8
Agrostis capillaris (Common Bent)	4	4	6	5	4	V	4-6
Sedum acre (Biting Stonecrop)	5	5	4	6	4	V	4-6
Rumex acetosella (Sheep's Sorrel)	5	4	5	4	4	V	4-5
Senecio jacobaea (Common Ragwort)	1	3	3	4	4	V	1-4
Myosotis ramosissima (Early Forget-me-not)	2	2	2	2	3	V	2-3
Polytrichum juniperinum	3	3	3	2	2	V	2-3
Holcus lanatus (Yorkshire-fog)	3	4	-	2	2	IV	2-4
Ornithopus perpusillus (Bird's-foot)	1	1	-	2	2	IV	1-2
Cladonia species	-	-	3	2	4	III	2-4
Festuca rubra (Red Fescue)	-	-	1	3	2	III	1-3
Aphanes australis (Slender Parsley-piert)	-	1	1	2	-	III	1-2
Vicia sativa (Common Vetch)	-	-	1	2	2	III	1-2
Erodium cicutarium (Common Stork's-bill)	-	-	-	3	2	II	2-3
Veronica arvensis (Wall Speedwell)	-	-	-	2	2	II	2
Trifolium arvense (Hare's-foot Clover)	-	-	1	1	-	II	1
Geranium molle (Dove's-foot Crane's-bill)	-	-	-	-	2	I	2
Geranium pusillum (Small-flowered Crane's-bill)	-	-	-	2	-	I	2
Myosotis discolor (Changing Forget-me-not)	2	-	-	-	-	I	2
Taraxacum officinale agg. (Dandelion)	-	-	-	1	-	I	1
Trifolium pratense (Red Clover)	-	-	-	1	-	I	1

Table 7.7 Floristic table (NVC style) for 5 two metre quadrats calcifugous grassland located at *target note 187b.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Hypnum lacunosum	6	7	7	8	7	V	6-8
Agrostis capillaris (Common Bent)	7	6	5	5	4	V	4-7
Rumex acetosella (Sheep's Sorrel)	5	4	2	4	4	V	2-5
Senecio jacobaea (Common Ragwort)	2	3	4	4	3	V	2-4
Veronica arvensis (Wall Speedwell)	3	4	2	3	3	V	2-4
Cladonia species	2	3	-	3	4	IV	2-4
Dicranum scoparium	-	4	6	2	-	III	2-6
Festuca rubra (Red Fescue)	5	4	4	-	-	III	4-5
Aphanes australis (Slender Parsley-piert)	2	-	-	2	1	III	1-2
Cerastium glomeratum (Sticky Mouse-ear)	2	2	-	-	2	III	2
Veronica chamaedrys (Germander Speedwell)	3	-	4	-	-	II	3-4
Myosotis ramosissima (Early Forget-me-not)	-	-	-	3	2	II	2-3
Polytrichum juniperinum	-	-	-	2	3	II	2-3
Poa pratensis (Smooth Meadow-grass)	-	-	-	1	3	II	1-3
Sedum acre (Biting Stonecrop)	-	-	-	4	4	II	4
Myosotis discolor (Changing Forget-me-not)	-	-	3	-	3	II	3
Arenaria serpyllifolia (Thyme-leaved Sandwort)	-	-	-	2	2	II	2
Vicia sativa (Common Vetch)	2	2	-	-	-	II	2
Trifolium repens (White Clover)	-	1	-	1	-	II	1
Achillea millefolium (Yarrow)	3	-	-	-	-	I	3
Glechoma hederacea (Ground-ivy)	3	-	-	-	-	I	3
Holcus lanatus (Yorkshire-fog)	-	-	-	-	2	I	2
Hypericum perforatum (Perforate St John's-wort)	2	-	-	-	-	I	2
Plagiomnium affine	2	-	-	-	-	I	2
Cirsium arvense (Creeping Thistle)	1	-	-	-	-	I	1
Cirsium vulgare (Spear Thistle)	-	-	1	-	-	I	1
Erodium cicutarium (Common Stork's-bill)	1	-	-	-	-	I	1
Silene latifolia (White Campion)	1	-	-	-	-	I	1

Table 7.8. Floristic table (NVC style) for 5 two metre quadrats calcifugous grassland located at *target note 194*.

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Agrostis capillaris (Common Bent)	8	5	7	5	7	V	5-8
Cladonia species	4	5	4	8	5	V	4-8
Rumex acetosella (Sheep's Sorrel)	5	3	4	4	5	V	3-5
Holcus lanatus (Yorkshire-fog)	1	5	3	-	2	IV	1-5
Onopordum acanthium (Cotton Thistle)	3	2	1	-	2	IV	1-3
Pseudoscleropodium purum	4	6	6	-	-	III	4-6
Hypnum lacunosum	4	-	3	-	6	III	3-6
Pilosella officinarum (Mouse-ear Hawkweed)	3	6	4	-	-	III	3-6
Polytrichum juniperinum	3	-	5	-	4	III	3-5
Senecio jacobaea (Common Ragwort)	4	-	1	-	1	III	1-4
Festuca ovina (Sheep's-fescue)	-	5	3	-	-	II	3-5
Crepis capillaris (Smooth Hawk's-beard)	1	-	-	-	3	II	1-3
Vulpia bromoides (Squirreltail Fescue)	2	-	-	-	1	II	1-2
Cerastium fontanum (Common Mouse-ear)	1	-	1	-	-	II	1
Rhytidiadelphus squarrosus	1	1	-	-	-	II	1
Luzula campestris (Field Wood-rush)	-	5	-	-	-	I	5
Dicranum scoparium	-	-	4	-	-	I	4
Luzula multiflora (Heath Wood-rush)	-	4	-	-	-	I	4
Teucrium scordium (Water Germander)	4	-	-	-	-	I	4
Aira praecox (Early Hair-grass)	3	-	-	-	-	I	3
Senecio erucifolius (Hoary Ragwort)	3	-	-	-	-	I	3
Trifolium arvense (Hare's-foot Clover)	3	-	-	-	-	I	3
Veronica chamaedrys (Germander Speedwell)	-	3	-	-	-	I	3
Leontodon hispidus (Rough Hawkbit)	2	-	-	-	-	I	2
Plantago coronopus (Buck's-horn Plantain)	2	-	-	-	-	I	2
Veronica arvensis (Wall Speedwell)	2	-	-	-	-	I	2
Crataegus monogyna (Hawthorn) (s)	-	1	-	-	-	I	1
Filago vulgaris (Common Cudweed)	1	-	-	-	-	I	1
Hypochaeris radicata (Cat's-ear)	-	-	1	-	-	I	1

Table 7.9 Floristic table (NVC Style) for 5 two metre quadrats grassland at Target Note 374.

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Rumex acetosella (Sheep's Sorrel)	6	5	8	4	7	V	4-8
Agrostis capillaris (Common Bent)	5	5	4	6	6	V	4-6
Cerastium glomeratum (Sticky Mouse-ear)	-	3	2	3	2	IV	2-3
Myosotis ramosissima (Early Forget-me-not)	-	2	2	3	3	IV	2-3
Veronica arvensis (Wall Speedwell)	-	3	3	3	2	IV	2-3
Aphanes australis (Slender Parsley-piert)	-	2	2	1	3	IV	1-3
Ornithopus perpusillus (Bird's-foot)	2	3	2	1	-	IV	1-3
Cladonia species	5	4	3	-	-	III	3-5
Senecio jacobaea (Common Ragwort)	-	-	4	4	3	III	3-4
Claytonia perfoliata (Springbeauty)	-	1	3	3	-	III	1-3
Hypnum lacunosum	4	-	7	-	-	II	4-7
Polytrichum juniperinum	6	5	-	-	-	II	5-6
Agrostis canina (Velvet Bent)	-	-	-	5	4	II	4-5
Homalothecium lutescens	-	5	-	-	4	II	4-5
Festuca ovina (Sheep's-fescue)	1	-	-	5	-	II	1-5
Pseudephemerum nitidum	-	-	-	4	2	II	2-4
Hypochaeris radicata (Cat's-ear)	2	3	-	-	-	II	2-3
Sagina procumbens (Procumbent Pearlwort)	-	-	-	4	4	II	4
Brachythecium rutabulum	-	-	-	3	3	II	3
Ulex europaeus (Gorse) (g)	-	1	-	-	1	II	1
Crassula tillaea (Mossy Stonecrop)	-	3	-	-	-	I	3
Didymodon insulanus	-	-	-	-	3	I	3
Filago minima (Small Cudweed)	-	2	-	-	-	I	2
Senecio vulgaris (Common Groundsel)	-	-	1	-	-	I	1
Stellaria media (Common Chickweed)	-	-	1	-	-	I	1

Table 7.10. Floristic tbale (NVC Style) for 5 two metre quadrats in grassland at *Target Note 374a.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Festuca ovina (Sheep's-fescue)	6	5	4	6	8	V	4-8
Homalothecium lutescens	-	7	3	4	4	IV	3-7
Lolium perenne (Perennial Rye-grass)	4	5	4	3	-	IV	3-5
Holcus lanatus (Yorkshire-fog)	-	4	5	2	2	IV	2-5
Cerastium glomeratum (Sticky Mouse-ear)	3	2	-	3	2	IV	2-3
Agrostis capillaris (Common Bent)	6	-	-	7	5	III	5-7
Taraxacum officinale agg. (Dandelion)	3	2	-	2	-	III	2-3
Trifolium repens (White Clover)	-	3	1	2	-	III	1-3
Arenaria serpyllifolia (Thyme-leaved Sandwort)	2	1	-	2	-	III	1-2
Gnaphalium uliginosum (Marsh Cudweed)	2	2	-	1	-	III	1-2
Geranium molle (Dove's-foot Crane's-bill)	1	-	1	-	1	III	1
Poa pratensis (Smooth Meadow-grass)	5	4	-	-	-	II	4-5
Peltigera species	4	2	-	-	-	II	2-4
Aphanes arvensis (Parsley-piert)	2	3	-	-	-	II	2-3
Veronica arvensis (Wall Speedwell)	3	2	-	-	-	II	2-3
Cirsium arvense (Creeping Thistle)	2	-	-	1	-	II	1-2
Senecio jacobaea (Common Ragwort)	-	1	-	-	2	II	1-2
Agrostis canina (Velvet Bent)	-	4	-	-	-	I	4
Arrhenatherum elatius (False Oat-grass)	-	-	4	-	-	I	4
Arabidopsis thaliana (Thale Cress)	-	-	-	2	-	I	2
Dactylis glomerata (Cock's-foot)	-	-	-	2	-	I	2
Myosotis ramosissima (Early Forget-me-not)	-	-	-	2	-	I	2
Viola arvensis (Field Pansy)	-	-	-	2	-	I	2
Claytonia perfoliata (Springbeauty)	-	-	-	-	1	I	1
Senecio vulgaris (Common Groundsel)	-	-	-	1	-	I	1
Vicia lathyroides (Spring Vetch)	1	-	-	-	-	I	1

Table 7.11. Floristic table (NVC Style) for 5 two metre quadrats in grassland at *Target Note 346*.

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Agrostis stolonifera (Creeping Bent)	8	7	6	2	8	V	2-8
Veronica chamaedrys (Germander Speedwell)	4	5	2	3	3	V	2-5
Luzula campestris (Field Wood-rush)	3	5	2	2	5	V	2-5
Senecio erucifolius (Hoary Ragwort)	1	1	-	1	1	IV	1
Carex hirta (Hairy Sedge)	4	4	2	2	-	IV	2-4
Veronica arvensis (Wall Speedwell)	3	3	3	-	-	III	3
Festuca rubra (Red Fescue)	4	2	-	7	-	III	2-7
Glechoma hederacea (Ground-ivy)	5	-	-	2	-	II	2-5
Carex muricata (Prickly Sedge)	5	5	-	-	-	II	5
Cirsium arvense (Creeping Thistle)	2	-	-	-	1	II	1-2
Rumex acetosella (Sheep's Sorrel)	-	3	4	-	-	II	3-4
Cerastium fontanum (Common Mouse-ear)	-	2	-	-	2	II	2
Urtica dioica (Common Nettle)	-	1	-	-	1	II	1
Prunella vulgaris (Selfheal)	-	2	-	4	-	II	2-4
Lotus corniculatus (Common Bird's-foot Trefoil)	-	-	2	3	-	II	2-3
Holcus lanatus (Yorkshire-fog)	-	-	3	-	2	II	2-3
Achillea millefolium (Yarrow)	-	-	2	2	-	II	2
Stellaria graminea (Lesser Stitchwort)	3	-	-	-	-	I	3
Trifolium dubium (Lesser Trefoil)	-	2	-	-	-	I	2
Aphanes australis (Slender Parsley-piert)	-	-	3	-	-	I	3
Poa trivialis (Rough Meadow-grass)	-	-	2	-	-	I	2
Erodium cicutarium (Common Stork's-bill)	-	-	-	3	-	I	3
Potentilla reptans (Creeping Cinquefoil)	-	-	-	5	-	I	5
Geranium molle (Dove's-foot Crane's-bill)	-	-	-	4	-	I	4
Trifolium repens (White Clover)	-	-	-	3	-	I	3
Rumex acetosa (Common Sorrel)	-	-	-	-	3	I	3

Table 7.12. Floristic table (NVC Style) for 5 two metre quadrats in swamp at *target note 342.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov
Carex acutiformis (Lesser Pond-sedge)	7	6	7	3	3	V	3-7
Eupatorium cannabinum (Hemp-agrimony)	7	5	-	6	7	IV	5-7
Filipendula ulmaria (Meadowsweet)	4	7	5	-	4	IV	4-7
Angelica sylvestris (Wild Angelica)	5	4	4	-	-	III	4-5
Caltha palustris (Marsh-marigold)	-	1	-	2	5	III	1-5
Juncus acutiflorus (Sharp-flowered Rush)	-	-	-	8	6	II	6-8
Pulicaria dysenterica (Common Fleabane)	2	-	7	-	-	II	2-7
Galium aparine (Cleavers)	-	3	4	-	-	II	3-4
Carex paniculata (Greater Tussock-sedge)	-	-	-	-	4	I	4
Vicia cracca (Tufted Vetch)	-	4	-	-	-	I	4
Equisetum palustre (Marsh Horsetail)	-	-	-	-	3	I	3
Lotus pedunculatus (Greater Bird's-foot Trefoil)	-	-	-	3	-	I	3
Solanum dulcamara (Bittersweet)	-	2	-	-	-	I	2
Epilobium hirsutum (Great Willowherb)	-	-	-	1	-	I	1
Stachys palustris (Marsh Woundwort)	1	-	-	-	-	I	1

Table 7.13. Floristic table (NVC Style) for 5 two metre quadrats in swamp at *target note 344*.

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov
Holcus lanatus (Yorkshire-fog)	1	4	3	3	7	V	1-7
Carex acutiformis (Lesser Pond-sedge)	5	5	4	3	6	V	3-6
Rumex conglomeratus (Clustered Dock)	5	6	4	2	2	V	2-6
Angelica sylvestris (Wild Angelica)	4	5	5	-	5	IV	4-5
Alopecurus pratensis (Meadow Foxtail)	1	2	2	-	4	IV	1-4
Cirsium palustre (Marsh Thistle)	4	1	3	3	-	IV	1-4
Equisetum arvense (Field Horsetail)	2	1	1	-	2	IV	1-2
Poa trivialis (Rough Meadow-grass)	2	2	2	-	2	IV	2
Filipendula ulmaria (Meadowsweet)	4	-	7	1	-	III	1-7
Juncus acutiflorus (Sharp-flowered Rush)	7	1	-	-	2	III	1-7
Mentha aquatica (Water Mint)	5	5	-	4	-	III	4-5
Urtica dioica (Common Nettle)	-	5	4	-	3	III	3-5
Equisetum palustre (Marsh Horsetail)	1	-	-	4	2	III	1-4
Ranunculus repens (Creeping Buttercup)	-	1	4	2	-	III	1-4
Epilobium hirsutum (Great Willowherb)	2	2	-	-	3	III	2-3
Cerastium fontanum (Common Mouse-ear)	-	-	2	3	-	II	2-3
Myosotis scorpioides (Water Forget-me-not)	-	2	-	-	3	II	2-3
Rumex acetosa (Common Sorrel)	2	-	-	3	-	II	2-3
Galium aparine (Cleavers)	-	1	-	-	2	II	1-2
Festuca rubra (Red Fescue)	-	-	-	6	-	I	6
Juncus inflexus (Hard Rush)	-	-	-	6	-	I	6
Caltha palustris (Marsh-marigold)	5	-	-	-	-	I	5
Pulicaria dysenterica (Common Fleabane)	-	-	-	5	-	I	5
Anthoxanthum odoratum (Sweet Vernal-grass)	-	-	-	4	-	I	4
Holcus mollis (Creeping Soft-grass)	-	-	-	4	-	I	4
Trifolium pratense (Red Clover)	-	-	-	3	-	I	3
Rumex obtusifolius (Broad-leaved Dock)	-	-	-	-	2	I	2
Silene flos-cuculi (Ragged-robin)	2	-	-	-	-	I	2
Carex hirta (Hairy Sedge)	-	-	-	1	-	I	1
Helminthotheca echioides (Bristly Oxtongue)	-	-	1	-	-	I	1
Hypericum elodes (Marsh St John's-wort)	1	-	-	-	-	I	1
Lathyrus pratensis (Meadow Vetchling)	-	-	1	-	-	I	1
Sonchus asper (Prickly Sow-thistle)	-	1	-	-	-	I	1

Table 7.14. Floristic table (NVC Style) for 5 two metre quadrats in swamp at *target note 375*.

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Arrhenatherum elatius (False Oat-grass)	8	8	8	7	4	V	4-8
Filipendula ulmaria (Meadowsweet)	4	5	4	5	7	V	4-7
Rumex acetosa (Common Sorrel)	5	3	5	5	4	V	3-5
Lathyrus pratensis (Meadow Vetchling)	2	3	3	2	2	V	2-3
Ficaria verna (Lesser Celandine)	4	4	4	4	4	V	4
Veronica chamaedrys (Germander Speedwell)	5	-	3	3	2	IV	2-5
Juncus acutiflorus (Sharp-flowered Rush)	4	3	-	4	4	IV	3-4
Festuca rubra (Red Fescue)	1	-	2	4	4	IV	1-4
Dactylis glomerata (Cock's-foot)	4	-	4	3	-	III	3-4
Cirsium palustre (Marsh Thistle)	3	2	-	-	4	III	2-4
Potentilla reptans (Creeping Cinquefoil)	-	-	2	2	2	III	2
Taraxacum officinale agg. (Dandelion)	1	1	1	-	-	III	1
Centaurea nigra (Common Knapweed)	3	4	-	-	-	II	3-4
Poa pratensis (Smooth Meadow-grass)	2	-	-	-	3	II	2-3
Galium aparine (Cleavers)	-	-	-	2	1	II	1-2
Carex hirta (Hairy Sedge)	-	-	3	3	-	II	3
Heracleum sphondylium (Hogweed)	1	-	1	-	-	II	1
Ranunculus repens (Creeping Buttercup)	1	1	-	-	-	II	1
Holcus lanatus (Yorkshire-fog)	-	-	-	4	-	I	4
Saxifraga granulata (Meadow Saxifrage)	-	-	-	-	4	I	4
Cirsium arvense (Creeping Thistle)	-	-	-	3	-	I	3
Luzula campestris (Field Wood-rush)	-	-	2	-	-	I	2
Schedonorus pratensis (Meadow Fescue)	-	-	2	-	-	I	2
Plantago lanceolata (Ribwort Plantain)	1	-	-	-	-	I	1
Ranunculus acris (Meadow Buttercup)	-	-	-	1	-	I	1
Stellaria graminea (Lesser Stitchwort)	-	-	1	-	-	I	1

Table 7.15. Floristic table (NVC style) for 5 two metre quadrats in saltmarsh on the river western bank of the River Deben at *Target Note* 246

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Puccinellia maritima (Common Saltmarsh-grass)	6	6	7	7	8	V	6-8
Spartina anglica (Common Cord-grass)	5	5	3	3	4	V	3-5
Suaeda maritima (Annual Sea-blite)	4	1	3	3	2	V	1-4
Limonium vulgare (Common Sea-lavender)	3	-	5	1	4	IV	1-5
Salicornia europaea (Common Glasswort)	3	1	2	3	-	IV	1-3
Atriplex portulacoides (Sea-purslane)	-	-	5	5	1	III	1-5
Sarcocornia perennis (Perennial Glasswort)	-	3	1	1	-	III	1-3
Aster tripolium (Sea Aster)	-	4	1	-	-	II	1-4
Triglochin maritimum (Sea Arrowgrass)	-	-	-	4	-	I	4

Table 7.16. Floristic table (NVC style) for 5 two metre quadrats in saltmarsh on the eastern bank of the River Deben at *Target Note 315.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Puccinellia maritima (Common Saltmarsh-grass)	8	7	8	7	7	V	7-8
Limonium vulgare (Common Sea-lavender)	4	6	5	5	6	V	4-6
Spartina anglica (Common Cord-grass)	3	3	4	3	4	V	3-4
Suaeda maritima (Annual Sea-blite)	5	-	2	-	3	III	2-5
Atriplex portulacoides (Sea-purslane)	5	-	-	-	4	II	4-5
Salicornia europaea (Common Glasswort)	-	-	4	4	-	II	4
Sarcocornia perennis (Perennial Glasswort)	-	4	-	-	-	I	4
Tripleurospermum maritimum (Sea Mayweed)	-	-	-	3	-	I	3
Aster tripolium (Sea Aster)	-	-	2	-	-	I	2
Spergularia media (Greater Sea-spurrey)	-	-	-	2	-	I	2

Table 7.17. Floristic Table (NVC style) of 5 quadrats recorded at *Target Note 374.*

Species	Q1	Q2	Q3	Q4	Q5	Freq.	Cov.
Rumex acetosella (Sheep's Sorrel)	6	5	8	4	7	V	4-8
Agrostis capillaris (Common Bent)	5	5	4	6	6	V	4-6
Cerastium glomeratum (Sticky Mouse-ear)	-	3	2	3	2	V	2-3
Myosotis ramosissima (Early Forget-me-not)	-	2	2	3	3	V	2-3
Veronica arvensis (Wall Speedwell)	-	3	3	3	2	V	2-3
Aphanes australis (Slender Parsley-piert)	-	2	2	1	3	V	1-3
Ornithopus perpusillus (Bird's-foot)	2	3	2	1	-	V	1-3
Cladonia species	5	4	3	-	-	V	3-5
Senecio jacobaea (Common Ragwort)	-	-	4	4	3	V	3-4
Claytonia perfoliata (Springbeauty)	-	1	3	3	-	V	1-3
Hypnum lacunosum	4	-	7	-	-	V	4-7
Polytrichum juniperinum	6	5	-	-	-	V	5-6
Agrostis canina (Velvet Bent)	-	-	-	5	4	V	4-5
Homalothecium lutescens	-	5	-	-	4	V	4-5
Festuca ovina (Sheep's-fescue)	1	-	-	5	-	V	1-5
Pseudephemerum nitidum	-	-	-	4	2	V	2-4
Hypochaeris radicata (Cat's-ear)	2	3	-	-	-	V	2-3
Sagina procumbens (Procumbent Pearlwort)	-	-	-	4	4	V	4
Brachythecium rutabulum	-	-	-	3	3	V	3
Ulex europaeus (Gorse) (g)	-	1	-	-	1	V	1
Crassula tillaea (Mossy Stonecrop)	-	3	-	-	-	V	3
Didymodon insulanus	-	-	-	-	3	V	3
Filago minima (Small Cudweed)	-	2	-	-	-	V	2
Senecio vulgaris (Common Groundsel)	-	-	1	-	-	V	1
Stellaria media (Common Chickweed)	-	-	1	-	-	V	1

8 PLANT SPECIES LISTS

Table 8.1. Table of species recorded from semi-natural woodlands along the cable route

Species	TN1s	TN3	TN209
a) Trees, Shrubs and Climbers			
Acer campestre (Field Maple)	f	o	r
Acer pseudoplatanus (Sycamore seedling)	-	f	-
Acer pseudoplatanus (Sycamore)	-	la	o
Aesculus hippocastanum (Horse-chestnut)	-	lf	o
Carpinus betulus (Hornbeam)	-	o	-
Corylus avellana (Hazel)	f	r	o
Crataegus laevigata (Midland Hawthorn)	-	-	o
Crataegus monogyna (Hawthorn)	f	o	f
Daphne laureola (Spurge-laurel)	lf	o	-
Euonymus europaeus (Spindle)	-	lf	-
Fagus sylvatica (Beech)	-	vr	-
Fraxinus excelsior (Ash)	-	f	lf
Hedera helix (Ivy)	o	r	f
Ilex aquifolium (Holly)	-	lf	r
Larix decidua (European Larch)	-	r	-
Ligustrum vulgare (Wild Privet)	-	la	-
Lonicera periclymenum (Honeysuckle)	-	lf	lf
Malus sylvestris (Crab Apple)	r	-	-
Pinus nigra ssp. cf. *laricio* (Corsican Pine)	-	r	-
Pinus sylvestris (Scots Pine)	-	r	-
Populus ×canadensis (Hybrid Black-poplar)	r	-	-
Prunus spinosa (Blackthorn)	-	lf	lf
Quercus cerris (Turkey Oak)	-	vr	-
Quercus ilex (Evergreen Oak)	-	vr	-
Quercus robur (Pedunculate Oak)	-	r	lf
Ribes uva-crispa (Gooseberry)	-	r	-
Rubus fruticosus agg. (Bramble)	-	f	a
Salix caprea (Goat Willow)	-	r	-
Sambucus nigra (Elder sapling)	-	o	-
Sambucus nigra (Elder)	-	f	o
Tilia ×europaea (Lime)	-	r	lf
Ulmus glabra (Wych Elm)	-	r	-
Ulmus procera (English Elm)	lf	o	lf
b) Herbs and ferns			
Adoxa moschatellina (Moschatel)	-	-	la
Ajuga reptans (Bugle)	-	r	-
Alliaria petiolata (Garlic Mustard)	-	f	-
Anemone nemorosa (Wood Anemone)	-	r	-
Anthriscus sylvestris (Cow Parsley)	-	o	f
Arctium lappa (Greater Burdock)	r	o	-
Arctium minus (Lesser Burdock)	-	o	-

Arrhenatherum elatius (False Oat-grass)	-	-	lf
Arum maculatum (Lords-and-Ladies)	r	f	f
Brachypodium sylvaticum (False Brome)	f	o	-
Carex sylvatica (Wood-sedge)	-	o	-
Clematis vitalba (Traveller's-joy)	r	r	-
Conopodium majus (Pignut)	-	lf	-
Dryopteris dilatata (Broad Buckler-fern)	-	-	r
Dryopteris filix-mas (Male-fern)	-	-	o
Euphorbia amygdaloides (Wood Spurge)	-	lf	-
Ficaria verna (Lesser Celandine)	-	f	-
Galium aparine (Cleavers)	f	a	f
Geranium molle (Dove's-foot Crane's-bill)	-	r	-
Geranium robertianum (Herb-Robert)	-	lf	-
Geum urbanum (Wood Avens)	-	o	-
Glechoma hederacea (Ground-ivy)	-	f	f
Helminthotheca echioides (Bristly Oxtongue)	-	vr	-
Heracleum sphondylium (Hogweed)	-	r	r
Holcus lanatus (Yorkshire-fog)	-	o	-
Hyacinthoides non-scripta (Bluebell)	-	la	la
Lamium purpureum (Red Dead-nettle)	-	-	r
Mercurialis perennis (Dog's Mercury)	a	a	f
Milium effusum (Wood Millet)	-	r	-
Moehringia trinervia (Three-nerved Sandwort)	-	lf	-
Orchis mascula (Early-purple Orchid)	-	r	-
Pentaglottis sempervirens (Green Alkanet)	-	-	r
Phragmites australis (Common Reed)	-	vlf	-
Poa annua (Annual Meadow-grass)	-	-	lf
Poa nemoralis (Wood Meadow-grass)	-	r	-
Poa trivialis (Rough Meadow-grass)	o	a	o
Primula vulgaris (Primrose)	-	o	-
Pteridium aquilinum (Bracken)	-	-	la
Ranunculus auricomus (Goldilocks Buttercup)	-	o	-
Ranunculus repens (Creeping Buttercup)	-	lf	-
Rosa arvensis (Field-rose)	-	o	-
Rumex sanguineus (Wood Dock)	-	lf	r
Silene dioica (Red Campion)	-	o	f
Stachys sylvatica (Hedge Woundwort)	-	lf	-
Stellaria holostea (Greater Stitchwort)	-	r	-
Stellaria media (Common Chickweed)	-	o	f
Symphoricarpos albus (Snowberry)	-	vla	-
Tamus communis (Black Bryony)	r	-	-
Taraxacum agg. (Dandelion)	-	r	f
Tripleurospermum inodorum (Scentless Mayweed)	-	r	-
Triticum aestivum (Bread Wheat)	-	r	-
Urtica dioica (Common Nettle)	-	lf	f
Veronica chamaedrys (Germander Speedwell)	-	r	-
Veronica hederifolia (Ivy-leaved Speedwell)	-	r	r
Veronica montana (Wood Speedwell)	-	o	-
Viola cf. *riviniana* (Common Dog-violet)	r	-	-
Viola hirta (Hairy Violet)	-	r	-
Viola reichenbachiana (Early Dog-violet)	-	o	-
Viola riviniana (Common Dog-violet)	-	o	-

C) Bryophytes			
Atrichum undulatum	-	r	-
Brachythecium rutabulum	-	o	o
Hypnum cupressiforme	-	r	o
Kinbergia praelonga	-	f	f
Mnium hornum	-	lf	o
Thamnobryum alopecurum	-	r	-

Table 8.2. Species lists of plantation woodlands alonng the cable route

Species	TN1h	TN7	TN27	TN137	TN256	TN270	TN273
A) Woody Species							
Acer campestre (Field Maple)	lf	lf	-	-	o	-	-
Acer pseudoplatanus (Sycamore)	la	-	-	r	o	-	-
Aesculus hippocastanum (Horse-chestnut)	-	-	-	r	-	-	-
Alnus glutinosa (Alder)	-	-	o	-	-	-	-
Alopecurus pratensis (Meadow Foxtail)	-	-	-	-	-	lf	-
Anisantha sterilis (Barren Brome)	-	-	-	-	-	o	-
Betula pendula (Silver Birch)	-	f	-	-	-	-	-
Carpinus betulus (Hornbeam)	-	lf	-	-	-	-	-
Castanea sativa (Sweet Chestnut)	r	-	-	-	o	-	-
Corylus avellana (Hazel)	-	o	-	o	-	-	-
Crataegus monogyna (Hawthorn)	-	-	f	o	r	-	o
Daphne laureola (Spurge-laurel)	r	-	-	-	-	-	-
Fagus sylvatica (Beech)	-	-	-	r	-	-	-
Fraxinus excelsior (Ash)	f	f	f	r	-	a	d
Hedera helix (Ivy)	-	-	-	o	-	-	o
Hypericum androsaemum (Tutsan)	vla	-	-	-	-	-	-
Ilex aquifolium (Holly)	-	-	-	r	-	-	-
Juglans regia (Walnut)	r	-	-	-	-	-	-
Ligustrum vulgare (Wild Privet)	-	-	-	r	-	-	-
Lonicera periclymenum (Honeysuckle)	r	-	-	r	-	-	-
Malus sylvestris (Crab Apple)	-	-	-	r	-	-	-
Pinus sylvestris (Scots Pine)	-	-	o	-	o	lf	r
Populus alba (White Poplar)	-	-	-	r	f	-	-
Prunus avium (Wild Cherry)	-	o	o	-	lf	-	-
Prunus domestica (Wild Plum)	-	-	-	-	-	-	r
Prunus spinosa (Blackthorn)	-	-	o	o	o	-	-
Quercus robur (Pedunculate Oak)	o	o	f	f	lf	f	r
Quercus rubra (Red Oak)	lf	-	-	-	-	-	-
Rubus fruticosus agg. (Bramble)	-	-	o	f	o	lf	-
Sambucus nigra (Elder)	-	-	-	a	-	o	f
Ulmus procera (English Elm)	-	-	o	la	-	lf	-
Viburnum lantana (Wayfaring-tree)	-	-	o	-	-	-	-
B) Herb Species							
Achillea millefolium (Yarrow)	-	o	o	-	f	-	-
Agrimonia eupatoria (Agrimony)	lf	-	-	-	-	-	-
Agrostis capillaris (Common Bent)	-	f	-	o	-	-	-
Ajuga reptans (Bugle)	f	-	-	-	-	-	-
Alliaria petiolata (Garlic Mustard)	f	-	-	-	-	-	-
Anacamptis pyramidalis (Pyramidal Orchid)	r	r	r	-	-	-	-

Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	o	-	-	-	-	-	-
Anthriscus sylvestris (Cow Parsley)	r	-	-	-	-	r	-
Arctium lappa (Greater Burdock)	r	-	-	-	-	-	-
Arctium minus (Lesser Burdock)	-	-	lf	-	-	-	-
Arenaria serpyllifolia (Thyme-leaved Sandwort)	-	-	lf	-	-	-	-
Arrhenatherum elatius (False Oat-grass)	la	f	f	-	a	-	-
Arum maculatum (Lords-and-Ladies)	r	-	-	o	-	-	r
Bellis perennis (Daisy)	-	f	o	-	r	-	-
Brachypodium sylvaticum (False Brome)	f	-	-	-	-	-	-
Bromus hordeaceus (Soft-brome)	-	-	-	-	o	-	-
Calystegia sepium (Hedge Bindweed)	-	-	o	-	-	-	-
Carduus nutans (Musk Thistle)	-	-	o	-	-	-	-
Carex divulsa (Grey Sedge)	r	-	-	-	-	-	-
Carex sylvatica (Wood-sedge)	r	-	-	-	-	-	-
Catapodium rigidum (Fern-grass)	-	-	-	-	r	-	-
Centaurea nigra (Common Knapweed)	r	o	-	-	-	-	-
Cerastium fontanum (Common Mouse-ear)	-	o	o	-	r	-	-
Cerastium glomeratum (Sticky Mouse-ear)	-	-	o	-	o	-	-
Chamerion angustifolium (Rosebay Willowherb)	-	-	-	-	r	-	-
Circaea lutetiana (Enchanter's-nightshade)	r	-	-	-	-	-	-
Cirsium arvense (Creeping Thistle)	-	-	o	-	o	lf	-
Cirsium palustre (Marsh Thistle)	-	r	-	-	-	-	-
Cirsium vulgare (Spear Thistle)	f	-	r	-	-	-	-
Claytonia perfoliata (Springbeauty)	-	-	-	la	-	-	-
Clematis vitalba (Traveller's-joy)	f	-	-	-	-	-	-
Conyza canadensis (Canadian Fleabane)	-	-	o	-	-	-	-
Cortaderia selloana (Pampas-grass)	-	-	-	-	r	-	-
Cynoglossum officinale (Hound's-tongue)	-	-	-	-	o	-	-
Dactylis glomerata (Cock's-foot)	o	o	f	-	-	-	-
Daucus carota ssp. *carota* (Wild Carrot)	-	f	-	-	-	-	-
Dipsacus fullonum (Teasel)	-	-	lf	-	-	-	-
Dryopteris dilatata (Broad Buckler-fern)	-	-	-	r	-	-	-
Elytrigia repens (Common Couch)	r	-	-	-	-	-	-
Epilobium hirsutum (Great Willowherb)	-	-	lf	-	-	-	-
Epilobium obscurum (Short-fruited Willowherb)	-	-	o	-	-	-	-
Equisetum arvense (Field Horsetail)	-	-	lf	-	-	-	-
Festuca rubra (Red Fescue)	lf	f	-	-	f	-	-
Filago vulgaris (Common Cudweed)	-	-	lf	-	f	-	-
Fragaria vesca (Wild Strawberry)	r	-	-	-	-	-	-
Galium aparine (Cleavers)	-	-	-	f	-	f	o
Geranium dissectum (Cut-leaved Crane's-bill)	f	f	o	-	vr	-	-
Geranium molle (Dove's-foot Crane's-bill)	-	f	-	-	r	-	-
Geranium pyrenaicum (Hedgerow Crane's-bill)	-	-	o	-	-	-	-
Geranium robertianum (Herb-Robert)	lf	-	-	r	vr	-	-
Geranium sanguineum (Bloody Crane's-bill)	-	f	-	-	-	-	-
Glechoma hederacea (Ground-ivy)	f	lf	-	-	f	lf	-

Helminthotheca echioides (Bristly Oxtongue)	r	-	-	-	-	-	-
Heracleum sphondylium (Hogweed)	-	f	i	-	-	-	-
Holcus lanatus (Yorkshire-fog)	r	-	f	r	a	la	-
Holcus mollis (Creeping Soft-grass)	-	-	lf	-	-	-	-
Hyacinthoides non-scripta (Bluebell)	-	-	-	lf	-	-	-
Lactuca virosa (Great Lettuce)	-	-	r	-	-	-	-
Lapsana communis (Nipplewort)	-	-	r	-	-	-	-
Leontodon saxatilis (Lesser Hawkbit)	-	-	-	-	o	-	-
Leucanthemum vulgare (Oxeye Daisy)	-	f	-	-	-	-	-
Lolium perenne (Perennial Rye-grass)	-	o	-	-	-	-	-
Lotus pedunculatus (Greater Bird's-foot-trefoil)	-	lf	-	-	-	-	-
Malva sylvestris (Common Mallow)	-	-	o	-	-	-	-
Medicago arabica (Spotted Medick)	-	-	lf	-	lf	-	-
Medicago lupulina (Black Medick)	-	f	f	-	r	-	-
Mercurialis perennis (Dog's Mercury)	la	-	-	-	-	-	-
Myosotis arvensis (Field Forget-me-not)	-	-	o	-	r	-	-
Papaver rhoeas (Common Poppy)	-	r	r	-	-	-	-
Phleum bertolonii (Smaller Cat's-tail)	o	-	-	-	-	-	-
Pilosella officinarum (Mouse-ear-hawkweed)	-	-	-	-	vla	-	-
Plantago lanceolata (Ribwort Plantain)	-	lf	f	-	o	-	-
Poa pratensis (Smooth Meadow-grass)	-	o	-	-	-	-	-
Poa trivialis (Rough Meadow-grass)	f	o	f	o	-	f	-
Polygala vulgaris (Common Milkwort)	-	-	-	r	-	-	-
Potentilla reptans (Creeping Cinquefoil)	r	-	lf	-	lf	-	-
Primula veris (Cowslip)	-	lf	-	-	-	-	-
Primula vulgaris (Primrose)	-	-	-	r	-	-	-
Prunella vulgaris (Selfheal)	o	o	-	-	-	-	-
Pteridium aquilinum (Bracken)	-	-	-	lf	-	-	-
Ranunculus acris (Meadow Buttercup)	-	r	-	-	-	-	-
Ranunculus repens (Creeping Buttercup)	r	-	f	-	-	o	-
Reseda luteola (Weld)	-	-	lf	-	-	-	-
Rosa arvensis (Field-rose)	f	-	-	-	-	-	-
Rumex conglomeratus (Clustered Dock)	-	-	o	-	-	-	-
Rumex obtusifolius (Broad-leaved Dock)	-	-	o	-	-	-	-
Rumex sanguineus (Wood Dock)	o	-	-	-	-	lf	-
Scabiosa columbaria (Small Scabious)	o	-	-	-	-	-	-
Senecio jacobaea (Common Ragwort)	-	r	-	-	-	-	-
Senecio vulgaris (Groundsel)	-	-	-	-	o	-	-
Silene dioica (Red Campion)	-	-	o	-	-	la	-
Silene latifolia (White Campion)	-	o	o	-	r	-	-
Silene vulgaris (Bladder Campion)	-	-	o	-	-	-	-
Sinapis arvensis (Charlock)	-	-	o	-	-	-	-
Smyrnium olusatrum (Alexanders)	-	-	-	-	vr	-	d
Sonchus asper (Prickly Sow-thistle)	r	-	-	-	-	-	-
Sonchus oleraceus (Smooth Sow-thistle)	-	-	-	-	r	-	-
Stachys sylvatica (Hedge Woundwort)	r	-	-	-	-	-	-

Stellaria media (Common Chickweed)	-	-	-	o	-	-	-
Symphytum ×uplandicum (Russian Comfrey)	-	-	o	-	-	-	-
Tamarix gallica (Tamarisk)	-	-	-	-	lf	-	-
Taraxacum agg. (Dandelion)	-	-	-	r	-	-	-
Tragopogon pratensis (Goat's-beard)	-	r	-	-	-	-	-
Trifolium dubium (Lesser Trefoil)	-	lf	f	-	vr	-	-
Trifolium pratense (Red Clover)	-	o	-	-	-	-	-
Tripleurospermum inodorum (Scentless Mayweed)	r	-	-	-	-	-	-
Urtica dioica (Common Nettle)	r	r	la	d	-	-	d
Verbascum thapsus (Great Mullein)	-	r	r	-	-	-	-
Veronica arvensis (Wall Speedwell)	-	-	o	-	-	-	-
Veronica chamaedrys (Germander Speedwell)	o	lf	-	-	lf	-	-
Veronica hederifolia (Ivy-leaved Speedwell)	-	-	-	r	-	-	-
Veronica persica (Common Field-speedwell)	-	-	r	-	-	-	-
Veronica polita (Grey Field-speedwell)	-	r	-	-	-	-	-
Vicia hirsuta (Hairy Tare)	-	o	-	-	-	-	-
Vicia sativa (Common Vetch)	-	o	-	-	f	-	-
Viola riviniana (Common Dog-violet)	lf	-	-	-	-	-	-
Vulpia bromoides (Squirreltail Fescue)	-	-	lf	-	lf	-	-
C)Mosses							
Brachythecium rutabulum	-	-	-	o	o	-	o
Homalothecium lutescens	-	-	-	-	r	-	-
Kinbergia praelonga	-	-	-	f	-	-	-

Table 8.3. Species lists of plantation woodland recorded along the cable route

0.	TN275	TN296	TN302	TN370a	TN370b
A) Woody Species					
Acer campestre (Field Maple)	o	r	-	-	-
Acer pseudoplatanus (Sycamore)	o	-	-	f	o
Alnus glutinosa (Alder)	-	-	-	-	o
Betula pendula (Silver Birch)	-	-	-	-	r
Castanea sativa (Sweet Chestnut)	o	f	ld	f	r
Cornus sanguinea (Dogwood)	-	r	-	-	-
Corylus avellana (Hazel)	-	lf	r	o	r
Crataegus monogyna (Hawthorn)	r	o	la	o	-
Fraxinus excelsior (Ash)	-	-	-	o	-
Hedera helix (Ivy)	-	-	lf	-	-
Ilex aquifolium (Holly)	-	-	r	-	-
Lonicera periclymenum (Honeysuckle)	-	r	-	-	-
Pinus sylvestris (Scots Pine)	o	-	lf	o	o
Populus alba (White Poplar)	f	-	-	-	-
Populus tremula (Aspen)	-	lf	-	-	-
Prunus avium (Wild Cherry)	lf	lf	-	-	-
Prunus laurocerasus (Cherry Laurel)	-	f	-	-	-
Prunus spinosa (Blackthorn)	o	lf	-	o	la
Quercus robur (Pedunculate Oak)	lf	a	f	f	-
Ribes rubrum (Red Currant)	-	-	r	-	-
Rubus fruticosus agg. (Bramble)	o	lf	r	-	f
Salix alba (White Willow)	-	-	-	-	o
Salix caprea (Goat Willow)	-	r	-	r	-
Sambucus nigra (Elder)	-	r	f	-	f
Thuja plicata (Western Red-cedar)	-	-	lf	-	-
Ulex europaeus (Gorse)	-	o	-	-	-
Ulmus procera (English Elm)	-	r	-	-	f
Viburnum opulus (Guelder-rose)	-	-	-	r	-
B) Herb Species					
Achillea millefolium (Yarrow)	f	-	-	-	-
Alopecurus pratensis (Meadow Foxtail)	-	r	-	-	-
Arrhenatherum elatius (False Oat-grass)	a	o	-	a	-
Bellis perennis (Daisy)	r	-	-	-	-
Berberis vulgaris (Barberry)	-	-	-	r	-
Bromus hordeaceus (Soft-brome)	o	-	-	lf	-
Carex hirta (Hairy Sedge)	-	-	la	-	-
Catapodium rigidum (Fern-grass)	r	-	-	-	-
Cerastium fontanum (Common Mouse-ear)	r	vlf	-	-	-

Cerastium glomeratum (Sticky Mouse-ear)	o	-	-	-	-
Chamerion angustifolium (Rosebay Willowherb)	r	-	-	-	-
Cirsium arvense (Creeping Thistle)	o	-	-	r	-
Cirsium vulgare (Spear Thistle)	-	-	-	r	r
Cortaderia selloana (Pampas-grass)	r	-	-	-	-
Crepis capillaris (Smooth Hawk's-beard)	-	-	lf	-	-
Cynoglossum officinale (Hound's-tongue)	o	-	-	-	-
Dactylis glomerata (Cock's-foot)	-	lf	-	-	-
Dryopteris dilatata (Broad Buckler-fern)	-	-	lf	-	-
Dryopteris filix-mas (Male-fern)	-	-	o	-	-
Epilobium hirsutum (Great Willowherb)	-	-	-	f	lf
Epilobium palustre (Marsh Willowherb)	-	-	-	-	lf
Epilobium obscurum (Short-fruited Willowherb)	-	-	-	lf	-
Epilobium tetragonum (Square-stalked Willowherb)	-	-	-	lf	-
Euphorbia helioscopia (Sun Spurge)	-	-	-	r	-
Festuca rubra (Red Fescue)	f	-	-	-	-
Filago vulgaris (Common Cudweed)	f	-	-	-	-
Galeopsis tetrahit (Common Hemp-nettle)	-	vlf	-	-	-
Galium aparine (Cleavers)	-	-	o	-	a
Geranium dissectum (Cut-leaved Crane's-bill)	vr	-	-	-	-
Geranium molle (Dove's-foot Crane's-bill)	r	-	-	-	-
Geranium robertianum (Herb-Robert)	vr	-	-	-	-
Glechoma hederacea (Ground-ivy)	f	o	f	-	f
Helminthotheca echioides (Bristly Oxtongue)	-	-	-	lf	-
Heracleum sphondylium (Hogweed)	-	-	-	r	-
Holcus lanatus (Yorkshire-fog)	a	-	-	f	o
Holcus mollis (Creeping Soft-grass)	-	a	o	-	-
Humulus lupulus (Hop)	-	o	-	-	-
Hypochaeris radicata (Cat's-ear)	-	-	-	r	-
Juncus effusus (Soft-rush)	-	-	r	-	-
Lapsana communis (Nipplewort)	-	r	-	-	-
Leontodon saxatilis (Lesser Hawkbit)	o	-	-	-	-
Medicago arabica (Spotted Medick)	lf	-	-	-	-
Medicago lupulina (Black Medick)	r	-	-	-	-
Moehringia trinervia (Three-nerved Sandwort)	-	r	-	-	-
Myosotis arvensis (Field Forget-me-not)	r	-	-	-	-
Pilosella officinarum (Mouse-ear-hawkweed)	vla	-	-	-	-
Plantago lanceolata (Ribwort Plantain)	o	-	-	o	-
Poa cf. *nemoralis* (Wood Meadow-grass)	-	-	r	-	-
Poa trivialis (Rough Meadow-grass)	-	f	f	f	f
Potentilla reptans (Creeping Cinquefoil)	lf	-	-	-	-
Pteridium aquilinum (Bracken)	-	a	-	-	-
Ranunculus repens (Creeping Buttercup)	-	r	-	-	-
Rosa arvensis (Field-rose)	-	lf	-	-	-
Rumex sanguineus (Wood Dock)	-	o	-	r	r
Senecio jacobaea (Common Ragwort)	-	-	-	o	-

Senecio vulgaris (Groundsel)	o	r	-	-	-
Silene dioica (Red Campion)	-	f	f	-	o
Silene latifolia (White Campion)	r	-	-	-	-
Smyrnium olusatrum (Alexanders)	vr	-	-	o	lf
Sonchus oleraceus (Smooth Sow-thistle)	r	-	-	-	-
Stachys sylvatica (Hedge Woundwort)	-	o	-	-	-
Stellaria holostea (Greater Stitchwort)	-	la	-	-	-
Stellaria media (Common Chickweed)	-	o	-	-	-
Tamarix gallica (Tamarisk)	lf	-	-	lf	-
Trifolium dubium (Lesser Trefoil)	vr	-	-	-	-
Tripleurospermum inodorum (Scentless Mayweed)	-	-	-	o	-
Urtica dioica (Common Nettle)	-	lf	ld	-	d
Veronica chamaedrys (Germander Speedwell)	lf	-	-	-	-
Vicia sativa (Common Vetch)	f	-	-	-	-
Vulpia bromoides (Squirreltail Fescue)	lf	-	-	-	-
Vulpia myuros (Rat's-tail fescue)	-	-	-	la	-
C)Mosses					
Brachythecium rutabulum	o	-	o	o	-
Homalothecium lutescens	r	-	-	-	-
Hypnum cupressiforme	-	-	r	-	-
Kinbergia praelonga	-	-	f	-	-

Table 8.4. Species lists for rough grasslands at Target Notes 17, 201 and 304

Species	TN17	TN201	TN304
A) Trees, Shrubs and Climbers			
Alnus glutinosa (Alder)	lf	-	-
Crataegus monogyna (Hawthorn)	lf	-	-
Cytisus scoparius (Broom)	-	-	r
Fraxinus excelsior (Ash)	o	-	-
Populus alba (White Poplar sapling)	-	lf	-
Populus tremula (Aspen sapling)	-	lf	-
Quercus robur (Pedunculate Oak seedling)	-	r	r
Rosa canina (Dog-rose)	o	-	-
Rubus fruticosus agg. (Bramble)	-	o	r
Salix cinerea (Grey Willow)	o	-	-
Salix purpurea (Purple Willow)	-	r	-
Sambucus nigra (Elder)	o	-	-
B) Herbs and Ferns			
Achillea millefolium (Yarrow)	-	lf	-
Agrostis capillaris (Common Bent)	-	-	lf
Agrostis stolonifera (Creeping Bent)	o	lf	-
Alliaria petiolata (Garlic Mustard)	o	-	-
Alopecurus pratensis (Meadow Foxtail)	f	-	-
Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	-	r	-
Anchusa arvensis (Bugloss)	-	lf	-
Anisantha sterilis (Barren Brome)	-	lf	-
Arenaria serpyllifolia (Thyme-leaved Sandwort)	-	-	o
Arrhenatherum elatius (False Oat-grass)	-	-	o
Artemisia vulgaris (Mugwort)	-	lf	-
Bromus hordeaceus (Soft-brome)	-	-	f
Calystegia sepium (Hedge Bindweed)	-	o	-
Capsella bursa-pastoris (Shepherd's-purse)	-	r	-
Carduus nutans (Musk Thistle)	lf	-	-
Carex hirta (Hairy Sedge)	lf	-	-
Cerastium fontanum (Common Mouse-ear)	-	-	r
Chamerion angustifolium (Rosebay Willowherb)	-	-	r
Chenopodium album (Fat-hen)	-	o	-
Cirsium arvense (Creeping Thistle)	la	la	lf
Cirsium vulgare (Spear Thistle)	o	o	-
Conium maculatum (Hemlock)	-	r	-
Conyza canadensis (Canadian Fleabane)	-	o	-
Cortaderia selloana (Pampas-grass)	-	r	-
Crassula tillaea (Mossy Stonecrop)	-	lf	-
Crepis capillaris (Smooth Hawk's-beard)	-	-	o
Cynosurus cristatus (Crested Dog's-tail)	o	-	-
Dactylis glomerata (Cock's-foot)	f	o	o
Dactylorhiza praetermissa (Southern Marsh-orchid)	-	r	-
Daucus carota ssp. *carota* (Wild Carrot)	-	r	-
Deschampsia cespitosa (Tufted Hair-grass)	o	-	-
Dipsacus fullonum (Teasel)	o	-	-
Elytrigia repens (Common Couch)	o	ld	-
Epilobium hirsutum (Great Willowherb)	-	la	-

Equisetum arvense (Field Horsetail)	-	la	-
Festuca rubra (Red Fescue)	-	la	-
Filago vulgaris (Common Cudweed)	-	lf	o
Galium aparine (Cleavers)	o	o	-
Geranium dissectum (Cut-leaved Crane's-bill)	r	-	r
Geranium pusillum (Small-flowered Crane's-bill)	-	r	-
Helminthotheca echioides (Bristly Oxtongue)	-	r	-
Heracleum sphondylium (Hogweed)	-	r	-
Holcus lanatus (Yorkshire-fog)	la	ld	f
Holcus mollis (Creeping Soft-grass)	-	-	vlf
Hordeum secalinum (Meadow Barley)	r	-	-
Hordeum vulgare (Six-rowed Barley)	lf	-	-
Hypochaeris radicata (Cat's-ear)	-	-	f
Juncus bufonius (Toad Rush)	-	lf	-
Juncus inflexus (Hard Rush)	o	o	-
Lactuca virosa (Great Lettuce)	-	r	-
Lamium purpureum (Red Dead-nettle)	-	o	-
Lolium perenne (Perennial Rye-grass)	o	-	-
Lotus pedunculatus (Greater Bird's-foot-trefoil)	-	-	r
Malva sylvestris (Common Mallow)	-	r	-
Medicago arabica (Spotted Medick)	-	-	r
Medicago lupulina (Black Medick)	-	o	-
Mercurialis annua (Annual Mercury)	-	o	-
Myosotis arvensis (Field Forget-me-not)	-	-	r
Onopordum acanthium (Cotton Thistle)	-	o	-
Ornithopus perpusillus (Bird's-foot)	-	-	lf
Papaver rhoeas (Common Poppy)	-	r	-
Persicaria maculosa (Redshank)	-	r	-
Phalaris arundinacea (Reed Canary-grass)	lf	o	-
Phleum bertolonii (Smaller Cat's-tail)	r	-	-
Phleum pratense (Timothy)	o	r	-
Pilosella officinarum (Mouse-ear-hawkweed)	-	-	r
Plantago lanceolata (Ribwort Plantain)	-	-	o
Poa trivialis (Rough Meadow-grass)	f	-	-
Potentilla argentea (Hoary Cinquefoil)	-	-	r
Ranunculus repens (Creeping Buttercup)	-	o	lf
Raphanus raphanistrum ssp. *raphanistrum* (Wild Radish)	-	-	vr
Rumex acetosella (Sheep's Sorrel)	-	r	la
Rumex obtusifolius (Broad-leaved Dock)	r	r	r
Senecio jacobaea (Common Ragwort)	o	o	f
Silene dioica (Red Campion)	-	r	-
Sisymbrium officinale (Hedge Mustard)	-	r	-
Solanum tuberosum (Potato)	-	r	-
Sonchus asper (Prickly Sow-thistle)	-	r	r
Taraxacum sect. *Ruderalia* (Common Dandelion)	o	o	-
Trifolium campestre (Hop Trefoil)	-	-	f
Trifolium dubium (Lesser Trefoil)	r	o	o
Trifolium repens (White Clover)	-	lf	f
Trifolium scabrum (Rough Clover)	-	-	f
Tripleurospermum inodorum (Scentless Mayweed)	-	r	-
Urtica dioica (Common Nettle)	lf	la	r
Urtica urens (Small Nettle)	-	r	-
Verbascum thapsus (Great Mullein)	-	r	-
Veronica arvensis (Wall Speedwell)	r	-	-

Veronica chamaedrys (Germander Speedwell)	-	-	r
Vicia hirsuta (Hairy Tare)	-	-	o
Vicia sativa (Common Vetch)	-	o	f
Vicia tetrasperma (Smooth Tare)	-	-	f
Vulpia bromoides (Squirreltail Fescue)	-	la	la
C) Mosses and Liverworts			
Kinbergia praelonga	-	-	o

Table 8.5. Species list for mesotrophic grassland at *target note 23.*

Species	TN23
A) Trees, Shrubs and Climbers	
Rubus fruticosus agg. (Bramble)	o
Sambucus nigra (Elder)	r
B) Herbs and Ferns	
Achillea millefolium (Yarrow)	o
Agrostis stolonifera (Creeping Bent)	f
Anacamptis pyramidalis (Pyramidal Orchid)	lf
Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	r
Anisantha sterilis (Barren Brome)	r
Arenaria serpyllifolia (Thyme-leaved Sandwort)	r
Bellis perennis (Daisy)	f
Bromus hordeaceus (Soft-brome)	o
Carduus nutans (Musk Thistle)	lf
Carex muricata ssp. *pairae* (Prickly Sedge)	r
Centaurea cf. *nigra* (Common Knapweed)	o
Cerastium fontanum (Common Mouse-ear)	f
Cirsium arvense (Creeping Thistle)	f
Cirsium vulgare (Spear Thistle)	o
Crepis capillaris (Smooth Hawk's-beard)	f
Dactylis glomerata (Cock's-foot)	o
Festuca rubra (Red Fescue)	a
Geranium dissectum (Cut-leaved Crane's-bill)	f
Geranium molle (Dove's-foot Crane's-bill)	o
Geranium pusillum (Small-flowered Crane's-bill)	o
Geranium pyrenaicum (Hedgerow Crane's-bill)	f
Glechoma hederacea (Ground-ivy)	o
Heracleum sphondylium (Hogweed)	o
Holcus lanatus (Yorkshire-fog)	f
Lactuca virosa (Great Lettuce)	r
Leontodon saxatilis (Lesser Hawkbit)	f
Lolium perenne (Perennial Rye-grass)	r
Malva sylvestris (Common Mallow)	r
Medicago lupulina (Black Medick)	f
Mercurialis annua (Annual Mercury)	r
Myosotis arvensis (Field Forget-me-not)	o
Ophrys apifera (Bee Orchid)	lf
Orobanche minor (Common Broomrape)	r
Phalaris arundinacea (Reed Canary-grass)	r
Phleum bertolonii (Smaller Cat's-tail)	f
Phleum pratense (Timothy)	o
Plantago lanceolata (Ribwort Plantain)	f
Poa trivialis (Rough Meadow-grass)	r
Potentilla reptans (Creeping Cinquefoil)	f
Prunella vulgaris (Selfheal)	o
Ranunculus repens (Creeping Buttercup)	r
Reseda luteola (Weld)	lf
Senecio erucifolius (Hoary Ragwort)	r

Senecio jacobaea (Common Ragwort)	r
Silene latifolia (White Campion)	o
Sonchus asper (Prickly Sow-thistle)	r
Taraxacum sect. *Ruderalia* (Common Dandelion)	o
Trifolium campestre (Hop Trefoil)	f
Trifolium dubium (Lesser Trefoil)	f
Trifolium repens (White Clover)	f
Veronica arvensis (Wall Speedwell)	f
Vicia hirsuta (Hairy Tare)	f
Vicia sativa (Common Vetch)	f
Vicia tetrasperma (Smooth Tare)	f

Table 8.6. Species list for calcifugous grassland at *Target Note 374a.*

Species	TN374a
A) Herbs	
Agrostis capillaris (Common Bent)	o
Arabidopsis thaliana (Thale Cress)	o
Arenaria serpyllifolia (Thyme-leaved Sandwort)	o
Arrhenatherum elatius (False Oat-grass)	lf
Campanula rotundifolia (Harebell)	r
Campylopus introflexus	lf
Cerastium glomeratum (Sticky Mouse-ear)	o
Cerastium semidecandrum (Little Mouse-ear)	r
Cirsium arvense (Creeping Thistle)	f
Dactylis glomerata (Cock's-foot)	o
Erodium cicutarium (Common Stork's-bill)	o
Festuca ovina (Sheep's-fescue)	f
Geranium molle (Dove's-foot Crane's-bill)	o
Geranium pusillum (Small-flowered Crane's-bill)	r
Lolium perenne (Perennial Rye-grass)	lf
Myosotis ramosissima (Early Forget-me-not)	o
Poa pratensis (Smooth Meadow-grass)	f
Scorzoneroides autumnalis (Autumn Hawkbit)	o
Senecio jacobaea (Common Ragwort)	o
Senecio vulgaris (Groundsel)	r
Stellaria media (Common Chickweed)	r
Syntrichia ruralis ssp. *ruralis*	r
Taraxacum sect. *Ruderalia* (Common Dandelion)	o
Trifolium repens (White Clover)	r
Urtica dioica (Common Nettle)	o
Veronica persica (Common Field-speedwell)	r
Vicia lathyroides (Spring Vetch)	r
Viola arvensis (Field Pansy)	o
C) Mosses, Liverworts and Lichens	
Homalothecium lutescens	lf
Peltigera species	o
Polytrichum juniperinum	lf
Pseudoscleropodium purum	r

Table 8.7. Species lists for calcifugous grasslands at *Target Notes 187a, 187b, 194, 374* and *379*

Species	TN187a	TN187b	TN194	TN374	TN379
A) Trees, Shrubs and Climbers					
Betula pendula (Silver Birch)	-	-	-	vr	-
Crataegus monogyna (Hawthorn)	r	-	-	r	-
Cytisus scoparius (Broom)	-	-	-	vr	-
Euonymus europaeus (Spindle)	-	r	-	-	-
Prunus cerasifera (Cherry Plum)	-	-	-	vr	-
Prunus spinosa (Blackthorn)	o	-	-	r	-
Quercus robur (Pedunculate Oak seedling)	-	-	r	o	r
Rubus fruticosus agg. (Bramble)	o	-	r	a	-
Rubus idaeus (Raspberry)	-	-	-	r	-
Sambucus nigra (Elder)	-	-	r	f	-
Ulex europaeus (Gorse)	o	-	r	a	r
B) Herbs and Ferns					
Achillea millefolium (Yarrow)	-	lf	r	-	-
Agrostis canina (Velvet Bent)	-	-	-	f	-
Agrostis capillaris (Common Bent)	f	f	a	a	f
Agrostis stolonifera (Creeping Bent)	-	-	-	o	-
Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	-	-	o	-	r
Anchusa arvensis (Bugloss)	r	-	-	r	-
Anthoxanthum odoratum (Sweet Vernal-grass)	-	-	lf	-	-
Anthriscus sylvestris (Cow Parsley)	-	lf	-	-	-
Aphanes australis (Slender Parsley-piert)	o	o	-	f	o
Arenaria serpyllifolia (Thyme-leaved Sandwort)	r	o	o	lf	-
Arrhenatherum elatius (False Oat-grass)	-	lf	la	-	lf
Arum maculatum (Lords-and-Ladies)	-	o	-	r	-
Bellis perennis (Daisy)	r	-	-	-	-
Bromus hordeaceus (Soft-brome)	-	-	o	-	r
Bryonia dioica (White Bryony)	-	r	-	o	-
Carduus tenuiflorus (Slender Thistle)	-	-	r	-	-
Carex hirta (Hairy Sedge)	r	lf	-	-	-
Carex muricata ssp. *pairae* (Prickly Sedge)	-	r	r	vr	-
Centaurea cf. *nigra* (Common Knapweed)	-	r	-	-	-
Cerastium fontanum (Common Mouse-ear)	-	o	o	-	f
Cerastium glomeratum (Sticky Mouse-ear)	o	f	o	f	o
Cerastium semidecandrum (Little Mouse-ear)	-	-	-	o	-
Chelidonium majus (Greater Celandine)	r	-	-	-	-
Cirsium arvense (Creeping Thistle)	o	-	-	-	f
Cirsium palustre (Marsh Thistle)	-	r	-	-	-
Cirsium vulgare (Spear Thistle)	r	o	-	r	-
Claytonia perfoliata (Springbeauty)	lf	lf	-	la	-
Conyza canadensis (Canadian Fleabane)	-	-	r	-	lf
Crassula tillaea (Mossy Stonecrop)	-	-	r	lf	-
Crepis capillaris (Smooth Hawk's-beard)	-	-	-	-	r
Cynoglossum officinale (Hound's-tongue)	-	-	lf	r	-
Dactylis glomerata (Cock's-foot)	-	r	-	-	o
Epilobium obscurum (Short-fruited Willowherb)	-	-	-	-	r
Equisetum arvense (Field Horsetail)	-	-	-	-	r
Erodium cicutarium (Common Stork's-bill)	f	o	f	-	o

Festuca ovina (Sheep's-fescue)	-	-	-	o	-
Festuca rubra (Red Fescue)	o	-	f	-	-
Filago minima (Small Cudweed)	-	-	-	r	-
Filago vulgaris (Common Cudweed)	-	-	r	r	f
Galium aparine (Cleavers)	-	-	-	o	-
Geranium dissectum (Cut-leaved Crane's-bill)	r	-	-	-	o
Geranium molle (Dove's-foot Crane's-bill)	o	o	o	-	o
Geranium pusillum (Small-flowered Crane's-bill)	o	-	-	-	-
Glechoma hederacea (Ground-ivy)	o	lf	lf	o	o
Gnaphalium uliginosum (Marsh Cudweed)	r	lf	-	-	-
Holcus lanatus (Yorkshire-fog)	o	-	f	r	f
Hyacinthoides non-scripta x *H. hispanica* (Hybrid Bluebell)	r	-	-	-	-
Hypericum perforatum (Perforate St John's-wort)	la	o	r	-	la
Hypochaeris radicata (Cat's-ear)	-	-	r	f	r
Lamium purpureum (Red Dead-nettle)	r	r	-	-	-
Leontodon hispidus (Rough Hawkbit)	-	-	f	-	-
Lotus corniculatus (Common Bird's-foot-trefoil)	-	-	r	-	-
Luzula campestris (Field Wood-rush)	-	-	lf	-	-
Luzula multiflora (Heath Wood-rush)	-	-	lf	-	-
Myosotis arvensis (Field Forget-me-not)	-	r	r	r	-
Myosotis discolor (Changing Forget-me-not)	o	f	-	-	-
Myosotis ramosissima (Early Forget-me-not)	f	f	-	f	r
Onopordum acanthium (Cotton Thistle)	-	-	-	r	o
Ornithopus perpusillus (Bird's-foot)	f	-	f	f	-
Papaver rhoeas (Common Poppy)	-	-	r	-	r
Papaver somniferum (Opium Poppy)	r	-	-	-	-
Pentaglottis sempervirens (Green Alkanet)	r	-	r	-	-
Pilosella officinarum (Mouse-ear-hawkweed)	-	-	f	-	-
Plantago lanceolata (Ribwort Plantain)	-	-	-	r	o
Plantago major (Greater Plantain)	-	-	r	-	-
Poa annua (Annual Meadow-grass)	-	-	-	o	-
Poa pratensis (Smooth Meadow-grass)	-	o	-	-	-
Poa trivialis (Rough Meadow-grass)	-	r	-	-	-
Potentilla argentea (Hoary Cinquefoil)	-	r	r	-	r
Prunella vulgaris (Selfheal)	-	-	-	-	r
Pteridium aquilinum (Bracken)	r	r	-	lf	la
Ranunculus bulbosus (Bulbous Buttercup)	-	r	-	-	-
Reseda luteola (Weld)	r	-	-	-	r
Rosa pimpinellifolia (Burnet Rose)	-	-	-	-	o
Rumex acetosella (Sheep's Sorrel)	a	a	a	a	f
Rumex crispus (Curled Dock)	r	r	r	-	-
Sagina apetala (Annual Pearlwort)	-	-	lf	-	f
Sagina procumbens (Procumbent Pearlwort)	-	-	r	-	-
Scorzoneroides autumnalis (Autumn Hawkbit)	-	-	o	-	-
Sedum acre (Biting Stonecrop)	a	-	-	-	-
Senecio erucifolius (Hoary Ragwort)	-	o	-	-	f
Senecio jacobaea (Common Ragwort)	f	f	o	f	-
Senecio vulgaris (Groundsel)	-	-	-	r	-
Silene dioica (Red Campion)	-	-	r	r	r
Silene latifolia (White Campion)	-	o	r	-	r
Sonchus asper (Prickly Sow-thistle)	r	-	r	-	r
Sonchus oleraceus (Smooth Sow-thistle)	r	-	-	vr	-
Spergula arvensis (Corn Spurrey)	-	-	-	-	o
Stellaria graminea (Lesser Stitchwort)	-	-	r	-	-

Stellaria media (Common Chickweed)	-	-	-	vr	-
Symphytum officinale (Common Comfrey)	r	-	-	-	-
Taraxacum sect. *Ruderalia* (Common Dandelion)	o	r	-	r	o
Teucrium scorodonia (Wood Sage)	-	-	lf	-	-
Trifolium arvense (Hare's-foot Clover)	o	r	o	-	-
Trifolium campestre (Hop Trefoil)	-	-	f	-	f
Trifolium dubium (Lesser Trefoil)	-	-	o	-	o
Trifolium pratense (Red Clover)	r	-	-	-	-
Trifolium repens (White Clover)	-	-	o	r	o
Trifolium scabrum (Rough Clover)	-	-	o	-	-
Tripleurospermum inodorum (Scentless Mayweed)	-	-	-	-	o
Urtica dioica (Common Nettle)	o	-	r	lf	-
Urtica urens (Small Nettle)	r	-	-	r	-
Verbascum nigrum (Dark Mullein)	r	r	-	-	-
Verbascum thapsus (Great Mullein)	lf	lf	r	r	-
Veronica arvensis (Wall Speedwell)	o	f	-	f	o
Veronica chamaedrys (Germander Speedwell)	-	lf	lf	-	-
Veronica hederifolia (Ivy-leaved Speedwell)	-	-	-	r	-
Vicia hirsuta (Hairy Tare)	-	-	-	-	r
Vicia sativa (Common Vetch)	o	o	-	-	-
Viola arvensis (Field Pansy)	-	-	-	-	f
Viola hirta (Hairy Violet)	-	-	r	-	-
Vulpia bromoides (Squirreltail Fescue)	-	-	-	-	a
C) Mosses, Liverworts and lichens					
Brachythecium rutabulum	-	-	-	o	-
Bryum argenteum	-	-	-	o	-
Dicranum scoparium	o	f	lf	-	-
Didymodon fallax	-	-	-	o	-
Didymodon vinealis	-	-	-	o	-
Homalothecium lutescens	-	-	-	f	-
Hypnum lacunosum	a	-	-	f	-
Peltigera canina	-	-	-	r	-
Polytrichum juniperinum	f	-	f	lf	-
Pseudoephemerum nitidum	-	-	-	lf	-
Pseudoscleropodium purum	-	o	o	-	-
Rhytidiadelphus squarrosus	-	-	r	-	-
Syntrichia ruralis ssp. *ruralis*	lf	lf	-	-	-

Table 8.8. Species list of grassland at *target note 346*

Species	TN346
A) Herbs and Ferns	
Achillea millefolium (Yarrow)	o
Agrostis capillaris (Common Bent)	f
Anacamptis pyramidalis (Pyramidal Orchid)	r
Aphanes australis (Slender Parsley-piert)	r
Arctium minus (Lesser Burdock)	r
Arrhenatherum elatius (False Oat-grass)	r
Carex hirta (Hairy Sedge)	f
Carex muricata ssp. *pairae* (Prickly Sedge)	la
Cerastium fontanum (Common Mouse-ear)	f
Cirsium arvense (Creeping Thistle)	o
Cirsium vulgare (Spear Thistle)	o
Dactylis glomerata (Cock's-foot)	r
Dipsacus fullonum (Teasel)	o
Erodium cicutarium (Common Stork's-bill)	o
Festuca rubra (Red Fescue)	a
Geranium dissectum (Cut-leaved Crane's-bill)	r
Geranium molle (Dove's-foot Crane's-bill)	o
Glechoma hederacea (Ground-ivy)	lf
Holcus lanatus (Yorkshire-fog)	o
Holcus mollis (Creeping Soft-grass)	r
Lotus corniculatus (Common Bird's-foot-trefoil)	r
Luzula campestris (Field Wood-rush)	f
Myosotis arvensis (Field Forget-me-not)	r
Plantago lanceolata (Ribwort Plantain)	r
Poa annua (Annual Meadow-grass)	r
Poa trivialis (Rough Meadow-grass)	o
Potentilla reptans (Creeping Cinquefoil)	lf
Prunella vulgaris (Selfheal)	f
Ranunculus acris (Meadow Buttercup)	o
Ranunculus repens (Creeping Buttercup)	lf
Rumex acetosa (Common Sorrel)	f
Rumex acetosella (Sheep's Sorrel)	lf
Sagina apetala (Annual Pearlwort)	r
Saponaria officinalis (Soapwort)	lf
Scorzoneroides autumnalis (Autumn Hawkbit)	r
Senecio erucifolius (Hoary Ragwort)	f
Senecio jacobaea (Common Ragwort)	o
Sonchus asper (Prickly Sow-thistle)	r
Stellaria graminea (Lesser Stitchwort)	o
Trifolium dubium (Lesser Trefoil)	o
Trifolium repens (White Clover)	o
Urtica dioica (Common Nettle)	lf
Veronica arvensis (Wall Speedwell)	o
Veronica chamaedrys (Germander Speedwell)	a

Table 8.9. Species lists for swamp communities at *target notes 342, 344* and *375.*

Species	TN342	TN344	TN375
A) Herbs			
Alopecurus pratensis (Meadow Foxtail)	-	f	-
Anthoxanthum odoratum (Sweet Vernal-grass)	-	o	-
Apium nodiflorum (Fool's Water-cress)	-	-	la
Arrhenatherum elatius (False Oat-grass)	-	-	a
Caltha palustris (Marsh-marigold)	f	lf	vla
Cardamine pratensis (Cuckooflower)	-	-	r
Carex acutiformis (Lesser Pond-sedge)	-	-	la
Carex hirta (Hairy Sedge)	-	-	f
Carex paniculata (Greater Tussock-sedge)	i	-	-
Carex riparia (Greater Pond-sedge)	-	-	o
Centaurea cf. *nigra* (Common Knapweed)	-	-	f
Cerastium fontanum (Common Mouse-ear)	-	o	-
Cirsium arvense (Creeping Thistle)	-	-	o
Cirsium palustre (Marsh Thistle)	r	f	f
Dactylis glomerata (Cock's-foot)	-	-	o
Dactylorhiza incarnata (Early Marsh-orchid)	-	-	r
Dactylorhiza praetermissa (Southern Marsh-orchid)	-	r	-
Epilobium hirsutum (Great Willowherb)	o	-	-
Equisetum arvense (Field Horsetail)	o	o	o
Equisetum telmateia (Great Horsetail)	-	-	r
Eupatorium cannabinum (Hemp-agrimony)	la	-	-
Festuca rubra (Red Fescue)	-	lf	-
Ficaria verna (Lesser Celandine)	-	-	a
Filipendula ulmaria (Meadowsweet)	f	lf	a
Galium aparine (Cleavers)	o	-	-
Glechoma hederacea (Ground-ivy)	-	r	-
Glyceria notata (Plicate Sweet-grass)	-	-	r
Heracleum sphondylium (Hogweed)	-	-	r
Holcus lanatus (Yorkshire-fog)	-	f	o
Hypericum tetrapterum (Square-stalked St John's-wort)	-	-	r
Juncus acutiflorus (Sharp-flowered Rush)	la	lf	f
Juncus inflexus (Hard Rush)	-	lf	-
Lathyrus pratensis (Meadow Vetchling)	r	r	f
Lotus pedunculatus (Greater Bird's-foot-trefoil)	-	-	r
Luzula campestris (Field Wood-rush)	-	-	r
Mentha aquatica (Water Mint)	r	f	lf
Plantago lanceolata (Ribwort Plantain)	-	-	r
Poa annua (Annual Meadow-grass)	-	-	r
Poa pratensis (Smooth Meadow-grass)	-	-	o
Potentilla reptans (Creeping Cinquefoil)	-	-	o
Primula veris (Cowslip)	-	-	r

Primula vulgaris (Primrose)	-	-	lf
Pteridium aquilinum (Bracken)	-	-	vr
Pulicaria dysenterica (Common Fleabane)	lf	lf	-
Ranunculus acris (Meadow Buttercup)	-	-	r
Ranunculus repens (Creeping Buttercup)	-	o	o
Rumex acetosa (Common Sorrel)	-	o	f
Rumex sanguineus (Wood Dock)	-	-	r
Saxifraga granulata (Meadow Saxifrage)	-	-	o
Schedonorus pratensis (Meadow Fescue)	-	-	r
Scrophularia nodosa (Common Figwort)	-	-	lf
Senecio jacobaea (Common Ragwort)	-	-	o
Sonchus asper (Prickly Sow-thistle)	-	r	-
Stellaria alsine (Bog Stitchwort)	-	-	r
Stellaria graminea (Lesser Stitchwort)	-	-	o
Taraxacum sect. *Ruderalia* (Common Dandelion)	-	-	o
Urtica dioica (Common Nettle)	-	f	r
Veronica chamaedrys (Germander Speedwell)	-	-	f
Angelica sylvestris (Wild Angelica)	o	f	-
Carex acutiformis (Lesser Pond-sedge)	la	a	-
Dactylis glomerata (Cock's-foot)	-	r	-
Equisetum palustre (Marsh Horsetail)	o	o	-
Hypericum elodes (Marsh St John's-wort)	-	r	-
Lotus pedunculatus (Greater Bird's-foot Trefoil)	o	r	-
Myosoton aquaticum (Water Chickweed)	-	r	-
Schedonorus arundinaceus (Tall Fescue)	-	r	-
Silene flos-cuculi (Ragged-robin)	r	r	-
Solanum dulcamara (Bittersweet)	o	-	-
Vicia cracca (Tufted Vetch)	o	-	-

Table 8.10. Plant species recorded from the shingle at *Target Note 250*

Species	TN250
a) Herbs	
Crambe maritima (Sea-kale)	d
Glaucium flavum (Yellow Horned-poppy)	o
Rumex crispus (Curled Dock)	vr

Table 8.11. Plant species recorded at the maritime cliff near Bawdsey, Suffolk.

Species	TN251a	TN251b	TN251c	TN251d
a) Trees, Shrubs and Climbers				
Rubus fruticosus agg. (Bramble)	-	o	f	o
Sambucus nigra (Elder)	-	-	la	-
Ulex europaeus (Gorse)	-	o	-	-
b) Herbs and ferns				
Achillea millefolium (Yarrow)	-	-	-	o
Agrostis capillaris (Common Bent)	-	-	-	f
Agrostis stolonifera (Creeping Bent)	lf	-	-	-
Aira praecox (Early Hair-grass)	-	lf	-	o
Ammophila arenaria (Marram)	-	-	-	lf
Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	-	r	r	lf
Anchusa arvensis (Bugloss)	-	-	o	-
Anisantha diandra (Great Brome)	-	-	r	-
Anisantha sterilis (Barren Brome)	-	-	lf	-
Anthriscus caucalis (Bur Chervil)	-	-	vlf	lf
Aphanes australis (Slender Parsley-piert)	-	-	-	o
Arctium lappa (Greater Burdock)	-	-	o	-
Arenaria serpyllifolia (Thyme-leaved Sandwort)	-	-	-	a
Arrhenatherum elatius (False Oat-grass)	-	ld	lf	-
Atriplex laciniata (Frosted Orache)	a	-	-	-
Atriplex littoralis (Grass-leaved Orache)	r	o	-	-
Bellis perennis (Daisy)	-	o	-	-
Beta vulgaris ssp. *maritima*(Sea Beet)	r	r	-	r
Bromus hordeaceus (Soft-brome)	o	f	-	-
Bryonia dioica (White Bryony)	-	r	-	-
Cakile maritima (Sea Rocket)	r	-	-	-
Carduus tenuiflorus (Slender Thistle)	-	-	-	o
Catapodium rigidum (Fern-grass)	-	-	-	f
Centaurium erythraea (Common Centaury)	-	-	-	vlf
Cerastium fontanum (Common Mouse-ear)	-	-	-	r
Cerastium glomeratum (Sticky Mouse-ear)	-	o	-	-
Convolvulus arvensis (Field Bindweed)	-	-	-	r
Crambe maritima (Sea-kale)	r	-	r	-
Cynoglossum officinale (Hound's-tongue)	-	-	o	o
Dactylis glomerata (Cock's-foot)	r	o	-	r
Echium vulgare (Viper's-bugloss)	-	-	-	r

Erodium cicutarium (Common Stork's-bill)	-	-	-	f
Festuca ovina (Sheep's-fescue)	-	-	-	o
Festuca rubra (Red Fescue)	-	-	-	la
Filago minima (Small Cudweed)	-	-	-	o
Filago vulgaris (Common Cudweed)	-	r	-	o
Galium aparine (Cleavers)	-	-	f	-
Geranium molle (Dove's-foot Crane's-bill)	-	-	-	f
Glaucium flavum (Yellow Horned-poppy)	-	r	r	r
Glechoma hederacea (Ground-ivy)	-	-	f	o
Helminthotheca echioides (Bristly Oxtongue)	o	r	-	o
Holcus lanatus (Yorkshire-fog)	-	lf	-	a
Hypochaeris radicata (Cat's-ear)	-	-	-	r
Leontodon saxatilis (Lesser Hawkbit)	-	-	-	a
Lotus corniculatus (Common Bird's-foot-trefoil)	-	-	-	r
Malva sylvestris (Common Mallow)	-	-	f	-
Medicago lupulina (Black Medick)	o	-	-	-
Mercurialis annua (Annual Mercury)	-	-	vr	-
Myosotis arvensis (Field Forget-me-not)	-	-	o	-
Myosotis ramosissima (Early Forget-me-not)	-	-	-	o
Ononis repens (Common Restharrow)	-	-	-	lf
Papaver rhoeas (Common Poppy)	-	-	o	-
Parapholis strigosa (Hard-grass)	o	-	-	-
Phleum arenarium (Sand Cat's-tail)	-	-	-	lf
Phragmites australis (Common Reed)	-	la	-	-
Pilosella officinarum (Mouse-ear-hawkweed)	-	-	-	vla
Plantago coronopus (Buck's-horn Plantain)	-	lf	-	a
Plantago lanceolata (Ribwort Plantain)	-	lf	-	-
Plantago maritima (Sea Plantain)	o	-	-	-
Poa annua (Annual Meadow-grass)	-	-	-	r
Poa pratensis (Smooth Meadow-grass)	-	-	-	o
Potentilla reptans (Creeping Cinquefoil)	r	-	o	-
Reseda lutea (Wild Mignonette)	-	-	-	lf
Rumex acetosa (Common Sorrel)	-	-	-	la
Rumex crispus (Curled Dock)	-	-	-	r
Sagina apetala (Annual Pearlwort)	-	f	-	r
Sagina procumbens (Procumbent Pearlwort)	-	-	-	o
Scorzoneroides autumnalis (Autumn Hawkbit)	-	-	-	f
Sedum acre (Biting Stonecrop)	-	-	-	a
Senecio jacobaea (Common Ragwort)	-	-	-	f
Senecio viscosus (Sticky Groundsel)	-	r	-	-
Silene latifolia (White Campion)	-	-	r	-
Sinapis arvensis (Charlock)	-	f	ld	-
Smyrnium olusatrum (Alexanders)	-	lf	ld	-
Sonchus asper (Prickly Sow-thistle)	-	o	r	-
Sonchus oleraceus (Smooth Sow-thistle)	r	o	-	-
Suaeda maritima (Annual Sea-blite)	r	-	-	-
Trifolium arvense (Hare's-foot Clover)	-	-	-	r
Trifolium campestre (Hop Trefoil)	-	o	-	-
Trifolium dubium (Lesser Trefoil)	-	-	-	o
Trifolium repens (White Clover)	lf	-	-	-
Tripleurospermum maritimum (Sea Mayweed)	r	-	-	-
Urtica dioica (Common Nettle)	-	lf	ld	-
Veronica arvensis (Wall Speedwell)	-	-	-	o
Vicia sativa (Common Vetch)	-	-	-	o

Vulpia bromoides (Squirreltail Fescue)	-	lf	-	f
c) Mosses and Liverworts				
Bryum argenteum	-	-	-	r
Campylopus introflexus	-	-	-	lf
Dicranum scoparium	-	-	-	r
Hypnum lacunosum	-	-	-	lf
Polytrichum juniperinum	-	-	-	lf

Table 8.12. Plant species recorded from the saltmarshes along the east and west banks of the River Deben, *Target Note* 315 and *Target Note* 246.

Species	TN315	TN246
A) Trees, Shrubs and Climbers		
Atriplex portulacoides (Sea-purslane)	lf	lf
B) Herbs and ferns		
Artemisia maritima (Sea Wormwood)	-	vlf
Aster tripolium (Sea Aster)	r	o
Elytrigia atherica (Sea Couch)	-	r
Limonium vulgare (Common Sea-lavender)	f	f
Puccinellia maritima (Common Saltmarsh-grass)	o	a
Salicornia europaea (Common Glasswort)	f	f
Sarcocornia perennis (Perennial Glasswort)	o	o
Spartina anglica (Common Cord-grass)	o	f
Spergularia media (Greater Sea-spurrey)	o	r
Suaeda maritima (Annual Sea-blite)	f	f
Tripleurospermum maritimum (Sea Mayweed)	o	o

Table 8.13. Table of plant species recorded at river and stream crossings along the East Anglia Offshore Wind Cable route.

Species	TN7a	TN19	TN126b	TN150	TN171a	TN226a	TN286c	TN384
A) Trees, Shrubs and Climbers								
Acer campestre (Field Maple)	-	-	-	o	-	-	-	-
Acer pseudoplatanus (Sycamore)	-	-	-	o	-	-	-	-
Alnus glutinosa (Alder)	-	-	o	o	lf	-	-	o
Corylus avellana (Hazel)	-	-	-	-	-	o	-	-
Crataegus monogyna (Hawthorn)	-	-	r	o	-	-	-	-
Fraxinus excelsior (Ash)	-	-	-	r	-	r	-	-
Hedera helix (Ivy)	-	-	-	o	-	-	-	-
Ilex aquifolium (Holly)	-	-	-	-	-	r	-	-
Prunus spinosa (Blackthorn)	-	-	-	o	-	-	-	-
Quercus robur (Pedunculate Oak)	-	-	o	-	-	-	-	-
Ribes uva-crispa (Gooseberry)	-	r	-	-	-	-	-	-
Rosa arvensis (Field-rose)	-	-	r	r	-	-	-	-
Rubus fruticosus agg. (Bramble)	-	-	f	-	-	lf	-	-
Salix alba (White Willow)	-	f	r	f	-	-	-	o
Salix caprea (Goat Willow)	-	-	vvr	-	-	r	-	-
Salix cinerea (Grey Willow)	-	-	-	o	-	r	-	-
Sambucus nigra (Elder)	-	r	vr	r	-	-	-	-
Tilia platyphyllos (Large-leaved Lime)	-	-	r	-	-	-	-	-
B) Herbs and Ferns								
Aegopodium podagraria (Ground-elder)	-	-	-	r	-	-	-	-
Agrimonia eupatoria (Agrimony)	-	r	-	-	-	-	-	-
Agrostis stolonifera (Creeping Bent)	o	-	-	-	-	-	-	-
Alliaria petiolata (Garlic Mustard)	-	-	-	r	o	-	-	-
Alopecurus pratensis (Meadow Foxtail)	-	-	r	-	-	-	-	-
Anisantha diandra (Great Brome)	lf	-	-	-	-	-	-	-
Anthriscus sylvestris (Cow Parsley)	-	o	r	-	-	-	-	-
Apium nodiflorum (Fool's Water-cress)	o	r	-	-	-	lf	-	r
Arctium minus (Lesser Burdock)	r	-	-	-	-	-	-	-
Arrhenatherum elatius (False Oat-grass)	f	f	f	-	f	a	-	-
Athyrium filix-femina (Lady-fern)	-	-	-	-	-	r	-	-
Ballota nigra (Black Horehound)	o	-	-	-	-	-	-	-
Berula erecta (Lesser Water-parsnip)	-	-	a	-	-	-	-	-
Brachypodium sylvaticum (False Brome)	-	-	-	r	-	-	-	-
Bryonia dioica (White Bryony)	-	-	r	-	-	-	-	-
Callitriche stagnalis (Common Water-starwort)	r	-	-	-	-	-	o	-
Calystegia sepium (Hedge Bindweed)	r	f	-	r	-	-	-	o
Cardamine pratensis (Cuckooflower)	-	-	-	-	r	-	-	-
Carex riparia (Greater Pond-sedge)	-	lf	-	-	-	-	-	-
Cerastium glomeratum (Sticky Mouse-ear)	-	-	r	-	-	-	-	-
Ceratophyllum demersum (Rigid Hornwort)	-	-	-	-	-	-	lf	-
Chamerion angustifolium (Rosebay Willowherb)	-	-	lf	-	-	-	-	-
Cirsium arvense (Creeping Thistle)	r	lf	f	o	-	f	-	-
Cirsium palustre (Marsh Thistle)	-	-	-	o	-	-	-	-
Cirsium vulgare (Spear Thistle)	-	-	r	-	-	-	-	-
Conium maculatum (Hemlock)	-	-	-	o	-	-	-	-
Dactylis glomerata (Cock's-foot)	-	f	o	-	-	f	-	-
Dipsacus fullonum (Teasel)	-	r	-	-	-	-	-	-
Elodea canadensis (Canadian Waterweed)	-	r	-	-	-	-	f/la	-

Epilobium hirsutum (Great Willowherb)	o	lf	f	la	lf	lf	-	ld
Equisetum telmateia (Great Horsetail)	-	-	-	-	-	ld	-	-
Eupatorium cannabinum (Hemp-agrimony)	-	-	-	-	-	-	-	ld
Filipendula ulmaria (Meadowsweet)	-	-	lf	r	lf	-	-	o
Galium aparine (Cleavers)	o	o	o	-	o	la	-	-
Geum urbanum (Wood Avens)	-	-	-	o	-	-	-	-
Heracleum sphondylium (Hogweed)	r	-	o	-	-	o	-	-
Holcus lanatus (Yorkshire-fog)	-	-	f	-	-	-	-	-
Humulus lupulus (Hop)	-	-	r	r	-	-	-	-
Impatiens glandulifera (Indian Balsam)	-	-	-	r	r	-	-	-
Iris pseudacorus (Yellow Iris)	-	o	lf	-	-	-	-	-
Juncus effusus (Soft-rush)	-	-	lf	-	-	r	-	-
Juncus squarrosus (Heath Rush)	lf	-	-	-	-	-	-	-
Lactuca virosa (Great Lettuce)	r	-	-	-	-	-	-	-
Lapsana communis (Nipplewort)	-	r	-	-	-	-	-	-
Lathyrus nissolia (Grass Vetchling)	-	-	-	-	-	o	-	-
Lemna minor (Common Duckweed)	r	lf	-	-	-	-	f	-
Mentha aquatica (Water Mint)	-	-	-	-	-	-	-	o
Myriophyllum spicatum (Spiked Water-milfoil)	-	-	-	-	-	-	a	-
Nasturtium officinale (Water-cress)	-	-	lf	-	-	-	-	-
Nymphaea alba (White Water-lily)	-	f	-	-	-	-	-	-
Oenanthe crocata (Hemlock Water-dropwort)	-	-	-	f	-	-	-	-
Oenanthe fluviatilis (River Water-dropwort)	-	a	-	-	-	-	-	-
Papaver rhoeas (Common Poppy)	r	-	-	-	-	-	-	-
Persicaria amphibia (Amphibious Bistort)	o	-	-	-	-	-	-	-
Petasites cf. *hybridus* (Butterbur)	-	lf	-	-	-	-	-	-
Phalaris arundinacea (Reed Canary-grass)	r	f	-	-	-	-	-	-
Phragmites australis (Common Reed)	-	la	-	la	lf	-	d	-
Poa trivialis (Rough Meadow-grass)	-	-	o	-	-	-	-	-
Potamogeton berchtoldii (Small Pondweed)	-	-	-	-	-	-	d	-
Potamogeton crispus (Curled Pondweed)	-	-	-	-	-	-	o	-
Potamogeton natans (Broad-leaved Pondweed)	-	-	-	-	-	-	-	lf
Potamogeton pectinatus (Fennel Pondweed)	-	-	-	-	-	-	a	-
Pteridium aquilinum (Bracken)	-	-	r	-	-	o	-	-
Pulicaria dysenterica (Common Fleabane)	-	-	-	r	-	-	-	-
Ranunculus penicillatus cfz	-	-	-	-	-	-	-	lf
Ranunculus repens (Creeping Buttercup)	-	-	o	-	-	-	-	-
Raphanus raphanistrum ssp. *raphanistrum* (Wild Radish)	-	-	-	-	lf	-	-	-
Rumex conglomeratus (Clustered Dock)	-	-	-	r	-	-	-	-
Rumex hydrolapathum (Water Dock)	-	-	-	-	-	-	r	-
Rumex sanguineus (Wood Dock)	-	-	r	-	-	-	-	o
Sagittaria sagittifolia (Arrowhead)	-	f	-	-	-	-	-	-
Schedonorus giganteus (Giant Fescue)	-	-	-	r	-	-	-	-
Schoenoplectus lacustris (Common Club-rush)	-	lf	-	-	-	-	-	-
Scrophularia nodosa (Common Figwort)	-	-	lf	r	r	-	-	-
Silene dioica (Red Campion)	-	-	lf	o	-	r	-	-
Sinapis arvensis (Charlock)	r	-	-	-	-	-	o	-
Solanum dulcamara (Bittersweet)	-	r	o	-	-	o	-	o
Sonchus asper (Prickly Sow-thistle)	-	-	-	-	-	r	-	-
Sparganium erectum (Branched Bur-reed)	-	f	-	-	-	-	-	f/la
Stachys sylvatica (Hedge Woundwort)	-	-	r	-	-	-	-	-
Stellaria holostea (Greater Stitchwort)	-	-	-	-	-	r	-	-
Symphytum ×uplandicum (Russian Comfrey)	-	f	-	f	lf	-	-	-
Taraxacum sect. *Ruderalia* (Common Dandelion)	r	-	-	-	-	-	-	-
Trifolium repens (White Clover)	-	-	-	o	-	-	-	-
Typha latifolia (Bulrush)	-	o	r	-	-	-	-	la
Urtica dioica (Common Nettle)	-	f	a	ld	lf	a	-	ld

Veronica beccabunga (Brooklime)	r	r	-	-	-	-	-	-
Veronica chamaedrys (Germander Speedwell)	-	-	r	-	-	-	-	-
Vicia sativa (Common Vetch)	-	-	-	-	-	o	-	-
Vicia sepium (Bush Vetch)	-	-	o	-	-	-	-	-
C) Mosses and Liverworts								
Pellia species	-	-	-	r	-	-	-	-

Table 8.14. Species list for ditches along the cable route.

Species	TN18	TN22	TN150a	TN229	TN249	TN258
A) Trees, Shrubs and Climbers						
Crataegus monogyna (Hawthorn)	-	-	r	-	-	-
Fraxinus excelsior (Ash)	-	-	-	-	-	-
Ilex aquifolium (Holly)	-	-	-	-	-	-
Prunus spinosa (Blackthorn)	-	lf	-	-	-	-
Quercus robur (Pedunculate Oak)	-	-	-	r	-	-
Rubus fruticosus agg. (Bramble)	-	-	lf	-	-	-
Salix alba (White Willow)	-	r	-	-	-	-
Salix caprea (Goat Willow)	-	-	-	-	-	-
Salix cinerea (Grey Willow)	-	-	-	-	-	-
Sambucus nigra (Elder)	-	r	r	-	-	-
Ulmus procera (English Elm)	-	-	-	lf	-	-
B) Herbs and Ferns						
Aegopodium podagraria (Ground-elder)	-	-	lf	-	-	-
Agrimonia eupatoria (Agrimony)	-	-	r	-	-	-
Agrostis stolonifera (Creeping Bent)	f	f	-	-	-	-
Anthriscus sylvestris (Cow Parsley)	-	-	-	o	-	-
Apium nodiflorum (Fool's Water-cress)	-	la	o	-	-	-
Arctium minus (Lesser Burdock)	-	-	r	-	-	-
Arrhenatherum elatius (False Oat-grass)	-	-	o	f	f	-
Athyrium filix-femina (Lady-fern)	-	-	-	-	-	-
Bryonia dioica (White Bryony)	-	-	-	-	-	r
Carex otrubae (False Fox-sedge)	-	-	-	-	r	-
Cirsium arvense (Creeping Thistle)	a	-	f	r	o	-
Corylus avellana (Hazel)	-	-	-	-	-	-
Dactylis glomerata (Cock's-foot)	o	-	-	-	o	-
Dipsacus fullonum (Teasel)	r	o	-	-	-	-
Elodea canadensis (Canadian Waterweed)	-	-	-	-	o	-
Elytrigia atherica (Sea Couch)	-	-	-	-	f	-
Elytrigia repens (Common Couch)	o	-	-	-	-	-
Epilobium hirsutum (Great Willowherb)	o	-	ld	lf	-	o
Epilobium tetragonum (Square-stalked Willowherb)	r	-	-	-	-	-
Equisetum telmateia (Great Horsetail)	-	-	-	d	-	-
Galium aparine (Cleavers)	-	-	f	o	-	o
Glechoma hederacea (Ground-ivy)	-	lf	lf	-	-	-
Glyceria notata (Plicate Sweet-grass)	o	r	-	-	-	-
Helminthotheca echioides (Bristly Oxtongue)	-	-	-	-	o	-
Heracleum sphondylium (Hogweed)	-	-	-	o	-	r
Holcus lanatus (Yorkshire-fog)	-	-	r	-	-	-
Humulus lupulus (Hop)	-	-	r	-	-	-
Impatiens glandulifera (Indian Balsam)	-	-	r	-	-	-
Iris pseudacorus (Yellow Iris)	r	-	-	-	-	-
Juncus effusus (Soft-rush)	r	-	-	-	-	-
Juncus inflexus (Hard Rush)	o	-	-	-	-	-
Lapsana communis (Nipplewort)	-	-	r	-	-	-
Lathyrus nissolia (Grass Vetchling)	-	-	-	-	-	-
Lemna minor (Common Duckweed)	f	-	-	f	-	-

Myosoton aquaticum (Water Chickweed)	-	-	o	-	-	-
Nasturtium officinale (Water-cress)	r	-	r	-	-	-
Phalaris arundinacea (Reed Canary-grass)	o	la	-	-	-	-
Phragmites australis (Common Reed)	-	-	-	lf	lf	-
Poa trivialis (Rough Meadow-grass)	o	f	-	f	-	-
Potamogeton berchtoldii (Small Pondweed)	-	-	-	-	a	-
Potamogeton pectinatus (Fennel Pondweed)	-	-	-	-	f	-
Pteridium aquilinum (Bracken)	-	-	-	lf	-	-
Pulicaria dysenterica (Common Fleabane)	-	-	r	-	-	-
Ranunculus repens (Creeping Buttercup)	r	-	-	lf	-	-
Ranunculus sceleratus (Celery-leaved Buttercup)	lf	-	-	-	-	-
Rumex obtusifolius (Broad-leaved Dock)	o	o	r	o	-	-
Schedonorus giganteus (Giant Fescue)	-	-	r	-	-	-
Scrophularia nodosa (Common Figwort)	r	-	-	-	-	-
Silene dioica (Red Campion)	-	-	-	-	-	-
Sinapis arvensis (Charlock)	-	r	-	-	-	-
Smyrnium olusatrum (Alexanders)	-	-	-	-	-	la
Solanum dulcamara (Bittersweet)	-	-	f	-	-	-
Sonchus asper (Prickly Sow-thistle)	o	-	-	r	-	-
Stachys sylvatica (Hedge Woundwort)	-	-	lf	o	-	-
Stellaria holostea (Greater Stitchwort)	-	-	-	-	-	-
Symphytum ×uplandicum (Russian Comfrey)	-	lf	o	-	-	-
Typha latifolia (Bulrush)	r	-	-	-	-	-
Urtica dioica (Common Nettle)	ld	f	ld	la	-	la
Veronica anagallis-aquatica (Blue Water-speedwell)	-	f	-	-	-	-
Veronica beccabunga (Brooklime)	o	r	-	-	-	-
Veronica catenata (Pink Water-speedwell)	-	r	-	-	-	-
Vicia cracca (Tufted Vetch)	-	-	-	-	-	r
Vicia sativa (Common Vetch)	-	-	-	-	-	-

Table 8.15. Species list for ditches along the cable route.

Species	TN295	TN295a	TN304a	TN306a	TN343	TN350	TN366a	TN369
A) Trees, Shrubs and Climbers								
Rubus fruticosus agg. (Bramble)	o	-	-	-	-	-	-	-
Salix cinerea (Grey Willow)	-	o	-	-	-	-	-	-
Sambucus nigra (Elder)	-	o	-	-	-	-	-	-
B) Herbs and Ferns								
Agrostis stolonifera (Creeping Bent)	-	-	-	-	-	-	lf	-
Alopecurus geniculatus (Marsh Foxtail)	-	-	-	lf	-	-	lf	-
Alopecurus pratensis (Meadow Foxtail)	-	-	-	o	-	-	-	-
Angelica sylvestris (Wild Angelica)	-	-	-	-	o	-	-	-
Anthriscus sylvestris (Cow Parsley)	o	-	-	-	-	-	-	o
Apium nodiflorum (Fool's Water-cress)	-	-	la	-	lf	d	lf	-
Arctium lappa (Greater Burdock)	r	-	-	-	-	-	-	-
Arrhenatherum elatius (False Oat-grass)	f	lf	f	-	f	-	a	f
Artemisia vulgaris (Mugwort)	-	-	r	-	-	-	-	r
Bolboschoenus maritimus (Sea Club-rush)	-	-	-	-	-	-	lf	-
Callitriche stagnalis (Common Water-starwort)	-	-	-	-	-	-	lf	-
Calystegia sepium (Hedge Bindweed)	-	-	o	-	-	r	-	o
Carex acutiformis (Lesser Pond-sedge)	-	-	-	f	f	-	-	-
Carex hirta (Hairy Sedge)	-	-	-	-	-	-	r	-
Carex otrubae (False Fox-sedge)	-	-	-	lf	r	-	-	-
Carex paniculata (Greater Tussock-sedge)	-	-	-	r	-	-	-	-
Carex riparia (Greater Pond-sedge)	-	-	-	-	-	-	lf	-
Cirsium arvense (Creeping Thistle)	o	-	f	o	r	-	o	-
Cirsium palustre (Marsh Thistle)	-	-	-	-	o	-	-	-
Dactylis glomerata (Cock's-foot)	-	-	o	o	o	-	o	-
Elodea canadensis (Canadian Waterweed)	-	-	-	la	o	-	-	-
Elytrigia atherica (Sea Couch)	-	-	-	-	f	-	-	-
Elytrigia repens (Common Couch)	-	-	-	r	-	-	-	-
Epilobium hirsutum (Great Willowherb)	lf	lf	f	o	a	d	o	la
Epilobium parviflorum (Hoary Willowherb)	-	-	-	r	-	-	-	-
Equisetum arvense (Field Horsetail)	o	o	lf	-	-	-	-	lf
Equisetum palustre (Marsh Horsetail)	-	-	-	-	r	-	-	-
Filipendula ulmaria (Meadowsweet)	-	-	-	r	o	-	-	-
Galium aparine (Cleavers)	f	o	f	o	r	-	o	f
Galium mollugo (Hedge Bedstraw)	-	-	-	r	-	-	-	-
Helminthotheca echioides (Bristly Oxtongue)	-	-	-	-	o	-	-	-
Heracleum sphondylium (Hogweed)	f	o	o	-	-	-	-	r
Holcus lanatus (Yorkshire-fog)	-	lf	o	-	-	-	lf	-
Holcus mollis (Creeping Soft-grass)	lf	-	-	-	-	-	-	-
Humulus lupulus (Hop)	r	o	-	-	-	-	-	-
Hydrocotyle vulgaris (Marsh Pennywort)	-	-	-	-	-	-	r	-
Iris pseudacorus (Yellow Iris)	-	-	-	-	-	o	-	-
Juncus effusus (Soft-rush)	-	-	o	-	-	-	o	-
Juncus inflexus (Hard Rush)	-	-	-	lf	-	-	vr	-
Lactuca virosa (Great Lettuce)	-	-	-	-	-	-	o	-
Lathyrus pratensis (Meadow Vetchling)	-	-	r	-	-	-	-	-

Lemna minor (Common Duckweed)	-	-	-	f	-	-	lf	r
Lemna trisulca (Ivy-leaved Duckweed)	-	-	-	f	-	-	-	-
Lotus pedunculatus (Greater Bird's-foot-trefoil)	-	-	o	-	-	-	-	-
Papaver rhoeas (Common Poppy)	r	-	-	-	-	-	-	-
Persicaria amphibia (Amphibious Bistort)	-	-	-	r	-	-	-	-
Phragmites australis (Common Reed)	-	-	-	a	lf	-	la	-
Poa trivialis (Rough Meadow-grass)	f	-	f	-	-	-	-	-
Potamogeton berchtoldii (Small Pondweed)	-	-	-	-	a	-	-	-
Potamogeton berchtoldii (Small Pondweed)	-	-	-	-	-	-	la	-
Potamogeton pectinatus (Fennel Pondweed)	-	-	-	-	f	-	-	-
Pteridium aquilinum (Bracken)	a	f	lf	-	-	-	-	-
Ranunculus repens (Creeping Buttercup)	-	lf	r	-	-	-	-	-
Ranunculus sceleratus (Celery-leaved Buttercup)	-	-	-	-	-	-	r	-
Rumex conglomeratus (Clustered Dock)	-	-	-	-	-	o	-	-
Rumex hydrolapathum (Water Dock)	-	-	-	r	-	-	-	-
Rumex obtusifolius (Broad-leaved Dock)	-	-	o	o	r	-	-	-
Rumex sanguineus (Wood Dock)	-	r	-	-	-	-	-	-
Salix caprea (Goat Willow sapling)	-	-	r	-	-	-	-	-
Schoenoplectus tabernaemontani (Grey Club-rush)	-	-	-	-	-	-	la	-
Scrophularia nodosa (Common Figwort)	-	-	-	r	-	-	-	-
Silene dioica (Red Campion)	-	r	r	-	-	-	-	r
Silene latifolia (White Campion)	-	-	r	-	-	-	-	-
Sinapis arvensis (Charlock)	-	-	-	-	-	-	f	f
Smyrnium olusatrum (Alexanders)	-	-	-	-	-	-	-	ld
Solanum dulcamara (Bittersweet)	-	-	o	o	-	-	-	-
Sonchus asper (Prickly Sow-thistle)	r	-	-	r	-	-	-	-
Sparganium erectum (Branched Bur-reed)	-	-	-	-	-	o	lf	-
Stachys palustris (Marsh Woundwort)	-	-	-	r	-	-	-	-
Stachys sylvatica (Hedge Woundwort)	-	-	r	-	-	-	-	r
Tamus communis (Black Bryony)	-	r	-	-	-	-	-	-
Typha latifolia (Bulrush)	-	-	-	-	-	-	lf	r
Urtica dioica (Common Nettle)	f	a	o	f	-	o	-	ld
Vicia sativa (Common Vetch)	-	-	r	-	-	-	-	-

Table 8.16. Species lists for ponds that are present along the route

Species	TN18a	TN126a	TN283a
A) Woody Species			
Alnus glutinosa (Alder)	o	-	-
Crataegus monogyna (Hawthorn)	-	r	-
Fraxinus excelsior (Ash)	-	r	-
Rubus fruticosus agg. (Bramble)	o	-	la
Salix alba (White Willow)	d	-	-
Ulmus procera (English Elm)	-	r	-
Ulmus species (an Elm)	-	-	o
B) Herbs	-	-	-
Agrostis stolonifera (Creeping Bent)	lf	-	-
Alopecurus pratensis (Meadow Foxtail)	-	f	-
Arctium minus (Lesser Burdock)	r	-	-
Arrhenatherum elatius (False Oat-grass)	-	f	la
Callitriche stagnalis (Common Water-starwort)	r	la	-
Calystegia sepium (Hedge Bindweed)	-	-	r
Carex riparia (Greater Pond-sedge)	lf	-	a
Cirsium arvense (Creeping Thistle)	-	f	lf
Dactylis glomerata (Cock's-foot)	-	o	-
Epilobium hirsutum (Great Willowherb)	-	la	lf
Galium aparine (Cleavers)	-	f	-
Heracleum sphondylium (Hogweed)	-	-	r
Holcus lanatus (Yorkshire-fog)	-	f	-
Hypericum tetrapterum (Square-stalked St John's-wort)	-	lf	-
Iris pseudacorus (Yellow Iris)	-	r	-
Juncus effusus (Soft-rush)	-	o	-
Juncus inflexus (Hard Rush)	r	-	r
Lemna minor (Common Duckweed)	a	o	-
Lotus pedunculatus (Greater Bird's-foot Trefoil)	-	lf	-
Lycopus europaeus (Gypsywort)	r	-	-
Mentha aquatica (Water Mint)	r	-	-
Myosotis arvensis (Field Forget-me-not)	r	-	-
Myriophyllum aquaticum (Parrot's-feather)	-	a	-
Phragmites australis (Common Reed)	ld	-	d
Poa trivialis (Rough Meadow-grass)	a	-	-
Ranunculus repens (Creeping Buttercup)	-	o	-
Ranunculus sceleratus (Celery-leaved Buttercup)	-	r	-
Rumex conglomeratus (Clustered Dock)	r	-	-
Rumex obtusifolius (Broad-leaved Dock)	r	r	-
Schoenoplectus lacustris (Common Club-rush)	-	-	r
Scrophularia nodosa (Common Figwort)	-	lf	-
Solanum dulcamara (Bittersweet)	r	o	-
Sparganium erectum (Branched Bur-reed)	r	-	-
Spirodela polyrhiza (Greater Duckweed)	o	-	-
Typha latifolia (Bulrush)	-	a	-
Urtica dioica (Common Nettle)	ld	f	lf

Table 8.17. Species list for Ephemeral/short perenial vegetation recorded at *Target Note 191.*

Species	TN191
A) Trees, Shrubs and Climbers	
Rubus fruticosus agg. (Bramble)	la
Ulex europaeus (Gorse)	r
B) Herbs and Ferns	
Achillea millefolium (Yarrow)	lf
Agrostis capillaris (Common Bent)	f
Agrostis stolonifera (Creeping Bent)	r
Anagallis arvensis ssp. *arvensis* (Scarlet Pimpernel)	o
Aphanes australis (Slender Parsley-piert)	o
Arenaria serpyllifolia (Thyme-leaved Sandwort)	r
Bryonia dioica (White Bryony)	r
Carduus tenuiflorus (Slender Thistle)	r
Carex hirta (Hairy Sedge)	lf
Cerastium fontanum (Common Mouse-ear)	o
Cerastium glomeratum (Sticky Mouse-ear)	o
Cirsium arvense (Creeping Thistle)	o
Conyza canadensis (Canadian Fleabane)	o
Crassula tillaea (Mossy Stonecrop)	lf
Cytisus scoparius (Broom)	r
Epilobium obscurum (Short-fruited Willowherb)	o
Erodium cicutarium (Common Stork's-bill)	lf
Festuca rubra (Red Fescue)	o
Filago vulgaris (Common Cudweed)	lf
Geranium molle (Dove’s-foot Crane’s-bill)	r
Hypericum perforatum (Perforate St John’s-wort)	r
Lactuca virosa (Great Lettuce)	r
Ornithopus perpusillus (Bird's-foot)	o
Papaver rhoeas (Common Poppy)	r
Pentaglottis sempervirens (Green Alkanet)	r
Plantago coronopus (Buck's-horn Plantain)	r
Plantago lanceolata (Ribwort Plantain)	r
Poa annua (Annual Meadow-grass)	f
Potentilla reptans (Creeping Cinquefoil)	lf
Rumex acetosella (Sheep's Sorrel)	f
Sagina apetala (Annual Pearlwort)	f
Sedum acre (Biting Stonecrop)	f
Senecio erucifolius (Hoary Ragwort)	o
Senecio jacobaea (Common Ragwort)	f
Solanum nigrum (Black Nightshade)	r
Sonchus asper (Prickly Sow-thistle)	r

Trifolium arvense (Hare's-foot Clover)	r
Trifolium campestre (Hop Trefoil)	r
Trifolium scabrum (Rough Clover)	r
Trifolium suffocatum (Suffocated Clover)	la
Urtica dioica (Common Nettle)	f
Veronica arvensis (Wall Speedwell)	f
C) Mosses and Liverworts	
Hypnum lacunosum	r

9 HEDGEROW DATA TABLES

Hedge Number:	1
Target Note Number	291a
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(75%)	-	-
Prunus spinosa	+	+(10%)	-	-
Salix species	+	-(%)	-	-
Sambucus nigra	+	+(3%)	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**5**	**3**	**0**	**0**
OTHER WOODY SPECIES				
N/A				
Total - All Woody Species:	5	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	2 hedge(s), 0 ponds(s) and 1 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	2
Target Note Number	291b
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(60%)	-	-
Prunus spinosa	+	+(20%)	-	-
Sambucus nigra	+	+(3%)	-	-
Ulmus procera	+	+(15%)	-	-
Total - Schedule 3 species:	**4**	**4**	**0**	**0**
OTHER WOODY SPECIES				
N/A				
Total - All Woody Species:	4	4	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	3
Target Note Number	291c
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(40%)	+	-
Sambucus nigra	+	+(20%)	+	-
Total - Schedule 3 species:	**2**	**2**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	2 hedge(s), 0 ponds(s) and 1 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	4
Target Note Number	262
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(40%)	+	-
Prunus spinosa	+	-	-	-
Quercus robur	+	+(10%)	-	-
Sambucus nigra	+	+(5%)	+	-
Ulmus procera	+	+(15%)	+	-
Total - Schedule 3 species:	**5**	**4**	**3**	**0**
OTHER WOODY SPECIES				
Prunus domestica	-	+(10%)	-	-
Berberis species	+	+(20%)	-	-
Total - All Woody Species:	6	6	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2.33
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	5
Target Note Number	261
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(45%)	+	+
Cornus sanguinea	+	-	+	-
Corylus avellana	+	-(%)	+	-
Crataegus monogyna	+	+(30%)	+	+
Ligustrum vulgare	+	+(5%)	+	+
Prunus spinosa	+	+(10%)	+	-
Rosa species	+	+(10%)	+	-
Total - Schedule 3 species:	**7**	**5**	**7**	**3**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	5	7	3

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	6
Target Note Number	260
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(40%)	+	-
Prunus spinosa	+	-	-	-
Quercus robur	+	+(10%)	-	-
Sambucus nigra	+	+(5%)	+	-
Ulmus procera	+	+(15%)	+	-
Total - Schedule 3 species:	**5**	**4**	**3**	**0**
OTHER WOODY SPECIES				
Prunus domestica	-	+(10%)	-	-
Berberis species	+	+(20%)	-	-
Total - All Woody Species:	6	6	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2.33
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	7
Target Note Number	258
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Alnus glutinosa	+	-	-	-
Crataegus monogyna	+	+(10%)	-	-
Total - Schedule 3 species:	**2**	**1**	**0**	**0**
OTHER WOODY SPECIES				
Prunus species	+	+(40%)	+	-
Gap	-	+(50%)	-	-
Total - All Woody Species:	3	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	8
Target Note Number	290
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	+
Crataegus monogyna	+	-	-	+
Prunus avium	+	-(%)	-	+
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	+(15%)	-	-
Sambucus nigra	+	-(%)	-	+
Ulmus procera	+	+(20%)	+	-
Total - Schedule 3 species:	**7**	**2**	**1**	**4**
OTHER WOODY SPECIES				
Malus domestica	+	-	-	-
Gap	-	+(65%)	-	-
Prunus species	-	-	+	-
Total - All Woody Species:	8	3	2	4

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	+(4)
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2.33
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	8a
Target Note Number	288
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Crataegus monogyna	+	+(20%)	+	-
Prunus spinosa	+	+(60%)	+	+
Sambucus nigra	+	+(9%)	-	+
Fraxinus excelsior	+	+(1%)	-	-
Total - Schedule 3 species:	**5**	**4**	**3**	**3**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	3	3	3

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	8b
Target Note Number	290
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(30%)	+	-
Crataegus monogyna	+	+(30%)	+	-
Ulmus procera	+	+(40%)	+	-
Total - Schedule 3 species:	**3**	**3**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	3	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	9
Target Note Number	282
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(95%)	-	-
Prunus spinosa	+	+(5%)	-	-
Total - Schedule 3 species:	**2**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	10
Target Note Number	280
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(3%)	+	+
Fraxinus excelsior	+	-	-	-
Prunus spinosa	+	-(%)	-	-
Sambucus nigra	+	-(%)	-	-
Total - Schedule 3 species:	**4**	**1**	**1**	**1**
OTHER WOODY SPECIES				
Prunus domestica	-	+(33%)	+	+
Gap	-	+(64%)	-	-
Total - All Woody Species:	4	3	1	1

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	11
Target Note Number	277
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(48%)	-	-
Fraxinus excelsior	+	+(48%)	-	-
Sambucus nigra	+	+(4%)	-	-
Total - Schedule 3 species:	**3**	**3**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	12
Target Note Number	278
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus laevigata	+	-	-	-
Crataegus monogyna	+	+(70%)	-	-
Ulmus procera	+	+(30%)	-	-
Total - Schedule 3 species:	**3**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	13			
Target Note Number	269			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	+	-
Sambucus nigra	+	-	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**3**	**1**	**1**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	+	-
Total - All Woody Species:	4	1	1	0
FEATURES				
Supporting bank or wall:	+			
Less than 10% gaps:	+			
Standard trees:	-			
Ditch for >50% of hedgerow length:	-			
Parallel hedge within 15m:	-			
Four or more connection points:	-(2)			
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points			
Three or more Schedule 2 species:	-(1)			
Schedule 2 Species:	*Arum maculatum*			
CONCLUSION				
Average Number of Schedule 3 Species per 30m Stretch:	1			
Number of Features:	2			
Special Qualifying Species:	0			
Threshold Altering Factors:	0			

Hedge Number:	14			
Target Note Number	284			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus laevigata	+	+(5%)	-	-
Crataegus monogyna	+	+(60%)	+	-
Ulmus procera	+	+(35%)	+	-
Total - Schedule 3 species:	**3**	**3**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	3	2	0
FEATURES				
Supporting bank or wall:	-			
Less than 10% gaps:	-			
Standard trees:	-			
Ditch for >50% of hedgerow length:	+			
Parallel hedge within 15m:	-			
Four or more connection points:	+(6)			
Connections:	0 hedge(s), 1 ponds(s) and 2 wood(s) = (6) points			
Three or more Schedule 2 species:	-(0)			
Schedule 2 Species:	None			
CONCLUSION				
Average Number of Schedule 3 Species per 30m Stretch:	2.5			
Number of Features:	2			
Special Qualifying Species:	0			
Threshold Altering Factors:	0			

Hedge Number:	15
Target Note Number	366
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(80%)	+	+
Prunus spinosa	+	+(9%)	-	-
Quercus robur	+	-(%)	+	+
Rosa species	+	-(%)	+	+
Sambucus nigra	+	+(1%)	+	+
Ulmus species	+	-(10%)	-	-
Total - Schedule 3 species:	**6**	**3**	**4**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	3	4	4

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.67
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	16
Target Note Number	365
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	+(100%)	+	+
Prunus spinosa	+	-	+	-
Total - Schedule 3 species:	**2**	**1**	**2**	**1**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	1	2	1

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.33
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	16a
Target Note Number	365a
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(65%)	+	+
Crataegus monogyna	+	+(25%)	+	+
Fraxinus excelsior	+	+(10%)	-	+
Quercus robur	+	-	+	+
Prunus spinosa	+	-	+	-
Total - Schedule 3 species:	**5**	**3**	**4**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	3	4	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	17
Target Note Number	367
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	-	-
Quercus robur	+	+(5%)	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**3**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	18
Target Note Number	231
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(5%)	-	-
Crataegus monogyna	+	+(60%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Sambucus nigra	+	+(5%)	-	-
Ulmus procera	+	+(30%)	-	-
Total - Schedule 3 species:	**7**	**4**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	4	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	19
Target Note Number	232
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	-	-	-
Crataegus monogyna	+	-(%)	+	-
Fraxinus excelsior	+	+(40%)	+	-
Prunus spinosa	+	+(20%)	-	-
Rosa species	+	+(15%)	-	-
Ulmus procera	+	+(25%)	-	-
Total - Schedule 3 species:	**7**	**4**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	4	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	20
Target Note Number	233
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	+	+
Prunus spinosa	+	-	-	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	-(%)	+	+
Total - Schedule 3 species:	**4**	**1**	**2**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	1	2	2

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.67
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	21
Target Note Number	230
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Cornus sanguinea	+	-	-	-
Crataegus monogyna	+	+(80%)	+	+
Euonymus europaeus	+	-(%)	-	-
Fraxinus excelsior	+	-(%)	+	-
Prunus spinosa	+	+(18%)	-	+
Quercus robur	+	+(1%)	-	-
Rosa species	+	+(1%)	+	+
Ulmus species	+	-(%)	+	-
Total - Schedule 3 species:	**9**	**4**	**5**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	4	5	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	+(4)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis, Ranunculus auricomus*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.33
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	22
Target Note Number	226
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(25%)	+	-
Rosa species	+	-	-	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	+(75%)	-	-
Total - Schedule 3 species:	**4**	**2**	**1**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	2	1	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	23
Target Note Number	227
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	-	-
Sambucus nigra	+	-	-	-
Ulmus procera	+	+(80%)	+	-
Total - Schedule 3 species:	**3**	**1**	**1**	**0**
OTHER WOODY SPECIES				
Gap	-	+(20%)	-	-
Total - All Woody Species:	3	2	1	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	24			
Target Note Number	224			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(90%)	+	+
Rosa species	+	-	-	-
Ulmus procera	+	+(10%)	-	-
Total - Schedule 3 species:	**3**	**2**	**1**	**1**
OTHER WOODY SPECIES				
Gap	-	-	+	-
Total - All Woody Species:	3	2	1	1

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.33
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	25			
Target Note Number	294			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(95%)	+	+
Prunus spinosa	+	+(5%)	+	+
Total - Schedule 3 species:	**2**	**2**	**2**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	2	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	26
Target Note Number	145
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	+	-
Fraxinus excelsior	+	-	-	-
Ilex aquifolium	+	-(%)	-	-
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Sambucus nigra	+	-(%)	-	+
Ulmus procera	+	+(20%)	+	+
Total - Schedule 3 species:	**7**	**1**	**2**	**2**
OTHER WOODY SPECIES				
Gap	-	-	+	-
Total - All Woody Species:	7	1	2	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.67
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	27
Target Note Number	146
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	+	-
Rosa species	+	-	+	-
Ulmus procera	+	-(%)	+	-
Total - Schedule 3 species:	**3**	**1**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	1	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	28
Target Note Number	135
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(25%)	-	-
Cornus sanguinea	+	-	-	-
Crataegus monogyna	+	+(50%)	-	-
Euonymus europaeus	+	+(10%)	-	-
Prunus avium	+	+(10%)	-	-
Quercus robur	+	-(%)	-	-
Sorbus aucuparia	+	+(5%)	-	-
Total - Schedule 3 species:	**7**	**5**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	5	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	29
Target Note Number	134
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(40%)	+	+
Corylus avellana	+	+(5%)	+	-
Malus sylvestris	+	+(5%)	-	-
Prunus spinosa	+	-(%)	-	+
Quercus robur	+	+(5%)	+	+
Rosa species	+	+(20%)	-	+
Ulmus procera	+	-(%)	-	-
Viburnum opulus	+	+(5%)	-	-
Total - Schedule 3 species:	**8**	**6**	**3**	**4**
OTHER WOODY SPECIES				
Malus domestica	+	-	-	-
Hedra helix	+	+(20%)	-	-
Total - All Woody Species:	10	7	3	4

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.33
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	30
Target Note Number	140
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Crataegus monogyna	+	-	+	-
Prunus padus	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Total - Schedule 3 species:	**4**	**0**	**2**	**0**
OTHER WOODY SPECIES				
Gap	-	+(50%)	-	-
Prunus cerasifera	+	+(50%)	-	-
Total - All Woody Species:	5	2	2	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	31
Target Note Number	141
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	-	-
Prunus spinosa	+	-	-	-
Ulmus procera	+	-(%)	+	-
Total - Schedule 3 species:	**3**	**0**	**1**	**0**
OTHER WOODY SPECIES				
Prunus cerasifera	+	+(60%)	-	-
Gap	+	+(40%)	-	-
Total - All Woody Species:	5	2	1	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	0.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	32
Target Note Number	133
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	-	-
Ilex aquifolium	+	+(50%)	+	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(50%)	+	-
Sambucus nigra	+	-(%)	+	-
Ulmus procera	+	+(10%)	+	-
Total - Schedule 3 species:	**6**	**3**	**5**	**0**
OTHER WOODY SPECIES				
Hedra helix	+	+(5%)	-	-
Gap	-	-	+	-
Total - All Woody Species:	7	4	6	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Hyacinthoides non-scripta*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	32a
Target Note Number	133
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(90%)	+	+
Quercus robur	+	+(2%)	+	+
Rosa canina	+	+(1%)	-	+
Sambucus nigra	+	+(3%)	+	-
Ulmus procera	+	+(5%)	+	-
Total - Schedule 3 species:	**5**	**5**	**4**	**3**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	4	3

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	33
Target Note Number	129
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(45%)	+	+
Quercus robur	+	-	+	+
Rosa species	+	-(%)	-	-
Sambucus nigra	+	-(%)	+	-
Ulmus procera	+	+(25%)	-	-
Total - Schedule 3 species:	**5**	**2**	**3**	**2**
OTHER WOODY SPECIES				
Hedra helix	+	+(5%)	-	-
Gap	+	+(25%)	+	-
Total - All Woody Species:	7	4	4	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2.33
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	34
Target Note Number	364u
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	-	-	-
Crataegus monogyna	+	+(4%)	-	-
Fraxinus excelsior	+	+(20%)	-	-
Ilex aquifolium	+	-(%)	-	-
Ligustrum vulgare	+	+(1%)	-	-
Prunus spinosa	+	-(15%)	-	+
Quercus robur	+	+(20%)	-	-
Rosa species	+	+(15%)	-	-
Sambucus nigra	+	-(%)	-	-
Viburnum opulus	+	+(1%)	-	-
Total - Schedule 3 species:	**11**	**6**	**0**	**1**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	+(24%)	-	-
Total - All Woody Species:	12	7	0	1

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(5)
Connections:	1 hedge(s), 0 ponds(s) and 2 wood(s) = (5) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION

	Average Number of Schedule 3 Species per 30m Stretch:	7
	Number of Features:	4
	Special Qualifying Species:	0
	Threshold Altering Factors:	0

Hedge Number:	35
Target Note Number	364v
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(4%)	-	-
Crataegus monogyna	+	+(40%)	-	-
Euonymus europaeus	+	+(5%)	-	-
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	+(40%)	-	-
Rosa species	+	+(1%)	-	-
Sambucus nigra	+	+(1%)	-	-
Ulmus species	+	+(4%)	-	-
Total - Schedule 3 species:	**9**	**8**	**0**	**0**
OTHER WOODY SPECIES				
Malus domestica	+	-	-	-
Total - All Woody Species:	10	8	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	8
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	36
Target Note Number	364t
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(15%)	-	-
Crataegus monogyna	+	+(15%)	-	-
Euonymus europaeus	+	+(10%)	-	-
Fraxinus excelsior	+	+(14%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(10%)	-	-
Ulmus species	+	+(20%)	-	-
Total - Schedule 3 species:	**7**	**6**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(6%)	-	-
Total - All Woody Species:	8	7	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Geum urbanum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	37
Target Note Number	364s
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	-	-
Prunus spinosa	+	+(100%)	-	-
Total - Schedule 3 species:	**2**	**1**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	1	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	37a
Target Note Number	364w
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	+	-
Ulmus procera	+	+(100%)	+	-
Total - Schedule 3 species:	**2**	**1**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	1	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	38
Target Note Number	364r
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Cornus sanguinea	+	-	+	+
Corylus avellana	+	+(10%)	-	-
Crataegus monogyna	+	+(40%)	-	+
Malus sylvestris	+	-(%)	+	-
Prunus spinosa	+	+(35%)	+	+
Quercus robur	+	-(%)	-	-
Rosa species	+	+(5%)	+	+
Sambucus nigra	+	+(5%)	-	-
Ulmus species	+	+(5%)	-	-
Total - Schedule 3 species:	**10**	**6**	**5**	**5**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	6	5	5

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(5)
Connections:	5 hedge(s), 0 ponds(s) and 0 wood(s) = (5) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Viola odorata*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.33
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	39
Target Note Number	364q
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	-	-
Crataegus monogyna	+	+(20%)	-	-
Fagus sylvatica	+	-(%)	-	-
Ilex aquifolium	+	+(5%)	-	-
Prunus spinosa	+	+(5%)	-	-
Quercus robur	+	+(15%)	-	-
Rosa species	-	+	-	-
Sambucus nigra	+	+(25%)	-	-
Total - Schedule 3 species:	**8**	**6**	**0**	**0**
OTHER WOODY SPECIES				
Gap	-	+(15%)	-	-
Hedra helix	-	+(5%)	-	-
Rubus fruticosus agg.	-	+(5%)	-	-
Total - All Woody Species:	8	9	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Hyacinthoides non-scripta*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	40
Target Note Number	364h
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(4%)	-	+
Prunus spinosa	+	+(87%)	+	+
Quercus robur	+	+(4%)	-	+
Sambucus nigra	+	+(1%)	+	-
Ulmus species	+	+(4%)	-	+
Total - Schedule 3 species:	**5**	**5**	**2**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	2	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	41
Target Note Number	364p
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(1%)	-	-
Prunus spinosa	+	+(95%)	+	-
Ulmus procera	+	+(4%)	-	-
Total - Schedule 3 species:	**3**	**3**	**1**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	3	1	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	42
Target Note Number	364o
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(90%)	-	-
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	-(%)	-	-
Sambucus nigra	+	+(5%)	-	-
Total - Schedule 3 species:	**4**	**3**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	43
Target Note Number	364i
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Corylus avellana	+	+(30%)	+	+
Crataegus monogyna	+	+(50%)	-	-
Prunus spinosa	+	-(%)	+	+
Quercus robur	+	-(%)	+	-
Rosa species	+	-(%)	-	+
Sambucus nigra	+	+(10%)	-	-
Ulmus species	+	+(10%)	-	-
Total - Schedule 3 species:	**8**	**4**	**4**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	4	4	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	44

Hedge Number:	45

Target Note Number	364j			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	-	+	-
Crataegus monogyna	+	+(60%)	-	-
Fraxinus excelsior	+	-(%)	+	-
Ilex aquifolium	+	+(1%)	-	-
Prunus spinosa	+	+(34%)	+	-
Rosa species	+	-(%)	+	-
Sambucus nigra	+	+(2%)	-	-
Ulmus species	+	+(3%)	-	-
Total - Schedule 3 species:	**9**	**5**	**4**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	5	4	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Target Note Number	364c			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Sambucus nigra	+	+(5%)	+	+
Ulmus procera	+	+(95%)	+	+
Total - Schedule 3 species:	**2**	**2**	**2**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	2	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	46
Target Note Number	364e
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(50%)	-	-
Prunus spinosa	+	+(50%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	-(%)	-	-
Total - Schedule 3 species:	**4**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	47
Target Note Number	364d
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	+	-
Sambucus nigra	+	-	+	-
Rosa species	+	-(%)	-	-
Total - Schedule 3 species:	**3**	**1**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	1	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	48
Target Note Number	364b
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	+(80%)	+	-
Crataegus monogyna	+	+(10%)	-	-
Prunus avium	+	-(%)	+	-
Quercus robur	+	+(5%)	-	-
Rosa species	+	+(5%)	-	-
Sambucus nigra	+	-(%)	+	-
Total - Schedule 3 species:	**6**	**4**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	4	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	48a
Target Note Number	364a
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(90%)	+	+
Quercus robur	+	+(10%)	+	+
Sambucus nigra	+	-(%)	+	-
Total - Schedule 3 species:	**3**	**2**	**3**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	2	3	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2.33
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	49			
Target Note Number	364			
STATUS:	Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(60%)	+	+
Ilex aquifolium	+	-	-	-
Quercus robur	+	-(%)	-	-
Ulmus species	+	+(40%)	+	+
Total - Schedule 3 species:	**4**	**2**	**2**	**2**
OTHER WOODY SPECIES				
Syringa vulgaris	+	-	-	-
Total - All Woody Species:	5	2	2	2

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	50			
Target Note Number	363			
STATUS:	Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(88%)	-	+
Ilex aquifolium	+	-	+	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(2%)	+	-
Rosa species	+	-(%)	+	-
Ulmus species	+	+(5%)	+	+
Total - Schedule 3 species:	**6**	**3**	**5**	**2**
OTHER WOODY SPECIES				
Gap	-	+(5%)	-	-
Total - All Woody Species:	6	4	5	2

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	51
Target Note Number	218
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	+	-
Crataegus laevigata	+	+(40%)	+	+
Crataegus monogyna	+	+(20%)	+	+
Ilex aquifolium	+	+(30%)	-	-
Quercus robur	+	+(10%)	-	-
Rosa species	+	-(%)	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**7**	**4**	**3**	**2**
OTHER WOODY SPECIES				
Hedra helix	+	-	+	-
Total - All Woody Species:	8	4	3	2

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	52
Target Note Number	206
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	-	-
Crataegus monogyna	+	+(20%)	-	-
Fagus sylvatica	+	-(%)	-	-
Ilex aquifolium	+	+(5%)	-	-
Prunus spinosa	+	+(5%)	-	-
Quercus robur	+	+(15%)	-	-
Rosa species	-	+	-	-
Sambucus nigra	+	+(25%)	-	-
Total - Schedule 3 species:	**8**	**6**	**0**	**0**
OTHER WOODY SPECIES				
Gap	-	+(15%)	-	-
Hedra helix	-	+(5%)	-	-
Rubus fruticosus agg.	-	+(5%)	-	-
Total - All Woody Species:	8	9	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Hyacinthoides non-scripta*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	53
Target Note Number	361
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	+(10%)	-	-
Crataegus laevigata	+	-(%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(10%)	-	-
Sambucus nigra	+	+(10%)	+	-
Total - Schedule 3 species:	**8**	**3**	**3**	**0**
OTHER WOODY SPECIES				
Gap	+	+(70%)	-	-
Total - All Woody Species:	9	4	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	54
Target Note Number	362
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	-	-
Crataegus laevigata	+	+(15%)	-	-
Crataegus monogyna	+	+(10%)	+	-
Fraxinus excelsior	+	-(%)	+	-
Ilex aquifolium	+	-(%)	+	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(25%)	-	-
Total - Schedule 3 species:	**7**	**4**	**3**	**0**
OTHER WOODY SPECIES				
Rubus fruticosus agg.	-	+(7%)	-	-
Acer pseudoplatanus	+	-	+	-
Syringa vulgaris	+	+(33%)	-	-
Total - All Woody Species:	9	6	4	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	54a
Target Note Number	207a
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Corylus avellana	+	+40(%)	+	+
Crataegus monogyna	+	-	+	+
Fraxinus excelsior	+	-	-	-
Ilex aquifolium	+	-	-	+
Populus tremula	+	+(5%)	-	-
Prunus spinosa	+	+(50%)	+	+
Quercus robur	+	+(5%)	-	+
Rosa canina	+	-	+	-
Sambucus nigra	+	-	-	+
Sorbus aucuparia	+	-	-	-
Total - Schedule 3 species:	**11**	**4**	**5**	**7**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	11	4	5	7

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	42 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION

Hedge Number:	55
Target Note Number	207
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Betula pendula	+	-	-	-
Corylus avellana	+	+(25%)	+	-
Crataegus monogyna	+	-(%)	-	-
Fagus sylvatica	+	-(%)	-	-
Prunus avium	+	-(%)	-	-
Prunus spinosa	+	+(20%)	-	-
Rosa species	+	-(%)	+	-
Salix species	+	+(5%)	-	-
Sambucus nigra	+	-(%)	+	-
Total - Schedule 3 species:	**9**	**3**	**3**	**0**
OTHER WOODY SPECIES				
Gap	-	+(50%)	-	-
Total - All Woody Species:	9	4	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Hyacinthoides non-scripta*

CONCLUSION

Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	4

Average Number of Schedule 3 Species per 30m Stretch:	5.33	***Special Qualifying Species:***	0
Number of Features:	4	***Threshold Altering Factors:***	1
Special Qualifying Species:	0		
Threshold Altering Factors:	0		

Hedge Number:	56
Target Note Number	358
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(100%)	-	-
Total - Schedule 3 species:	**1**	**1**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	1	1	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	57
Target Note Number	359
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	-	+(50%)	-	-
Corylus avellana	-	+(20%)	-	-
Prunus spinosa	-	+	-	-
Quercus robur	-	+	-	-
Sambucus nigra	-	+	-	-
Total - Schedule 3 species:	**5**	**5**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	58
Target Note Number	199
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	-	-	-	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	+(100%)	+	-
Ilex aquifolium	+	-(%)	-	-
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Viburnum opulus	+	-(%)	-	-
Total - Schedule 3 species:	**7**	**1**	**2**	**0**
OTHER WOODY SPECIES				
Gap	-	-	+	-
Hedra helix	-	-	+	-
Total - All Woody Species:	7	1	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	59
Target Note Number	360
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(100%)	+	-
Quercus robur	+	-	+	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**3**	**1**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	1	2	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	60			
Target Note Number	357			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(35%)	+	-
Quercus robur	+	+(5%)	-	-
Sambucus nigra	+	-(%)	-	-
Total - Schedule 3 species:	**3**	**2**	**1**	**0**
OTHER WOODY SPECIES				
Hedra helix	+	+(40%)	+	-
Gap	-	+(20%)	-	-
Total - All Woody Species:	4	4	1	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	61			
Target Note Number	356			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	+	-
Prunus spinosa	+	+(75%)	+	-
Ulex europaeus	+	-(%)	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**4**	**1**	**2**	**0**
OTHER WOODY SPECIES				
Hedra helix	-	+(25%)	-	-
Total - All Woody Species:	4	2	2	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Hyacinthoides non-scripta*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	62
Target Note Number	355
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Corylus avellana	+	-	-	-
Crataegus monogyna	+	-(%)	-	-
Euonymus europaeus	+	-(%)	-	-
Ilex aquifolium	+	-(%)	-	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	-(%)	+	-
Ulex europaeus	+	-(%)	-	-
Ulmus procera	+	+(100%)	-	-
Total - Schedule 3 species:	**9**	**1**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	1	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Hyacinthoides non-scripta*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	63
Target Note Number	178
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(85%)	+	-
Fraxinus excelsior	+	-	-	-
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Sambucus nigra	+	+(5%)	+	-
Viburnum opulus	+	-(%)	-	-
Total - Schedule 3 species:	**6**	**2**	**2**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	+	-
Rubus fruticosus agg.	+	-	-	-
Total - All Woody Species:	8	2	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	64
Target Note Number	175
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	+	-
Crataegus monogyna	+	+(39%)	+	-
Prunus avium	+	-(%)	-	-
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(39%)	-	-
Total - Schedule 3 species:	**6**	**2**	**2**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	+(2%)	-	-
Hedra helix	+	+(20%)	-	-
Total - All Woody Species:	8	4	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	65
Target Note Number	174
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	-	+	-
Crataegus monogyna	+	+(30%)	-	-
Ilex aquifolium	+	-(%)	+	-
Malus sylvestris	+	-(%)	-	-
Quercus robur	+	+(10%)	-	-
Rosa species	+	-(%)	-	-
Salix species	+	-(%)	-	-
Sambucus nigra	-	-	-	-
Ulmus procera	+	+(33%)	+	+
Total - Schedule 3 species:	**10**	**3**	**3**	**1**
OTHER WOODY SPECIES				
Hedra helix	+	+(20%)	-	-
Acer pseudoplatanus	+	-	-	-
Total - All Woody Species:	12	4	3	1

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION

	Average Number of Schedule 3 Species per 30m Stretch:	2.33
	Number of Features:	2
	Special Qualifying Species:	0
	Threshold Altering Factors:	0

Hedge Number:	66
Target Note Number	171
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(20%)	-	+
Crataegus monogyna	+	+(20%)	-	-
Fraxinus excelsior	+	+(10%)	-	-
Ilex aquifolium	+	+(5%)	-	-
Prunus spinosa	+	-(%)	-	+
Quercus robur	+	-(%)	-	+
Rosa species	+	+(30%)	-	+
Sambucus nigra	+	-(%)	+	-
Total - Schedule 3 species:	**8**	**5**	**1**	**4**
OTHER WOODY SPECIES				
Hedra helix	+	+(15%)	-	-
Total - All Woody Species:	9	6	1	4

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	67
Target Note Number	163
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Crataegus monogyna	+	+(90%)	+	-
Euonymus europaeus	+	-(%)	+	-
Fraxinus excelsior	+	+(5%)	+	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(5%)	-	-
Rosa species	+	-(%)	+	-
Total - Schedule 3 species:	**7**	**3**	**5**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	3	5	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	68
Target Note Number	164
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Corylus avellana	+	+(5%)	+	-
Malus sylvestris	+	+(5%)	-	-
Prunus spinosa	+	-(%)	-	+
Quercus robur	+	+(5%)	+	+
Rosa species	+	+(20%)	-	+
Ulmus procera	+	-(%)	-	-
Viburnum opulus	+	+(5%)	-	-
Total - Schedule 3 species:	**8**	**5**	**3**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	5	3	4

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	69
Target Note Number	347
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Crataegus monogyna	+	+(40%)	+	-
Prunus spinosa	+	+(20%)	+	-
Quercus robur	+	-(%)	-	-
Sambucus nigra	+	+(10%)	+	-
Ulmus species	+	+(25%)	-	-
Total - Schedule 3 species:	**6**	**4**	**4**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	+(5%)	-	-
Total - All Woody Species:	7	5	4	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	70
Target Note Number	348
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(10%)	-	+
Fraxinus excelsior	+	-	+	-
Prunus spinosa	+	-(30%)	+	-
Quercus robur	+	-(%)	-	+
Rosa species	+	-(%)	-	+
Sambucus nigra	+	-(%)	-	+
Ulmus species	+	+(45%)	+	+
Total - Schedule 3 species:	**7**	**2**	**3**	**5**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	+(15%)	-	-
Malus domestica	+	-	-	+
Total - All Woody Species:	9	3	3	6

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	71
Target Note Number	351
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(1%)	-	-
Corylus avellana	+	+(1%)	-	-
Crataegus monogyna	+	+(25%)	-	-
Fraxinus excelsior	+	+(1%)	-	-
Prunus spinosa	+	+(30%)	-	-
Rosa species	+	+(1%)	+	-
Ulmus species	+	+(40%)	+	-
Total - Schedule 3 species:	**8**	**7**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	7	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	71a			
Target Note Number	351a			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(80%)	-	-
Sambucus nigra	+	+(5%)	-	-
Ulmus procera	+	+(10%)	-	-
Total - Schedule 3 species:	**3**	**3**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	3	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (0) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Geranium robertianum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	71b			
Target Note Number	351b			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(95%)	-	-
Fraxinus excelsior	+	+(5%)	-	-
Total - Schedule 3 species:	**2**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 1 wood(s) = (4) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	71c
Target Note Number	351c
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Rosa canina	+	+(1%)	-	-
Total - Schedule 3 species:	**1**	**1**	**0**	**0**
OTHER WOODY SPECIES				
Prunus domestica	+	+(90%)	+	-
Prunus domestica ssp. *insititia*	+	+(10%)	+	-
Quercus cerris	+	+(1%)	-	-
Total - All Woody Species:	4	4	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	0 hedge(s), 0 ponds(s) and 0 wood(s) = (0) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	0.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	72
Target Note Number	153b
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	-	-	-
Crataegus monogyna	+	+(50%)	+	+
Prunus spinosa	+	+(25%)	-	-
Quercus robur	+	+(10%)	+	-
Rosa species	+	+(15%)	+	+
Sambucus nigra	+	-(%)	-	-
Ulex europaeus	+	-(%)	-	-
Ulmus species	+	-(%)	-	-
Total - Schedule 3 species:	**9**	**4**	**3**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	4	3	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Geranium robertianum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	72a			
Target Note Number	153c			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(25%)	+	+
Crataegus monogyna	+	+(30%)	+	+
Corylus avellana	+	-	+	+
Fraxinus excelsior	+	+(10%)	-	+
Prunus spinosa	+	+(25%)	+	-
Quercus robur	+	+(10%)	-	+
Total - Schedule 3 species:	**5**	**5**	**5**	**5**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	5	5

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 1 ponds(s) and 0 wood(s) = (5) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	73			
Target Note Number	153a			
STATUS:	Not Important			
SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(50%)	-	-
Prunus spinosa	+	+(50%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	-(%)	-	-
Total - Schedule 3 species:	**4**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	74
Target Note Number	154
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	+(5%)	-	-
Crataegus monogyna	+	+(5%)	-	-
Ligustrum vulgare	+	-(%)	-	-
Prunus spinosa	+	+(15%)	-	-
Quercus robur	+	+(20%)	-	-
Rosa species	+	-(%)	-	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	-(5%)	-	-
Total - Schedule 3 species:	**8**	**4**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(40%)	-	-
Rubus fruticosus agg.	+	+(10%)	-	-
Total - All Woody Species:	10	6	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (4) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	75
Target Note Number	151
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(4%)	-	+
Prunus spinosa	+	+(87%)	+	+
Quercus robur	+	+(4%)	-	+
Sambucus nigra	+	+(1%)	+	-
Ulmus species	+	+(4%)	-	+
Total - Schedule 3 species:	**5**	**5**	**2**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	2	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	76
Target Note Number	336
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(5%)	-	+
Corylus avellana	+	-	-	+
Crataegus monogyna	+	+(94%)	+	+
Euonymus europaeus	-	-	-	-
Prunus spinosa	+	-(%)	-	+
Quercus robur	+	-(%)	-	-
Rosa species	+	+(1%)	+	-
Sambucus nigra	+	-(%)	-	+
Ulmus procera	+	-(%)	-	-
Viburnum opulus	+	-(%)	-	-
Total - Schedule 3 species:	**10**	**3**	**2**	**5**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	-	-
Total - All Woody Species:	11	3	2	5

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	77
Target Note Number	335
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(26%)	-	-
Corylus avellana	+	+(23%)	-	-
Crataegus monogyna	+	+(23%)	-	-
Prunus spinosa	+	+(23%)	-	-
Rosa species	+	-(%)	-	-
Sambucus nigra	+	+(5%)	-	-
Total - Schedule 3 species:	**6**	**5**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	5	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	78
Target Note Number	334
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(90%)	+	-
Corylus avellana	+	+(1%)	+	-
Crataegus monogyna	+	+(1%)	-	-
Euonymus europaeus	+	+(1%)	-	-
Fraxinus excelsior	+	+(1%)	+	-
Prunus spinosa	+	+(0%)	-	-
Rosa species	+	+(1%)	+	-
Sambucus nigra	+	-(%)	+	-
Ulmus species	+	+(5%)	-	-
Total - Schedule 3 species:	**9**	**8**	**5**	**0**
OTHER WOODY SPECIES				
Malus domestica	+	-	+	-
Total - All Woody Species:	10	8	5	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	79
Target Note Number	333
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(15%)	-	-
Corylus avellana	+	-	-	-
Crataegus monogyna	+	+(30%)	-	-
Fraxinus excelsior	+	+(10%)	-	-
Prunus spinosa	+	+(30%)	-	-
Rosa species	+	+(5%)	-	-
Ulmus species	+	+(10%)	-	-
Total - Schedule 3 species:	**7**	**6**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	6	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	80
Target Note Number	325
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Cornus sanguinea	+	-	+	+
Corylus avellana	+	+(10%)	-	-
Crataegus monogyna	+	+(40%)	-	+
Malus sylvestris	+	-(%)	+	-
Prunus spinosa	+	+(35%)	+	+
Quercus robur	+	-(%)	-	-
Rosa species	+	+(5%)	+	+
Sambucus nigra	+	+(5%)	-	-
Ulmus species	+	+(5%)	-	-
Total - Schedule 3 species:	**10**	**6**	**5**	**5**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	6	5	5

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(5)
Connections:	5 hedge(s), 0 ponds(s) and 0 wood(s) = (5) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Viola odorata*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.33
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	81
Target Note Number	327
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Cornus sanguinea	+	-	-	-
Crataegus monogyna	+	+(45%)	-	-
Malus sylvestris	+	+(5%)	-	-
Prunus spinosa	+	-(%)	-	-
Rosa species	+	-(%)	-	-
Sambucus nigra	+	+(5%)	-	-
Ulmus species	+	+(45%)	-	-
Total - Schedule 3 species:	**7**	**4**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(4%)	-	-
Total - All Woody Species:	8	5	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	82
Target Note Number	331
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(10%)	+	-
Crataegus monogyna	+	+(20%)	+	-
Euonymus europaeus	+	-(%)	+	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	+(60%)	+	-
Quercus robur	+	+(5%)	-	-
Rosa species	+	+(5%)	+	-
Total - Schedule 3 species:	**8**	**5**	**5**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	5	5	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	83
Target Note Number	332
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(4%)	-	-
Crataegus monogyna	+	+(40%)	-	-
Euonymus europaeus	+	+(5%)	-	-
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	+(40%)	-	-
Rosa species	+	+(1%)	-	-
Sambucus nigra	+	+(1%)	-	-
Ulmus species	+	+(4%)	-	-
Total - Schedule 3 species:	**9**	**8**	**0**	**0**
OTHER WOODY SPECIES				
Malus domestica	+	-	-	-
Total - All Woody Species:	10	8	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	8
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	84
Target Note Number	330
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(45%)	-	-
Ilex aquifolium	+	+(5%)	-	-
Prunus spinosa	+	+(15%)	-	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**5**	**3**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(15%)	-	-
Total - All Woody Species:	6	4	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	85
Target Note Number	329
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(15%)	-	-
Crataegus monogyna	+	+(15%)	-	-
Euonymus europaeus	+	+(10%)	-	-
Fraxinus excelsior	+	+(14%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(10%)	-	-
Ulmus species	+	+(20%)	-	-
Total - Schedule 3 species:	**7**	**6**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(6%)	-	-
Total - All Woody Species:	8	7	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Geum urbanum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	86
Target Note Number	328
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	+	-
Crataegus monogyna	+	-	+	-
Malus sylvestris	+	-(%)	+	-
Prunus spinosa	+	+(60%)	+	-
Quercus robur	+	-(%)	-	-
Ulmus procera	+	+(25%)	+	-
Viburnum opulus	+	-(%)	+	-
Total - Schedule 3 species:	**7**	**3**	**6**	**0**
OTHER WOODY SPECIES				
Malus domestica	+	+(5%)	-	-
Total - All Woody Species:	8	4	6	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	88
Target Note Number	326
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(10%)	-	-
Prunus spinosa	+	+(5%)	+	-
Rosa species	+	+(1%)	-	-
Ulmus procera	+	+(84%)	-	-
Total - Schedule 3 species:	**4**	**4**	**1**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	4	1	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	89
Target Note Number	324
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	+(33%)	-	-
Crataegus monogyna	+	+(33%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	+(20%)	+	+
Quercus robur	+	-(%)	+	+
Rosa species	+	-(%)	+	-
Salix species	+	-(%)	-	-
Sambucus nigra	+	+(5%)	-	-
Ulmus procera	+	-(%)	+	+
Total - Schedule 3 species:	**9**	**4**	**4**	**3**
OTHER WOODY SPECIES				
Gap	+	-	-	-
Total - All Woody Species:	10	4	4	3

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(5)
Connections:	3 hedge(s), 1 ponds(s) and 0 wood(s) = (5) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.67
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	90
Target Note Number	63
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	-	+
Crataegus monogyna	+	+(91%)	+	+
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	+(3%)	-	+
Quercus robur	+	-(%)	+	-
Rosa species	+	+(5%)	+	+
Sambucus nigra	+	-(%)	-	+
Viburnum opulus	+	+(1%)	-	+
Total - Schedule 3 species:	**8**	**4**	**3**	**6**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	4	3	6

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.33
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	91
Target Note Number	64
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(80%)	+	+
Prunus spinosa	+	+(9%)	-	-
Quercus robur	+	-(%)	+	+
Rosa species	+	-(%)	+	+
Sambucus nigra	+	+(1%)	+	+
Ulmus species	+	-(10%)	-	-
Total - Schedule 3 species:	**6**	**3**	**4**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	3	4	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.67
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	92
Target Note Number	62
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(99%)	+	+
Prunus spinosa	+	-	-	+
Sambucus nigra	+	+(1%)	-	-
Total - Schedule 3 species:	**3**	**2**	**1**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	2	1	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.67
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	93
Target Note Number	61
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(1%)	-	-
Prunus spinosa	+	+(95%)	+	-
Ulmus procera	+	+(4%)	-	-
Total - Schedule 3 species:	**3**	**3**	**1**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	3	3	1	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	93a
Target Note Number	61a
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	-	-
Cornus sanguinea	+	+(5%)	-	-
Corylus avellana	+	+1(1%)	-	-
Crataegus monogyna	+	+(10%)	-	-
Prunus spinosa	+	+(67%)	-	-
Quercus robur	+	+(5%)	-	-
Sambucus nigra	+	+(2%)	-	-
Total - Schedule 3 species:	**7**	**7**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	7	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	*Arum maculatum, Geranium robertianum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	7
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	94
Target Note Number	58
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	-	+	-
Crataegus monogyna	+	+(60%)	-	-
Fraxinus excelsior	+	-(%)	+	-
Ilex aquifolium	+	+(1%)	-	-
Prunus spinosa	+	+(34%)	+	-
Rosa species	+	-(%)	+	-
Sambucus nigra	+	+(2%)	-	-
Ulmus species	+	+(3%)	-	-
Total - Schedule 3 species:	**9**	**5**	**4**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	5	4	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	95
Target Note Number	60
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(90%)	-	-
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	-(%)	-	-
Sambucus nigra	+	+(5%)	-	-
Total - Schedule 3 species:	**4**	**3**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	96
Target Note Number	55
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(4%)	-	+
Prunus spinosa	+	+(87%)	+	+
Quercus robur	+	+(4%)	-	+
Sambucus nigra	+	+(1%)	+	-
Ulmus species	+	+(4%)	-	+
Total - Schedule 3 species:	**5**	**5**	**2**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	2	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	97
Target Note Number	54
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(50%)	-	-
Prunus spinosa	+	+(50%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	-(%)	-	-
Total - Schedule 3 species:	**4**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	98
Target Note Number	53
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	-	-	-
Crataegus monogyna	+	+(50%)	+	+
Prunus spinosa	+	+(25%)	-	-
Quercus robur	+	+(10%)	+	-
Rosa species	+	+(15%)	+	+
Sambucus nigra	+	-(%)	-	-
Ulex europaeus	+	-(%)	-	-
Ulmus species	+	-(%)	-	-
Total - Schedule 3 species:	**9**	**4**	**3**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	4	3	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Geranium robertianum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	99
Target Note Number	56
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Corylus avellana	+	+(30%)	+	+
Crataegus monogyna	+	+(50%)	-	-
Prunus spinosa	+	-(%)	+	+
Quercus robur	+	-(%)	+	-
Rosa species	+	-(%)	-	+
Sambucus nigra	+	+(10%)	-	-
Ulmus species	+	+(10%)	-	-
Total - Schedule 3 species:	**8**	**4**	**4**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	4	4	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	100
Target Note Number	44
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Corylus avellana	+	+(20%)	-	-
Crataegus monogyna	+	+(70%)	+	-
Fraxinus excelsior	+	+(5%)	+	-
Malus sylvestris	+	-(%)	+	-
Prunus spinosa	+	+(5%)	+	-
Rosa species	+	+(5%)	+	-
Sambucus nigra	+	-(%)	-	-
Total - Schedule 3 species:	**8**	**5**	**6**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	5	6	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.5
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	101
Target Note Number	46
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(90%)	-	-
Fraxinus excelsior	+	+(1%)	-	-
Prunus spinosa	+	+(5%)	-	-
Rosa species	+	+(1%)	-	-
Sambucus nigra	+	+(5%)	-	-
Total - Schedule 3 species:	**5**	**5**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	5	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	102
Target Note Number	47
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(2%)	+	-
Cornus sanguinea	+	+(5%)	+	-
Corylus avellana	+	+(3%)	+	-
Crataegus monogyna	+	+(30%)	+	-
Fraxinus excelsior	+	+(1%)	-	-
Ilex aquifolium	+	+(1%)	-	-
Prunus spinosa	+	+(55%)	+	-
Rosa species	+	+(3%)	+	-
Sambucus nigra	+	+(2%)	-	-
Ulmus species	+	+(3%)	+	-
Total - Schedule 3 species:	**10**	**10**	**7**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	10	7	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	8.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	103
Target Note Number	48
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Cornus sanguinea	+	-	-	-
Crataegus monogyna	+	+(80%)	+	+
Euonymus europaeus	+	-(%)	-	-
Fraxinus excelsior	+	-(%)	+	-
Prunus spinosa	+	+(18%)	-	+
Quercus robur	+	+(1%)	-	-
Rosa species	+	+(1%)	+	+
Ulmus species	+	-(%)	+	-
Total - Schedule 3 species:	**9**	**4**	**5**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	4	5	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	+(4)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis, Ranunculus auricomus*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.33
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	104
Target Note Number	52
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	+	-
Prunus spinosa	+	-	-	-
Ribes spicatum	+	-(%)	-	-
Rosa species	+	-(%)	+	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	-(%)	+	-
Total - Schedule 3 species:	**6**	**1**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	1	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	105
Target Note Number	51
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(1%)	-	-
Corylus avellana	+	+(1%)	-	-
Crataegus monogyna	+	+(25%)	-	-
Fraxinus excelsior	+	+(1%)	-	-
Prunus spinosa	+	+(30%)	-	-
Rosa species	+	+(1%)	+	-
Ulmus species	+	+(40%)	+	-
Total - Schedule 3 species:	**8**	**7**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	7	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	106
Target Note Number	42
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(10%)	+	+
Corylus avellana	+	+(40%)	+	+
Crataegus monogyna	+	+(25%)	-	-
Malus sylvestris	+	+(10%)	-	-
Prunus avium	+	+(5%)	-	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(5%)	-	-
Rosa species	+	+(1%)	+	-
Salix species	+	-(%)	-	+
Sambucus nigra	+	+(15%)	+	+
Ulmus procera	+	-(%)	-	+
Total - Schedule 3 species:	**12**	**8**	**5**	**5**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	12	8	5	5

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION

Hedge Number:	107
Target Note Number	41
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	+	-
Crataegus monogyna	+	+(25%)	-	-
Ilex aquifolium	+	-(%)	-	-
Prunus spinosa	+	-(%)	+	-
Ulmus procera	+	-(65%)	-	-
Total - Schedule 3 species:	**5**	**2**	**2**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	5	2	2	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION

Average Number of Schedule 3 Species per 30m Stretch:	1.33
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Average Number of Schedule 3 Species per 30m Stretch:	6	
Number of Features:	4	
Special Qualifying Species:	0	
Threshold Altering Factors:	0	

Hedge Number:	107a
Target Note Number	38b
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(30%)	-	-
Ulmus procera	+	+(70%)	-	-
Total - Schedule 3 species:	**2**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A				
Total - All Woody Species:	2	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (0) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	107b
Target Note Number	38c
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	+(20%)	-	-
Crataegus monogyna	+	+(30%)	-	-
Ulmus procera	+	+(50%)	-	-
Total - Schedule 3 species:	**3**	**3**	**0**	**0**
OTHER WOODY SPECIES				
N/A				
Total - All Woody Species:	3	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	108
Target Note Number	40
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	-	-
Ulmus procera	+	+(80%)	+	-
Total - Schedule 3 species:	**2**	**1**	**1**	**0**
OTHER WOODY SPECIES				
Gap	+	+(20%)	-	-
Total - All Woody Species:	3	2	1	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	109
Target Note Number	38a
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	-	-
Sambucus nigra	+	-	-	-
Ulmus procera	+	+(80%)	-	-
Total - Schedule 3 species:	**3**	**1**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(20%)	-	-
Total - All Woody Species:	4	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	109a
Target Note Number	38d
STATUS:	

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Prunus spinosa	+	+(10%)	-	-
Ulmus procera	+	+(90%)	+	-
Total - Schedule 3 species:	**2**	**2**	**1**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	1	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.5
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	109b
Target Note Number	38e
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(5%)	-	-
Crataegus monogyna	+	+(60%)	-	-
Prunus spinosa	+	+(30%)	-	-
Rosa species	+	+(5%)	-	-
Total - Schedule 3 species:	**4**	**4**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	4	4	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	110
Target Note Number	38
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(5%)	-	+
Prunus spinosa	+	-	-	-
Sambucus nigra	+	+(10%)	-	-
Ulmus procera	+	+(50%)	+	+
Total - Schedule 3 species:	**4**	**3**	**1**	**2**
OTHER WOODY SPECIES				
Gap	+	+(35%)	-	-
Total - All Woody Species:	5	4	1	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	111
Target Note Number	37
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	-	-	-
Sambucus nigra	+	+(5%)	-	-
Ulmus procera	+	+(85%)	-	-
Total - Schedule 3 species:	**3**	**2**	**0**	**0**
OTHER WOODY SPECIES				
Gap	+	+(10%)	-	-
Total - All Woody Species:	4	3	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	112
Target Note Number	36
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	+	-
Crataegus monogyna	+	-	+	-
Malus sylvestris	+	-(%)	+	-
Prunus spinosa	+	+(60%)	+	-
Quercus robur	+	-(%)	-	-
Ulmus procera	+	+(25%)	+	-
Viburnum opulus	+	-(%)	+	-
Total - Schedule 3 species:	**7**	**3**	**6**	**0**
OTHER WOODY SPECIES				
Malus domestica	+	+(5%)	-	-
Total - All Woody Species:	8	4	6	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	113
Target Note Number	32
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	+
Crataegus monogyna	+	+(50%)	+	+
Fraxinus excelsior	+	-(%)	-	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	+(40%)	-	-
Total - Schedule 3 species:	**5**	**2**	**1**	**2**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	-	-
Malus domestica	+	+(5%)	+	-
Prunus domestica	+	+(5%)	-	-
Total - All Woody Species:	8	4	2	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	+(4)
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (4) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1.67
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	114
Target Note Number	31
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(100%)	+	-
Prunus spinosa	+	-	-	-
Ribes spicatum	+	-(%)	-	-
Rosa species	+	-(%)	+	-
Sambucus nigra	+	-(%)	-	-
Ulmus procera	+	-(%)	+	-
Total - Schedule 3 species:	**6**	**1**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	1	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	115
Target Note Number	323
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	-	-	-
Prunus spinosa	+	+(100%)	-	-
Total - Schedule 3 species:	**2**	**1**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	1	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	116
Target Note Number	10
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	-	-	-
Crataegus monogyna	+	+(25%)	-	-
Fraxinus excelsior	+	+(5%)	+	-
Malus sylvestris	+	-(%)	-	-
Quercus robur	+	+(5%)	+	-
Rosa species	+	+(10%)	+	-
Sambucus nigra	+	-(%)	-	-
Total - Schedule 3 species:	**8**	**4**	**3**	**0**
OTHER WOODY SPECIES				
Rubus fruticosus agg.	+	-	+	-
Total - All Woody Species:	9	5	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	117
Target Note Number	11
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	-	-	-
Fraxinus excelsior	+	-(%)	-	-
Ulmus procera	+	+(100%)	-	-
Total - Schedule 3 species:	**4**	**1**	**0**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	-	-
Total - All Woody Species:	5	1	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Arum maculatum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	1
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	118
Target Note Number	12
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Crataegus monogyna	+	+(95%)	-	-
Fraxinus excelsior	+	+(5%)	-	-
Total - Schedule 3 species:	**2**	**2**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	2	2	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	0
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	119
Target Note Number	8a
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Euonymus europaeus	+	-	-	-
Ilex aquifolium	+	-	-	-
Ligustrum vulgare	+	-(%)	-	-
Malus sylvestris	+	-(%)	+	-
Prunus spinosa	+	+(5%)	-	-
Sambucus nigra	+	-(%)	+	-
Ulmus procera	+	+(40%)	+	-
Total - Schedule 3 species:	**7**	**2**	**3**	**0**
OTHER WOODY SPECIES				
Hedra helix	+	+(40%)	-	-
Gap	+	+(15%)	-	-
Total - All Woody Species:	9	4	3	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Bromopsis ramosa*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	120
Target Note Number	8
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(20%)	+	+
Corylus avellana	+	+(5%)	-	-
Crataegus monogyna	+	+(30%)	+	-
Malus sylvestris	+	-(%)	-	-
Prunus spinosa	+	+(30%)	-	+
Rosa species	+	+(5%)	-	+
Total - Schedule 3 species:	**6**	**5**	**2**	**3**
OTHER WOODY SPECIES				
Gap	+	+(10%)	-	-
Total - All Woody Species:	7	6	2	3

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Geum urbanum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3.33
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	120a
Target Note Number	6a
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(40%)	+	-
Cornus sanguinea	+	+(10%)	-	-
Corylus avellana	+	+(20%)	+	+
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	+(20%)	+	-
Quercus robur	+	+(5%)	-	+
Ulmus procera	+	-	-	+
Total - Schedule 3 species:	**7**	**6**	**3**	**3**
OTHER WOODY SPECIES				
N/A				
Total - All Woody Species:	7	6	3	3

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	2
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (2) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	121
Target Note Number	4
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	+
Corylus avellana	+	-	+	-
Crataegus monogyna	+	+(4%)	-	-
Fraxinus excelsior	+	+(20%)	+	+
Ilex aquifolium	+	-(%)	-	-
Ligustrum vulgare	+	+(1%)	+	+
Prunus spinosa	+	+(15%)	-	+
Quercus robur	+	+(20%)	-	-
Rosa species	+	+(15%)	-	-
Sambucus nigra	+	-(%)	-	-
Viburnum opulus	+	+(1%)	-	+
Total - Schedule 3 species:	**11**	**7**	**4**	**5**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	+(24%)	-	-
Total - All Woody Species:	12	8	4	5

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(5)
Connections:	1 hedge(s), 0 ponds(s) and 2 wood(s) = (5) points
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION

Hedge Number:	122
Target Note Number	2b
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Corylus avellana	+	+(50%)	+	+
Crataegus monogyna	+	+(1%)	-	+
Fraxinus excelsior	+	-(%)	+	-
Prunus spinosa	+	+(15%)	-	+
Rosa species	+	+(1%)	+	+
Sambucus nigra	+	+(5%)	-	-
Viburnum opulus	+	+(30%)	-	-
Total - Schedule 3 species:	**7**	**6**	**3**	**4**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	6	3	4

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	+(4)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis, Primula vulgaris*

CONCLUSION

Average Number of Schedule 3 Species per 30m Stretch:	4.33
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Average Number of Schedule 3 Species per 30m Stretch:	5.33	
Number of Features:	4	
Special Qualifying Species:	0	
Threshold Altering Factors:	0	

Hedge Number:	123
Target Note Number	2a
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	+(65%)	+	+
Crataegus monogyna	+	+(5%)	-	+
Daphne laureola	+	-(%)	-	+
Ligustrum vulgare	+	-(%)	-	+
Prunus spinosa	+	+(5%)	+	+
Quercus robur	+	-(%)	-	-
Rosa species	+	+(1%)	+	+
Sambucus nigra	+	-(%)	-	-
Viburnum opulus	+	+(25%)	+	+
Total - Schedule 3 species:	**10**	**5**	**4**	**7**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	5	4	7

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	+(3)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.33

Hedge Number:	123a
Target Note Number	2c
STATUS:	

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(60%)	-	-
Corylus avellana	+	+(2%)	-	-
Prunus spinosa	+	+(23%)	-	-
Ulmus procera	+	+(15%)	-	-
Total - Schedule 3 species:	**4**	**4**	**0**	**0**
OTHER WOODY SPECIES				
N/A				
Total - All Woody Species:	4	4	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	+
Four or more connection points:	-(0)
Connections:	0 hedge(s), 0 ponds(s) and 0 wood(s) = (0) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Number of Features:	5	
Special Qualifying Species:	0	
Threshold Altering Factors:	0	

Hedge Number:	123b
Target Note Number	2f
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(10%)	+	-
Fraxinus excelsior	+	+(18%)	+	-
Ligustrum vulgare	+	+(5%)	-	-
Prunus spinosa	+	+(60%)	+	-
Rosa species	+	+(2%)	-	-
Sambucus nigra	+	+(5%)	+	+
Total - Schedule 3 species:	**8**	**6**	**5**	**1**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	+	+
Total - All Woody Species:	8	6	6	2

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum.*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	123c
Target Note Number	2d
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(35%)	-	-
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(50%)	+	-
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	-	-	-
Quercus robur	+	+(10%)	-	-
Rosa species	+	-	+	
Total - Schedule 3 species:	**7**	**4**	**2**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	-	-
Total - All Woody Species:	1	0	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Geum urbanum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	5
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	123d
Target Note Number	2e
STATUS:	

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(35%)	-	-
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(50%)	+	-
Fraxinus excelsior	+	+(5%)	-	-
Prunus spinosa	+	-	-	-
Quercus robur	+	+(10%)	-	-
Rosa species	+	-	+	
Total - Schedule 3 species:	**7**	**4**	**2**	**0**
OTHER WOODY SPECIES				
Acer pseudoplatanus	+	-	-	-
Total - All Woody Species:	1	0	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Geum urbanum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	5
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	124
Target Note Number	1
STATUS:	**Not Important**

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	+
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(90%)	+	+
Crataegus monogyna	+	-(%)	-	-
Euonymus europaeus	+	-(%)	-	-
Malus sylvestris	+	+(5%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	-(%)	-	-
Ulmus procera	+	+(5%)	-	-
Total - Schedule 3 species:	**9**	**3**	**1**	**2**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	3	1	2

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	125
Target Note Number	1k
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(30%)	-	-
Crataegus monogyna	+	+(25%)	-	-
Prunus spinosa	+	-(%)	-	-
Rosa species	+	+(25%)	-	-
Sambucus nigra	+	+(10%)	-	-
Ulmus procera	+	+(10%)	-	-
Total - Schedule 3 species:	**6**	**5**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	5	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	126
Target Note Number	1l
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(30%)	+	+
Cornus sanguinea	+	+(5%)	-	-
Corylus avellana	+	+(20%)	-	-
Crataegus laevigata	+	-(%)	-	+
Crataegus monogyna	+	+(10%)	+	+
Fraxinus excelsior	+	+(20%)	+	-
Prunus spinosa	+	-(%)	+	+
Rosa species	+	+(5%)	+	+
Sambucus nigra	+	+(5%)	+	+
Ulmus procera	+	+(25%)	+	-
Total - Schedule 3 species:	**10**	**8**	**7**	**6**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	8	7	6

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	7
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	127
Target Note Number	1m
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Corylus avellana	+	+(10%)	-	-
Crataegus monogyna	+	+(20%)	-	-
Fraxinus excelsior	+	+(25%)	-	-
Prunus spinosa	+	+(30%)	-	-
Rosa species	+	+(10%)	-	-
Sambucus nigra	+	+(5%)	-	-
Total - Schedule 3 species:	**7**	**6**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	6	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	128
Target Note Number	1n
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(90%)	+	+
Corylus avellana	+	-	-	-
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(5%)	-	-
Salix species	+	-(%)	-	-
Sambucus nigra	+	+(5%)	+	-
Total - Schedule 3 species:	**7**	**3**	**2**	**1**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	3	2	1

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	2
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	129
Target Note Number	1p
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	+	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	+(80%)	-	-
Euonymus europaeus	+	-(%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	-(%)	-	-
Rosa species	+	+(10%)	+	-
Ulmus procera	-	-	-	-
Total - Schedule 3 species:	**8**	**3**	**3**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	3	3	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	130
Target Note Number	1q
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(10%)	-	-
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(25%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	+(60%)	-	-
Rosa species	+	+(5%)	-	-
Sambucus nigra	+	-(%)	-	-
Total - Schedule 3 species:	**7**	**4**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	4	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	-
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	1
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	131
Target Note Number	1o
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(55%)	-	-
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(20%)	-	-
Crataegus monogyna	+	+(15%)	-	-
Euonymus europaeus	+	-(%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	-(%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(10%)	-	-
Total - Schedule 3 species:	**9**	**4**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	9	4	0	0

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	+
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	132
Target Note Number	1t
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	+(20%)	+	-
Crataegus monogyna	+	+(30%)	-	-
Euonymus europaeus	+	-(%)	-	-
Fraxinus excelsior	+	-(%)	+	-
Ilex aquifolium	+	-(%)	-	-
Malus sylvestris	+	-(%)	-	-
Prunus spinosa	+	+(40%)	+	-
Rosa species	+	+(10%)	-	-
Ulmus procera	+	-(%)	+	-
Total - Schedule 3 species:	**11**	**4**	**6**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	11	4	6	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	1 hedge(s), 0 ponds(s) and 1 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	133
Target Note Number	1j
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(35%)	+	-
Cornus sanguinea	+	+(10%)	+	-
Corylus avellana	+	+(40%)	+	-
Fraxinus excelsior	+	-(%)	+	-
Prunus spinosa	+	+(10%)	-	-
Rosa species	+	+(5%)	-	-
Sambucus nigra	+	-(%)	+	-
Total - Schedule 3 species:	**7**	**5**	**5**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	7	5	5	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	134
Target Note Number	1r
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(40%)	+	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	+(10%)	+	-
Rosa species	+	+(10%)	+	-
Salix species	+	-(%)	+	-
Ulmus procera	+	+(40%)	-	-
Total - Schedule 3 species:	**6**	**4**	**5**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	6	4	5	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	0 hedge(s), 0 ponds(s) and 1 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	135
Target Note Number	1a
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	+
Cornus sanguinea	+	-	+	+
Corylus avellana	+	+(40%)	-	+
Crataegus monogyna	+	+(30%)	+	+
Euonymus europaeus	+	+(%)	-	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(10%)	+	+
Rosa species	+	+(2%)	-	-
Sambucus nigra	+	+(3%)	-	-
Total - Schedule 3 species:	**10**	**6**	**4**	**5**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	6	4	5

FEATURES	
Supporting bank or wall:	+
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	4 hedge(s), 0 ponds(s) and 0 wood(s) = (4) points
Three or more Schedule 2 species:	+(4)
Schedule 2 Species:	*Arum maculatum, Brachypodium sylvaticum, Geum urbanum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	5
Special Qualifying Species:	0
Threshold Altering Factors:	1

Hedge Number:	136
Target Note Number	1b
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(35%)	-	-
Cornus sanguinea	+	-	-	-
Corylus avellana	+	+(30%)	-	-
Crataegus monogyna	+	+(20%)	-	-
Fraxinus excelsior	+	+(10%)	-	-
Prunus spinosa	+	-(%)	-	-
Rosa species	+	+(5%)	-	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**8**	**5**	**0**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	5	0	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	-
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	2
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	137
Target Note Number	1c
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	+(5%)	+	-
Corylus avellana	+	+(35%)	+	-
Fraxinus excelsior	+	+(15%)	-	-
Prunus spinosa	+	+(40%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(5%)	+	-
Sambucus nigra	+	-(%)	-	-
Total - Schedule 3 species:	**8**	**5**	**4**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	5	4	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(1)
Connections:	1 hedge(s), 0 ponds(s) and 0 wood(s) = (1) points
Three or more Schedule 2 species:	-(0)
Schedule 2 Species:	None

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	138
Target Note Number	1e
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	-	-
Cornus sanguinea	+	+(40%)	-	-
Corylus avellana	+	-(%)	-	-
Crataegus monogyna	+	+(30%)	+	-
Fraxinus excelsior	+	-(%)	+	-
Prunus spinosa	+	-(%)	+	-
Quercus robur	+	+(10%)	-	-
Rosa species	+	+(20%)	+	-
Total - Schedule 3 species:	**8**	**4**	**4**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	4	4	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(0)
Connections:	None
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	4
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	139
Target Note Number	1d
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	-	-	+
Corylus avellana	+	+(85%)	+	+
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	+(10%)	-	-
Quercus robur	+	-(%)	-	-
Rosa species	+	+(5%)	-	+
Sambucus nigra	+	-(%)	+	-
Total - Schedule 3 species:	**8**	**3**	**3**	**3**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	3	3	3

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(3)
Connections:	3 hedge(s), 0 ponds(s) and 0 wood(s) = (3) points
Three or more Schedule 2 species:	-(1)
Schedule 2 Species:	*Brachypodium sylvaticum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	3
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	140
Target Note Number	1f
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	+(80%)	+	-
Cornus sanguinea	+	+(5%)	-	-
Corylus avellana	+	+(10%)	-	-
Crataegus monogyna	+	-(%)	+	-
Fraxinus excelsior	+	-(%)	-	-
Prunus spinosa	+	+(3%)	+	-
Quercus robur	+	-(%)	+	-
Rosa species	+	+(2%)	+	-
Total - Schedule 3 species:	**8**	**5**	**5**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	8	5	5	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	-(2)
Connections:	2 hedge(s), 0 ponds(s) and 0 wood(s) = (2) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	141
Target Note Number	1g
STATUS:	Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	+(30%)	+	-
Crataegus monogyna	+	+(15%)	+	-
Daphne laureola	+	+(5%)	-	-
Euonymus europaeus	+	-(%)	-	-
Fraxinus excelsior	+	+(10%)	-	-
Prunus spinosa	+	+(5%)	-	-
Quercus robur	+	-(%)	+	-
Rosa species	+	+(5%)	+	-
Ulmus procera	+	+(35%)	-	-
Total - Schedule 3 species:	**11**	**7**	**6**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	11	7	6	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	+
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	2 hedge(s), 0 ponds(s) and 1 wood(s) = (4) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Mercurialis perennis*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	6.5
Number of Features:	4
Special Qualifying Species:	0
Threshold Altering Factors:	0

Hedge Number:	142
Target Note Number	1i
STATUS:	Not Important

SCHEDULE 3 WOODY SPECIES	In whole hedge	In 30 m sample stretches		
		XPt	2	3
Acer campestre	+	-	+	-
Cornus sanguinea	+	-	+	-
Corylus avellana	+	-(%)	+	-
Crataegus monogyna	+	-(%)	+	-
Fraxinus excelsior	+	+(25%)	-	-
Prunus avium	+	+(20%)	-	-
Prunus spinosa	+	+(15%)	+	-
Quercus robur	+	-(%)	+	-
Rosa species	+	+(15%)	+	-
Ulmus procera	+	-(%)	-	-
Total - Schedule 3 species:	**10**	**4**	**7**	**0**
OTHER WOODY SPECIES				
N/A	-	-	-	-
Total - All Woody Species:	10	4	7	0

FEATURES	
Supporting bank or wall:	-
Less than 10% gaps:	-
Standard trees:	+
Ditch for >50% of hedgerow length:	+
Parallel hedge within 15m:	-
Four or more connection points:	+(4)
Connections:	0 hedge(s), 0 ponds(s) and 2 wood(s) = (4) points
Three or more Schedule 2 species:	-(2)
Schedule 2 Species:	*Brachypodium sylvaticum, Geum urbanum*

CONCLUSION	
Average Number of Schedule 3 Species per 30m Stretch:	5.5
Number of Features:	3
Special Qualifying Species:	0
Threshold Altering Factors:	0

East Anglia
Offshore Wind

Bat Survey Report

East Anglia ONE

Offshore Windfarm

Environmental Statement

Volume 3 Chapter 24 Ecology Appendices

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Appendix 24.4

Bat Surveys Technical Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.4 - Bat Surveys Technical Report

854188

JULY 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Bat Surveys Technical Report

Client: East Anglia Offshore Wind Limited

Date: 17th July 2012

Office: Helsby

Status: Final

Author	Rebecca Harris	**Technical reviewer**	Sarah Harmer
Signature		Signature	
Date:	17th July 2012	Date:	19th July 2012

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of bat surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. The Onshore Cable Route runs from a landfall to the east of Ipswich, north of the River Deben at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km.

This document forms Appendix 24.4 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.4.1.*

The surveys comprised ground level tree assessments, tree climbing surveys, tree emergence surveys, automated static detector surveys and manual activity surveys carried out in March, June and July 2012.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. Much of the land crossed is arable farmland, but the route crosses a number of hedgerows, field drains and ditches, areas of coastal habitats and small areas of woodland. The Onshore Cable Route also crosses previously-developed land and the River Deben.

1.3 Structure of this Report

The remainder of the report is set out as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the results of the surveys;
- *Section 4* provides the evaluation of results, impacts and proposed mitigation methods;
- *Section 5* is the reference section;
- *Section 6* provides the figures;
- *Appendix A* – Relevant Legislation
- *Appendix B* – Ground Level Tree Survey Data
- *Appendix C* – Tree Climbing Survey Data
- *Appendix D* – Static Detector Locations, Dates and Weather Conditions
- *Appendix E* – Automated Bat Activity Results
- *Appendix F* – Manual Bat Activity Results

2 METHODS

2.1 Survey Scope

The surveys aimed to determine whether bats were roosting in any affected trees, and to investigate the level of bat activity in the area. At trees, surveys involved ground level tree-assessments; tree climbing surveys to inspect cracks and cavities; and emergence surveys. Activity surveys involved automated static detector surveys, as well as surveyors walking transects.

The initial survey area for the ground level assessments comprised a 160m corridor comprising the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search. A wider corridor was surveyed in a few places where a final route had not been decided (as shown in *Figure 24.4.1*), where construction areas were likely to be located, or areas where horizontal directional drilling (HDD) will be used.

Following the initial survey, a 75m wide Onshore Cable Route was selected; together with a Converter Station Development Area, with a greater corridor width where construction areas are likely to be located or where HDD will be used.

2.2 Survey Constraints

Access was denied by landowners for an area of land near Martlesham Hall, which restricted access to two trees (Trees 71 and 74, *Figure 24.4.3*), although ground level assessments were possible.

2.3 Desk Study

2.3.1 Background Data Search

The Sufflolk Biodiversity Records Centre was contacted for all records of bats within 5km of the Onshore Cable Route in March 2012.

The Onshore Cable Route is within the known range of *Barbastella barbastellus* (Barbastelle) bat species. This species is considered rare in the UK and is consequently listed on Annex II of the Council Directive 92/43/EEC on the *Conservation of natural habitats of wild fauna and flora (The Habitats Directive)*. It is also a priority species on the UK Biodiversity Action Plan. Barbastelle Bat is a tree-dwelling woodland species; the tree climbing surveys detailed below would pick up any actual roosts in close proximity to the proposed works. As Barbastelle bats can be detected on a bat detector and bat activity surveys were proposed (see below), no further species-specific surveys were undertaken.

2.4 Roost Surveys for Bats

2.4.1 Scope of Surveys

All potential roosts within the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search were assessed from ground level to identify features likely to support bats. As there are no buildings or other structures in the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search, the survey concentrated on trees.

Following the ground level assessments the survey corridor was reduced to 75m; known as the Onshore Cable Route, plus a Converter Station Development Area. Any trees within the Onshore Cable Route and Converter Station Development Area, identified as having bat roosting potential were climbed to inspect them.

2.4.2 Categorisation of Tree Features

Features that might be used by roosting bats were described and categorised according to the standard RSK scheme as follows. Each feature was given a category during the ground level surveys (see below); the categories were updated with information from the tree climbing surveys (see below).

Category 3 - Features that appear to be suitable for large maternity colonies along with roosts of lower conservation status. Any features that appear to be physically large enough to support high numbers of bats (*i.e.* 20+ individuals); provide internal darkness; provide shelter from the wind and rain; are higher than 2 m above ground level; have an entrance point free from clutter and are possibly, though not exclusively, heated by the sun. Examples of this type of feature are those well known to support maternity colonies such as woodpecker holes (*e.g.* for *Nyctalus noctula*, Noctule), extensive horizontal or vertical splits, and large plates of flaking bark (*e.g.* for *Barbastellus barbastella*, Barbastelle), hollow limbs, hollow branches, hollow trunks and other extensive rot holes (*e.g.* for *Myotis bechsteinii*, Bechstein's Bat). The species named are tree specialists in the UK but these types of features could be used by many of our species for breeding.

Category 2 - Features that appear to be suitable for small maternity colonies along with roosts of lower conservation status. Any features that appear to be physically large enough to support smaller numbers of bats (*i.e.* 5-20 individuals); provide internal darkness; provide shelter from the wind and rain; are higher than 2 m above ground level; have an entrance point free from clutter and are possibly, though not exclusively, heated by the sun. Examples of this type of feature could include less extensive versions of the features listed above, cavities between overlapping branches, cavities behind callusing and lifted thick stemmed or mat ivy.

Category 1 - Features that appear to be unsuitable for maternity colonies, but that could be used for mating, occasional roosting, night roosting or hibernation. Any features that are only physically large enough to support individual bats or low numbers of bats (<5 individuals) OR are too low to the ground (<2 m) to provide protection for a maternity colony. Examples include any small features and all features below 2 m including hollow trunks with a low entrance, flaking bark, root balls *etc.*

Category 0 – Features with no potential to support roosting bats.

2.4.3 Ground Level Tree Surveys

Ground level tree surveys were carried out on the following dates: 27th February to 3rd March; 6th - 9th March and 13th – 15th March 2012. The surveys were all carried out in suitable weather conditions to survey trees (no fog or heavy rain). The surveys were carried out by Jan Skuriat, Clare Parker and Sarah Brooks. Jan Skuriat holds a licence to disturb bats for the purpose of survey work (licence number 20121068). Clare Parker and Sarah Brooks are both training for similar bat survey licences. All surveyors have been fully trained and have several seasons of experience in identifying trees with bat roosting potential.

Inspections of trees from ground-level involved viewing each tree from all angles using binoculars and a 500, 000 candle power torch to view higher areas. Trees with any features that could have potential for roosting bats (*e.g.* woodpecker holes, rot cavities, splits, cracks, flaking bark and thick-stemmed or matted climbing plants) were identified and marked with a small, silver, uniquely numbered tag.

For each tree, the following information was recorded onto a pre-designed survey sheet: tree number, species and diameter at breast height. For each feature, the following information was recorded onto a pre-designed survey sheet: feature description; height above ground level; distance from the trunk radially; orientation of the feature relative to the trunk; orientation of the entrance relative to the trunk; category of bat roost potential; and equipment required for closer access.

2.4.4 Tree Climbing Surveys

Any trees within the Onshore Cable Route and Converter Station Development Area, identified as having bat roosting potential were climbed for inspection.

Tree climbing surveys were carried out on the following dates: 11th – 15th June and 25th – 29th June 2012. The surveys were all carried out in suitable weather conditions to survey trees (no heavy rain or strong winds). The surveys were carried out by James Pattenden; Rebecca Harris and Robert Fear. James Pattenden holds a licence to disturb bats for the purpose of survey work (licence number 20114296). Rebecca

Harris is training for a similar bat survey licence. All surveyors also hold certificates of competence in Tree Climbing and Aerial Rescue.

Access was gained to examine features in close detail (where possible) using ladders, ropes and harnesses by personnel qualified to climb trees and perform aerial rescue. Once accessed, features were examined in detail using a bright torch, endoscope (fiberscope) or mirror to inspect (where possible) the full extent of the features and search for bats or evidence of bat activity (*e.g.* droppings, urine stains, odour, feeding remains, scratch marks, grease stains, wear marks).

For each feature, the following information was recorded onto a pre-designed survey sheet: internal dimensions, internal conditions, new category of bat roost potential, occupation by other species (*e.g.* birds, bees, hornets) and any evidence of bats (e.g. actual bats, bat droppings, staining, smell). Bat droppings can prove beyond doubt that bats use a tree feature. Where droppings persist in the base of a dry hole or split, they can indicate the location of a bat roosting site. However, the absence of droppings does not indicate that a feature does not support a bat roost at another time of year. Droppings can decay rapidly in tree roosts.

2.4.5 Tree Emergence Surveys

Where it was not possible to inspect tree features further (either due to safety or because the features were too extensive) features were subject to emergence surveys.

Emergence surveys commenced 15 minutes before sunset and continued until 1.5 hours after. Dates, times and weather conditions recorded are given in *Table 1* below.

Table 1: Dates, times and weather conditions recorded during tree emergence surveys

Date	Sunset Time	Start Time	End Time	Temp at start	Temp at end	Cloud cover at start	Cloud cover at end	Wind speed at start	Wind speed at end	Rain conditions
13/06/2012	21:16	21:00	22:44	11	10	5	5	1	1	None

Rebecca Harris and Jessica Brooks of RSK Environment conducted the emergence surveys; both are trained and experienced in carrying out such surveys. Frequency division and time expansion bat detectors (Duet and Pettersson) enabled surveyors to accurately identify most bat species by their unique echolocation calls.

Identification was confirmed where necessary by recording bat calls onto minidisk or digital Edirol R-01 recorders and analysing the calls using BatSound software. Further methods of identification included observation of bat flight pattern and behaviour.

2.5 Bat Activity Surveys

2.5.1 Scope of Bat Activity Surveys

Commuting and foraging bats could be impacted by the severance of linear features (for cable route construction) upon which they rely, particularly young bats learning to fly and forage. By surveying the best features for bats (those with trees) and close to potential roost sources we were also most likely to detect any streams of commuting bats heading away from local roosts.

All continuous (non-gappy) linear features crossed by the Onshore Cable Route (and therefore likely to be severed) with trees and within 200 m of known maternity roosts or 200 m of likely roost sources such as woodlands or groups of trees were surveyed.

2.5.2 Automated Bat Activity Surveys

Automated Song Meter 2 (SM2) bat detectors programmed to start recording half an hour before sunset and stop recording half an hour after sunrise were positioned on the linear features. The surveys were carried out between 12th June and 13th July 2012. Each feature was surveyed for a minimum of three nights with the exception of *Locations 124* and *29*, which were surveyed for two nights due to equipment failure. The bat echolocation calls recorded were analysed using Analook software.

The detectors were deployed by personnel trained and experienced in their usage, including James Pattenden, Rebecca Harris, Gina Whittaker and Paul Barnes. Full details of the locations, dates and weather conditions during the automated activity surveys are presented in *Appendix D*.

Minimum overnight temperature and overnight weather conditions are taken from http://uk.weather.com/weather/today-Ipswich-UKXX0072 using Ipswich weather station. Recording over three consecutive nights means that at least one night (generally more) of good weather condition was covered at each location. Inclement weather was rare during the survey period, consisting of only a few nights with rain.

2.5.3 Manual Activity Surveys

After the first automated bat activity surveys, those features with 30 or more *Myotis* or *Plecotus* passes (groups likely to be most sensitive to habitat gaps) or more than 500

bat passes of any species in total (the highest levels of activity recorded) on one night were surveyed whilst light levels were still high enough to see the bats.

The rationale was that the surveyors could observe whether the activity is either lots of bats commuting from a roost early on in the evening (generally all travelling in the same direction), or smaller numbers of bats making repeat passes (going backwards and forwards foraging along the hedge). All surveys commenced 15 minutes before sunset and continued until 1.5 hours after. Two surveyors surveyed each location and were positioned at either end of the liner feature. Dates, times and weather conditions recorded are given in *Table 2*. below.

Table 2: Dates, times and weather conditions recorded during manual activity surveys

Date	Sunset Time	Start Time	End Time	Temp at start	Temp at end	Cloud cover at start	Cloud cover at end	Wind speed at start	Wind speed at end	Rain conditions
09/07/2012	21.14	21.00	22.50	15.8	15.1	3	6	0	0	0%
11/07/2012	21.13	21.00	22.27	14.2	13.5	3	8	1	4	Rain at end of survey

Emergence surveys were conducted by RSK personnel trained and experienced in carrying out such surveys, including Paul Barnes and Sarah Brooks.

Frequency division and time expansion bat detectors (Duet and Pettersson) enabled surveyors to accurately identify most bat species by their unique echolocation calls. Identification was confirmed where necessary by recording bat calls onto minidisk or digital Edirol R-01 recorders and analysing the calls using BatSound software. Further methods of identification included observation of bat flight pattern and behaviour.

3 RESULTS

3.1 Desk Study

3.1.1 Background Data Search

Bat records within 5 km of the Onshore Cable Route received from The Suffolk Biological Records Centre are mapped in *Figure 24.4.2.* Different colours are used to indicate different species or species groups. Different shapes are used to indicate different types of records, *e.g.* maternity roost, feeding roost, hibernacula *etc.*

There are records of the following species: *Pipistrellus pipistrellus* (Common Pipistrelle), *Pipistrellus pygmaeus* (Soprano Pipistrelle), *Plecotus auritus* (Brown Long-eared Bat), *Nyctalus noctula* (Noctule), *Nyctalus leisleri* (Liesler's), *Eptesicus serotinus* (Serotine), *Myotis nattereri* (Natterer's Bat), *Myotis mystacinus* (Whiskered Bat), *Myotis brandtii* (Brandt's Bat), *Myotis daubentonii* (Daubenton's Bat) *Pipistrellus nathusii* (Nathusius' Pipistrelle) and Barbastelle.

3.2 Roost Surveys for Bats

3.2.1 Ground Level Tree Surveys

Trees identified as having bat roosting potential are mapped using a unique number in *Figure 24.4.3*. Full data is presented in *Appendix C*. In total 259 trees were identified as having bat potential, 35 of those were identified as having *Category 1* features, and the remaining 224 were identified as having *Category 2* features.

3.2.2 Tree Climbing Surveys

Any trees within Onshore Cable Route and Converter Station Development Area identified during the ground level surveys as having bat roosting potential were inspected in tree climbing surveys and the bat roost potential categories were updated. The updated categories are mapped using a unique number in *Figure 24.4.3*. Full results are presented in *Appendix C*. In total 55 trees were climbed, and though no evidence of roosting bats was found in any of the trees, 45 trees had features that would support roosting bats; 17 trees were identified as *Category 1*, 19 trees were identified as *Category 2*, and 9 trees were identified as *Category 3*.

3.2.3 Tree Emergence Surveys

Where it was not possible to fully inspect tree features (either due to safety or because the features were too extensive), features were surveyed for emerging bats, see *Table 3* below.

Table 3: Trees Subject to Emergence Surveys

Tree number	Date surveyed	Emergence information	General bat activity
75	13/06/2012	No bats emerged	Common and Soprano Pipistrelle bats foraging and commuting.
77	13/06/2012	No bats emerged	Common and Soprano Pipistrelle bats foraging and commuting.

3.3 Bat Activity Surveys

3.3.1 Automated Bat Activity Surveys

All continuous (non-gappy) linear features crossed by the Onshore Cable Route (and therefore likely to be severed) with trees and within 200 m of known maternity roosts or 200 m of likely roost sources such as woodlands or groups of trees were surveyed for bat activity. The features chosen for bat activity surveys according to this protocol were identified during the Phase 1 Surveys (RSK 2012) and are mapped using a unique number in *Figure 24.4.4*. Data was collected in June and July; this is presented in *Appendix E* and summarised in *Table 4* below.

Table 4: Summary of Automated Bat Activity Surveys

Location	Peak count of bat passes recorded	Mean number of bat passes per night
124	129	64.50
122 & 123	104	55.00
148	23	20.33
119 & 120	264	227.33
113	152	99.67
110	24	15.67
103	1	0.33
101 & 102	0	0.00
95	38	28.67
93	41	32.33
80	24	9.00
74	19	15.33
146 & 147	155	68.33
66	15	6.67
64 & 65	1383	824.67
63	14	12.33
58 & 144	28	14.00
55	907	577.00

Location	Peak count of bat passes recorded	Mean number of bat passes per night
32	165	105.00
28	73	43.33
29	10	160.50
27	310	161.67
25	55	47.67
23	15	8.67
22	2	1.67
14	4	1.33
8 & 143	65	42.33
4	63	27.67
9	19	6.33

Large numbers of bat passes (over 200 passes over a single night) were recorded at the following locations: *27, 55, 64/65* and *119/120.* The largest number of bat passes was recorded at Location 64/65 on 14th June 2012 (1383 passes).

Common and Soprano Pipistrelle were the two most common species recorded and were recorded at all linear features where SM2 units were deployed except for *Location 18/19;* where no bats were recorded on any of the survey nights. The largest number of *Pipistrellus* passes in a single night was recorded at *Location 64/65* on 14th June 2012 (1161 passes).

Myotis / *Plecotus* species were recorded at over half of the liner features, 18 out of 29 locations. The data shows that none of the locations had over 30 *Myotis / Plecotus* bat passes; the largest number of *Myotis* / *Plecotus* passes was recorded at *Location 146/147* on 12th June 2012 (16 passes).

Nathusius Pipistrelles were recorded at Locations *28, 63, 93, 58/144* and (1 pass per location).

Nyctalus / Eptesicus species were recorded at 12 out of the 29 linear features where SM2 units were deployed. The largest number of *Nyctalus / Eptesicus* passes in a single night was recorded at *Location 113* on 5th July 2012 (36 passes).

Barbastelle were recorded at *Locations 4, 23, 28, 63, 95, 124* and *146/147.* The largest number of passes in a single night was recorded at *Location 146/147* on 12th June 2012 (12 passes).

3.3.2 Manual Activity Surveys

After the first automated bat activity surveys, those features with 30 or more *Myotis* or *Plecotus* passes (groups likely to be most vulnerable to habitat gaps) or more than 500

bat passes in total (the highest levels of activity recorded) on one night were surveyed by surveyors who could observe bat activity whilst light levels were still high enough to see the bats. Data collected during these surveys is summarised in *Table 5* below, full results are presented in *Appendix F.*

Table 5: Summary of Manual Activity Surveys

Location	Date	Surveyor (and location)	Number of bats recorded					
			Common pipistrelle	Soprano pipistrelle	*Nyctalus* species	*Pipistrellus* species	Unidentified bat	Total
64/65	9th July 2012	Paul Barnes (North of feature)	4	5	3	3	5	20
		Sarah Brooks (South of feature)	6	12	8	2	10	38
55	11th July 2012	Paul Barnes (East of feature)	11	33	0	4	3	51
		Sarah Brooks (West of feature)	14	27	0	6	1	48

The manual bat activity surveys recorded the following species: Common Pipistrelle; Soprano Pipistrelle and *Nyctalus* species.

The manual bat activity surveys were undertaken from 15 minutes before sunset to 1.5 hours after sunset.

The largest number of bats was recorded from *Location 55*. On 11th July 2012 at this location 51 bats were recorded by one of the surveyors. Of these bats, 17 were recorded commuting in the same direction (east) along the hedgerow during the survey period, indicating a roost nearby.

Common and Soprano Pipistrelle were the two most common species recorded and were recorded at all locations surveyed. The largest number of *Pipistrellus* recorded by a surveyor in a single night was at *Location 55* on 11th July 2012 (48 bats).

Small numbers (less than 10 passes) of *Nyctalus* species were recorded at *Location 64/65*.

No Nathusius Pipistrelle, *Myotis* species or Barbastelle bats were recorded throughout the survey period.

4 EVALUATION AND CONCLUSIONS

4.1 Roosting Bats

A small number of trees (number not confirmed yet) which have been classified as having potential to support roosting bats will have to be removed to facilitate the construction of the cable. However, no tree roosts were recorded within the Onshore Cable Route and Converter Station Development Area during the surveys. It should be noted however that bats are known to move roost frequently, and can switch roosts every three days.

4.2 Commuting and Foraging Bats

There are multiple potential impacts to commuting and foraging bats as a result of the vegetation clearance (sections of hedgerow will have to be removed and areas of grassland will have to be stripped). The removal of vegetation will reduce the foraging habitat available to bats within the working width. This has the potential to cause a negative impact to bats which has the potential to reduce breeding success of certain bat species. Gaps in hedges may also mean that some species are reluctant to cross the gap, and are vulnerable to predation when they do.

The level of impact is likely to vary depending on how regularly used and important a hedgerow is to bats. For example the reduction in foraging habitat caused by the hedgerow section removals may have a more significant impact on regularly used hedgerows where a high level of bat activity was recorded (*i.e.* at *Locations 27, 55, 64/65* and *119/120* where a minimum of 200 bat passes were recorded at each), compared to hedgerows where lower bat activity was recorded. In addition, due to the rarity of the species, any hedgerow with more than 5 Barbastelle passes should be considered as an 'important' hedgerow. The survey results indicate that only *Locations* 4 and *146/147* recorded >5 Barbastelle passes.

Bats are known to use hedgerows to commute along in order to navigate around the landscape and some species are potentially sensitive to gaps in hedgerows such as species for the genus *Myotis/Plecotus* due to the nature of their flight pattern. Species from the genus *Nyctalus* and *Eptesicus* and Nathusius Pipistrelle Bats are known to fly high and in open habitats and therefore are unlikely to be impacted be hedgerow severance. Common Pipistrelle and Soprano Pipistrelle Bat are generalist species and will tolerate gaps in hedgerows. There is very limited research regarding whether gaps present a significant problem for *Myotis/Plecotus* species. The gaps in hedgerows also have the potential to increase the risk of predation of bats. Bats will be more visible to potential predators while they fly across the gaps as they will have no cover.

4.3 Lighting

If the proposed works are undertaken during the night, lighting would be required which has the potential to impact on bats. Different bat species vary in their sensitivity to lighting. *Myotis/Plecotus* species are the most light-sensitive species which have been recorded in the survey area. The impact of the lighting has the potential to reduce the available foraging and roosting habitat for bats as the lighting may deter bat from using a hedgerow or reaching a favour roosting site.

5 REFERENCES

Bat Conservation Trust (2007) *Bat Surveys Good Practice Guidelines.* London: Bat Conservation Trust.

Bat Conservation Trust (2012) *Bat Surveys Good Practice Guidelines.* London: Bat Conservation Trust.

RSK Environment (2012) *East Anglia One Offshore Windfarm – Phase 1 Report*. East Anglia Offshore Wind Ltd.

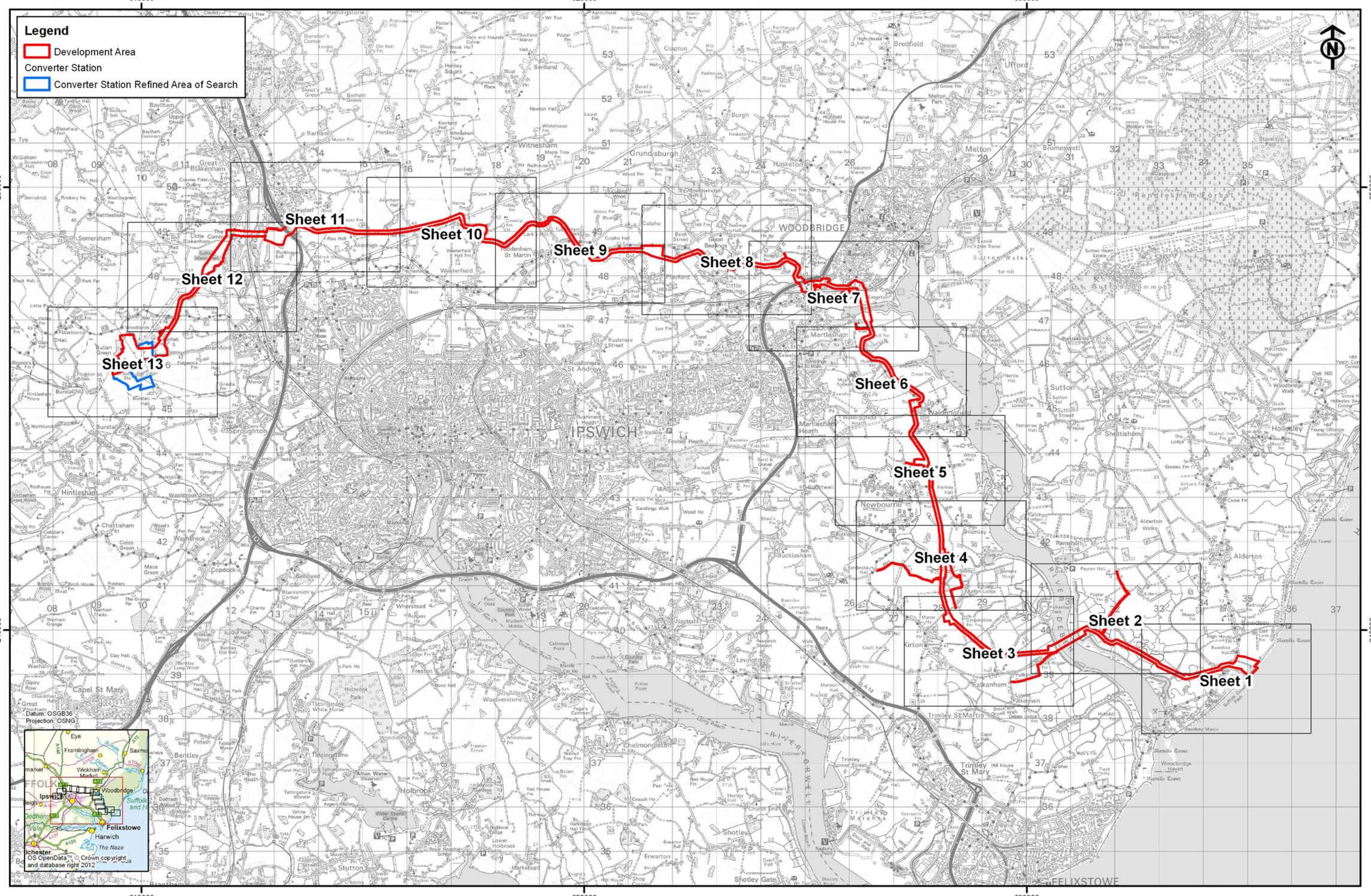
6 FIGURES

Figure 24.4.1 – Location Map

Figure 24.4.2 - Bat Records – 5km

Figure 24.4.3 – Ground Level and Tree Climbing Assessments

Figure 24.4.4 – Automated Static Detector Locations



Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:80,000

0 1 2 4 km

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Bat Survey

Onshore Cable Route - Overview

Drg No	41388-A24-24.4.1(1)
Rev	02
Date	01/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.1

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610000 620000 630000 640000

250000 240000

Legend

- Development Area
- Converter Station
- Converter Station Refined Area of Search
- Bat Records[1]
- 5 km Buffer
- Roost
- Breeding Colony / Nursery Colony
- Hibernacula
- None Roost Barbastelle Record
- Large numbers (>100 recorded)
- Barbastelle
- Unknown Bat Species
- Serotine
- Myotis Bat
- Daubenton's Bat
- Natterer's Bat
- Noctule
- Pipistrelle Bat
- Common Pipistrelle
- Soprano Pipistrelle
- Brown Long-eared Bat

Notes:
1. Bat records provided by Suffolk Biological Records Centre 2012

Datum: OSGB36
Projection: OSNG

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SCOTTISHPOWER RENEWABLES VATTENFALL

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	23/07/12	RG	First issue

Original A3
Plot Scale
1:100,000

0 1 2 4 km

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Bat Roost Records
Sheet 1 of 1

Drg No	41388-A24-24.4.2(1)
Rev	02
Date	01/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.2

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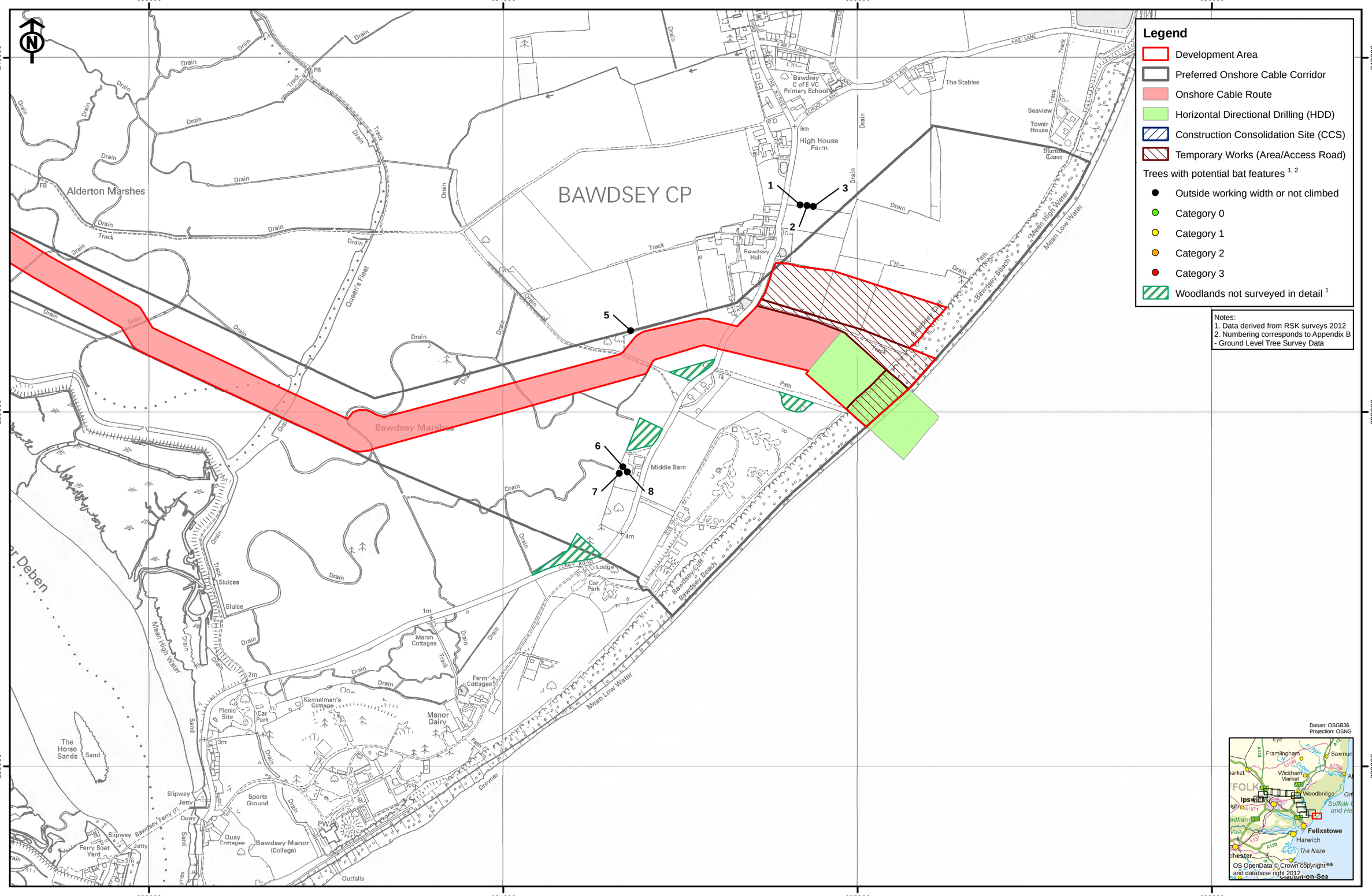

Rev	Date	By	Comment
02	08/10/12	DL	Frame updated
01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 1 of 13

Drg No	41388-A24.4-24.4.3(1)	Appendix 24.4
Rev	02	
Date	08/10/12	Figure 24.4.3
Layout	N/A	

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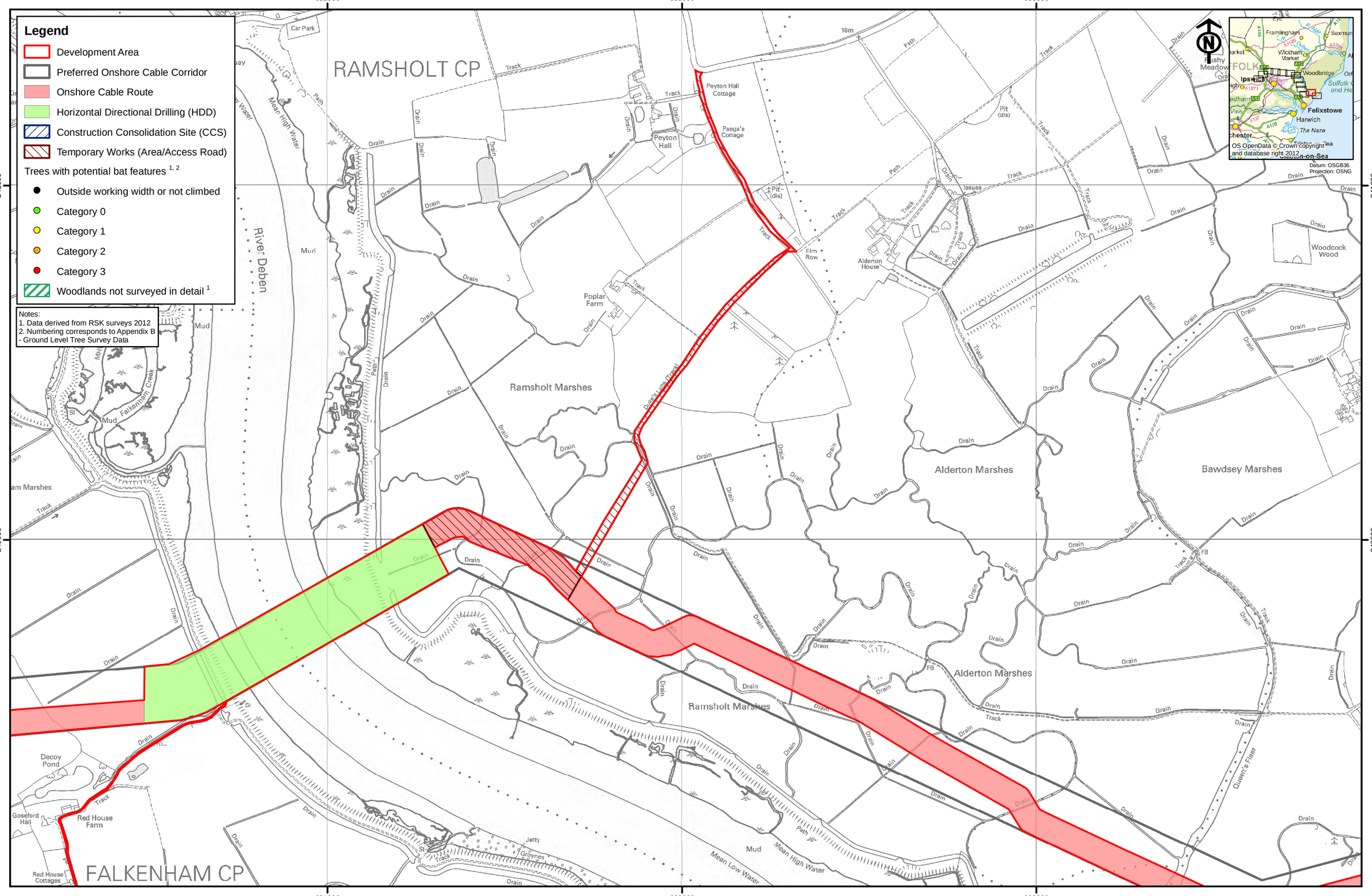

Rev	Date	By	Comment
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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3
Plot Scale
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0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 2 of 13

Drg No	41388-A24.4-24.4.3(2)	Appendix 24.4
Rev	02	
Date	08/10/12	Figure 24.4.3
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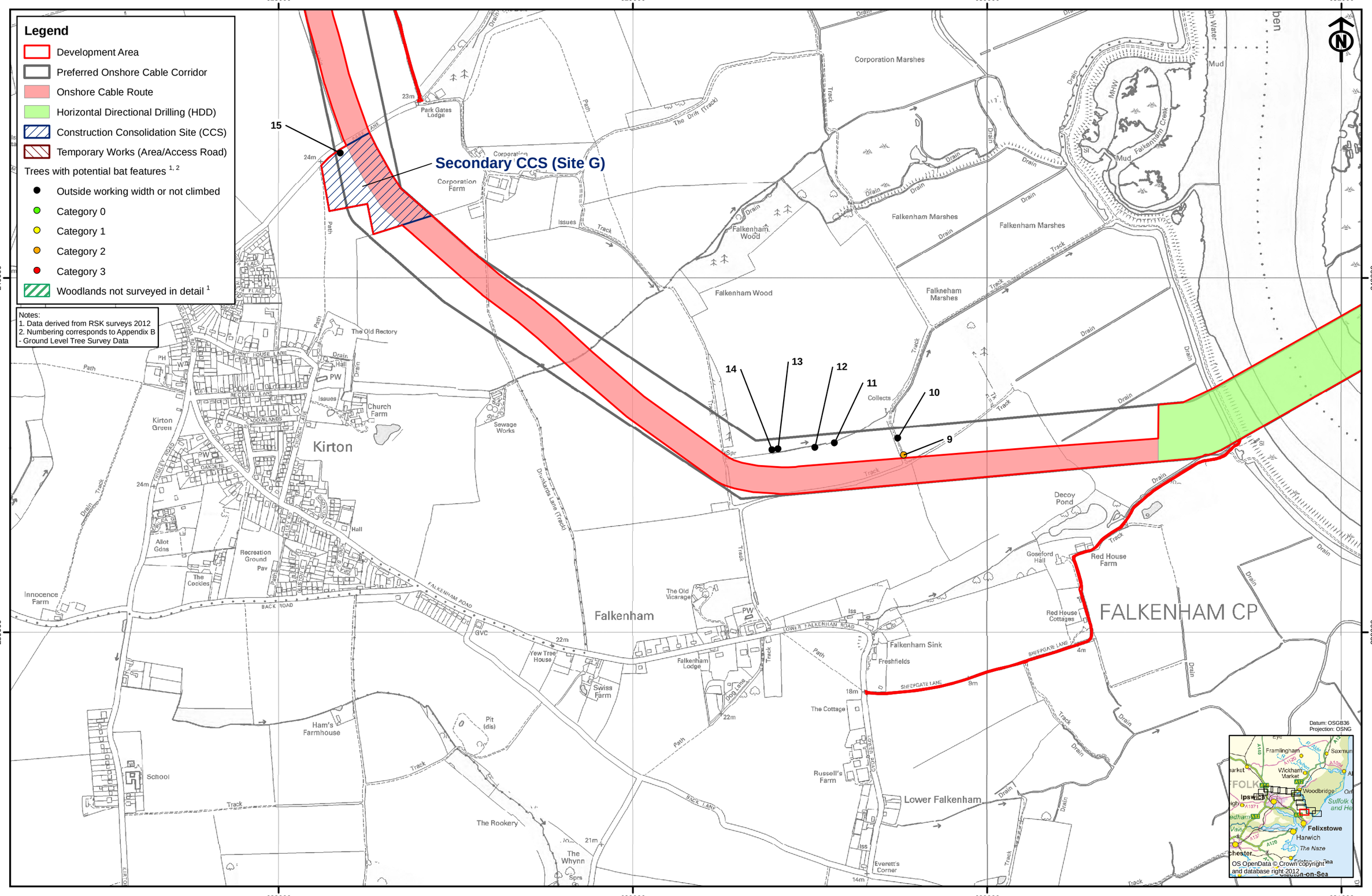

Rev	Date	By	Comment
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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 3 of 13

Drg No	41388-A24.4-24.4.3(3)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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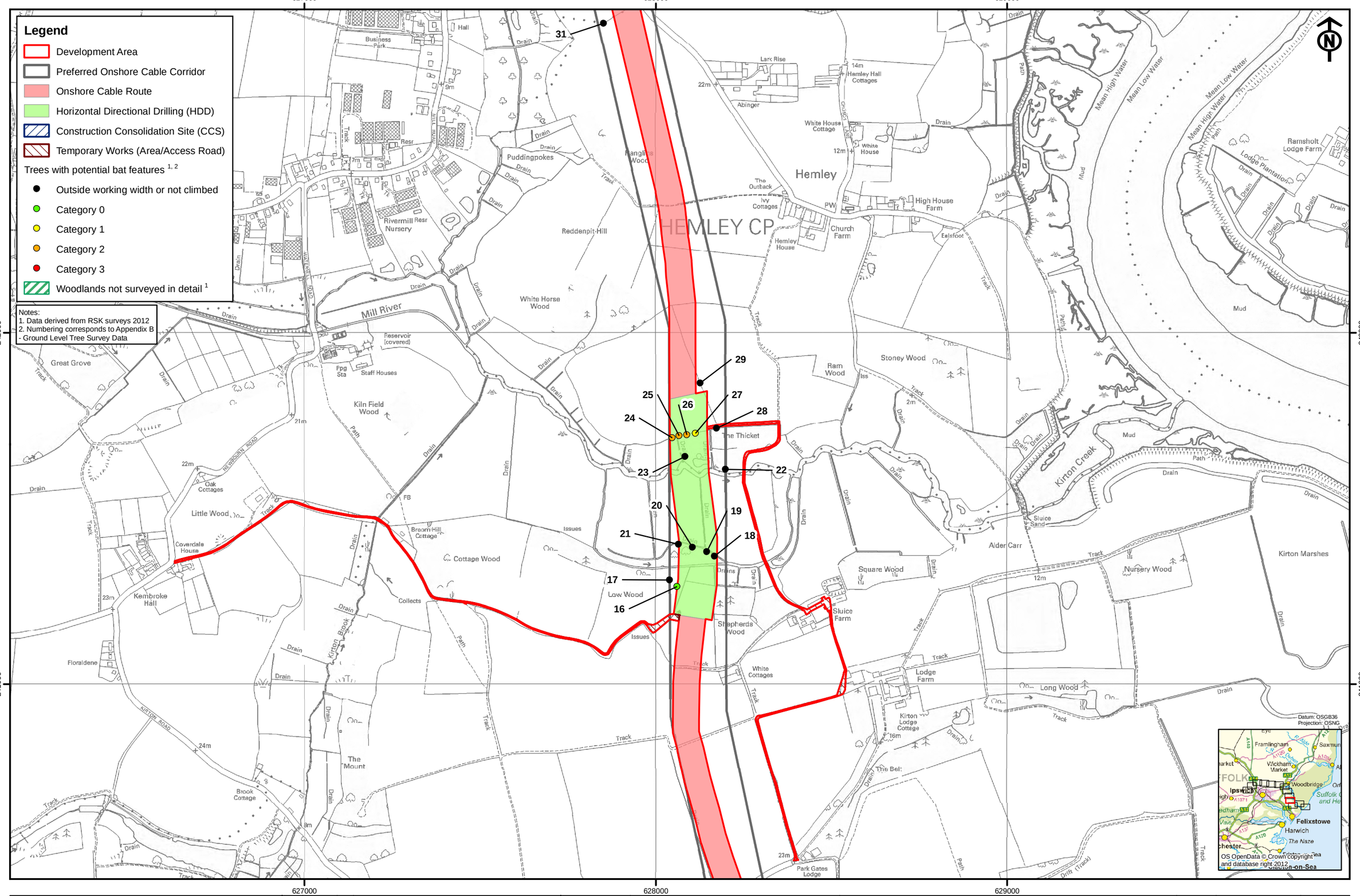

Rev	Date	By	Comment
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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

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Ground Level and Tree Climbing Assessments Sheet 4 of 13

Drg No	41388-A24.4-24.4.3(4)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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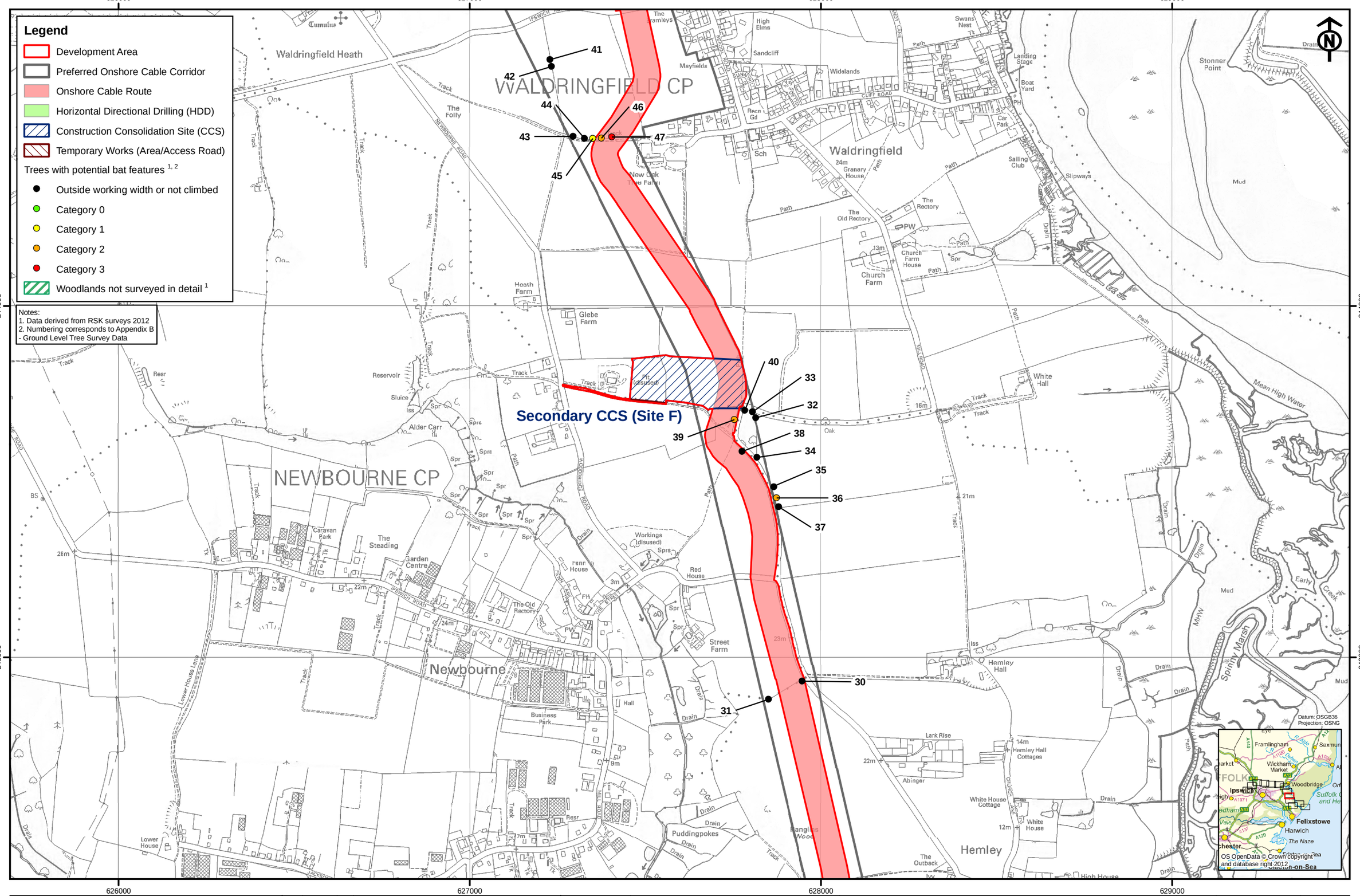

Rev	Date	By	Comment
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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 5 of 13

Drg No	41388-A24.4-24.4.3(5)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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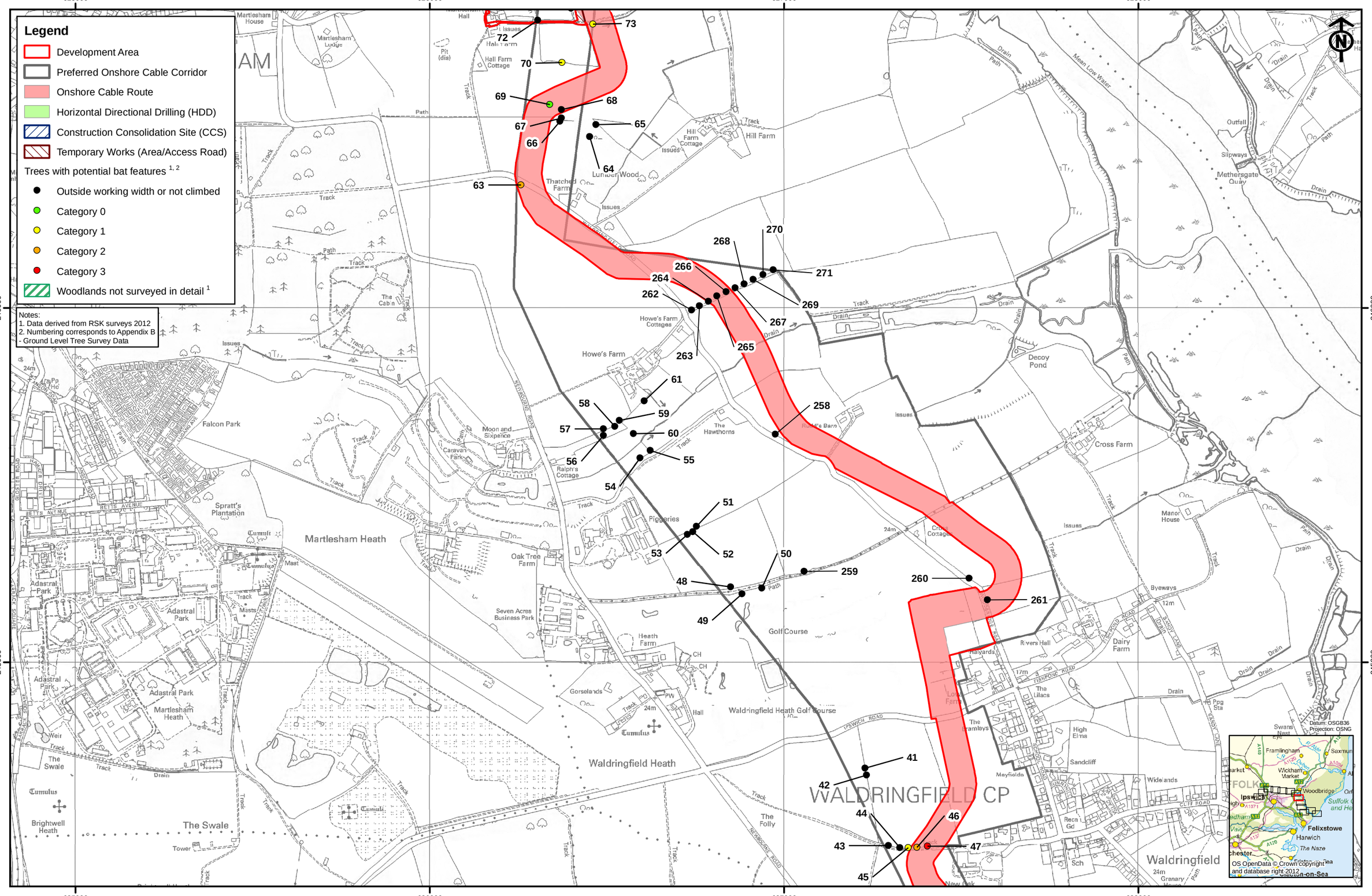

Rev	Date	By	Comment
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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 6 of 13

Drg No	41388-A24.4-24.4.3(6)	Appendix 24.4
Rev	02	
Date	08/10/12	Figure 24.4.3
Layout	N/A	

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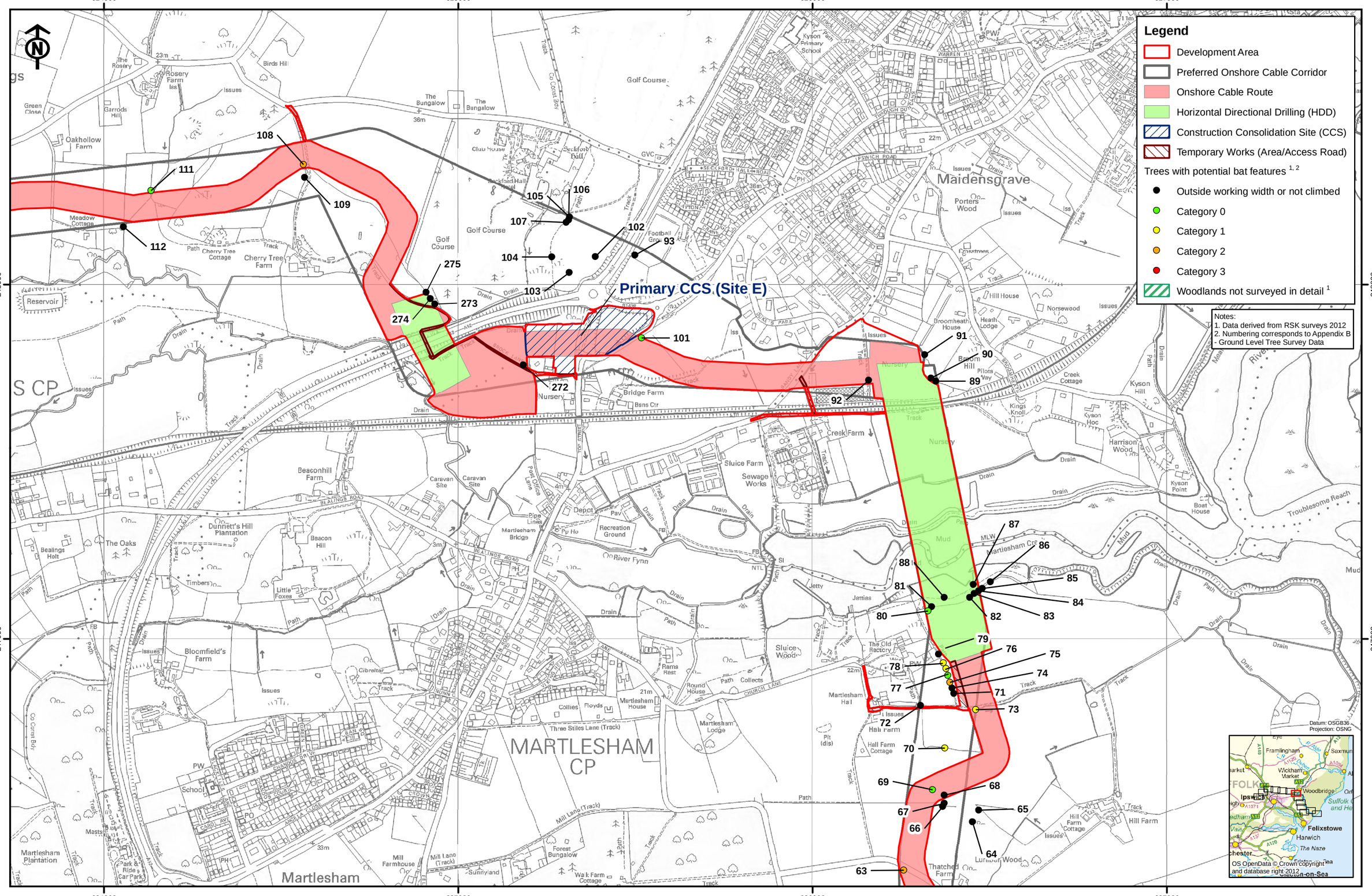

Rev	Date	By	Comment
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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 7 of 13

Drg No	41388-A24.4-24.4.3(7)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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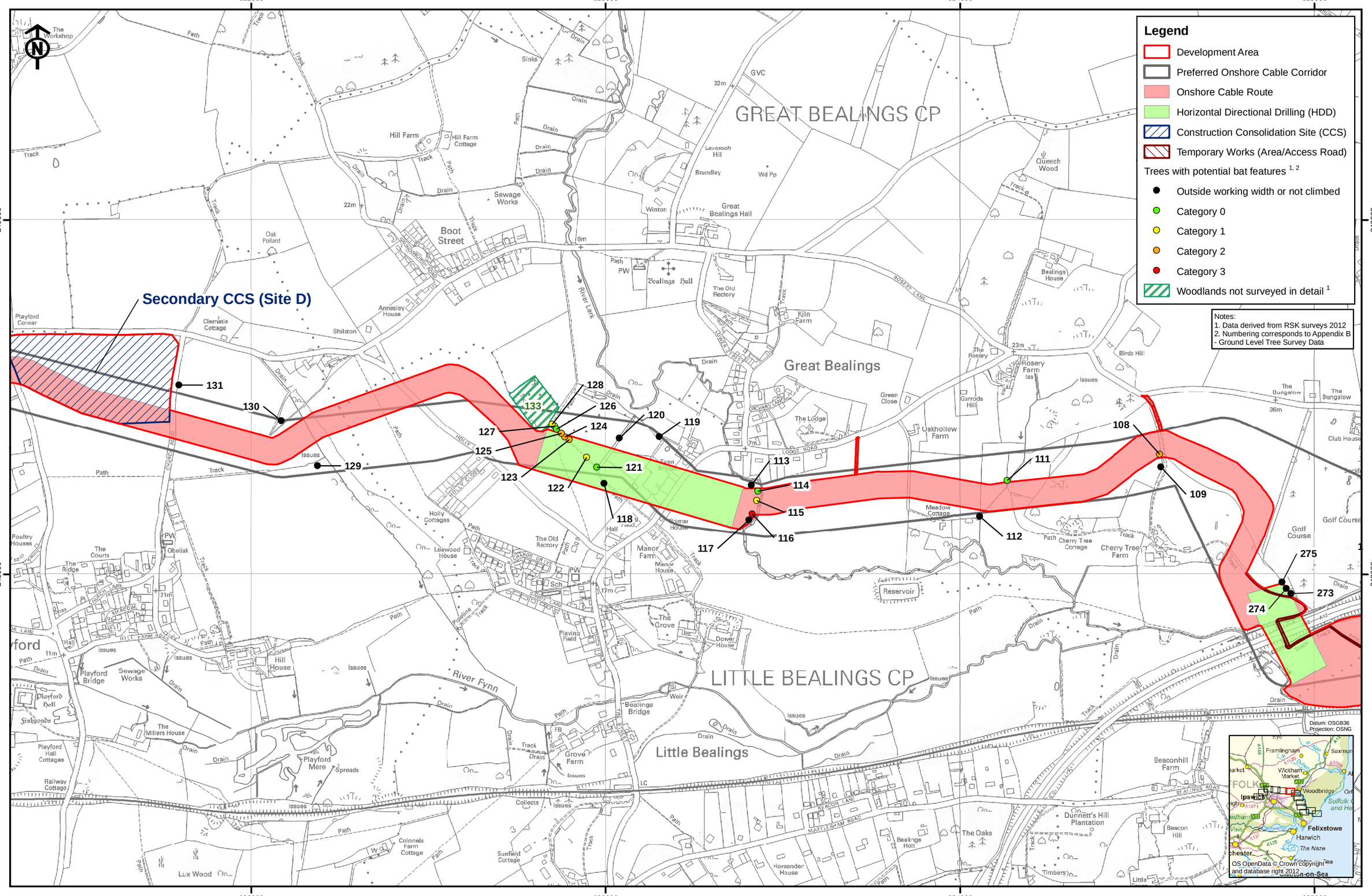

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01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 8 of 13

Drg No	41388-A24.4-24.4.3(8)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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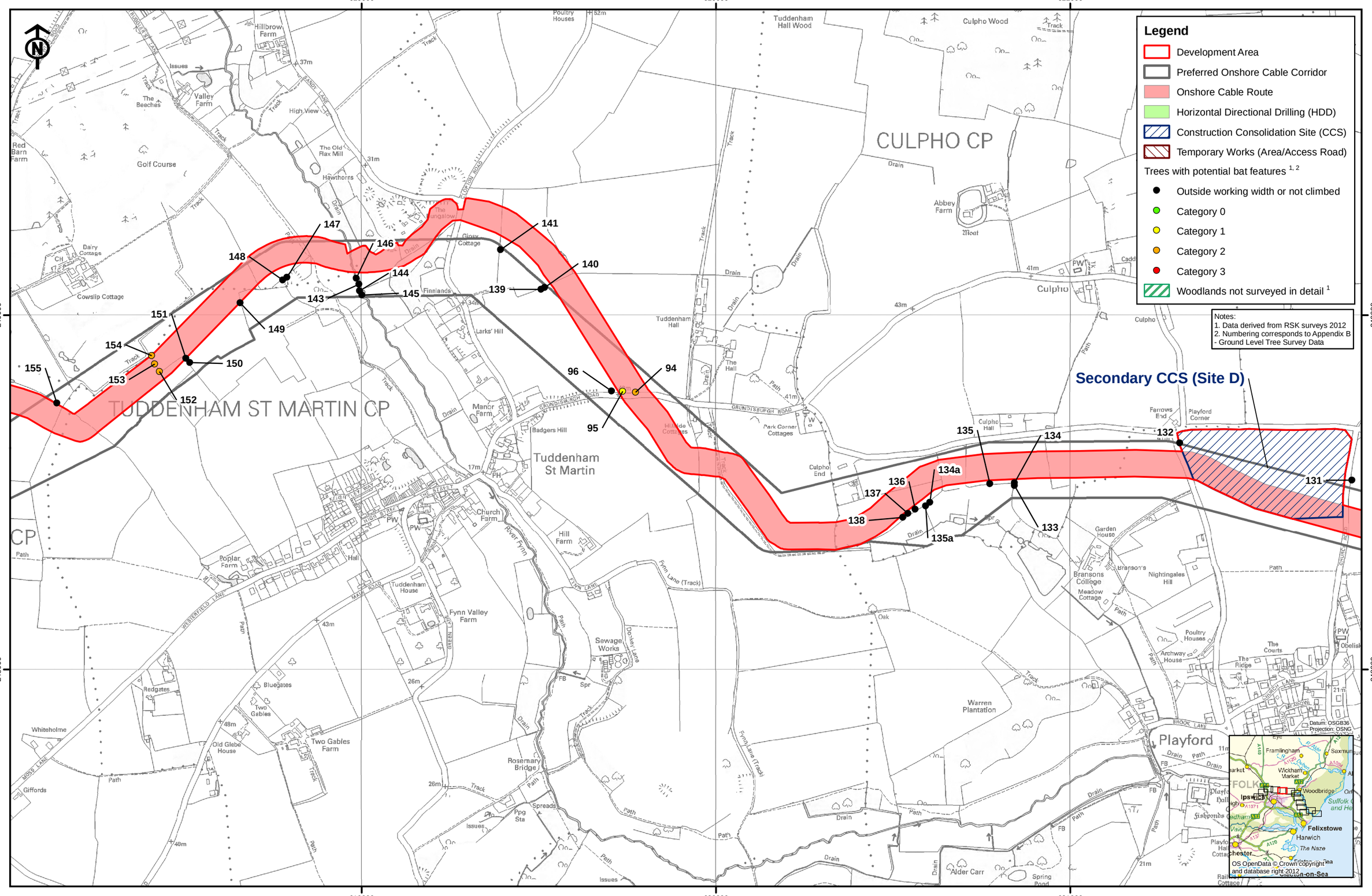

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Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Ground Level and Tree Climbing Assessments Sheet 9 of 13

Drg No	41388-A24.4-24.4.3(9)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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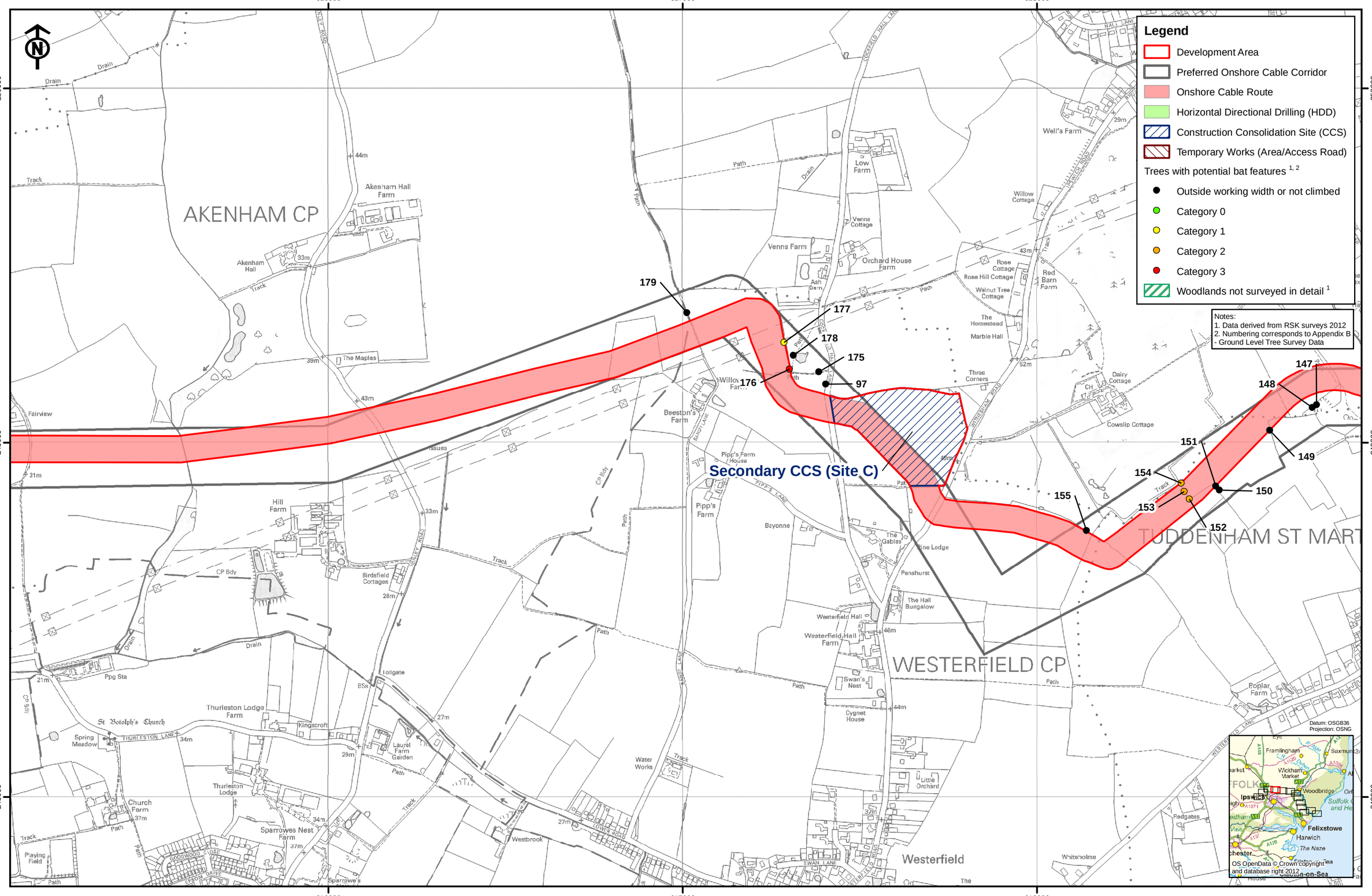

Rev	Date	By	Comment
02	08/10/12	DL	Frame updated
01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3

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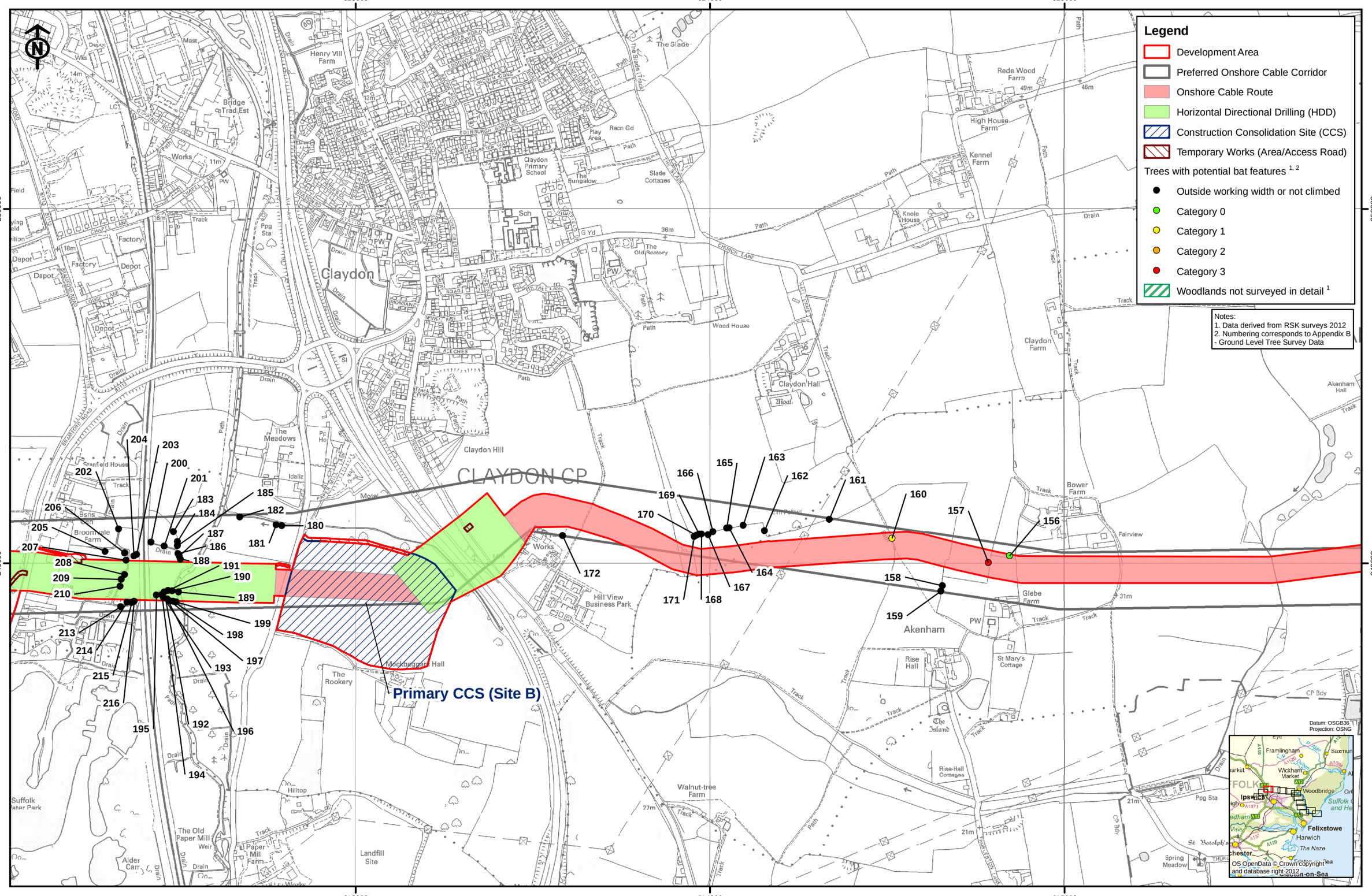

Rev	Date	By	Comment
02	08/10/12	DL	Frame updated
01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

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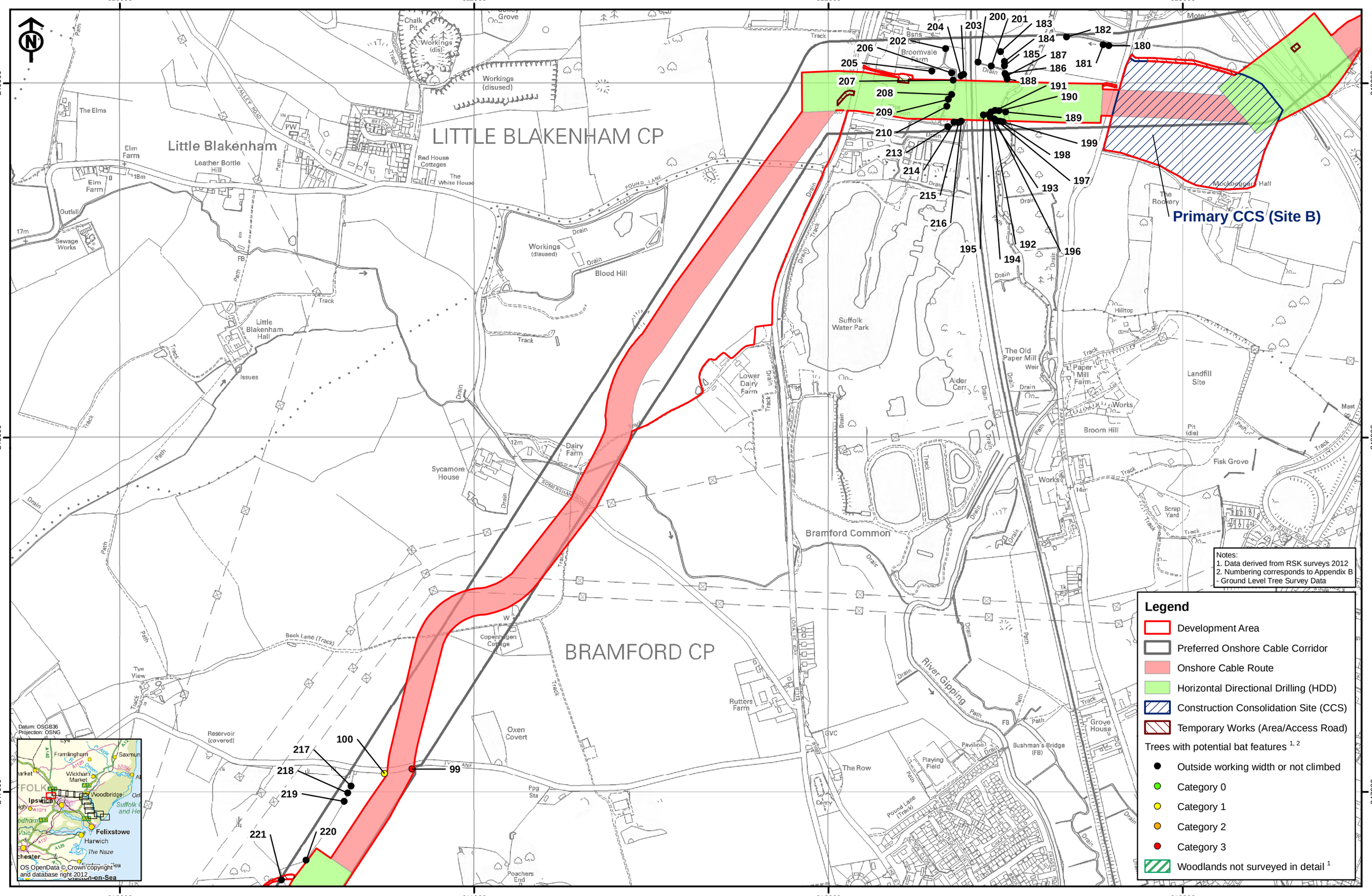
Drg No	41388-A24.4-24.4.3(11)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.3


610000
611000
612000
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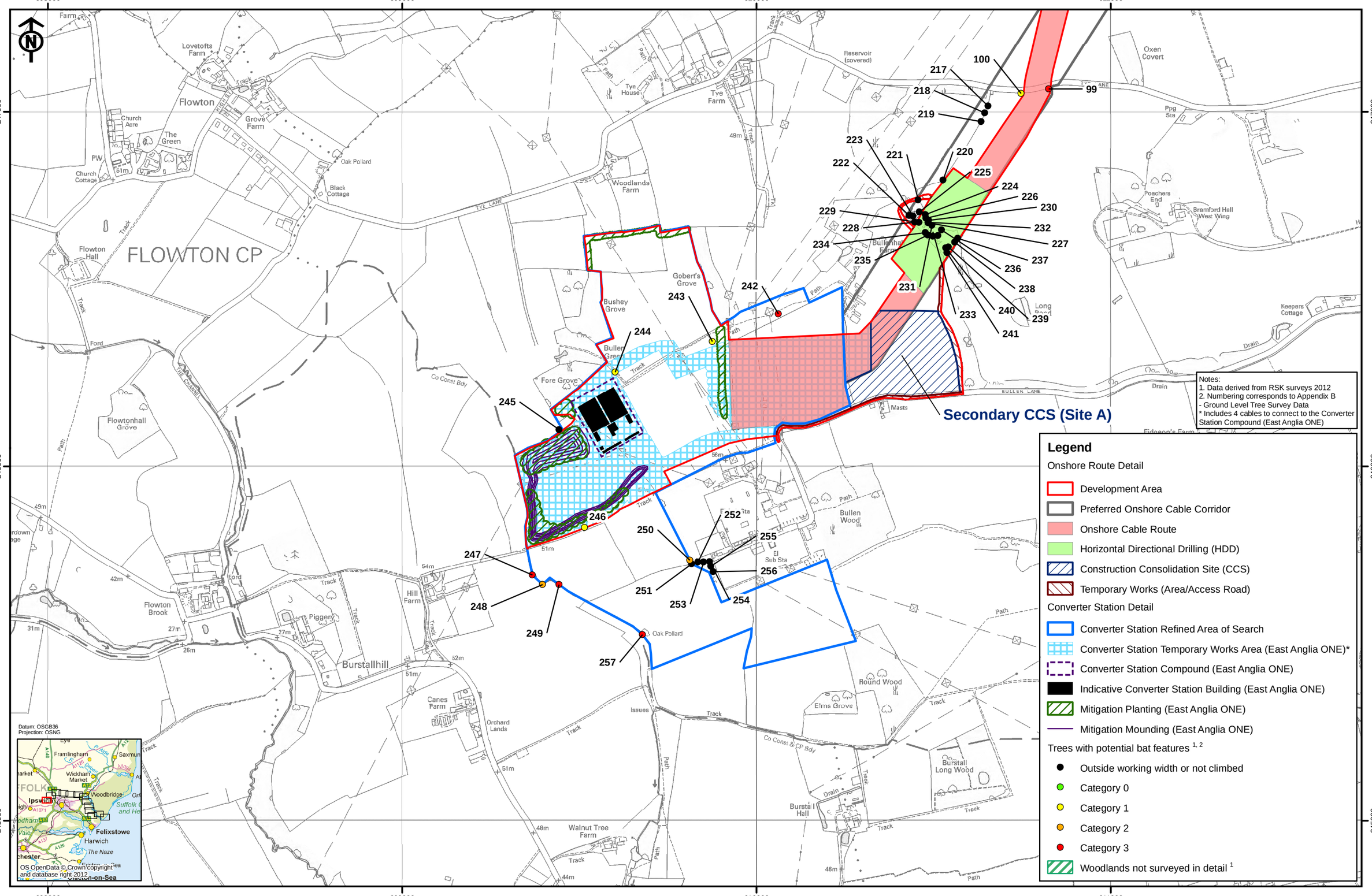
LITTLE BLAKENHAM CP
BRAMFORD CP
Little Blakenham
Primary CCS (Site B)
Suffolk Water Park
Bramford Common
River Gipping
Broomvale Farm
Mockbeggar Hall
Broom Hill
Fisk Grove
Sycamore House
Dairy Farm
Lower Dairy Farm
Alder Carr
The Old Paper Mill
Paper Mill Farm
Landfill Site
Oxen Covert
Rutters Farm
Copenhagen Cottage
Grove House
Bushman's Bridge (FB)
Playing Field
Pavilion
The Row
Poachers End
Reservoir (covered)
Little Blakenham Hall
Leather Bottle Hill
Red House Cottages
The White House
Blood Hill
Workings (disused)
Chalk Pit
Sewage Works
Elm Farm
The Elms
Hilltop
The Rookery
Scrap Yard
Pit (dis)
Mast
Tye View
Back Lane (Track)
Pound Lane (Track)
Pound Lane
Somersham Road
Valley Road
Pound Lane
Bushfield Road
Ipswich Road
Bramford Road
Lonaline Way
Ipswich Road
Bramford Road
Ipswich Road
Bushfield Road
Pound Lane



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VATTENFALL

Rev	Date	By	Comment
02	08/10/12	DL	Frame updated
01	11/09/12	AJ	Development Area updated
00	20/07/12	NH	First issue

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Layout	N/A	

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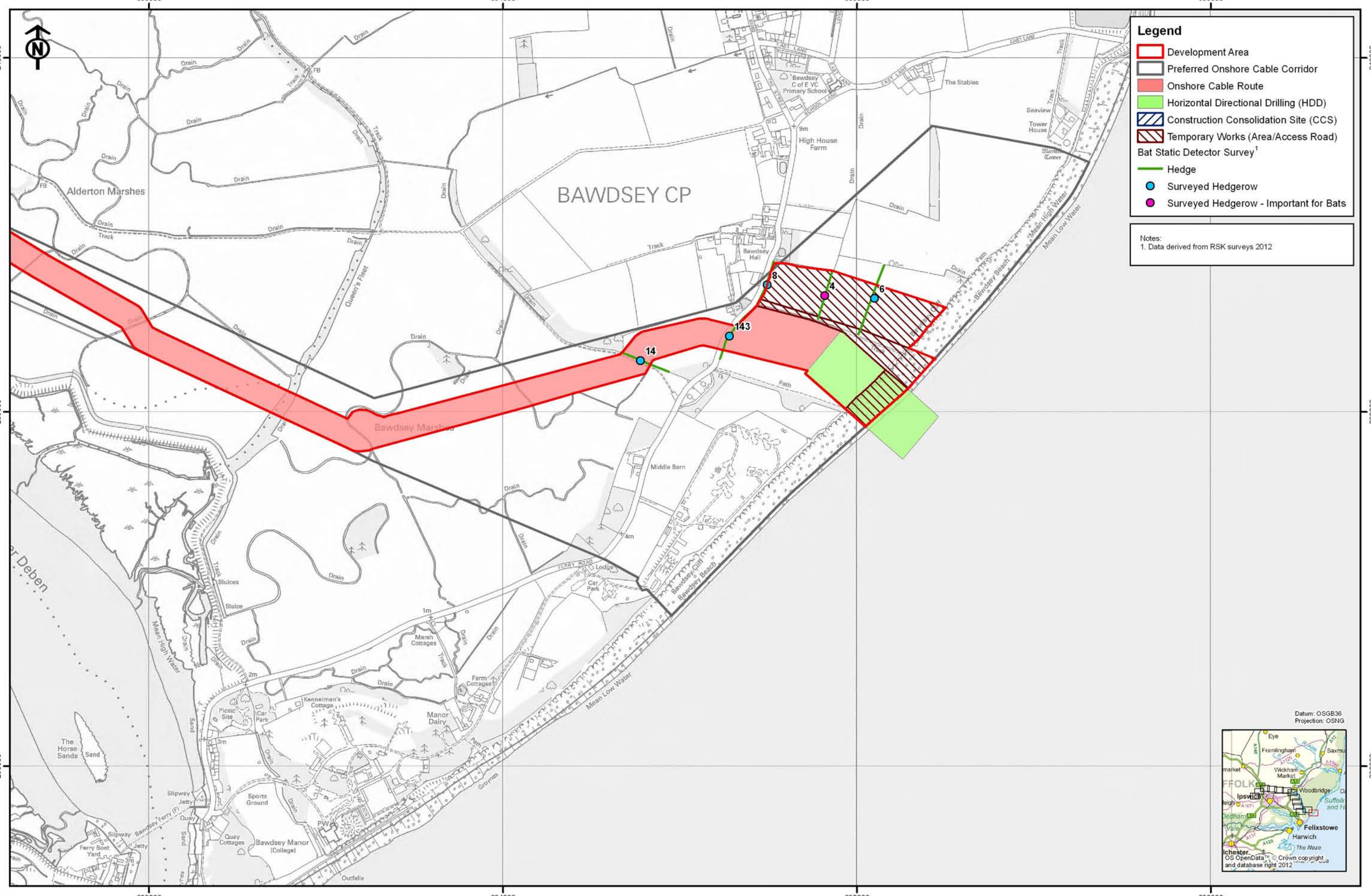

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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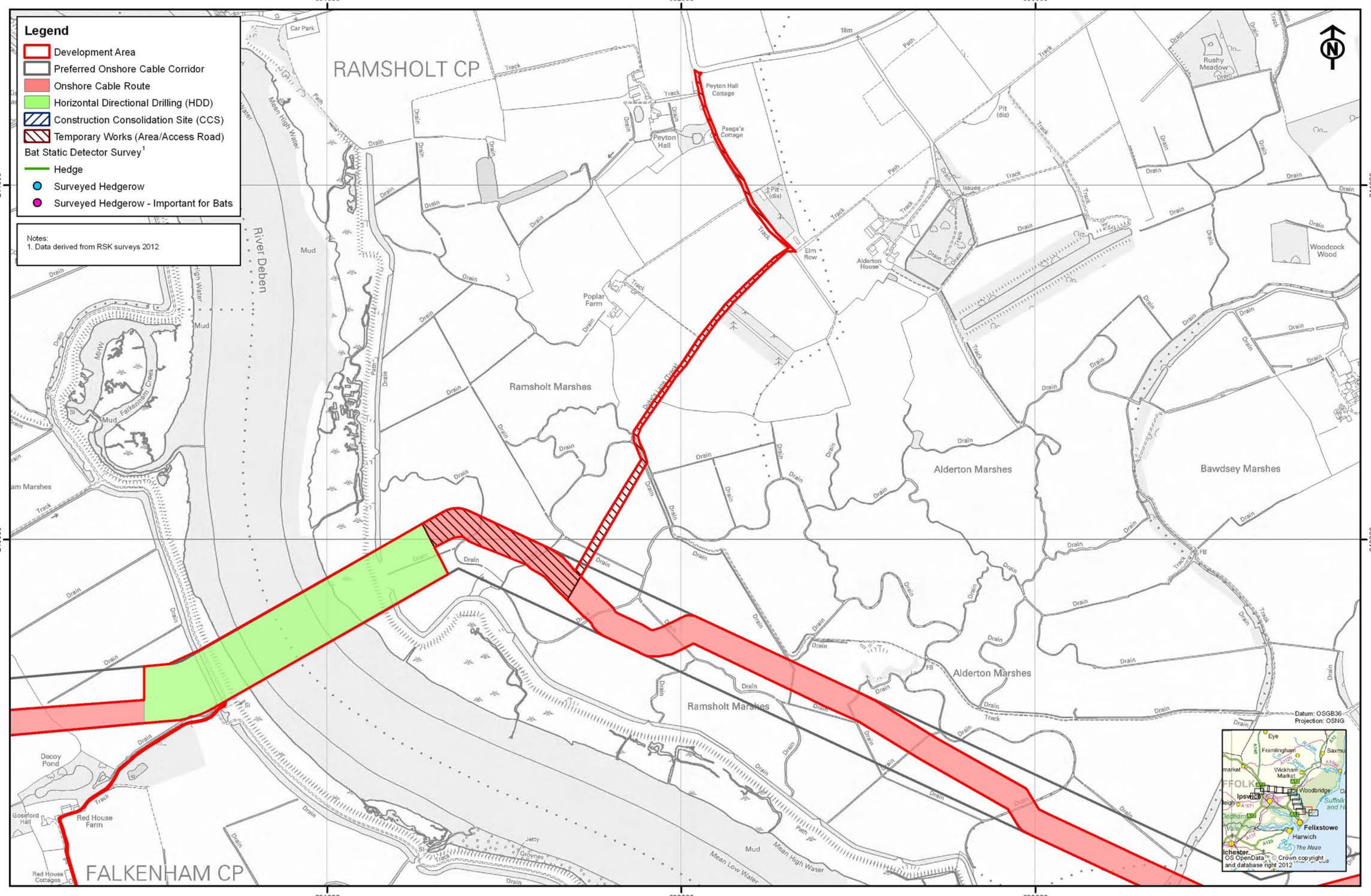
Layout	N/A

Appendix 24.4

Figure 24.4.4

Ref: T:\All GIS RSK\41388 - East Anglia ONE Offshore Windfarm\Figures\Arc_Workspaces\Phase 2



Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
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Rev	02
Date	01/10/12
Layout	N/A

Appendix 24.4

Figure 24.4.4

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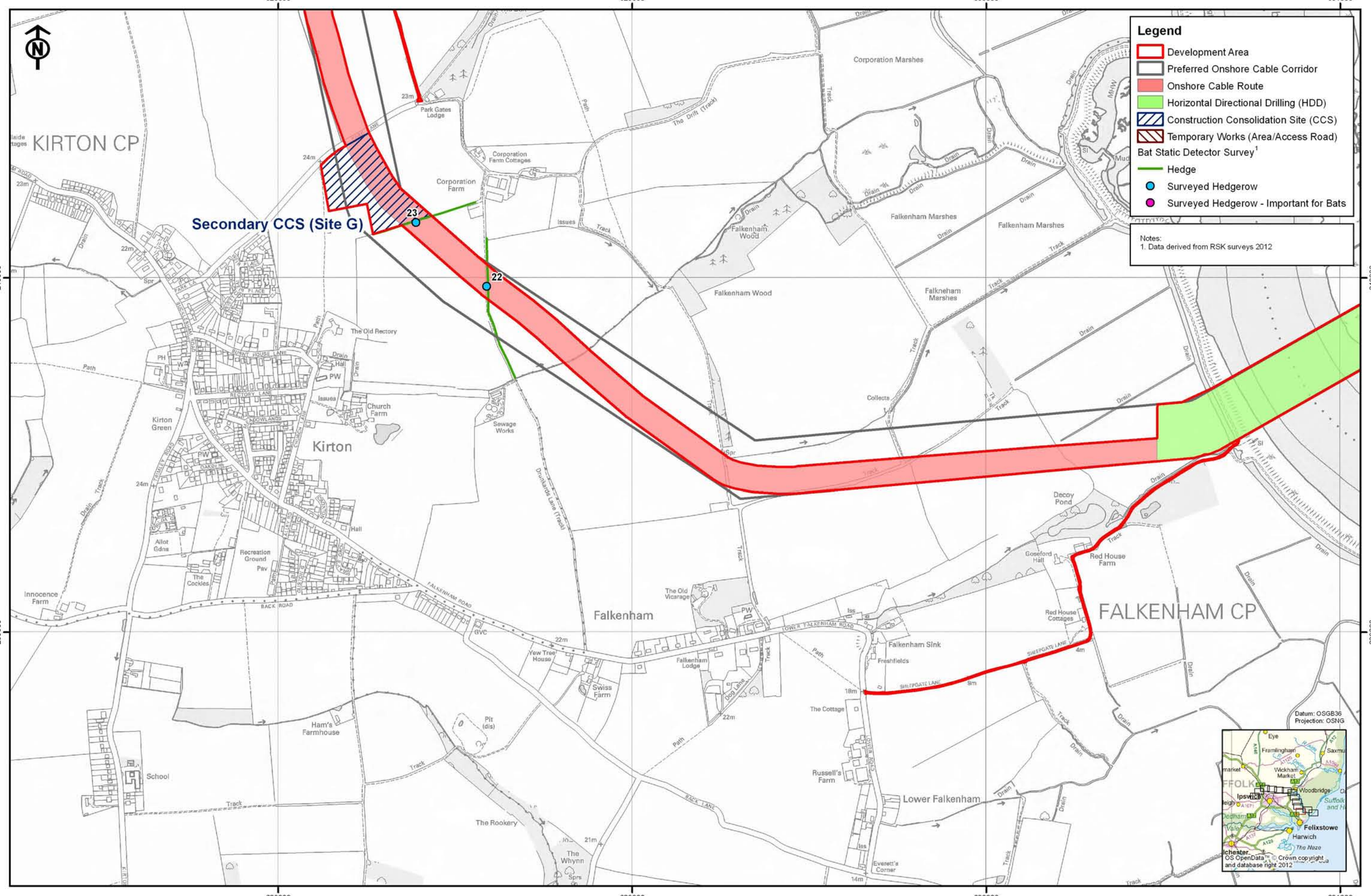

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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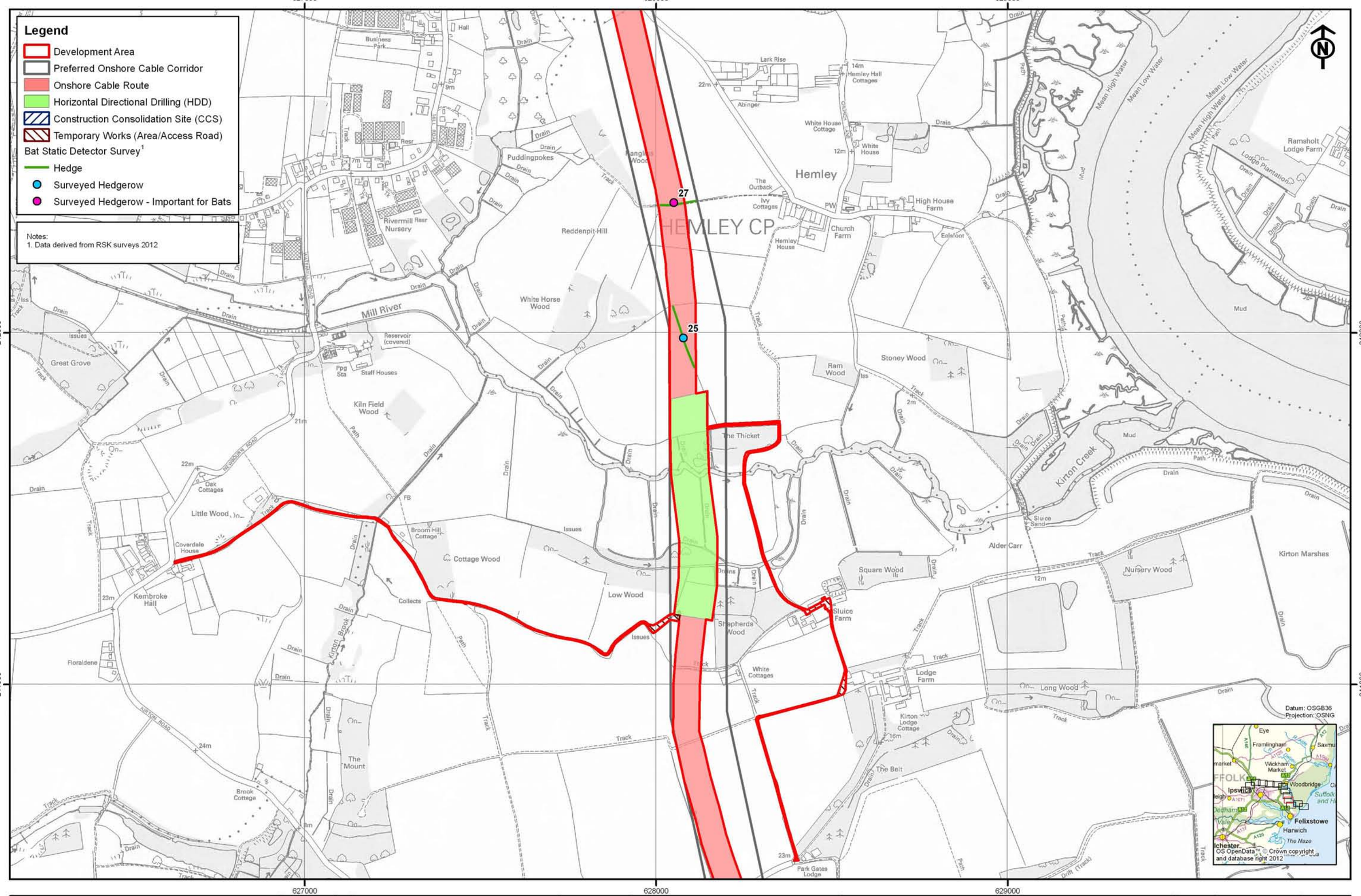
Layout	N/A

Appendix 24.4

Figure 24.4.4

Ref: T:\All GIS RSK\41388 - East Anglia ONE Offshore Windfarm\Figures\Arc_Workspaces\Phase 2



Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Layout	N/A

Appendix 24.4

Figure 24.4.4

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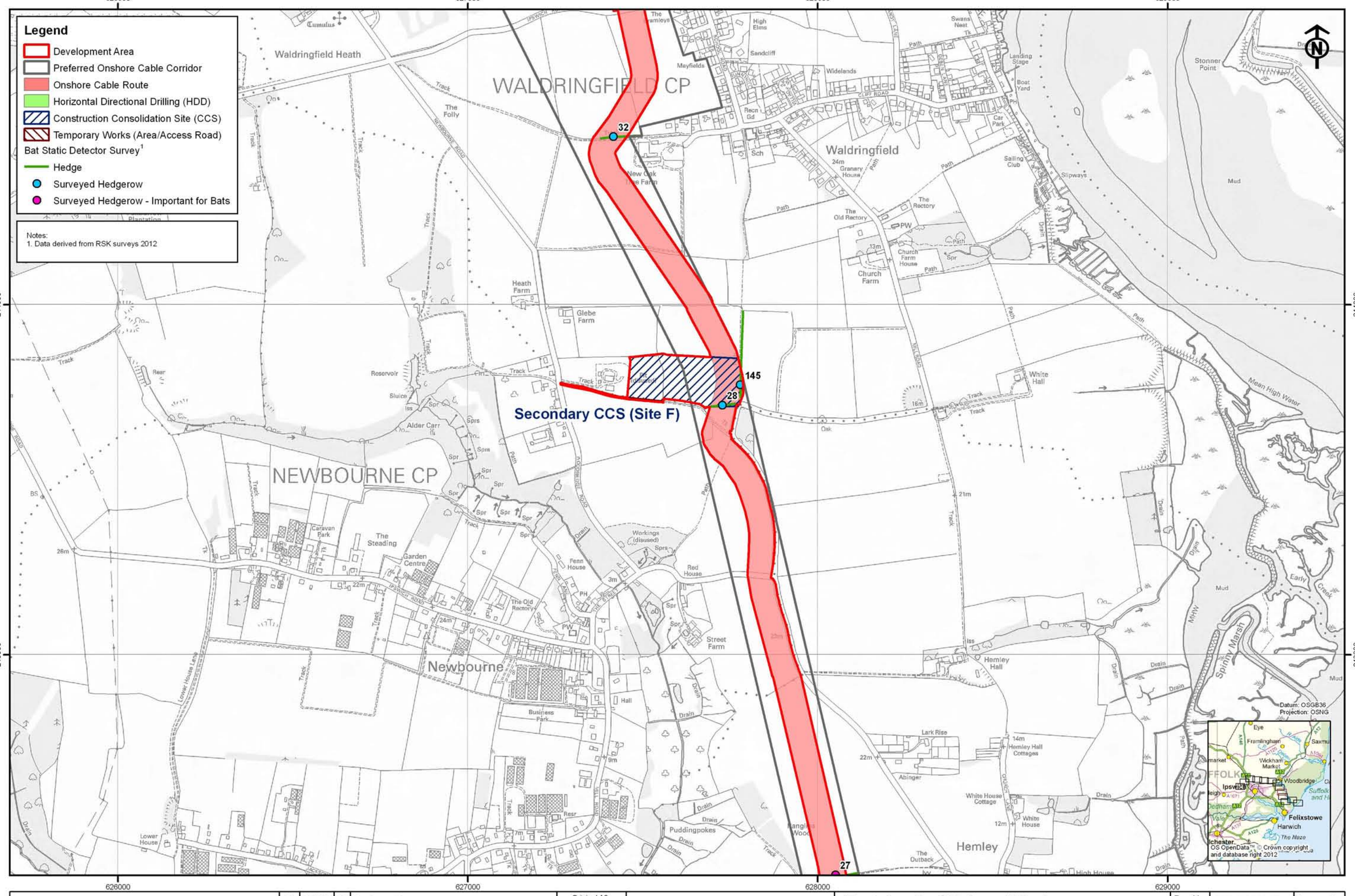

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3
Plot Scale
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Drg No	41388-A24-24.4.4(5)
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Layout	N/A

Appendix 24.4

Figure 24.4.4

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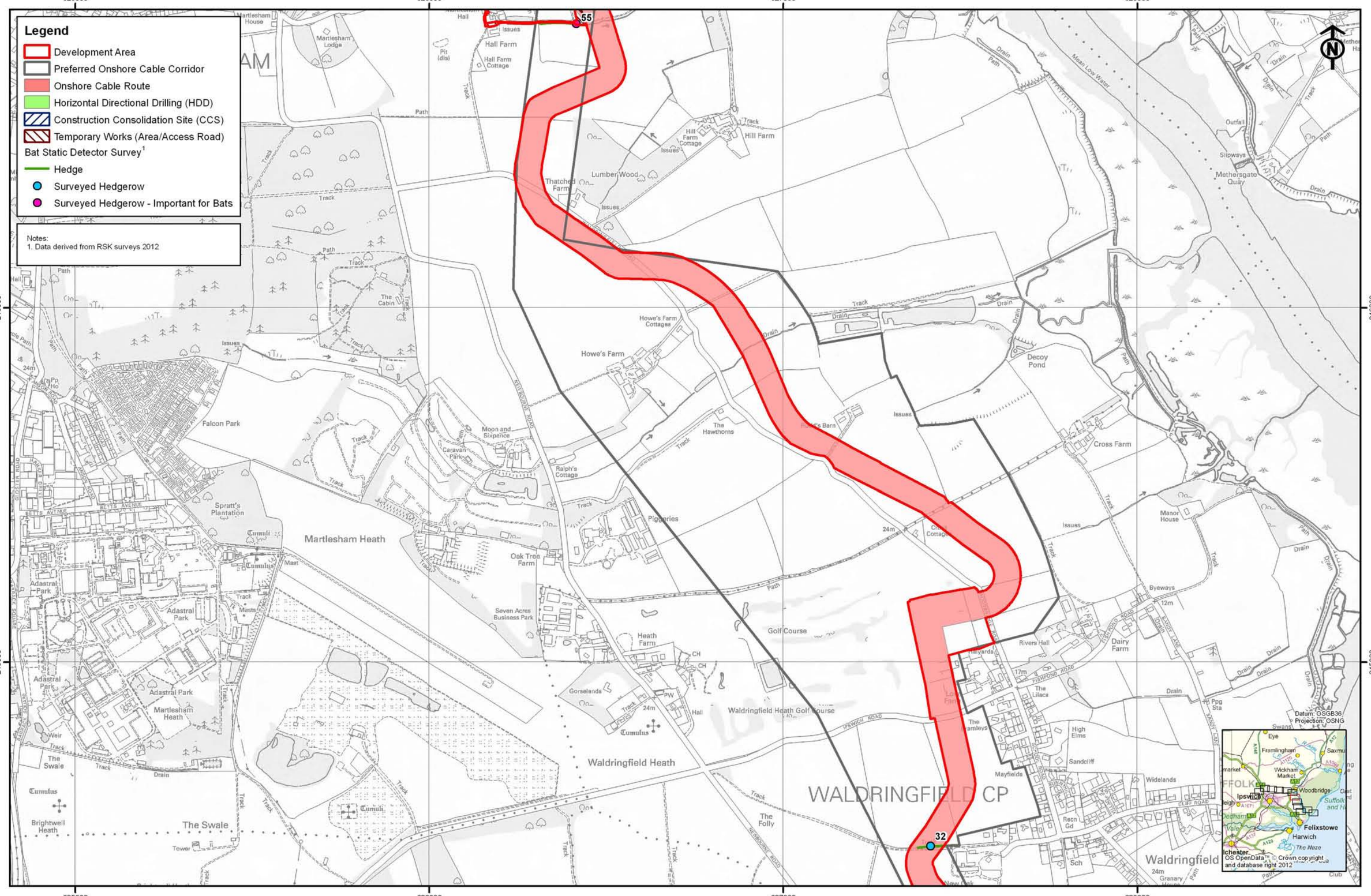

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

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Layout	N/A

Appendix 24.4

Figure 24.4.4

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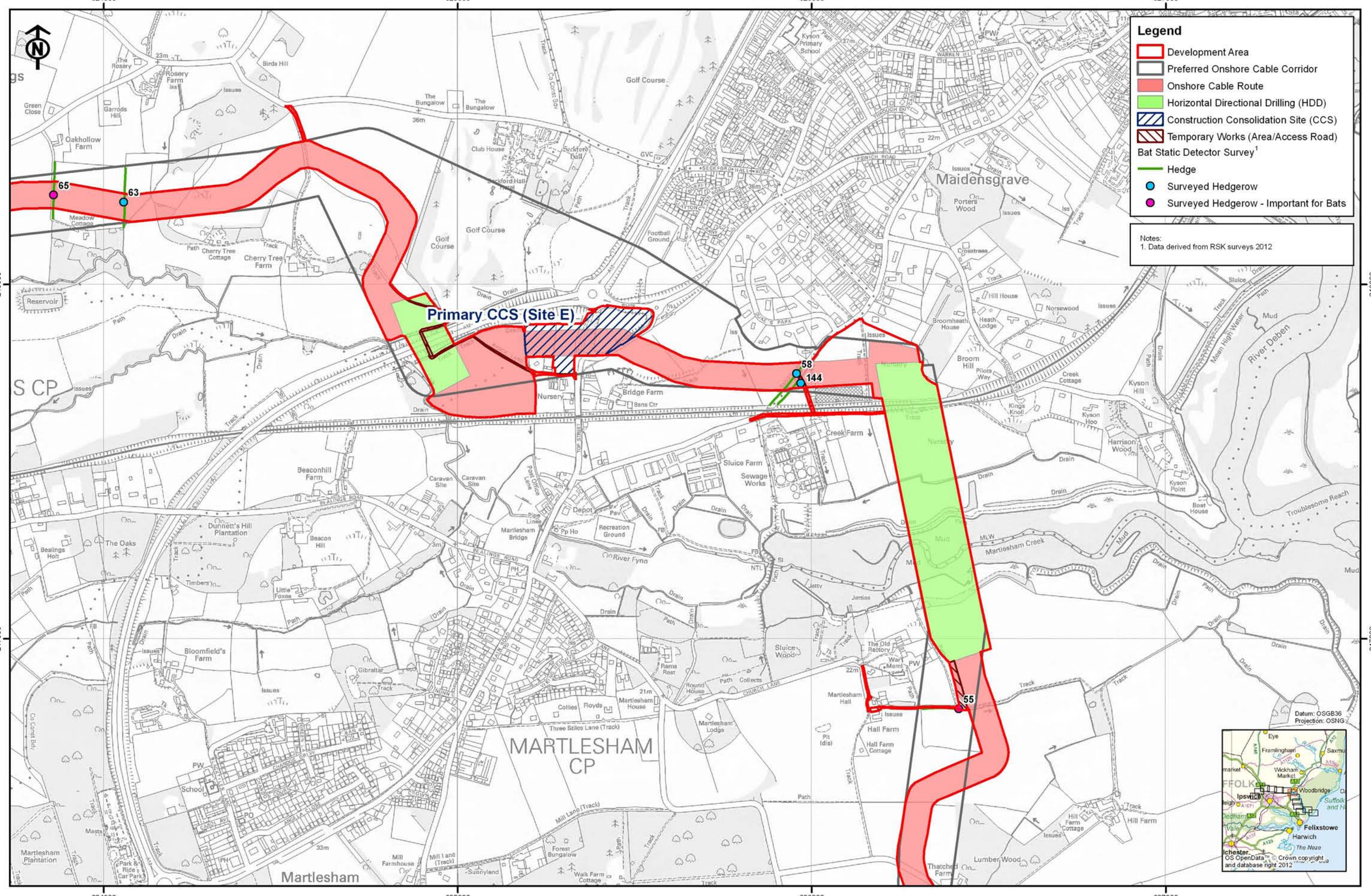

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

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Appendix 24.4

Figure 24.4.4

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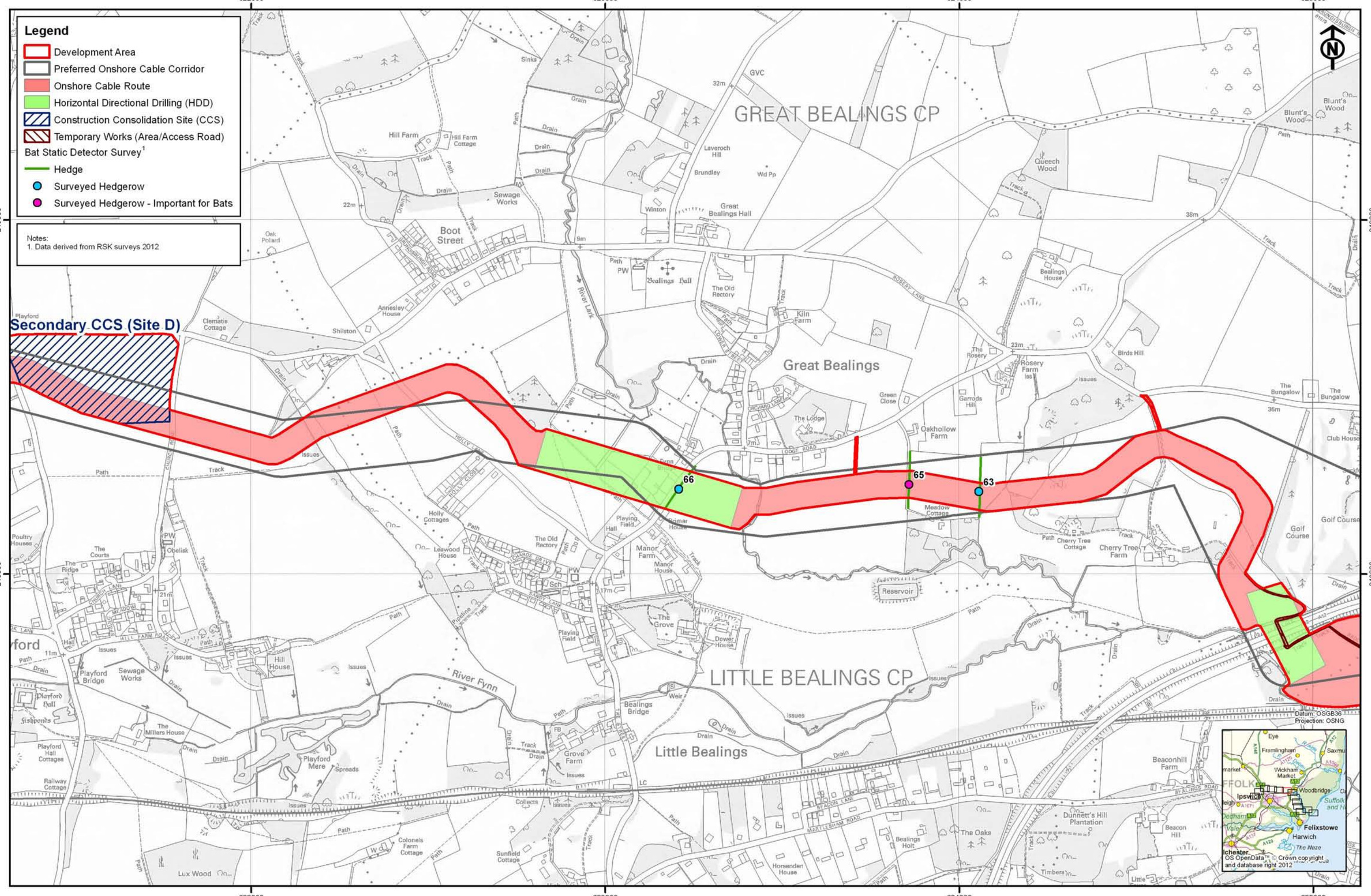

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
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Figure 24.4.4

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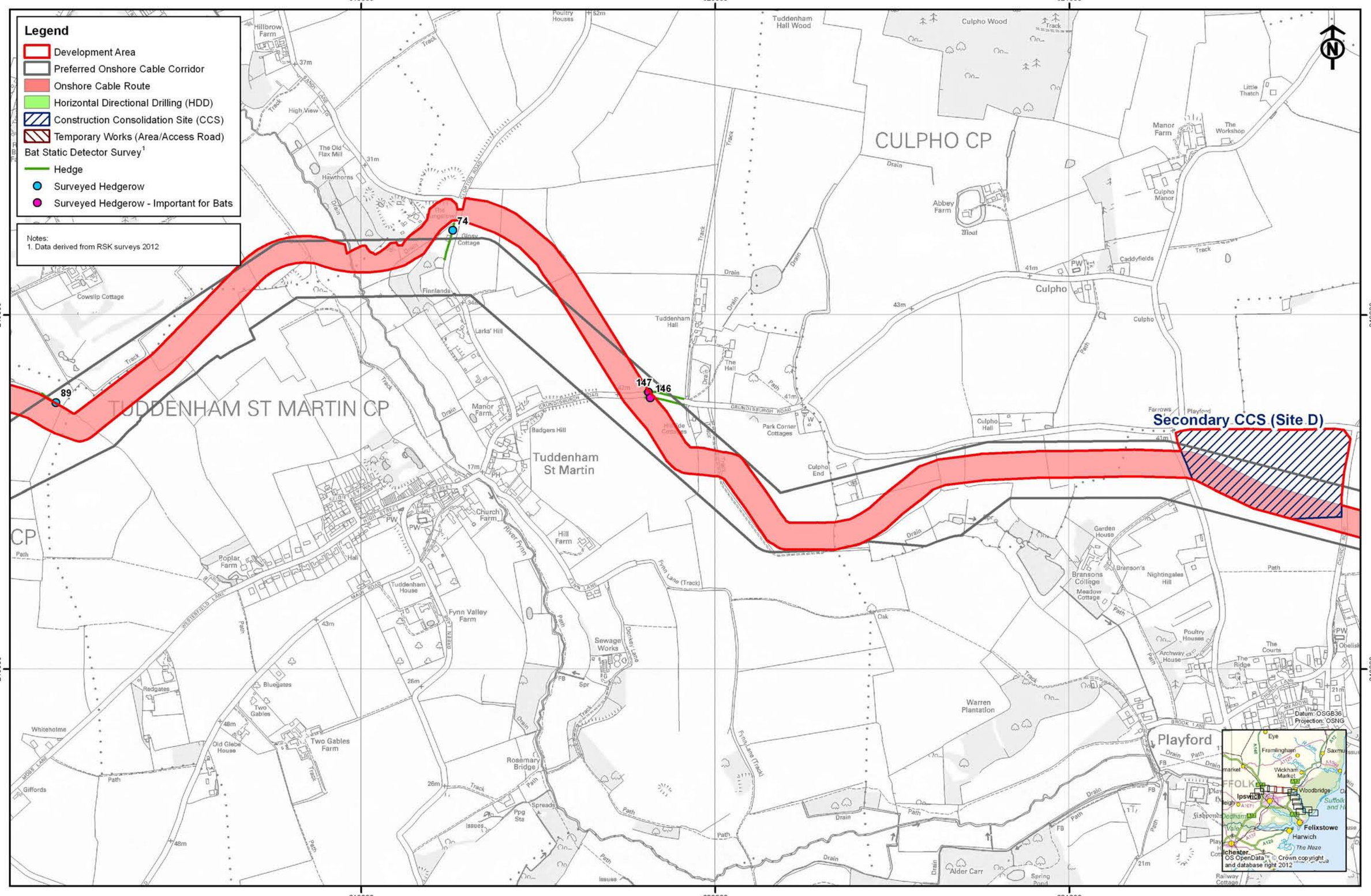

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
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Drg No	41388-A24-24.4.4(9)
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Appendix 24.4

Figure 24.4.4

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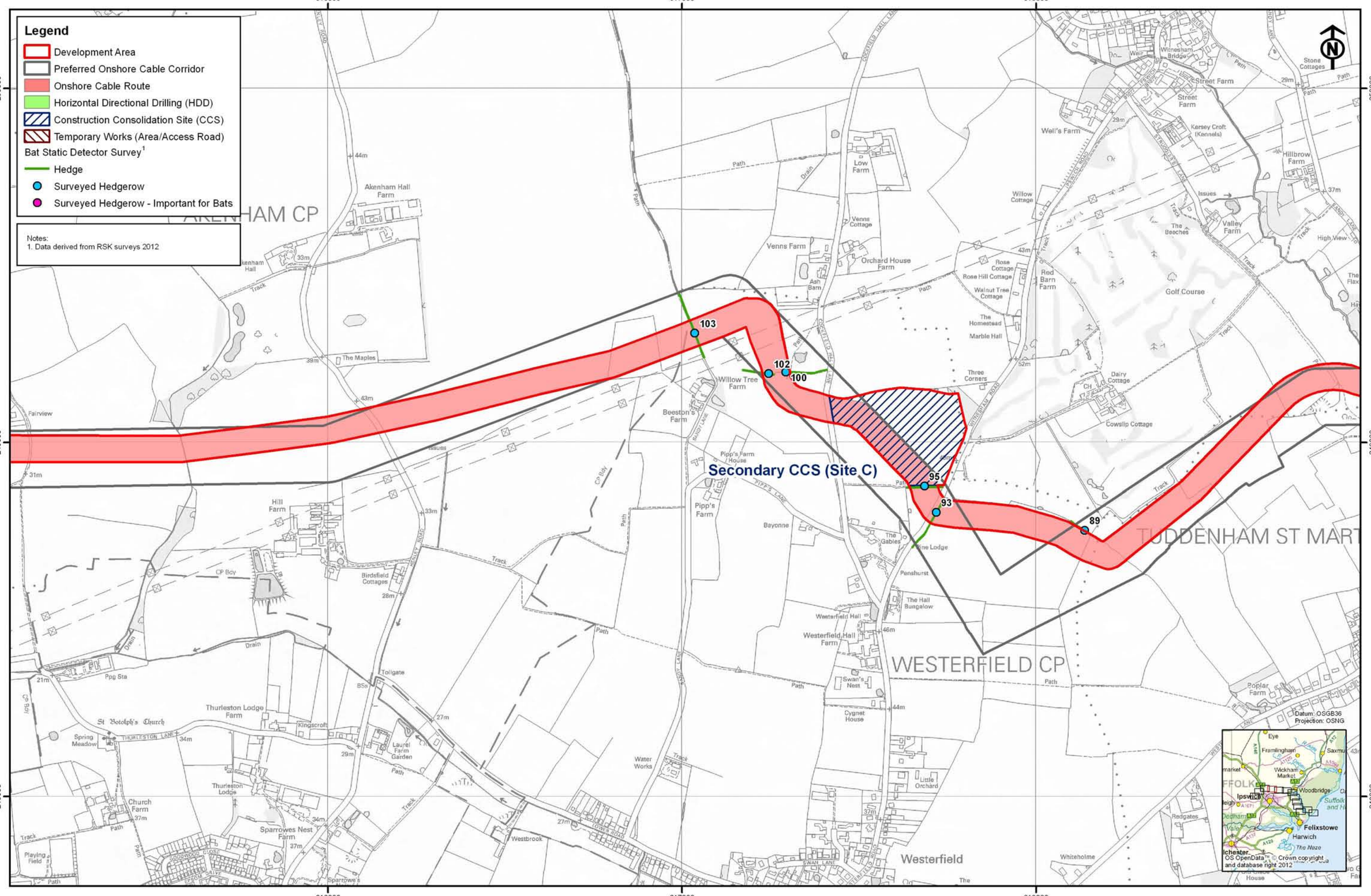

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Appendix 24.4

Figure 24.4.4

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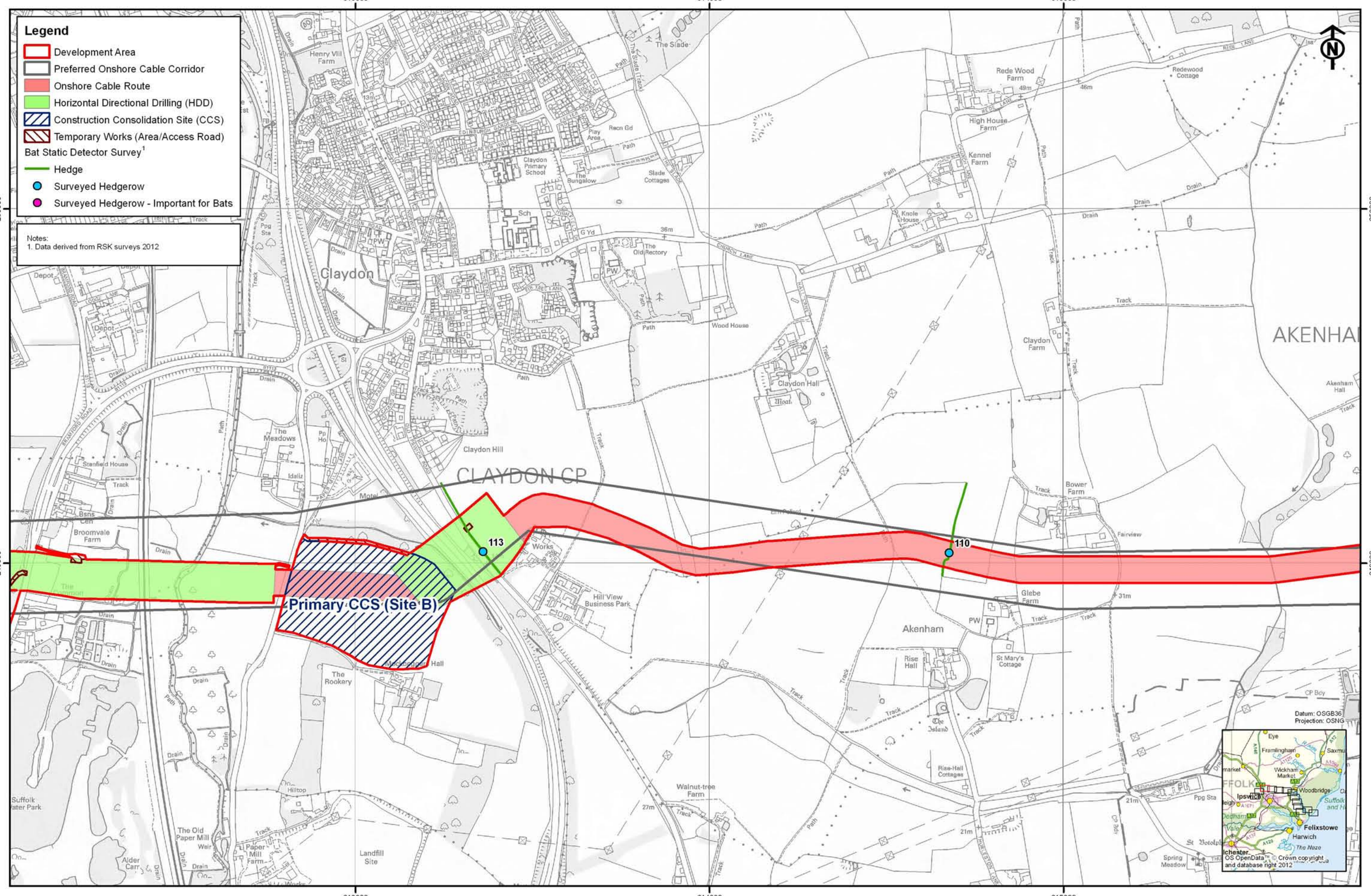

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

SCOTTISHPOWER RENEWABLES VATTENFALL

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Appendix 24.4

Figure 24.4.4

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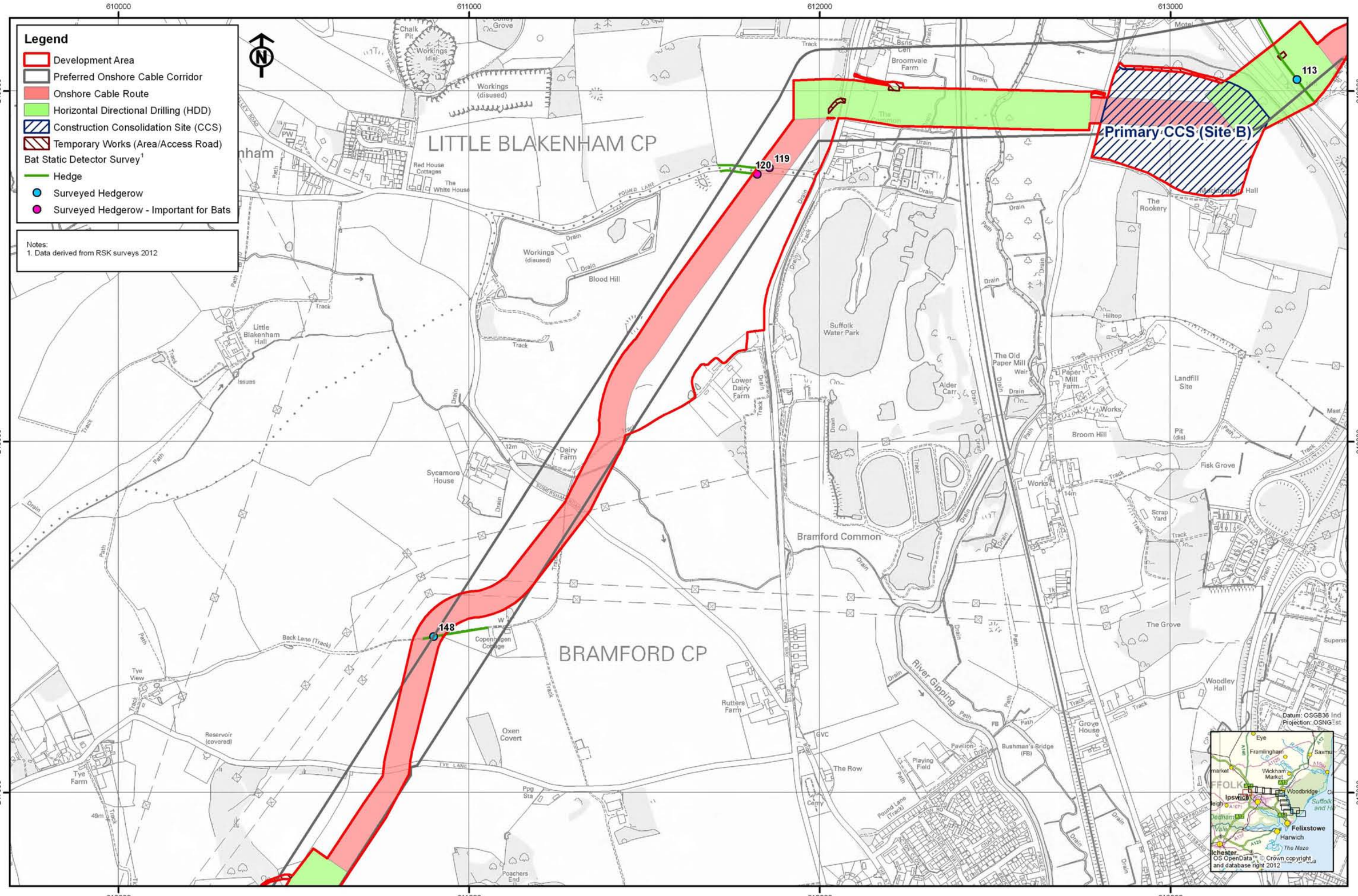

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Layout	N/A

Appendix 24.4

Figure 24.4.4

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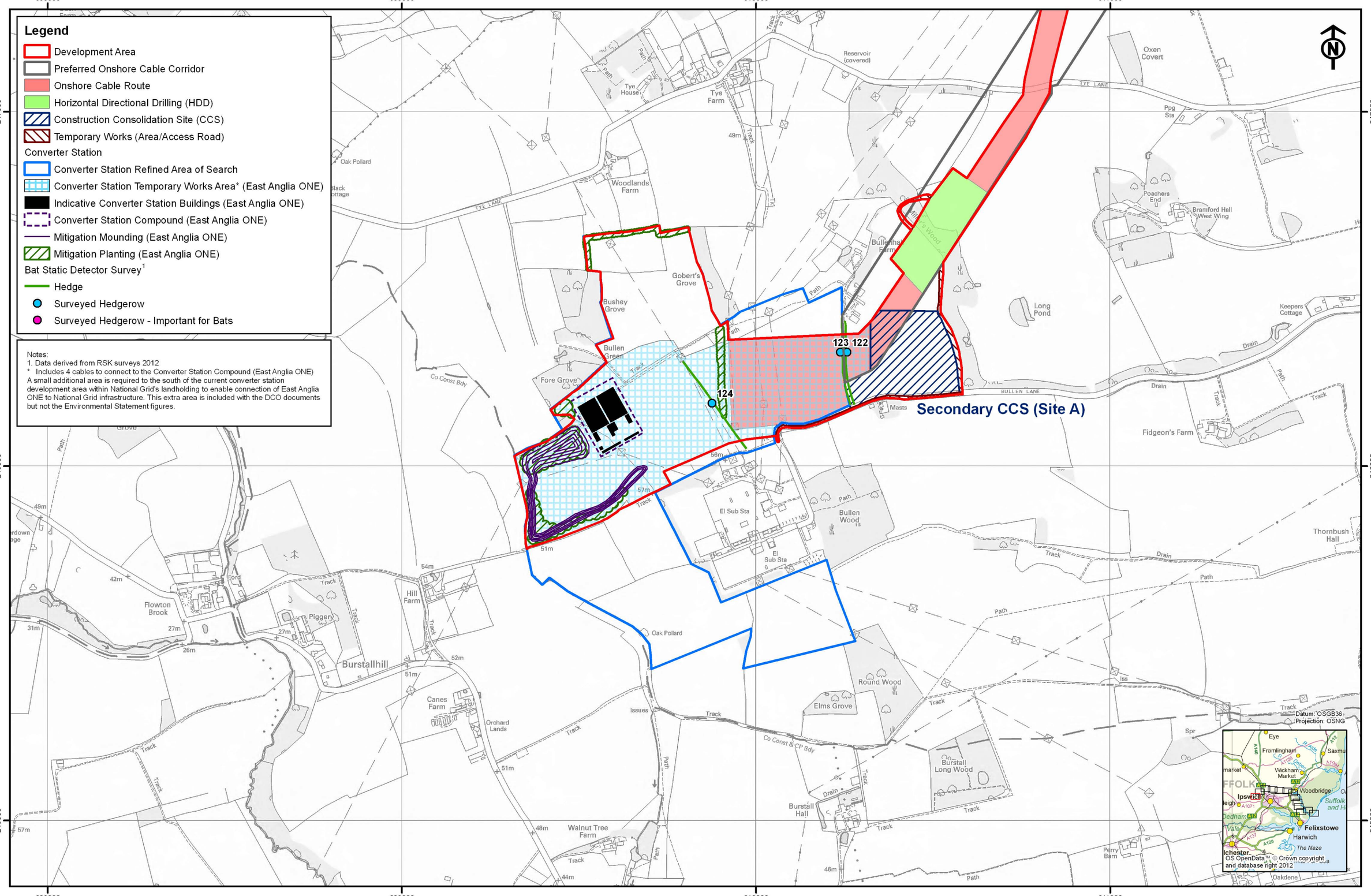

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Figure 24.4.4

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APPENDIX A – RELEVANT LEGISLATION

All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended) extended by the Countryside and Rights of Way Act 2000. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst is occupies a bat roost.

Bats are also European Protected Species listed on The Conservation of Habitats and Species Regulations 2010. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present.

APPENDIX B – GROUND LEVEL TREE SURVEY DATA

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN1	2	Sycamore	CP/JS	27/02/2012 - 01/03/12	0.5	3 holes and crack in dead vertical tree					2
						Knot hole	0	3	S	S	2
TN2	2	Horse chestnut	CP/JS	27/02/2012 - 01/03/12		Hollow crack	0	1.5			2
						Hole	0	3	S	S	2
TN3	2	Sycamore	CP/JS	27/02/2012 - 01/03/12	0.5	Knot hole	0	4	S	S	2
TN4	1	Oak	CP/JS	27/02/2012 - 01/03/12		Split	0	6	N	N	1
						Hole on northern branching stem		2	E	E	1
						Hole on northern branching stem		4	E	E	1
TN5	1	Sycamore	CP/JS	27/02/2012 - 01/03/12	0.5	Split (possibly healed over)	0	5.00	S	S	1
						Knot hole	0	6.00	S	S	1
TN6	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Wood pecker hole	0	6.00	N	N	2
						Wood pecker hole	0	6.25	SE	SE	2
TN7	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Crack in branch		9.00	N	N	2
TN8	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.7	Hole on far end of branch		8.00	N	N	1
						Healing bark all along northern pointing branch		7.00	N		2
TN9	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.2	Lighting strike crack. Brown rot present, variously hollow all the way up	0				2
TN10	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Wood pecker hole	0	4.00	W	W	2
						Wood pecker hole	0	7.00	W	W	2
						Branches with flaking bark		8.00	W	W	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Branches with flaking bark		9.00	W	W	1
						Rot hole	0	7.00	W	W	2
TN11	2	Ash	CP/JS	27/02/2012 - 01/03/12	0.6	Tri-bole tree. On Southern bole - Wood pecker hole	0	4.00	S	S	2
						Tri-bole tree. On Southern bole - flaking bark	0	4.50	S	S	2
						Tri-bole tree. On Southern bole - Wood pecker hole	0	8.00	E	E	2
						Tri-bole tree. On Northern bole - Wood pecker hole	0	8.00	E	E	2
						Tri-bole tree. On Northern bole - Wood pecker holes x 3	0	6-7m	N	N	2
TN12	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Flaking bark	0	6-8 m	W	W	1
						Lifted bark	0	4.00	E	E	2
TN13	1	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Rot hole	0	7.00	E	E	1
TN14	2	Ash	CP/JS	27/02/2012 - 01/03/12	0.4	Crack in branch		5-7m	W	W	2
TN15	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Crack / cavity all the way through	0	0-6m	E	E	2
						Hole	0	3.00	W	W	1
						Rot hole	0	4.00	S	S	1
						Split on northern branch and flaking branch		6.00	N	N	2
						Wood pecker hole	0	2.00	S	S	2
TN16	2	Ash	CP/JS	27/02/2012 - 01/03/12	1	Dual bole. Hole on western bole	0	4.00	SW	SW	2
TN17	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Longitudinal crack on northern branch (sloping trunk)		5.00	N		2
TN18	2	White willow	CP/JS	27/02/2012 - 01/03/12	1	Longitudinal split in branch on northern bole		4.50	N	N	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Knot hole		7.00	W	W	2
TN19	2	White willow	CP/JS	27/02/2012 - 01/03/12	1.3	Wood pecker hole on central branch		7.00	N	N	2
						Crack / hole on NW bole		5.00	NW		2
TN20	1	White willow	CP/JS	27/02/2012 - 01/03/12	1	Hole on NW branch		5.00	NW		1
						Hole on NE branch		6.00	NE		1
						Hole on central branch		6.00	NE		1
TN21	1				1	Longitudinal split in NW branch		1-3.5m	NW		1
TN22	1	Dead Oak	CP/JS	27/02/2012 - 01/03/12	0.65	Crack	0	5.00	NW	NW	1
TN23	2	Oak	CP/JS	27/02/2012 - 01/03/12	2	Knot hole	0	2.50	S	S	2
TN24	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.3	Wood pecker hole	0	3.50	W	W	2
TN25	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Hole	0	5.00	NW	NW	2
						Split branch	0	8.00	SE	SE	1
TN26	2	Oak	CP/JS	27/02/2012 - 01/03/12	2	2 x hollow boles with holes from base	0	3.00	E	E	2
						Hollow bole with holes from base	0	4.00	W	W	2
						Wood pecker hole and split	0	6.00	SW	SW	2
TN27	1	Oak	CP/JS	27/02/2012 - 01/03/12	1.2	Hole	3	9.00	S	S	1
TN28	1	Oak	CP/JS	27/02/2012 - 01/03/12	0.8	Flaking bark on northern bole		9-10m	N	S	1
						Flaking bark on northern bole		12.00	N	N	1
TN29	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.2	Wood pecker hole on central bole	0	9.00			2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Wood pecker hole on southern bole	2	9.00	S	S	2
						Split and flaking bark on southern bole		9.5-10m	S	S	1
						Loose bark on SE bole		7.00	SE	E	1
TN30	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	2 (possibly joined) wood pecker holes on northern branch		5.00	N		2
						Deadwood and split	0	4.00	E	E	1
						Rot hole	0	7.00	W	W	1
TN31	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.5	Crack in dead wood on eastern branch		10.00	E	E	1
						Crack		1.5-2.3m	SE	SE	2
						Crack		4-5m	SE	SE	2
TN32	2	Grey Popular	CP/JS	27/02/2012 - 01/03/12	1	Dead bough with cracks and holes at end		14.00	NE	NE	2
						Dead wood	0	16.00	E	E	2
						Wood pecker hole	0	16.00	E	E	2
						Wood pecker hole	0	15.00	NE	NE	1
						Wood pecker hole	0	12.00	NW	NW	2
TN33	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.7	Wood pecker hole on western branch	4	12.00	W	W	2
TN34	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Flaking bark	0	6.00	N	N	1
						Flaking bark	0	5.00	NW	NW	1
						Flaking bark / dead wood		6.00	NE	NE	1
						Small wood pecker hole on branch	1	8.00	SW	SW	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN35	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Dead wood at end of branch and longitudinal crack and flaking bark	3	6.00	W		2
TN36	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.2	Wood pecker hole	1	6.00	NW	NW	2
TN37	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.3	Dead branch with longitudinal crack in bark and wood (40cm long)		6.00	NE		2
						Wood pecker hole	3	6.00	W		2
						Wood pecker hole	0	10.00	S	S	2
TN38	2	Oak	CP/JS	27/02/2012 - 01/03/12	2	Longitudinal downwards crack	6	8.00	SW	SW	2
						Broken branch end with flaking bark and longitudinal crack		10.00	SE	SE	1
TN39	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.7	Wood pecker hole		4.00	E	S	1
						Dead wood	0	4.00			1
						Wood pecker hole	0	4.00	N	N	2
TN40	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.6	Wood pecker hole on near horizontal branch		7.00	W	SW	2
						Wood pecker hole on near horizontal branch		7.00	W	SW	2
TN41	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Hole		6.00	N		2
						Split in eastern branch		6.5-7m	E		2
TN42	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Hole	0	5.00	S	S	2
						Longitudinal split - damage to central leader		6.00	S	S	2
						Longitudinal split, facing downwards (40cm long)	3		E	E	2
TN43	1	Oak	CP/JS	27/02/2012 - 01/03/12	1.2	Loose bark and dead wood in tree centre	0	6.00	S	S	1
						Longitudinal crack on eastern low branch (40cm long)	4	6.00	E		1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN44	2	Dead elm	CP/JS	27/02/2012 - 01/03/12	0.4	Loose bark			W		2
TN45	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.7	Longitudinal crack on NE dead branch		8.00	NE		2
TN46	1	Oak	CP/JS	27/02/2012 - 01/03/12	1	Broken branch and longitudinal crack		5.00			1
TN47	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.5	Hollow tree, hole on N			N		2
						Hanging bark everywhere					1
TN48	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Delamination on north facing branch overhanging road		10-11m	N	N	2
						Split near to hollow branch		4.00			2
						Hollow tree, hole on N		4.00	N	N	2
TN49	2	Oak	CP/JS	27/02/2012 - 01/03/12	2	Longitudinal crack		10.00	S	S	2
						Loose bark (30 cm) and hole	2	7.00	SW	SW	2
TN50	1	Oak	CP/JS	27/02/2012 - 01/03/12	2	Loose bark		7.00	N	N	2
TN51	2	Ash	CP/JS	27/02/2012 - 01/03/12	0.4	Hollow tree at high point of hollow part- open to south	0		S	S	2
TN52	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.3	Wood pecker hole / lifted bark	0	9.00	NW	NW	2
TN53	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Large cavity	0	3.50	N	N	2
						Hollow branch		5.00	S	S	2
						Crack (30cm) and dead wood	0	8.00	W	W	2
						Hole and 50cm crack	0	4.00	W	W	2
						Hole in hollow stub	0	6.00	SW	SW	2
						Hole	1	5.00	S	S	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN54	2	Oak	CP/JS	27/02/2012 - 01/03/12	1.2	Hollow tree - hole	0	2.00	S	S	2
						Holes in dead wood and longitudinal vertical split with category 3 features along length		4.00	E	E	1
						Hole in middle of split branch		8.00	W	W	2
						Hole in split branch		10.00	N	N	2
						Hole in dead stub	0	10.00	W	W	1
TN55	2	Oak	CP/JS	27/02/2012 - 01/03/12	1	Dead heart wood large cavity going up dead branch	0	6.00	N	N	2
						Delaminated section of wood and bark	0	6-7m	NW	NW	2
TN56	2	Ash	CP/JS	27/02/2012 - 01/03/12	0.3	Wood pecker hole	0	6.00	N	N	2
						Wood pecker hole	0	7.00	N	N	2
						Wood pecker hole	0	8.00	S	S	2
TN57	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Wood pecker hole in central dead wood	0	8.00	N	N	2
TN58	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.8	Dead wood rot	0	7.00	S	S	1
						Flaking bark on bottom of branch		6.00	S		2
TN59	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.5	Wood pecker hole / flaking bark	0	8.00	W	W	1
						Wood pecker hole	0	9.00	S	S	2
						Flaking bark	0	11.00	S	S	1
TN60	2	Ash	CP/JS	27/02/2012 - 01/03/12	1	Rot hole	0	10.00	N	N	2
						Rot hole	0	10.00	N	N	2
						Many holes in dead vertical branch		10.00	NE	NE	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Rot hole	3	12.00	NW		2
						Rot hole	3	12.00	NW		2
TN61	1	Scots Pine	CP/JS	27/02/2012 - 01/03/12	0.3	Rotting branch		7.00	S	S	1
						Rotting branch		9.00	S	S	1
TN62	2	Oak	CP/JS	27/02/2012 - 01/03/12	0.8	Vertical split in tree	0	2-5m			2
						Longitudinal crack		2-4m	N	N	2
TN63	2	Oak	CP/JS	06/03/12 - 09/03/12	1.5	Hole	0	8.00	SE	SE	2
						Dead wood at crown and lots of hanging bark	0	8.00	all sides	all sides	2
						Hollow and loose bark	0	5 - 8m	SE	SE	2
						Hole	0	2.00	S	S	2
						Hole	0	3.00	SW	SW	2
						Hole on western branch	1.5	7.00	W	W	2
						Loose bark on western branch	1.5	7.00	W	N	2
						Hole	0	3.00	NE	NE	1
						Hole	0	2.00	centre	centre	2
TN64	2	Ash	CP/JS	06/03/12 - 09/03/12	0.5	Hole	0	3.00	SW	SW	2
TN65	1	Dead elm	CP/JS	06/03/12 - 09/03/12	0.3	Flaking bark	0	0-5m			1
TN66	1	Oak	CP/JS	06/03/12 - 09/03/12	1.2	Crack in dead wood on SE branch	0	7.00	SE	NE	1
						Hole on lowest limb		5.00	NE	NE	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Longitudinal crack on dead wood on western branch		6-7m	W	downwards	1
TN67	2	Oak	CP/JS	06/03/12 - 09/03/12	2	Large hole	0	2.00	SW	SW	2
						Wood pecker hole	1.5	7.00	W	W	2
						Hollow base	0	3.00	NE	NE	2
TN68	2	Oak	CP/JS	06/03/12 - 09/03/12	2.3	Hollow base	0	3.00			2
TN69	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Longitudinal crack in NE branch		2-3m	NE	S	2
TN70	2	Oak	CP/JS	06/03/12 - 09/03/12	1.7	Broken branch and flaking bark	2.5	5.00	NW	NW	1
						Broken branch and flaking bark	1	8.00	E	E	1
						2 holes and flaking bark	0	10.00	SW	SW	2
						Missing bark on dead branch which is rotting back and knot hole	0	5-6m	N	N	2
TN71	2	Oak	CP/JS	06/03/12 - 09/03/12	1.8	Vertical crack in dead wood	0	4-5m	S	S	2
						Delaminated branch in tree centre	0	5.00	Middle	Middle	2
						Split in stub of western branch	3.5	5.00	W	W	1
TN72	2	Beach	CP/JS	06/03/12 - 09/03/12	0.8	Longitudinal crack in branch	0	9-10m	S	S	2
						Hole	0	10.00	S	S	1
TN73	1	Oak	CP/JS	06/03/12 - 09/03/12	2	Broken branch	2	8.00	SW	SW	1
TN74	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Central cavity on main stem	0	5.00	S	S	2
						Longitudinal split on West facing branch		4.00	W	W	2
						Hole in elbow of east facing branch		2.00		E	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN75	2	Ash	CP/JS	06/03/12 - 09/03/12	0.5	Wood pecker hole	0	14.00	S	S	2
TN76	2	Dead oak	CP/JS	06/03/12 - 09/03/12	1.2	Hollow in middle? (4m). Dead wood at top of main stem	0	7.00			2
TN77	2	Ash	CP/JS	06/03/12 - 09/03/12	0.5	2 x holes	0	8.00	N	N	2
TN78	2	Oak	CP/JS	06/03/12 - 09/03/12	1.2	BARN OWL BOX. Flaking bark at end of dead wood		8.00	E	E	2
TN79	2	Dead tree	CP/JS	06/03/12 - 09/03/12	1	Hollow - lots of nooks and crannies - look at whole tree					2
TN80	2	Horse Chestnut	CP/JS	06/03/12 - 09/03/12	0.5	Hole	0.5	4.00	S	W	2
TN81	2	Horse Chestnut	CP/JS	06/03/12 - 09/03/12	0.2	Hollow cavity	0	2-4m	W	W	2
TN82	2	Oak	CP/JS	06/03/12 - 09/03/12	0.6	Hole	0	5.00	S	S	2
TN83	2	Horse Chestnut	CP/JS	06/03/12 - 09/03/12	1.2	Hole on western branch	1.5	5.00	W	S	2
TN84	2	Horse Chestnut	CP/JS	06/03/12 - 09/03/12		Hollow tree. Wood pecker hole in tallest branch		6.00	S	S	2
TN85	2	Horse Chestnut	CP/JS	06/03/12 - 09/03/12	1	Woodpecker hole	0	5.00	SE	SE	2
						Hole	0	3.00	N	N	1
TN86	2	Oak	CP/JS	06/03/12 - 09/03/12	0.5	Loose bark around rot hole	0	3.50	SW	SW	1
						Rot hole	0	7.00	NW	NW	2
TN87	2	Oak	CP/JS	06/03/12 - 09/03/12	1.1	Rot hole	0	5.00	SE	SE	2
						Loose bark	0	5-6m	E	E	2
						Rot hole	0	3.00	N	N	2
						Rot hole	0	3.00	N	N	2
TN88	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Rot hole in vertical section of SE branch	1	6.00	SE	NE	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Hollow SW branch	2	7-8m	SW	SW	2
						Hollow centre - entrance on N and S side	0	4.00	N & S	N & S	2
TN89	2	Hybrid black poplar	CP/JS	06/03/12 - 09/03/12	0.6	Hole in dead wood	0	12.00	SE	SE	2
TN90	2	Hybrid black poplar	CP/JS	06/03/12 - 09/03/12		Hollow dead spur with wood pecker holes x 4		2-6m	E	E	2
TN91	2	Oak	CP/JS	06/03/12 - 09/03/12	1.35	Dead branch with flaking bark		7.00	W	W	2
TN92	2	Oak	CP/JS	06/03/12 - 09/03/12	1.2	Woodpecker hole beneath stump of limb	0	8.00	N	N	2
						Rot hole	2	8.00	W	S	2
						30cm long hole	0	7.00	S	S	2
TN93	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Delaminating branch in tree centre	0	5-6m	S	S	2
						Rot hole	0	5.00	NE	NE	2
						Bark peeling around rotting branch	0	4.00	NW	NW	1
TN94	2	Turkey Oak	CP/JS	06/03/12 - 09/03/12	1.5	Dead heart wood with missing bark	0	8-10m	all sides	all sides	2
						Hole in dead wood	0	7.00	NE	NE	2
TN95	2	Turkey Oak	CP/JS	06/03/12 - 09/03/12	1.3	Hole on branch pointing over road		6.00	S		2
TN96	1	Turkey Oak	CP/JS	06/03/12 - 09/03/12	1	Big hole in heart wood	0	2.00	N	N	1
TN97	1	Dead tree	CP/JS	06/03/12 - 09/03/12	0.5	Lots of dead branches with flaking bark					1
						Rot hole	0	7.00	N	N	1
						Crack in tree centre	0	3.00	E	E	1
TN98	2	Oak	CP/JS	06/03/12 - 09/03/12	0.7	First bole - Hole	0	2.00	E	E	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						First bole - Woodpecker hole	0	5.00	E	E	2
						First bole - Woodpecker hole	0	7.00	E	E	2
						First bole - Long crack under fungi	0	5-6m	N	N	2
						Second bole - woodpecker hole	0	5.00	E	E	2
TN99	2	Oak	CP/JS	06/03/12 - 09/03/12	1.5	Missing crown - hollow centre?					2
						Vertical crack	0	1.5-2.5m	NW	NW	2
						Vertical crack	0	0-5m	N	N	2
						Hole	0	5.00	NW	NW	2
TN100	2	Ash	CP/JS	06/03/12 - 09/03/12		Hollow central deformed bow with crack	0	7.00	W	W	2
TN101	2	Oak	CP/JS	06/03/12 - 09/03/12	0.7	Crack in dead wood	0	4.00	S	S	2
						Crack in dead wood	0	6.00	S	S	2
TN102	2	Oak	CP/JS	06/03/12 - 09/03/12	1.2	Hole in North bow	0	4.00	N	NW	2
TN103	2	Oak	CP/JS	06/03/12 - 09/03/12	1.5	Cracks in central dead wood	0	5.00	E	E	2
						Hole	0	2.00	S	S	2
						Hole	0	3.00	S	S	2
						Rot hole on SW branch	0.5	2.50	SW		1
						Branch with rot around	0	3.00	N	N	2
						Woodpecker hole x 2	0	3.00	N	N	2
						Woodpecker hole	0	6.00	N	N	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Hole in bark		4.5-5m	N	N	2
TN104	2	Oak	CP/JS	06/03/12 - 09/03/12	2	Split trunk with cracks on internal surfaces	0	2-6m	E	E	2
						Cracks in dead (fallen over) branch	3	2.00	E	E	1
						Rot hole on SW branch	5	8.00	SW	E (visible from S)	2
TN105	2	Dual bole hybrid poplar	CP/JS	06/03/12 - 09/03/12	0.4	Broken main stem and wood pecker hole in dead wood	0	6.00	S	S	2
						3 x woodpecker holes in smaller stem	0	5.00	S	S	2
TN106	2	Hybrid poplar	CP/JS	06/03/12 - 09/03/12		1 small dead trunk and 1 x 0.45m DBH. Missing bark patches all the way up					
						3 x woodpecker holes	0	12-13m			2
TN107	1	Oak	CP/JS	06/03/12 - 09/03/12	0.7	Long split on branch		7.00	W	N	1
TN108	1	Oak	CP/JS	06/03/12 - 09/03/12	1.3	Hole	0	3.00	SE	SE	1
TN109	2	Oak	CP/JS	06/03/12 - 09/03/12	1.5	2 x wood pecker holes	0	3.50	E	E	1
						Wood pecker hole	0	2.00	W	W	2
TN110	2	Oak	CP/JS	06/03/12 - 09/03/12	2	Hole from missing bark	0	5-6m	W	W	2
TN111	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Longitudinal crack in E branch	2	10.00	E	N	2
						Longitudinal crack in E branch	2	11.00	E	N	2
TN112	2	Oak	CP/JS	06/03/12 - 09/03/12	1.2	Hole		10.00	W	W	2
						Rot hole		11.50	W	W	2
TN113	2	Dual stem alder	CP/JS	06/03/12 - 09/03/12	0.5	Thick stem - wood pecker holes over stream	0	3.50	NW	NW	2
						Thick stem - wood pecker holes over stream	0	6.00	NW	NW	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Thick stem - wood pecker holes over stream	0	8.00	NW	NW	2
						Thin stem - Rot hole	0	4.00	W	W	2
						Thin stem - Rot hole on SE branch		7.00	SE	SE	2
						Thin stem - Rot hole on SE branch		7.00	SE	SE	2
TN114	2	Alder	CP/JS	06/03/12 - 09/03/12	0.5	Hole	0	3.50	N	NW	2
TN115	1	Sycamore	CP/JS	06/03/12 - 09/03/12	0.5	Rot hole	0	5.00	S	S	1
TN116	2	Multi-stemmed coppiced alder	CP/JS	06/03/12 - 09/03/12		3 thicker main stems					
						Holes all over tree!	0	1-8m	all sides	all sides	2
TN117	2	Dead elder	CP/JS	06/03/12 - 09/03/12	0.4	Woodpecker hole	0	5.00	N	N	2
TN118	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Woodpecker hole	0	10.00	S	S	2
TN119	1	Dead stump	CP/JS	06/03/12 - 09/03/12	0.3	Crack	0	3.00	S	S	1
TN120	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Woodpecker hole in small branch		7.00	E	E	2
						Woodpecker hole in small branch		7.00	E	E	2
TN121	2	Pollarded Oak	CP/JS	06/03/12 - 09/03/12	0.6	Rot hole in crown	0	4.00	S	upwards	2
TN122	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Hole in branch	4	8.00	SW	S	2
TN123	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Hole in branch	4	8.00	SW	S	2
						Rot hole in same branch (as above)	3	7.00	SW	S	2
						Rot hole in same branch (as above)	1	6.00	SW	S	2
						Rot hole in W cut off branch	0	5.00	W	W	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Rot hole beneath broken stub	0	4.00	NW	NW	2
TN124	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Hole in main trunk under rotten branch	0	7.00	S	S	2
						Rot hole in branch		6.00	N	W	1
TN125	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Lightening struck. Cracks and holes	0	0-9m	S	S	2
						Hollow branch with cracks along length and holes in end			N		2
TN126	1	Oak	CP/JS	06/03/12 - 09/03/12	0.7	Rot hole	0	2.00	SE	SE	1
TN127	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Dead ivy	0	0-3m	N	N	1
						Rot hole	0	8.00	W	W	2
						Rot hole	1	8.00	S	S	1
TN128	2	Pollarded dual bole oak	CP/JS	06/03/12 - 09/03/12	1	Rot hole	0	2.00	S	S	2
		All features on small stem				Rot hole	0	4.00	W	W	2
						Woodpecker hole	0	5.00	NW	NW	2
TN129	1	Dead oak	CP/JS	06/03/12 - 09/03/12	0.4	Flaking bark	0	0-6m	all sides	all sides	1
TN130	2	Oak	CP/JS	06/03/12 - 09/03/12	0.5	Split in SE stub	0.5	3.00	SE	SE	1
						Flaking bark	0	3.50	S	S	2
TN131	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Wood pecker hole	2.5	8.00	S	S	2
						Rot Hole	0	3.00	W	W	2
TN132	1	Oak	CP/JS	06/03/12 - 09/03/12	1.5	Small cavity around piece of dead wood		10.00	S	S	1
TN133	2	Oak	CP/JS	06/03/12 - 09/03/12	0.8	Rot hole in branch	3	8.00	SW	S	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Hollow with exposed heart wood	0	2-6m			2
						Rot hole in same branch	2	7.00	S	S	2
TN134	2	Oak	CP/JS	06/03/12 - 09/03/12	1.2	Wood pecker hole	0	6.00	SW	SW	2
						Wood pecker hole	0	7.00	SW	SW	2
						Wood pecker hole	0	10.00	W	W	2
						Wood pecker hole	0	4.00	S	S	2
						Exposed heart wood in dead branch	1	10-12m	E	E	2
						Wood pecker hole	0	8.00	W	W	2
						Wood pecker hole	0	9.00	W	W	2
						Rotten / broken stub	0	10.00			1
						Cavity	0	6.00	N	N	2
TN135	2	Dead oak	CP/JS	06/03/12 - 09/03/12	0.6	Wood pecker hole	0	8.00	E	E	2
						Rot hole	0	9.00	E	E	1
TN134a	2	Oak	CP/JS	06/03/12 - 09/03/12	1.4	Woodpecker hole	0	2.00	SE	SE	2
						Hole on W branch	3.5	6.00	W	W	2
						Hole	0	2.00	N	N	2
						Rot hole	0	4.00	NE	NE	2
						Hole in branch	4	8.00	N	N	2
TN135a	2	Oak	CP/JS	06/03/12 - 09/03/12	1.3	Hole on branch	1	6.00	S	E	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Broken branch stub	2.5	5.00	SW	downwards	1
						Delaminated broken branch in middle of crown	0	9.00	centre	SW	1
TN136	2	Oak	CP/JS	06/03/12 - 09/03/12	0.6	Woodpecker hole	0	3.50	S	S	2
						Woodpecker hole	0	4.50	SW	SW	2
						Woodpecker hole	0	5.00	S	S	2
						Woodpecker hole	0	5.50	SW	SW	2
						Crack in trunk	0	4-4.5m	N	N	2
						Woodpecker hole	0	2.00	SW	SW	2
						Woodpecker hole	0	4.00	NW	NW	2
TN137	2	Oak	CP/JS	06/03/12 - 09/03/12	1.4	Longitudinal vertical crack in branch in crown	0	10-11m	centre	SE	2
						Longitudinal vertical crack in southern most branch	5	8.00	S	below	2
TN138	1	Oak	CP/JS	06/03/12 - 09/03/12	1.2	Broken branch stub at tree centre with hole	0	7.00	W	W	2
TN139	2	Oak	CP/JS	06/03/12 - 09/03/12	1	Rot hole	0	3.00	W	W	2
TN140	1	Oak	CP/JS	06/03/12 - 09/03/12	1	Exposed dead wood with cavity beneath	0	6.00	E	E	1
TN141	1	Pollarded Oak	CP/JS	06/03/12 - 09/03/12		Central cavity	0	2.00	S	S	1
TN142	2	Dual bole Ash	CP/JS	06/03/12 - 09/03/12	0.5	Woodpecker hole	0	6.00	W	W	2
TN143	2	Alder	CP/JS	06/03/12 - 09/03/12	1.2	Woodpecker hole x 2		5.00	E	E	2
						Rot hole on central stem	0	7.00	E	E	2
						Rot hole		6.00	SE	SE	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Woodpecker hole		4.00	SW	SW	2
						Woodpecker hole		8.00	SW	SW	2
TN144	2	Alder	CP/JS	06/03/12 - 09/03/12	0.6	Woodpecker hole		6.00	E	E	2
TN145	2	Coppiced (5 stemmed)	CP/JS	06/03/12 - 09/03/12	0.6	Tallest stem - woodpecker hole	0	6.00	S	S	2
						Tallest stem - woodpecker hole	0	7.00	S	S	2
						Southern most stem - Woodpecker hole	0	6.00	E	E	2
						Southern most stem - Woodpecker hole	0	3.00	S	S	2
						Western most stem - woodpecker hole	0	4.00	W	W	2
TN146	2	Alder	CP/JS	06/03/12 - 09/03/12	0.5	Main tree in coppice stool					
						Woodpecker hole	0	2.00	W	W	2
						Woodpecker hole	0	3.50	W	W	2
						Woodpecker hole	0	4.00	NW	NW	2
						Woodpecker hole	0	2.70	NW	NW	2
TN147	2	Hybrid poplar	CP/JS	06/03/12 - 09/03/12	1	Woodpecker hole in dead central stem	0	12.00	E	E	2
TN148	2	Hybrid poplar	CP/JS	06/03/12 - 09/03/12	0.7	Rot stub in most westerly Poplar	0	8.00	E	E	2
TN149	2	4 stemmed coppiced ash	CP/JS	06/03/12 - 09/03/12	0.3	Most westerly - Woodpecker hole	0	4.00	W	W	2
						Most southerly - Woodpecker hole	0	3.00	S	S	2
TN150	2	Ash	CP/JS	06/03/12 - 09/03/12	0.8	Woodpecker hole	0	2.00	W	W	2
TN151	1	Oak	CP/JS	06/03/12 - 09/03/12	0.6	Flaking bark with dead heart wood	0	6.00	N	N	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN152	2	Coppiced ash	CP/JS	06/03/12 - 09/03/12	0.3	Tallest stem - woodpecker hole	0	8.00	N	N	2
						Southern broken stub - hollow	0	0-5m	all sides	all sides	2
						Western most stem - many hole	0	2-6m	all sides	all sides	2
TN153	2	Coppiced field mapple	CP/JS	06/03/12 - 09/03/12	0.2	Woodpecker hole	0	3.00	E	E	1
						Woodpecker hole	0	3.50	W	W	2
TN154	2	Pollarded Ash	CP/JS	06/03/12 - 09/03/12	0.9	Rot hole	0	4.00	SE	SE	2
						Rot hole	0	6-7m	SE	SE	2
						Woodpecker hole	0	8.00	SE	SE	2
						Woodpecker hole	0	8.25	SE	SE	2
						Woodpecker hole	0	4.00	NE	NE	2
TN155	2	Ash	CP/JS	06/03/12 - 09/03/12	1	Rot hole		6.00	W	W	2
						Woodpecker hole in elbow		7.00	W	W	2
						Rot hole		6.00	N	N	2
TN156	2	Ash	SEB/JS	13/03/12-15/03/12	0.25	Woodpecker hole		5.00	S	S	2
TN157	2	Elm	SEB/JS	13/03/12-15/03/12	1.1	Woodpecker hole		3.00	S	S	2
						Rot hole		4.00	S	S	2
TN158	2	Elm pollard	SEB/JS	13/03/12-15/03/12	1.2	Rot hole		6	N	N	2
TN159	2	Elm pollard	SEB/JS	13/03/12-15/03/12	1	Rot hole		4.00	N	N	2
						Rot hole		4.00	S	S	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN160	2	Elm pollard	SEB/JS	13/03/12-15/03/12	1.3	Rot hole		3.00	N	N	2
TN161	2	Elm	SEB/JS	13/03/12-15/03/12	0.3	Rotten from base					2
						Woodpecker hole		3.00	W	W	2
TN162	2	Elm pollard	SEB/JS	13/03/12-15/03/12	0.7	Rot hole	?	2.50	S	N	2
TN163	2	Elm	SEB/JS	13/03/12-15/03/12	1	Woodpecker hole		5.00	W	W	2
						Rot hole		5.00	N	N	1
TN164	2	Elm pollard - hollow	SEB/JS	13/03/12-15/03/12		Rot hole		ground - 2m			2
						Rot hole on branch		2.50	S	NW	2
TN165	2	Elm - dead	SEB/JS	13/03/12-15/03/12		Hollow and lots of holes					2
TN166	2	Elm pollard	SEB/JS	13/03/12-15/03/12	0.8	Hollow trunk					1
						Hollow branch		2.00	N	S	2
						Hole with exposed heartwood		4.00	S	S	1
TN167	2	Elm	SEB/JS	13/03/12-15/03/12	0.8	Hollow trunk with internal features		ground - 3m			2
						Exposed heartwood		2.50	W	W	2
TN168	2	Elm pollard	SEB/JS	13/03/12-15/03/12	1.4	Rot hole		3.00	S	S	1
						Rot hole on branch		3.00	E	S	2
						Hollow tree with access from West			W	W	2
TN169	2	Elm	SEB/JS	13/03/12-15/03/12	1.5	Woodpecker hole x 3 - probably hollow branch		10.00	N	N	2
						Woodpecker hole on limb elbow	3	12.00	E		2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN170	2	Elm pollard	SEB/JS	13/03/12-15/03/12	0.8	Woodpecker hole		6.00	E	E	2
						Hollow trunk with 3 holes in crown of pollard		4.00	W	W	2
TN171	2	Elm	SEB/JS	13/03/12-15/03/12	0.9	Woodpecker hole		5.00	N	N	2
TN172	1	Oak pollard	SEB/JS	13/03/12-15/03/12		Rot hole x 2		2.00	E	E	1
TN173	2	Oak	SEB/JS	13/03/12-15/03/12	1.5	Woodpecker hole		3.00	W	W	2
						Woodpecker hole		5.00	N	N	2
						Rot hole		4.00	SE	SE	1
TN174	-	-	-	-	-	-	-	-	-	-	-
TN175	2	Ash	SEB/JS	13/03/12-15/03/12	1	Hollow trunk with crack		1m - 3m			2
						Hole on lowest branch		4.00	N	N	1
						Hole		4m - 5m	N	N	2
						Woodpecker Hole		6.00	N	N	2
						Woodpecker hole		7.00	E	E	2
						Hole		8.00	W	W	2
						Rot hole		6.00	SW	SW	2
						Woodpecker hole		7.00	SW	SW	2
TN176	2	Ash	SEB/JS	13/03/12-15/03/12	0.9	Rot hole		5.00	W	W	2
						Woodpecker hole		6.00	W	W	2
						Woodpecker hole		8.00	NW	NW	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Rot hole		2.00	E	E	2
						Rot hole on branch	2	6.00	E	E	2
						Woodpecker hole on branch	3	6.00	N	N	2
TN177	2	Ash	SEB/JS	13/03/12-15/03/12	1	Flaked bark		9.00	S	S	2
						Rot hole		4.00	E	E	2
						Woodpecker hole		10.00	N	N	2
						Flaked bark in crack		1m-3m	SE	SE	2
TN178	1	Willow	SEB/JS	13/03/12-15/03/12	1.2	Low cracks and gaps		2.00			1
						Split, base at crook of branch		4.00	N	N	1
						Delamination - on same branch as above	1.5	4.00	N	N	1
TN179	2	Oak	SEB/JS	13/03/12-15/03/12	0.6	Rot hole		3	E	E	2
TN180	2	White Willow	SEB/JS	13/03/12-15/03/12	1.2	Woodpecker hole x 2		10.00	E	E	2
TN181	2	White Willow	SEB/JS	13/03/12-15/03/12	1.2	Woodpecker hole on central branch		12.00	N	E	2
TN182	2	White Willow	SEB/JS	13/03/12-15/03/12	2	Dead - exposed heartwood		1.5m - 4m			2
						Woodpecker hole		2.25	E	E	2
						Woodpecker hole		2.50	E	E	2
						Woodpecker hole		4.00	E	E	2
TN183	2	Ash	SEB/JS	13/03/12-15/03/12	1.5	Rotten - covered in features					
TN184	2	2 Alder trees	SEB/JS	13/03/12-15/03/12	0.35	Woodpecker hole		10.00	E	E	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Woodpecker hole		12.00	E	E	2
						Woodpecker hole		10.00	E	E	2
TN185	1	Alder	SEB/JS	13/03/12-15/03/12	0.4	Rot hole		3.00	W	W	1
TN186	2	5 trunk Alder	SEB/JS	13/03/12-15/03/12		Woodpecker hole on southern stem		3.00	E	E	2
						Woodpecker hole x3 on southern stem		5, 6, 6.5			2
						Woodpecker hole		3.00	S	S	2
						Rot hole		7.00	W	W	2
						Rot hole		5.00	W	W	2
TN187	2	Alder	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole on branch		3.50	S	E	2
						Woodpecker hole x 7		2m - 3.5m	SE	SE	2
TN188	2	3 stem Alder	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole on branch		2.00	SW	SW	2
TN189	2	Alder	SEB/JS	13/03/12-15/03/12	0.45	Woodpecker hole		1.50	N	N	2
TN190	1	Alder	SEB/JS	13/03/12-15/03/12	0.5	Rot hole on branch		0.50	SE	S	1
TN191	2	4 stem Alder	SEB/JS	13/03/12-15/03/12	0.6	Rot hole x 2		3m and 4m	NE	NE	2
						Rot hole on southern stem		5.00	S	N	2
TN192	2	4 stem Alder	SEB/JS	13/03/12-15/03/12	0.7	Woodpecker hole x 6 on dead NE branch		2m - 6m	NE	NE	2
						Woodpecker hole on eastern branch		4.00	E	E	2
						Woodpecker hole on eastern branch		2.50	E	E	2
						Woodpecker hole on eastern branch		4.00	E	S	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN193	2	4 stem Alder	SEB/JS	13/03/12-15/03/12	0.5	Flaked bark		5.00	S	S	2
						Woodpecker hole on branch		7.00	SW	E	2
TN194	2	Alder	SEB/JS	13/03/12-15/03/12	0.8	Woodpecker hole		5.00	S	S	2
TN195	2	Crack Willow	SEB/JS	13/03/12-15/03/12		Woodpecker hole		8.00	N	N	2
TN196	2	3 stem Alder	SEB/JS	13/03/12-15/03/12	0.8	Woodpecker hole		2.00	E	E	2
						Woodpecker hole		3.00	E	E	2
						Woodpecker hole		10.00	E	E	2
TN197	2	Ash - fallen tree	SEB/JS	13/03/12-15/03/12		Hole on dead branch		3.50	E	N	2
TN198	2	Willow	SEB/JS	13/03/12-15/03/12	1.2	Exposed heartwood with holes on branch		12.00	W	W	2
TN199	2	Willow	SEB/JS	13/03/12-15/03/12	1.1	Woodpecker hole		5.00	N	N	2
TN200	2	3 stem Alder	SEB/JS	13/03/12-15/03/12	0.4	Woodpecker hole		8.00	S	S	2
						Dead branch with cracks/holes		6m - 9m	E		2
TN201	2	5 stem Alder	SEB/JS	13/03/12-15/03/12	0.45	Woodpecker hole on branch		13.00	W	W	2
						Woodpecker hole x 2		3m and 3.5m	W	W	2
TN202	2	Hybrid Poplar	SEB/JS	13/03/12-15/03/12	1.1	Woodpecker hole on largest branch		12.00	SW	SW	2
						Exposed heartwood with holes at crown		10.00	W	W	2
TN203	2	Hybrid Poplar - 9th tree from	SEB/JS	13/03/12-15/03/12	1	Exposed heartwood with crack under bark		9.00	SW	SW	2
TN204	2	Hybrid Poplar - 10th tree from	SEB/JS	13/03/12-15/03/12	1	Woodpecker hole		5.00	SW	SW	2
TN205	2	Row of 13 hybrid Poplars	SEB/JS	13/03/12-15/03/12		Going from west to east, the following trees have features - 2, 3, 7, 11, 13			N	N	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
	2	Row of 13 hybrid Poplars	SEB/JS	13/03/12-15/03/12		Going from west to east, the following trees have features - 3, 7, 12			S	S	2
TN206	2	3 stem Alder	SEB/JS	13/03/12-15/03/12		Rot hole		6.00	N	N	2
						Split		4m - 5m	E	E	2
TN207	2	dead stump	SEB/JS	13/03/12-15/03/12		WP holes all way up on all sides					2
TN208	2	Alder	SEB/JS	13/03/12-15/03/12	0.45	Woodpecker hole		9.00	E	E	2
TN209	2	5 stem Alder	SEB/JS	13/03/12-15/03/12	0.45	Rot hole		2.00	E	E	2
TN210	2	5 stem Alder	SEB/JS	13/03/12-15/03/12	0.3	Crack in bark where stem joins branch		4.00	NW	E	2
TN211	2	2 stem Alder	SEB/JS	13/03/12-15/03/12	0.45	Hole on smaller stem		3.00	E	E	2
TN212	2	3 stem Alder	SEB/JS	13/03/12-15/03/12	0.4	Woodpecker hole x2		6.00	E	E	2
TN213	2	Oak - probably hollow	SEB/JS	13/03/12-15/03/12	0.6	Woodpecker hole		2.00	E	E	2
TN214	2	Alder - lots of epicormic	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole		5.00	N	N	2
TN215	2	Alder	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole		5.00	N	N	2
TN216	2	Alder	SEB/JS	13/03/12-15/03/12	0.4	Woodpecker hole		4.00	N	N	2
						Woodpecker hole		6.00	W	W	2
TN217	2	Horse Chestnut	SEB/JS	13/03/12-15/03/12	2	Rot hole		2.00	E	E	2
						Rot hole on branch	1.5	8.00	E	E	1
						Rot hole on main branch	6	3.00	W	W	2
						Exposed heartwood and loose bark	2.5	12.00	E	E	2
						Crack	4	5.00	SW	SE	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Bird box		10.00			
						Woodpecker hole	2	15.00	S	SE	2
TN218	2	Oak	SEB/JS	13/03/12-15/03/12	1.5	Part of trunk is hollow		1m-3m	W	W	2
						Rot hole		5.00	N	N	2
TN219	2	Oak	SEB/JS	13/03/12-15/03/12	2	Hollow stub		5.00	N	N	2
						Woodpecker hole - exposed heartwood		10.00	E	E	2
						Woodpecker hole on branch		8.00	E	E	2
						Woodpecker hole on branch		9.00	E	E	2
						Rot hole		5.00	W	W	2
						Woodpecker hole on branch	1.5		W	S	2
TN220	2	Elm	SEB/JS	13/03/12-15/03/12	1	Woodpecker hole		4.00	SE	SE	2
						Hollow - exposed heartwood		2.00			2
						Woodpecker hole		3.00	S	S	2
TN221	1	Dead Elm	SEB/JS	13/03/12-15/03/12	0.3	Flaked bark		2m upwards			1
TN222	2	Sycamore	SEB/JS	13/03/12-15/03/12	0.4	Woodpecker hole x 4		5m - 7m	NW	NW	2
						Rot hole		12.00	SE	SE	2
TN223	2	Sycamore	SEB/JS	13/03/12-15/03/12	0.8	Woodpecker hole x 2	3m and 4m	12.00	NW	NW	2
TN224	2	Elm	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole		5.00	SE	SE	2
TN225	2	Sycamore	SEB/JS	13/03/12-15/03/12	0.5	Rot hole		5.00	S	S	2

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TN226	2	Elm	SEB/JS	13/03/12-15/03/12	0.4	Woodpecker hole		8.00	S	S	2
						Woodpecker hole		6.00	N	N	2
						Woodpecker hole		7.00	N	N	2
						Woodpecker hole		8.00	N	N	2
TN227	2	Sycamore	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole		12.00	N	N	2
						Rot hole x 2		8.00	S	S	2
TN228	2	4 stem Ash	SEB/JS	13/03/12-15/03/12		Exposed heartwood at centre of stand with 4 rot holes		10.00	E	E	2
TN229	2	dead Elm	SEB/JS	13/03/12-15/03/12	0.7	Crack down centre with exposed heartwood with ~11 woodpecker holes		2m-6m	SW	SW	2
						Woodpecker hole		4.00	S	S	2
TN230	2	Sycamore	SEB/JS	13/03/12-15/03/12	0.7	Rot hole		3.00	SE	SE	2
						Rot hole		12.00	S	S	2
TN231	2	Elm	SEB/JS	13/03/12-15/03/12	1.1	Woodpecker		5.00	W	W	2
TN232	2	Elm	SEB/JS	13/03/12-15/03/12	0.4	Woodpecker hole		5.00	NW	NW	2
						Woodpecker hole x2		9.00	N	N	2
						Woodpecker hole		4.00	S	S	2
TN233	2	Elm - topless and hollow	SEB/JS	13/03/12-15/03/12		>8 woodpecker holes					2
TN234	2	dead Elm	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole		3.50	S	S	2
TN235	2	deal Elm	SEB/JS	13/03/12-15/03/12	0.6	Cracked bark and woodpecker hole		1m - 2m	E	E	2
TN236	2	Ash	SEB/JS	13/03/12-15/03/12	0.9	Rot hole		10.00	S	S	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Woodpecker hole		3.00	N	N	2
TN237	1	Horse Chestnut	SEB/JS	13/03/12-15/03/12	1.2	Crack/hole		10m-11m	E	E	1
TN238	2	dead stump	SEB/JS	13/03/12-15/03/12	0.7	Many woodpecker holes		4m - 8m			2
TN239	2	Sycamore	SEB/JS	13/03/12-15/03/12	0.5	Rot hole and flaked bark		6.00	NE	NE	2
TN240	2	Ash	SEB/JS	13/03/12-15/03/12	0.8	Woodpecker hole		15.00	NW	NW	2
						Woodpecker hole		14.00	E	E	2
						Rot hole in branch	1	14.00	E	E	2
						Woodpecker hole		15.00	S	S	2
TN241	2	Dead tree with BEES	SEB/JS	13/03/12-15/03/12		Features everywhere					2
TN242	2	Ash	SEB/JS	13/03/12-15/03/12	0.7	Rotten		1m - 7m			2
TN243	2	Ash	SEB/JS	13/03/12-15/03/12	0.8	Hollow upwards		5m			2
TN244	2	dead tree	SEB/JS	13/03/12-15/03/12		Missing bark with gaps at top		6m+	NE	NE	2
TN245	2	Oak	SEB/JS	13/03/12-15/03/12	0.7	Crack, exposed heartwood and flaked bark with rot holes and woodpecker holes		6m+	SW	SW	2
TN246	1	Oak	SEB/JS	13/03/12-15/03/12	0.8	Large crack and partly hollow		base - 2.5m	E	E	1
TN247	2	Ash	SEB/JS	13/03/12-15/03/12	1	Large rot hole		5.00	N	N	2
						Woodpecker hole		10.00	E	E	2
TN248	2	Oak	SEB/JS	13/03/12-15/03/12	1	Woodpecker hole		6.00	W	W	2
TN249	2	Oak	SEB/JS	13/03/12-15/03/12	0.7	Rotten trunk		2m-3.5m	E	E	2
TN250	2	Oak	SEB/JS	13/03/12-15/03/12	0.5	Bat box x 2			E	E	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
						Bat box			W	W	2
						Bat box			S	S	2
TN251	2	Oak	SEB/JS	13/03/12-15/03/12	0.35	Bat box x 2			S & E	S & E	2
TN252	2	Oak	SEB/JS	13/03/12-15/03/12	0.3	Bat box x 2			N & W	N & W	2
TN253	2	Ash	SEB/JS	13/03/12-15/03/12	0.4	Bat box		4.00	E	E	2
						Bat box		5.00	S	S	2
TN254	2	Ash	SEB/JS	13/03/12-15/03/12		Bat box on west stem		6.00	W	E	2
						Bat box on east stem		4.00	E	W	2
TN255	2	Ash	SEB/JS	13/03/12-15/03/12	0.5	Woodpecker hole		3.00	SW	SW	2
						Bat box		6.00	S	S	2
TN256	2	Ash	SEB/JS	13/03/12-15/03/12	0.5	Bat box		5.00	S	S	2
TN257	2	Oak	SEB/JS	13/03/12-15/03/12	1.3	Hollow		4.00	W	W	2
TN258	1	Oak	SEB	18/06/2012	1.2	No visible holes, lots of Ivy	0		all	all	1
TN259	1	Oak	SEB	18/06/2012	2	Flaked bark on trunk, too shallow for bats. Otherwise no visible holes and only some flaked bark on very small or rotten branches	0	3m-4m	S	S	1
TN260	2	Oak	SEB	18/06/2012	1.2	Rot hole on branch	1.5	6	W	N	2
						Rot hole on large branch	3	8	NW	N	2
						Dead cracked branch	1	7	W	SW	1
TN261	1	Oak	SEB	18/06/2012	1	Lots of Ivy, no visible holes	0		all	all	1
262		Oak	RB	19/07/2012	2	Broken and cracked branch	3	5	W	W	1

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN263	1	Oak	RB	19/07/2012	1.5	Very thick ivy all around trunk and branches	0-4	0-8	ALL	ALL	1
TN264	1	Oak	RB	19/07/2012	1.5	Very thick ivy all around trunk and branches	0-4	0-8	ALL	ALL	1
						Split in branch	3	6	W	W	1
TN265	1	Oak	RB	19/07/2012	1.5	Very thick ivy all around trunk and branches	0-4	0-8	ALL	ALL	1
TN266	1	Oak	RB	19/07/2012	1	Broken stem with loose bark		5	NW	NW	1
TN267	2	Oak	GH/RB	19/07/2012	1.5	Loose bark	2	4	SW	SW	1
						Loose bark	4	4	W	W	2
						Disintegrating dead limb		5	W	W	2
						Dead branch stub		5	N	N	1
						Numerous holes and loose bark on dead stem	1	5	NW	NW	2
TN268	2	Oak	GH	19/07/2012	1.75	Large hole in stem		4	NW	NW	2
						Holes in stem	2	4	NE	NE	1
						Loose bark	3	4	SW	SW	1
TN269	1	Oak	GH	19/07/2012	0.75	Loose bark at base of dead branch	1	2	NW	NW	1
TN270	2	Oak	GH	19/07/2012	1.5	Hole in branch	1	4	NW	NW	1
						Hole in branch	1	5	NW	NW	2
						Hole at base of branch	1	3	SE	SE	2
TN271	2	Oak	GH	19/07/2012	1	Hole at base of dead branch		3	NW	NW	2
						Crack in broken branch	2	3	SE	SE	2

Tree Number	Highest BRP	Species	Surveyor	Date	DBH (m)	Bat potential feature description	Distance from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Category of feature
TN272	2	Dead tree	GH/RB	19/07/2012	1	Numerous holes and loose bark on dead stem		2	S	S	1
TN273	1	Oak	GH/RB	19/07/2012	0.75	Hole in branch	3	4	SW	SW	1
						2 holes in branch	3	4	SE	SE	1
						Hole in branch	3	5	NW	NW	1
TN274	2	Oak	GH/RB	19/07/2012	1.25m	Large crack / broken stem	2	3	NE	NE	2
						Numerous holes and loose bark on dead stem	1	2-4m	S	S	2
TN275	2	Oak	GH/RB	19/07/2012	1	Woodpecker hole		2	SE	SE	2
						Woodpecker hole + split bark		2	SW	SW	2

APPENDIX C – TREE CLIMBING SURVEY DATA

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
TN9	2	Oak	1.2	Lighting strike crack. Brown rot present, variously hollow all the way up	0				2	2	11-Jun	Hornet present	Y	N	
TN16	2	Ash	1	Dual bole. Hole on western bole	0	4.00	SW	SW	2	0	11-Jun	No suitable features present	Y	N	
TN24	2	Oak	1.3	Wood pecker hole	0	3.50	W	W	2	1	11-Jun	Shallow hole with no cavity	Y	N	
				Split						2		Split in branch with shallow cavity	Y	N	
TN25	2	Oak	1	Hole	0	5.00	NW	NW	2	0	11-Jun	Hole is not deep enough to support bats	Y	N	
				Split branch	0	8.00	SE	SE	1	0		Split in branch is too shallow to support bats	Y	N	
TN26	2	Oak	2	2 x hollow boles with holes from base	0	3.00	E	E	2	0	11-Jun	No suitable features present - evidence of use by owls	Y	N	
				Hollow bole with holes from base	0	4.00	W	W	2	0					
				Wood pecker hole and split	0	6.00	SW	SW	2	0					
TN27	1	Oak	1.2	Hole	3	9.00	S	S	1	-	11-Jun	Couldn't locate tree			
TN36	2	Oak	1.2	Wood pecker hole	1	6.00	NW	NW	2	0	12-Jun	Hole is not deep enough to support bats	Y	N	
TN39	2	Oak	0.7	Wood pecker hole		4.00	E	S	1	0	12-Jun	Hole is not deep enough to support bats	Y	N	
				Dead wood	0	4.00			1	0		No suitable features present	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
				Wood pecker hole	0	4.00	N	N	2	0		Hole is not deep enough to support bats	Y	N	
TN45	2	Oak	1.7	Longitudinal crack on NE dead branch		8.00	NE		2	1	12-Jun		Y	N	
TN46	1	Oak	1	Broken branch and longitudinal crack		5.00			1	2	12-Jun	Deep split in branch could support small number of bats.	Y	N	
TN47	2	Oak	1.5	Hollow tree, hole on N			N		2	3	12-Jun	Hole leads to large cavity within tree trunk	Y	N	
				Hanging bark everywhere					1	0		No suitable features for bats	Y	N	
TN63	2	Oak	1.5	Hole	0	8.00	SE	SE	2	0	25-Jun	Hole doesn’t lead anywhere	Y	N	
				Dead wood at crown and lots of hanging bark	0	8.00	All sides	All sides	2	1		Not extensive	Y	N	
				Hollow and loose bark	0	5 - 8m	SE	SE	2	1		Not extensive	Y	N	
				Hole	0	2.00	S	S	2	2			Y	N	
				Hole	0	3.00	SW	SW	2	2			Y	N	
				Hole on western branch	1.5	7.00	W	W	2	0		Hole doesn’t lead anywhere	Y	N	
				Loose bark on western branch	1.5	7.00	W	N	2	1		Not extensive	Y	N	
				Hole	0	3.00	NE	NE	1	2		Good but feature too low	Y	N	
				Hole	0	2.00	Centre	Centre	2	2		Good but feature too low	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
TN69	2	Oak	0.8	Longitudinal crack in NE branch		2-3m	NE	S	2	0	25-Jun	Open above – no potential	Y	N	
TN70	2	Oak	1.7	Broken branch and flaking bark	2.5	5.00	NW	NW	1	1	25-Jun		Y	N	
				Broken branch and flaking bark	1	8.00	E	E	1	1			Y	N	
				2 holes and flaking bark	0	10.00	SW	SW	2	0		Feature not present when climbed	-		
				Missing bark on dead branch which is rotting back and knot hole	0	5-6m	N	N	2	1			Y	N	
TN71	2	Oak	1.8	Vertical crack in dead wood	0	4-5m	S	S	2	-	25-Jun	Not climbed - features with low potential - mapping incorrect, as tree would not be impacted by cable route corridor.	-	-	
				Delaminated branch in tree centre	0	5.00	Middle	Middle	2						
				Split in stub of western branch	3.5	5.00	W	W	1						
TN73	1	Oak	2	Broken branch	2	8.00	SW	SW	1	1	25-Jun		Y	N	
TN74	2	Oak	0.8	Central cavity on main stem	0	5.00	S	S	2			No access to climb as it is on adjacent land - also located on opposite side of tree line so unlikely to be impacted by works.			
				Longitudinal split on West facing branch		4.00	W	W	2						
				Hole in elbow of east facing branch		2.00		E	2						

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
TN75	2	Ash	0.5	Wood pecker hole	0	14.00	S	S	2	-	13-Jun	Feature too high and on unsafe area of tree to climb	N	-	Y
TN76	2	Dead oak	1.2	Hollow in middle? (4m). Dead wood at top of main stem	0	7.00			2	0	13	Main trunk is split in half with no suitable features	Y	N	
TN77	2	Ash	0.5	2 x holes	0	8.00	N	N	2	1	13-Jun	One hole doesn't lead anywhere - second hole had small cavity with possible bat within - emergence survey undertaken same evening	Y	N	Y
TN78	2	Oak	1.2	BARN OWL BOX. Flaking bark at end of dead wood		8.00	E	E	2	1	13-Jun	Barn Owl box contained wood pigeon nesting - flaking bark had shallow crevice	Y	N	
TN79	2	Dead tree	1	Hollow - lots of nooks and crannies - look at whole tree					2	-	13-Jun	Tree not present - some dead trees in the tree line removed - this one possibly also			
TN80	2	Horse Chestnut	0.5	Hole	0.5	4.00	S	W	2	0	28-Jun	Not extensive	Y	N	
TN94	2	Turkey Oak	1.5	Dead heart wood with missing bark	0	8-10m	All sides	All sides	2	2	26-Jun	Not particularly suitable but flaking bark present	Y	N	
				Hole in dead wood	0	7.00	NE	NE	2	1		Not extensive	Y	N	
TN95	2	Turkey Oak	1.3	Hole on branch pointing over road		6.00	S		2	1	26-Jun	Not climbed – feature present over road and unsafe to climb. Inspected with clutlites.	N	-	
TN99	2	Oak	1.5	Missing crown - hollow centre?					2		27-Jun		Y	N	
				Vertical crack	0	1.5-2.5m	NW	NW	2	2		Good for small number of bats	Y	N	
				Vertical crack	0	0-5m	N	N	2	2		Good for small number of bats	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
				Hole	0	5.00	NW	NW	2	3		Two holes – extensive but cobwebs so not currently used	Y	N	
TN100	2	Ash		Hollow central deformed bow with crack	0	7.00	W	W	2	1	27-Jun	Not fully climbed – unsafe – only suitable for individual bats	N	N	
TN101	2	Oak	0.7	Crack in dead wood	0	4.00	S	S	2	0	12-Jun	No suitable features present	Y	N	
				Crack in dead wood	0	6.00	S	S	2	0		No suitable features present	Y	N	
TN108	1	Oak	1.3	Crack on underside of branch	1	9.00	SE	SE		2	12-Jun	Split is deep enough to support roosting bats	Y	N	
				Crack on side of branch	1	4.00	S	S		2		Split is deep enough to support roosting bats	Y		
TN111	2	Oak	1	Longitudinal crack in E branch	2	10.00	E	N	2	0	12-Jun	No suitable features present	Y		
				Longitudinal crack in E branch	2	11.00	E	N	2	0		No suitable features present	Y		
TN112	2	Oak	1.2	Hole		10.00	W	W	2	-	12-Jun	Not climbed - mapping error - tree is outside of cable route corridor			
				Rot hole		11.50	W	W	2						
TN114	2	Alder	0.5	Hole	0	3.50	N	NW	2	0	26-Jun	Hole doesn't extend deep enough and points down	Y	N	
TN115	1	Sycamore	0.5	Rot hole	0	5.00	S	S	1	1	26-Jun	Small cavity suitable for individual bats	Y	N	
TN116	2	Multi-stemmed coppiced alder		Holes all over tree	0	1-8m	All sides	All sides	2	3	26-Jun	Cavity 3.5m up west side – excellent for maternity colony – tree should be retained if possible.	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
TN117	2	Dead elder	0.4	Woodpecker hole	0	5.00	N	N	2	0	26-Jun	Unsafe to climb – feature at edge of working width, possibly suitable for individual bats	Y	N	
TN120	2	Oak	1	Woodpecker hole in small branch		7.00	E	E	2	-		Feature is on opposite side to HDD works area and would not be impacted by development			
				Woodpecker hole in small branch		7.00	E	E	2						
TN121	2	Pollarded Oak	0.6	Rot hole in crown	0	4.00	S	Upward	2	0	14-Jun	Hole is too shallow to support bats	Y	N	
TN122	2	Oak	0.8	Hole in branch	4	8.00	SW	S	2	1	14-Jun	Hole is not extensive	Y	N	
TN123	2	Oak	1	Hole in branch	4	8.00	SW	S	2	1	14-Jun	Hole is not extensive	Y	N	
				Rot hole in same branch (as above)	3	7.00	SW	S	2	0			Y	N	
				Rot hole in same branch (as above)	1	6.00	SW	S	2	2			Y	N	
				Rot hole in W cut off branch	0	5.00	W	W	1	2		Small cavity present	Y	N	
				Rot hole beneath broken stub	0	4.00	NW	NW	2	1			Y	N	
TN124	2	Oak	1	Hole in main trunk under rotten branch	0	7.00	S	S	2	2	14-Jun	Active birds nest present – suitable cavity for bats also	Y	N	
				Rot hole in branch		6.00	N	W	1	0			Y	N	
TN125	2	Oak	0.8	Lightening struck. Cracks and holes	0	0-9m	S	S	2	2	14-Jun		Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
				Hollow branch with cracks along length and holes in end			N		2	2			Y	N	
TN126	1	Oak	0.7	Rot hole	0	2.00	SE	SE	1	0	14-Jun	Rot hole not suitable as facing upwards and collects water	Y	N	
TN127	2	Oak	0.8	Dead ivy	0	0-3m	N	N	1	0	14-Jun		Y	N	
				Rot hole	0	8.00	W	W	2	1			Y	N	
				Rot hole	1	8.00	S	S	1	1			Y	N	
TN128	2	Pollarded dual bole oak	1	Rot hole	0	2.00	S	S	2	-	14-Jun	Bees present within rot hole – tree not climbed	N	N	
		All features on small stem		Rot hole	0	4.00	W	W	2	0					
				Woodpecker hole	0	5.00	NW	NW	2	1		Possibly suitable for single bats based on ground level assessment	N	N	
TN152	2	Coppiced ash	0.3	Tallest stem - woodpecker hole	0	8.00	N	N	2	-	15-Jun	Viewed with clulite and binoculars from ground level as unsafe to climb due to extensive decay in trunk. Holes appear shallow	N	N	
				Southern broken stub - hollow	0	0-5m	All sides	All sides	2	-					
				Western most stem - many hole	0	2-6m	All sides	All sides	2	-					
TN153	2	Coppiced field maple	0.2	Woodpecker hole	0	3.00	E	E	1	0	15-Jun	Holes too shallow to support roosting bats	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
				Woodpecker hole	0	3.50	W	W	2	0					
TN154	2	Pollarded Ash	0.9	Rot hole	0	4.00	SE	SE	2	1	15-Jun	Shallow cavity	Y	N	
				Rot hole	0	6-7m	SE	SE	2	2		Suitable small cavity	Y	N	
				Woodpecker hole	0	8.00	SE	SE	2	1		Small cavity	Y	N	
				Woodpecker hole	0	8.25	SE	SE	2	0		Hole leads downwards and contains water	Y	N	
				Woodpecker hole	0	4.00	NE	NE	2	0		Hole is too shallow to support bats	Y	N	
TN156	2	Ash	0.25	Woodpecker hole		5.00	S	S	2	0	27-Jun	Not suitable hole too small	Y	N	
TN157	2	Elm	1.1	Woodpecker hole		3.00	S	S	2	3	27-Jun	Extensive cavity – very suitable	Y	N	
				Rot hole		4.00	S	S	2	3		Extensive cavity – very suitable – birds nest present	Y	N	
TN160	2	Elm pollard	1.3	Rot hole		3.00	N	N	2	1	27-Jun	Suitable for one bat	Y	N	
TN176	2	Ash	0.9	Rot hole		5.00	W	W	2	0	26-Jun	Doesn’t extend anywhere	Y	N	
				Woodpecker hole		6.00	W	W	2	1		Not extensive	Y	N	
				Woodpecker hole		8.00	NW	NW	2	0		Does not extend anywhere	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
				Rot hole		2.00	E	E	2	3		Extensive cavity – very sheltered	Y	N	
				Rot hole on branch	2	6.00	E	E	2	0		Hole does not extend anywhere	Y	N	
				Woodpecker hole on branch	3	6.00	N	N	2	2		Good cavity extending into branch	Y	N	
TN177	2	Ash	1	Flaked bark		9.00	S	S	2	1	26-Jun		Y	N	
				Rot hole		4.00	E	E	2	0			Y	N	
				Woodpecker hole		10.00	N	N	2	0			Y	N	
				Flaked bark in crack		1m-3m	SE	SE	2	0			Y	N	
TN242	2	Ash	0.7	Rotten		1m - 7m			2	1	27-Jun	Extensively hollowed from 4m to top – no features suitable for more than one bat	Y	N	
				Horizontal split in branch - cavity		5m	W			3		Extensive cavity – very suitable	Y	N	
TN243	2	Ash	0.8	Hollow upwards		5m			2	1	27-Jun	Hollow through to other side – only individual roosting locations available	Y	N	
TN244	2	Dead tree		Missing bark with gaps at top		6m+	NE	NE	2	1	28-Jun	Only small features available	Y	N	
TN245	2	Oak	0.7	Crack, exposed heartwood and flaked bark with rot holes and woodpecker holes		6m+	SW	SW	2			Mapping Error – not located within working width	-	-	
TN246	1	Oak	0.8	Large crack and partly hollow		Base - 2.5m	E	E	1	1	28-Jun	Not extensive – suitable for individual bats	Y	N	

Ground Level										Tree Climb Assessment					
Tree Number	Highest BRP	Spp.	DBH (m)	Bat potential feature description	Dist. from trunk (m)	Height above base (m)	Side of tree	Entrance to feature	Cat. of feature	Category when climbed	Date	Notes (description of shape, exposure, evidence of bats etc)	Fully inspected (Y/N)	Evidence of Bats (Y/N)	Emergence Survey?
TN247	2	Ash	1	Large rot hole		5.00	N	N	2	1	28-Jun	All open – wasps nest present	Y	N	
				Woodpecker hole		10.00	E	E	2	3		Two woodpecker holes leading down but sheltered but birds nest present in both	Y	N	
TN248	2	Oak	1	Woodpecker hole		6.00	W	W	2	2	28-Jun	Not extensive	Y	N	
TN249	2	Oak	0.7	Rotten trunk		2m-3.5m	E	E	2	3	28-Jun	Extensive cavity	Y	N	
TN250	2	Oak	0.5	Bat box x 2			E	E	2	2	28-Jun	No bats present or evidence – birds nest	Y	N	
				Bat box			W	W	2	2		No bats present or evidence – birds nest	Y	N	
				Bat box			S	S	2	2		No bats present or evidence – birds nest	Y	N	
TN257	2	Oak	1.3	Hollow		4.00	W	W	2	3	28-Jun	Extensive hollowing of branches forming several good roosting features – also suitable for owls	Y	N	

APPENDIX D – AUTOMATED STATIC DETECTOR LOCATIONS, DATES AND WEATHER CONDITIONS

Location	Date	Min Night Temp ºC	Weather During the Night	Notes on SM2 Unit Position
4	19/06/2012	9	Dry	On arable field side of hedgerow on right hand side of dying tree situated in open gap
	20/06/2012	10	Dry	
	21/06/2012	10	Light rain early evening	
6	19/06/2012	9	Dry	On the hedge side furthest from the sea.
	20/06/2012	10	Dry	
	21/06/2012	10	Light rain early evening	
8 & 143	10/07/2012	10	Light rain early in the night then fine after	At the end of the hedgerow in a patch of nettles.
	11/07/2012	7	Light rain early in the night then fine after	
	12/07/2012	13	Light rain throughout night	
14	19/06/2012	9	Dry	At base of pylon on arable field side of hedge
	20/06/2012	10	Dry	
	21/06/2012	10	Light rain early evening	
22	22/06/2012	10	Dry	Located in a grass area to left of telegraph pole next to elder bush on the track side
	23/06/2012	10	Rain throughout night	
	24/06/2012	10	Dry	
23	22/06/2012	10	Dry	Hedge within arable field.
	23/06/2012	10	Rain throughout night	
	24/06/2012	10	Dry	
25	22/06/2012	10	Dry	Hedge within arable field.
	23/06/2012	10	Rain throughout night	
	24/06/2012	10	Dry	
27	07/07/2012	12	Cloudy with rain in the morning	In a gap in the hedgerow at the base of bush located in middle. Roadside of hedgerow.
	08/07/2012	14	Cloudy but dry	
	09/07/2012	12	Cloudy but dry	
28	26/07/2012	13	Dry	Opposite a muckheap in waste-ground.
	27/07/2012	17	Dry	
	28/07/2012	15	Dry	
29	26/07/2012	13	Dry	By fence behind young tree on the left of the footpath.
	27/07/2012	17	Dry	
32	26/07/2012	13	Dry	In hedgerow next to dead tree just off the farm track.
	27/07/2012	17	Dry	
	28/07/2012	15	Dry	
55	15/06/2012	12	Dry	Just off footpath in hedge of arable field. In patch of grass next to an oak tree and patch of red campions.
	16/06/2012	11	Dry	
	17/06/2012	11	Dry	
58 & 144	15/06/2012	12	Dry	Middle of a hazel hedgerow on the rough grassland side. The other side of the hedgerow is Sandy Lane road.
	16/06/2012	11	Dry	
	17/06/2012	11	Dry	
63	12/06/2012	6	Dry	Tall hedge between two fields of rough grassland - near a woodland block
	13/06/2012	5	Dry	
	14/06/2012	9	Light rain late evening/early morning	
64 & 65	12/06/2012	6	Dry	Tall hedge by a green lane and arable field.
	13/06/2012	5	Dry	
	14/06/2012	9	Light rain late evening/early morning	
66	15/06/2012	12	Dry	On field side of hedgerow approximately 3m to left of elder bush.
	16/06/2012	11	Dry	
	17/06/2012	11	Dry	
74	01/08/2011	12	Cloudy with rain in the morning	Hedge between road and grazed pasture field, on field side of hedgerow below a dead tree by gap in the hedge.
	02/08/2011	14	Cloudy but dry	
	03/08/2011	12	Cloudy but dry	
80	26/07/2012	13	Dry	Hawthorn hedge in wheat field.
	27/07/2012	17	Dry	
	28/07/2012	15	Dry	

Location	Date	Min Night Temp ºC	Weather During the Night	Notes on SM2 Unit Position
93	29/07/2012	12	Dry	In roadside of hedge, opposite gate, under dead tree with ivy.
	30/07/2012	12	Dry	
	01/08/2012	10	Dry	
95	29/07/2012	12	Dry	Left of gate in ditch under hawthorn, elder and big ash tree (by grass/ treeless patch).
	30/07/2012	12	Dry	
	01/08/2012	10	Dry	
101 & 102	29/07/2012	12	Dry	In hedge under field maple tree.
	30/07/2012	12	Dry	
	01/08/2012	10	Dry	
103	10/07/2012	10	Light rain early in the night then fine after	In hedge next to footpath, between pylons and big Oak tree.
	11/07/2012	7	Light rain early in the night then fine after	
	12/07/2012	13	Light rain throughout night	
110	03/07/2012	15	Cloudy with light rain in the night	Under an Elder tree in the hedgerow.
	04/07/2012	16	Fine and dry	
	05/07/2012	15	Light rain during the night and early morning	
113	03/07/2012	15	Cloudy with light rain in the night	2m to the right of field maple tree on arable side of field.
	04/07/2012	16	Fine and dry	
	05/07/2012	15	Light rain during the night and early morning	
119 & 120	03/07/2012	15	Cloudy with light rain in the night	On arable side of field under pylon lines.
	04/07/2012	16	Fine and dry	
	05/07/2012	15	Light rain during the night and early morning	
122 and 123	29/07/2011	12	Cloudy with rain in the morning	In hedgerow opposite pylon located on right hand side of track.
	30/07/2011	14	Cloudy but dry	
	31/07/2011	12	Cloudy but dry	
124	07/07/2012	12	Cloudy with rain in the morning	On arable field side of hedgerow nearest bridge. SM2 is approx 5m down from pylon where hedgerow becomes taller.
	08/07/2012	14	Cloudy but dry	
	09/07/2012	12	Cloudy but dry	
146 & 147	12/06/2012	6	Dry	End of hedgerow/treelike opposite a stand of mature oaks by the side of a road.
	13/06/2012	5	Dry	
	14/06/2012	9	Light rain late evening/early morning	
148	03/07/2012	15	Cloudy with light rain in the night	Below final tree in the hedgerow.
	04/07/2012	16	Fine and dry	
	05/07/2012	15	Light rain during the night and early morning	

APPENDIX E – AUTOMATED BAT ACTIVITY RESULTS

Location	Date	Common Pipistrelle	Soprano Pipistrelle	*Pipistrellus* species	Nathusius Pipistrelle	*Nyctalus / Eptesicus* species	*Myotis* species	*Myotis / Plecotus* species	Brown Long-eared Bat	Barbastelle	Total bat passes per night
4	19/06/2012	36	27							6	63
	20/06/2012	1	14							5	20
	21/06/2012										0
6	19/06/2012		19								19
	20/06/2012										0
	21/06/2012										0
8 & 143	10/07/2012	42	18	1			1	3			65
	11/07/2012	42	12					4			58
	12/07/2012	1	2					1			4
14	19/06/2012	3						1			4
	20/06/2012										0
	21/06/2012										0
22	22/06/2012		1								1
	23/06/2012		1	1							2
	24/06/2012	1						1			2
23	22/06/2012	9	6								15
	23/06/2012	5	3								8
	24/06/2012	2	1							1	3
25	22/06/2012	6	28					2			36
	23/06/2012	22	29	4							55
	24/06/2012	20	31	1							52
27	07/07/2012	266	37	7							310
	08/07/2012	124	29	6				1			160
	09/07/2012	7	8								15
28	26/07/2012	20	18			1		1			40
	27/07/2012	59	8		1	1		3	1	1	73
	28/07/2012	14	1			1		1			17
29	26/07/2012	5	1			3		1			10
	27/07/2012					1					1

Location	Date	Common Pipistrelle	Soprano Pipistrelle	*Pipistrellus* species	Nathusius Pipistrelle	*Nyctalus / Eptesicus* species	*Myotis* species	*Myotis / Plecotus* species	Brown Long-eared Bat	Barbastelle	Total bat passes per night
32	26/07/2012	147	11	1		4		2			165
	27/07/2012	66	5			22					93
	28/07/2012	49	2			5		1			57
55	15/06/2012	459	220	1							680
	16/06/2012	55	851					1			907
	17/06/2012	97	40	3		2		2			144
58 & 144	15/06/2012	5	2		1	3					10
	16/06/2012		1			3					4
	17/06/2012	17	10			1					28
63	12/06/2012	4	2							4	10
	13/06/2012	6	1	1		1	1	1	1	1	13
	14/06/2012	8	2	1	1	1		1			14
64/65	12/06/2012	82	36	26							144
	13/06/2012	861	69	17							947
	14/06/2012	1161	220	2							1383
66	15/06/2012					4					4
	16/06/2012					1					1
	17/06/2012	6	7			2					15
74	01/08/2011	12					7				19
	02/08/2011	11	2				2				15
	03/08/2011	11					1				12
80	26/07/2012	1									1
	27/07/2012	24									24
	28/07/2012	2									2
93	29/07/2012	35	1		1		5				41
	30/07/2012	29	2				3				34
	01/08/2012	17	1	1			3				22
95	29/07/2012	28	7	1						2	38
	30/07/2012	22	4							1	27
	01/08/2012	16	5								21

Location	Date	Common Pipistrelle	Soprano Pipistrelle	*Pipistrellus* species	Nathusius Pipistrelle	*Nyctalus / Eptesicus* species	*Myotis* species	*Myotis / Plecotus* species	Brown Long-eared Bat	Barbastelle	Total bat passes per night
101 & 102	29/07/2012										0
	30/07/2012										0
	01/08/2012										0
103	10/07/2012										0
	11/07/2012	1									1
	12/07/2012										0
110	03/07/2012	15	3	1							19
	04/07/2012	23				1					24
	05/07/2012	4									4
113	03/07/2012	39	7			5					51
	04/07/2012	68	12	9		6		1			96
	05/07/2012	93	17	6		36					152
119 & 120	03/07/2012	136	87	1		14	1	1			240
	04/07/2012	179	76	4		4	1				264
	05/07/2012	93	74	3		3	2	3			178
122 & 123	29/07/2011	11	1								12
	30/07/2011	40	9								49
	31/07/2011	104									104
124	07/07/2012	26								1	27
	08/07/2012	125	4								129
146 & 147	12/06/2012	7	4			3	10	5	1	12	42
	13/06/2012	137	5	5		4	1	2		1	155
	14/06/2012		1			5		1		1	8
148	03/07/2012	11	4			1					16
	04/07/2012	21	1			1					23
	05/07/2012	16	3	2				1			22

APPENDIX F – MANUAL BAT ACTIVITY RESULTS

Table 1. Results of manual activity survey carried out at the north of *Location 64 & 65* on 9th July 2012 (Surveyor – Paul Barnes)

Time	Bat Species	Number of bats	Bat Activity
Sunset time 21:14			
21.31	*Pipistrellus* species	1	Commuting south at 5m high
21.39	*Nyctalus* species	1	Commuting south, foraging at tree at 5m
21.40	*Nyctalus* species	1	Commuting south at 6m high
21.45	Common pipistrelle	1	Foraging in garden approx 2-3m high
21.48	Common and Soprano pipstrelle	2	Foraging in garden approx 3-4m high
21.51	Unidentified bat	1	Foraging in garden approx 3-4m high
22.00	*Nyctalus* species	1	Commuting south east across field at 4m
22.01	Soprano Pipistrelle	1	Heard not seen, foraging
22.02	*Pipistrellus* species	1	Foraging, north
22.07	Unidentified bat	1	Heard not seen
22.27	Unidentified bat	1	Heard not seen, 2 passes
22.29	Unidentified bat	1	Heard not seen, 2 passes
22.30	Unidentified bat	1	Heard not seen
22.34	Common pipistrelle	1	Heard not seen
22.36	Soprano pipistrelle	1	Heard not seen, foraging, 8 passes
22.40	*Pipistrellus* species	1	Foraging, 4 passes, north to south at 2-3m
22.42	Common pipistrelle	1	Foraging, 3 passes, north to south at 2-3m
22.47	Soprano Pipistrelle	2	Foraging

Table 2. Results of manual activity survey carried out at the south of *Location 64 & 65* on 9th July 2012 (Surveyor – Sarah Brooks)

Time	Bat Species	Number of bats	Bat Activity
Sunset time 21:14			
21.30	Soprano pipistrelle	1	Commuting south
21.38	*Nyctalus* species	1	Foraging at 5m high
21.41	*Nyctalus* species	2	Commuting south at 5m
21.44	Unidentified bat	1	Heard not seen
21.44	*Nyctalus* species	2	Commuting south at 10m high
21.46	Unidentified bat	1	Heard not seen
21.47	Unidentified bat	1	Heard not seen
21.48	Soprano pipistrelle	1	Commuting north at 3m high
21.48	Soprano pipistrelle	1	Heard not seen
21.54	Soprano pipistrelle	1	Foraging north/south at 2m high
21.56	Soprano pipistrelle	1	Commuting east at 3m
21.56	Soprano pipistrelle	1	Foraging approximately 2-3m high
21.59	*Pipistrellus* species and *Nyctalus* species	2:1	Foraging approx 4-5m high
22.03	Soprano pipistrelle	1	Foraging west/east approx 2-3m high
22.04	Common pipistrelle	1	Foraging at 3m
22.05	Common pipistrelle and *Nyctalus* species	2	Foraging east approx 5-10m high
22.08	Common pipistrelle	1	Heard not seen
22.08	Soprano pipistrelle	1	Heard not seen
22.14	Common pipistrelle	1	Heard not seen
22.15	Common pipistrelle	1	Heard not seen
22.16	Common pipistrelle	1	Heard not seen
22.19	Unidentified bat	1	Foraging, heard not seen
22.20	Unidentified bat	1	Heard not seen
22.22	Unidentified bat	1	Heard not seen
22.23	Unidentified bat	1	Heard not seen
22.26	Unidentified bat	1	Heard not seen, 4 passes
22.31	Soprano pipistrelle	1	Heard not seen. 3 passes
22.34	Soprano pipistrelle	1	Heard not seen, 3 passes
22.36	Unidentified bat	1	Heard not seen
22.38	Soprano pipistrelle	2	Heard not seen
22.40	Unidentified bat	1	Heard not seen

Table 3. Results of manual activity survey carried out at the east of *Location 55* on 11th July 2012 (Surveyor – Paul Barnes)

Time	Bat Species	Number of bats	Bat Activity
Sunset 21:13			
21.26	Soprano pipistrelle	1	Commuting east approx 3-4m high
21.27	Soprano pipistrelle	1	Commuting east at 3m
21.28	Soprano pipistrelle	2	Foraging east at 3m
21.29	Soprano pipistrelle	2	Foraging east at 3m
21.29	Soprano pipistrelle	1	Commuting east at 3m
21.31	Common pipistrelle	2	Commuting east at 3m
21.31	Common pipistrelle	1	Foraging under tree
21.32	Soprano pipistrelle	1	Commuting east at 3m high
21.32	Common pipistrelle	2	Commuting east at @3m
21.35	Soprano pipistrelle	2	Foraging under tree then east approx 1-3m high
21.35	Soprano pipistrelle	2	Foraging under tree then commuting east approx 1-3m high
21.37	Soprano pipistrelle	1	Foraging along track west/east approx 1-5m high
21.38	*Pipistrellus* species	1	Foraging along track east approx 1-5m high
21.40	Soprano pipistrelle	3	Foraging east approx 1-5m high, Social Calls
21.41	Soprano pipistrelle	1	Commuting east at 2m
21.41	Soprano pipistrelle	1	Commuting east approx 2-3m
21.43	*Pipistrellus* species	1	Foraging east and back to tree west approx 1-5m high
21.44	Common pipistrelle	1	Foraging
21:44	*Pipistrellus* species	1	Commuting east
21.46	Common pipistrelle	1	Foraging west at 1-3m
21.48	*Pipistrellus* species	1	Foraging west at 2-4m
21.49	Soprano pipistrelle	3	Foraging, 2 east, 1 west
21.50	Soprano pipistrelle	1	Commuting east at 4m
21.51	Soprano pipistrelle	1	Commuting west at 3m high
21.53	Soprano pipistrelle	1	Commuting east at 3m
21.54	Soprano pipistrelle	4	Commuting east at 3m
21.56	Common pipistrelle	1	Foraging east at 3m
21.58	Soprano pipistrelle	1	Foraging
21.59	Unidentified bat	2	No Battery. 2 flying east
22.00	Common pipistrelle	1	Commuting east
22.00	Soprano pipistrelle	2	Commuting east at 3m
22.01	Unidentified bat	1	Commuting west at 3m
22.02	Soprano pipistrelle	1	Commuting east at 3m
22.03	Common and Soprano pipistrelle	2	Commuting west at 3m
22.07	Common pipistrelle	2	Foraging east/west
22.10	Common pipistrelle	2	Constant foraging along path
22.11	Common pipistrelle	1	Foraging and social calls

Table 4. Results of manual activity survey carried out at the west of *Location 55* on 11th July 2012 (Surveyor – Sarah Brooks)

Time	Bat Species	Number of bats	Bat Activity
Sunset 21:13			
21.26	Soprano pipistrelle	1	Commuting east
21.27	Soprano pipistrelle	1	Commuting east at 3m
21.27	Soprano pipistrelle	4	Commuting east approx 2-3m high
21.29	Soprano pipistrelle	1	Commuting north at 3-4m
21.30	Soprano pipistrelle	2	Commuting east at 2-3m
21.32	Soprano pipistrelle	2	Commuting, foraging east
21.32	Soprano pipistrelle	2	Commuting east at 2-3m
21.35	Soprano pipistrelle	1	Foraging east and circling at 2-3m high
21.36	Soprano pipistrelle	1	Heard not seen
21.37	Unidentified bat	1	Heard not seen
21.38	Soprano pipistrelle	1	Heard not seen
21.39	Soprano pipistrelle	2	Commuting, foraging east at 2-3m
21.40	Soprano pipistrelle	1	Commuting east at 1-2m
21.41	Soprano pipistrelle	1	Commuting east at 2-3m
21.43	Soprano pipistrelle	2	Commuting, foraging east at 2-3m
21.46	Common pipistrelle	1	Commuting south-west at 2-3m high
21.49	Common pipistrelle	3	Commuting, foraging, 1 west, 1 east at 2m
21.49	Soprano pipistrelle	1	Heard not seen
21.51	Soprano pipistrelle	1	Commuting west at 2m high
21.52	Soprano pipistrelle	1	Commuting east at 2m high
21.55	*Pipistrellus* species	4	Commuting, foraging east and circling at 2-3m
21.57	Common pipistrelle	1	Foraging, 1 west, 1 east and circling at 2-3m
21.58	Soprano pipistrelle	1	Foraging circling
21.59	Soprano pipistrelle	2	Commuting east at 2-3m
22.01	Soprano pipistrelle	1	Foraging west and circling at 2-3m
22.02	*Pipistrellus* species	1	Foraging, circling at 2-3m
22.02	*Pipistrellus* species	1	Commuting east at 2-3m high
22.03	Common pipistrelle	1	Commuting, foraging south at 2-3m
22.08	Common pipistrelle	2	Commuting foraging, 1east, 1 west, 1 north at 2-3m
22.09	Common pipistrelle	1	Foraging in circles at 1-3m
22.10	Common pipistrelle	1	Foraging in circles at 1-3m
22.16	Common pipistrelle	2	Foraging in circles at 1-5m

Dormouse Survey Report

Appendix 24.5

Dormouse Survey Technical Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.5 - Dormouse Survey Technical Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Dormouse Survey Technical Report

Client: East Anglia Offshore Wind Limited

Date: August 2012

Office: Coventry

Status: Final

Author	Sarah Brooks	**Technical reviewer**	Sarah Harmer
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Date:	28/08/2012

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of Dormouse surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. This report form Appendix 24.5 to *Volume 3, chapter 24: Ecology and Ornithology* of the Environmental Statement.

The Onshore Cable Route runs from a landfall to the east of Ipswich, north of the River Deben at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in Figure 24.5.1. To establish presence/absence of Dormice, Hazel nut surveys were carried out in January 2012 and nest tube surveys between May and August 2012 in suitable habitat along the Onshore Cable Route.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. Much of the land crossed is arable farmland, but the route does cross several field drains and ditches, some areas of coastal habitats including marsh and salt marsh, and will pass through some lines of trees and hedgerows.

In places, habitat is suitable for Dormice populations and the area contains some incidental dormouse records within 1km of the Onshore Cable Route. In some areas, the Onshore Cable Route also crosses previously-developed land.

1.3 Structure of this Report

The remainder of the report is set out as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the results of the surveys;
- *Section 4* provides the evaluation and conclusions;
- *Section 5* is the reference section;
- *Section 6* provides the figures; and,
- *Appendix* A gives relevant legislation.

2 METHODS

2.1 Survey Scope

There are dormouse records within 1km of the Onshore Cable Route in some areas given in the background data search report. The proposed development contains many woods linked by hedgerows, it is therefore possible that Dormice have dispersed and established in suitable habitat along the Preferred Onshore Cable Corridor. All habitats within the Preferred Onshore Cable Corridor (160m width) and Converter Station Refined Area of Search were assessed for their suitability for Dormice and any suitable areas were surveyed in more detail. A wider corridor was surveyed in a few places where a final cable route had not been decided.

2.2 Survey Constraints

Some landowners along the Preferred Onshore Cable Corridor denied access during the commencement of the surveys and it was therefore not possible to survey all suitable areas originally identified for Dormice. However, given the geographic range of the surveys it is reasonable to conclude that this will not have significantly affected the results of this survey.

2.3 Survey Method

2.3.1 General

A good way of establishing presence is to look for gnawed hazelnuts (The Dormouse Conservation Handbook 2006). Dormice gnaw hazelnuts in a characteristic way, making them easily distinguishable from nuts eaten by other species

In most habitats, artificial nest-tubes are widely regarded as the most appropriate technique for establishing the presence of Dormice on grounds of cost, efficacy and disturbance (The Dormouse Conservation Handbook 2006). The technique uses tubes that are square in cross-section, open at one end, and made of corrugated plastic with a wooden base-plate. The density and positioning of the nest tubes depends upon habitat structure and suitability.

Tubes provide a weatherproof site for Dormice to build summer nests, which are distinctive, neatly woven balls of leaves or grass, lined with finer material, often shredded honeysuckle bark and fine grass (Corbet & Harris, 1991). Other less-distinctive assemblages of leaves are likely to be made by Wood Mice (Apodemus sylvaticus), as are caches of food including nuts and berries because Dormice are not known to store food in this way. Signs of Wood Mice were recorded in case of confusion with Dormice.

2.3.2 Habitat Assessment

Woodland, tree-lined watercourses, hedgerows and associated scrub within the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search were identified during the Extended Phase 1 Habitat Survey in September and October 2011 together with further surveys in March 2012 as being suitable for Dormice. These features have several woody species, which gives a continuous supply of food from April to November when Dormice are active. Features with the food-plants *Corylus avellana* (Hazel), *Quercus robur* (Oak) and *Rubus fruticosus agg.* (Bramble) are especially important for Dormice.

2.3.3 Gnawed Nut Searches

Wooded areas suitable for Dormice were identified from mapping and during the Extended Phase 1 Habitat Survey and systematically searched for characteristic gnawed hazelnuts in January 2012. In suitable habitat where there are Hazel trees in the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search, up to three transects (10m x 10m) were searched in each woodland for nuts that had been clearly opened by Dormice. This method can confirm absence/presence of Dormice with an accuracy of up to 80%. Maps of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search and the locations of the woodlands where nut searches were carried out are shown in *Figures 24.5.1 and 24.5.2* respectively.

2.3.4 Artificial Refuge Surveys

The surveys for Dormice used nest-tubes in appropriate densities and numbers according to habitat type. A total of 940 nest-tubes were placed at 80 locations in March/April 2012. Maps showing the location of the Dormouse nest tubes are shown in *Figure 24.5.2*.

Nest-tubes were checked on six occasions between May and August 2012. These surveys correlate positively with the index of probability for finding Dormice in any one month (English Nature, 2006) where a minimum search effort score of 20 must be achieved (see Table 1). The surveys were carried out by Sarah Brooks and Gareth Blockley (Natural England Dormouse licence number 20114143 and 20120765 respectively).

Any incidental signs of Dormice i.e. feeding remains, evidence of bark stripping for nest building, wild nests or sightings were also recorded.

Table 1: Index of probability of finding Dormice in nest tubes in any one month (English Nature, 2006) and number of surveys

Month	Index of Probability	Number of surveys	Search effort score
April	1	0	0
May	4	2	8
June	2	1	2
July	2	1	2
August	5	2	10
September	7	0	0
October	2	0	0
November	2	0	0
		Total:	**22**

3 RESULTS

Table 2 summarises the results from the hazelnut survey completed in January 2012. Column 1 gives the area identification number, which relates to the woodlands searched on *Figure 24.5.2.* Column 2 states whether Hazel trees were present, Column 3 indicates how many quadrats were used in the survey and Column 4 states whether dormouse evidence was found in the form of characteristically nibbled nuts.

Table 2: Results of Dormouse Hazel Nut Searches

Area ID	Hazel trees present	No of quadrat searches	Dormouse evidence
1	No	None	No
2	Yes	3	No
3	One area only	1	No
4	No	None	No
5	Two areas only	2	No
6	Yes	3	No
7	No	Discounted due to size and isolation	No
8	No	None	No
9	No	None	No
10	Yes	3	No
11	No	None	No
12	No	None	No
13	Yes	2	No
14	No	None	No
15	Yes	2	No
16	Yes	2	No
17	Yes	2	No
18	No	None	No
19	Yes	3	No
20	No	None	No
21	No	Discounted as woodland had been cut down	No
22	Yes	3	No
23	Two areas only	2	No
24	Yes	3	No
25	One area only	1	No
26	Yes	3	No

Area ID	Hazel trees present	No of quadrat searches	Dormouse evidence
27	Yes	2	No
28	Yes	2	No
29	Yes	3	No
30	No	None	No
31	Yes	3	No
32	Yes	3	No
33	Yes	3	No
34	Yes	3	No

Table 3 summarises the details of the targeted Dormice surveys. Column 1 gives the area identification number, which relates to locations on *Figure 24.5.2*. Column 2 gives the number of tubes used. Columns 3 to 8 give species evidence found on the first survey visit to the fifth survey visit. The following species codes are used: WM – Wood Mouse, DM - Dormouse

Table 3: Results of Dormouse Nest Tube Surveys

Area ID	Tubes	Visit 1 08/05/12 - 11/05/12	Visit 2 28/05/12 - 30/05/12	Visit 3 18/06/12 - 22/06/12	Visit 4 16/07/12 - 20/07/12	Visit 5 06/08/12 - 10/08/12	Visit 6 21/08/12 - 24/08/12
001	10	-	-	-	-	-	-
002	10	-	-	-	-	-	-
003	10	-	-	-	-	-	WM
004	5	-	-	-	-	-	-
005	10	-	-	-	-	-	-
006	10	-	-	-	-	-	-
007	15	-	-	-	-	-	WM
008	10	-	-	-	-	-	-
009	10	-	-	-	-	-	-
010	5	-	-	-	-	-	-
011	10	-	-	-	-	-	-
012	10	-	-	-	-	-	-
012A	10	WM	-	-	-	-	-
013	15	-	-	-	-	-	-
014	25	-	-	-	-	-	-
015	10	-	-	-	-	WM	WM
016	10	-	-	-	-	WM	-
017	10	-	-	-	-	-	-
018	15	-	-	-	-	-	WM
019	9	-	-	-	-	-	WM
020	6	-	-	-	-	-	-
021	10	-	-	-	-	-	-

022	10	-	-	-	-	-	WM
023	10	-	-	WM	WM	WM	-
Area ID	**Tubes**	**Visit 1 08/05/12 - 11/05/12**	**Visit 2 28/05/12 - 30/05/12**	**Visit 3 18/06/12 - 22/06/12**	**Visit 4 16/07/12 - 20/07/12**	**Visit 5 06/08/12 - 10/08/12**	**Visit 6 21/08/12 - 24/08/12**
024	10	-	-	-	-	-	-
025	10	-	-	-	-	WM	-
026	15	WM	-	WM	-	-	WM
027	15	-	-	-	-	-	-
028	10	-	-	-	-	-	-
029	10	-	WM	-	-	-	WM
030	5	-	-	-	-	-	-
031	10	-	-	-	-	-	-
032	10	-	-	-	WM	-	-
033	10	-	-	-	-	-	-
034	10	-	-	-	-	-	-
035	10	-	-	-	-	-	-
036	5	WM	-	-	-	-	-
037	15	-	-	-	-	-	-
038	15	-	-	-	-	-	-
039	10	-	-	-	-	-	-
040	10	-	-	-	-	-	-
041	10	-	-	-	-	-	WM
042	10	-	-	-	WM	-	WM
043	10	-	-	-	-	WM	All destroyed
044	10	-	-	-	-	-	-
045	5	-	-	-	-	-	-
046	10	-	-	-	-	-	-
047	10	-	-	-	-	WM	WM
048	15	-	-	-	-	-	WM
049	15	-	-	-	-	-	-
050	10	-	-	WM	WM	WM	WM
051	10	-	-	-	-	-	WM
052	10	-	-	-	-	-	-
053	10	-	-	-	-	-	-
054	10	-	-	-	-	-	-
055	10	-	-	-	-	-	-
056	10	-	-	-	-	-	WM
057	20	-	-	-	WM	-	WM
058	20	-	-	WM	WM	WM	WM
059	10	-	-	-	WM	-	WM
060	10	-	-	-	-	WM	WM
061	25	-	-	-	WM	WM	WM

062	25	-	-	-	WM	WM	WM
063	15	-	-	-	WM	WM	WM
Area ID	**Tubes**	**Visit 1 08/05/12 - 11/05/12**	**Visit 2 28/05/12 - 30/05/12**	**Visit 3 18/06/12 - 22/06/12**	**Visit 4 16/07/12 - 20/07/12**	**Visit 5 06/08/12 - 10/08/12**	**Visit 6 21/08/12 - 24/08/12**
064	10	-	-	-	-	-	WM
065	20	-	-	-	-	-	-
066	10	-	-	-	-	-	-
067	10	WM	-	-	-	-	-
068	10	-	-	-	-	-	WM
069	10	-	-	-	-	-	-
070	15	-	-	-	-	-	-
071	15	-	-	-	-	-	-
072	10	-	WM	-	-	-	-
073	10	-	-	-	-	-	-
074	10	-	-	-	-	-	-
075	10	-	-	-	-	-	WM
076	10	-	-	-	-	-	-
077	20	-	-	-	-	-	WM
078	10	-	-	-	-	WM	WM
079	10	-	-	-	-	WM	WM
080	10	-	-	-	-	-	-

4 EVALUATION AND CONCLUSIONS

Both the nut search surveys and the nest tube surveys found no evidence of Dormouse presence at any location within the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search and therefore no mitigation is therefore required for this species. Dormice are notoriously slow to colonise new areas and therefore these results are valid for three years (English Nature, 2006). Should works be completed after three years then further surveys may be required.

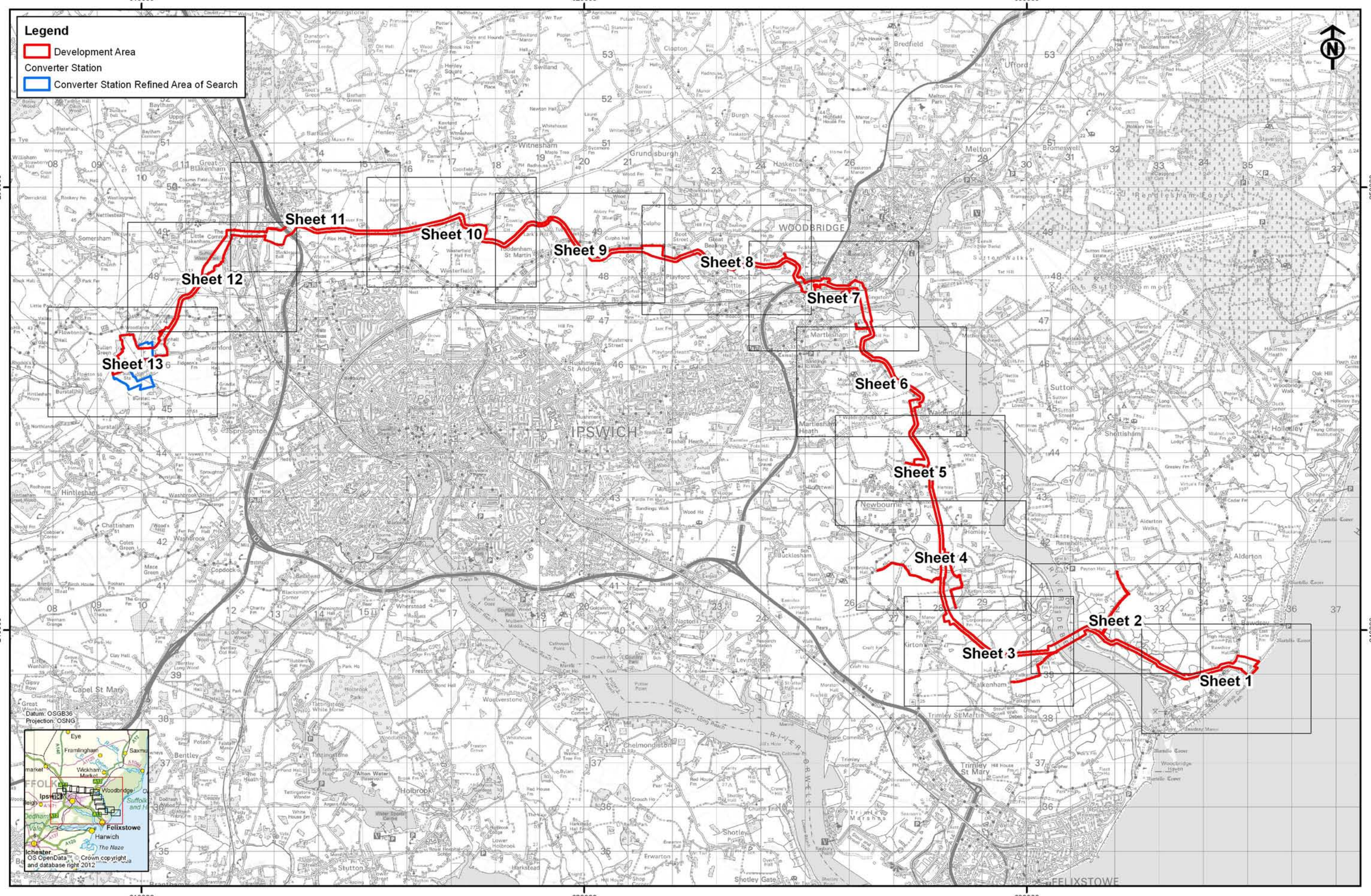
5 REFERENCES

English Nature, (2006), *Dormouse Conservation Handbook 2nd Edition*

6 FIGURES

Figure 24.5.1 – Site location plan

Figure 24.5.2 – Locations of Hazel nut searches and nest tube surveys



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Original A3 Plot Scale 1:80,000

0 1 2 4 km

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Dormouse Survey
Onshore Cable Route - Overview

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Appendix 24.5

Figure 24.5.1

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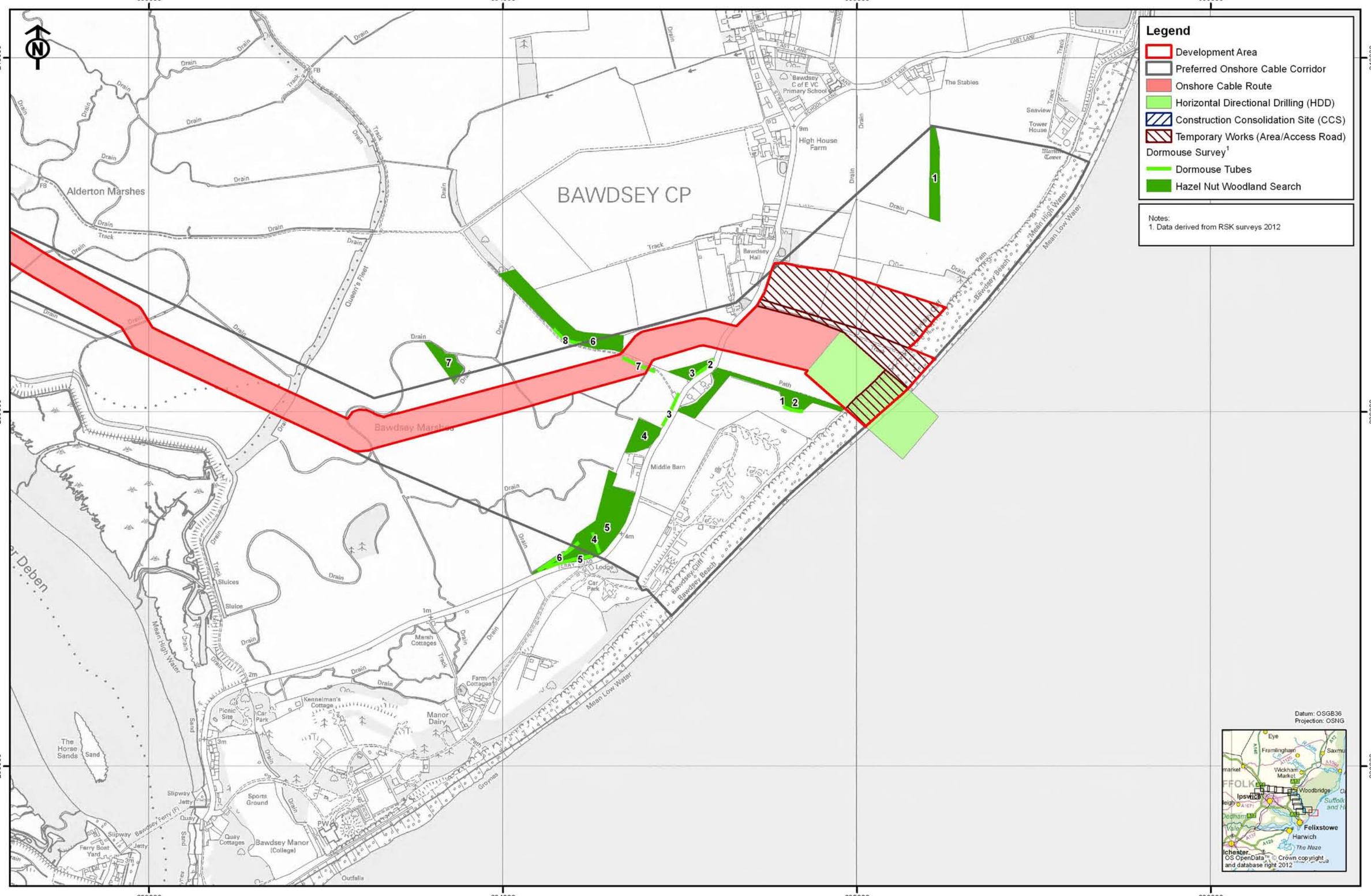

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Figure 24.5.2

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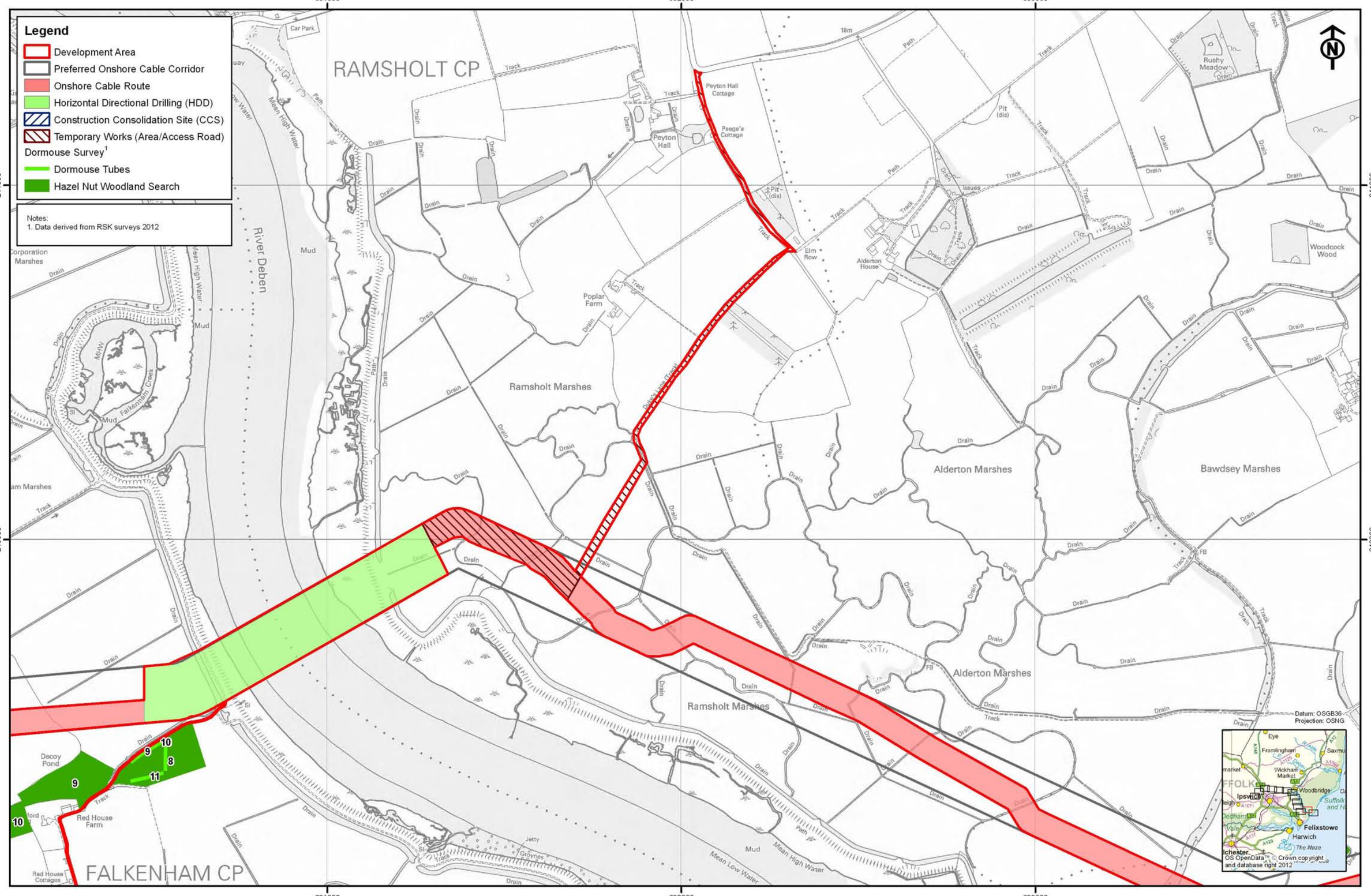

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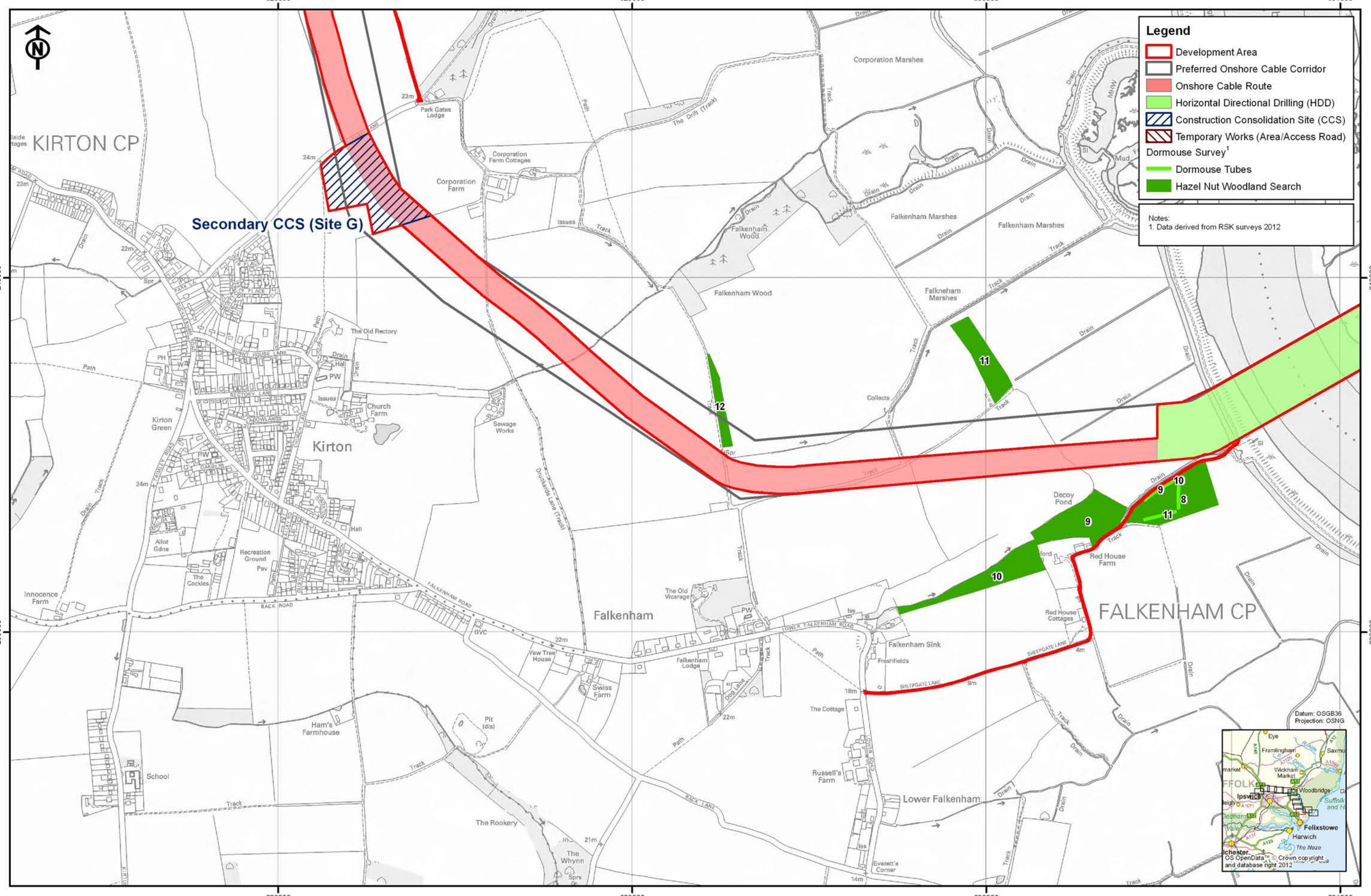

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Figure 24.5.2

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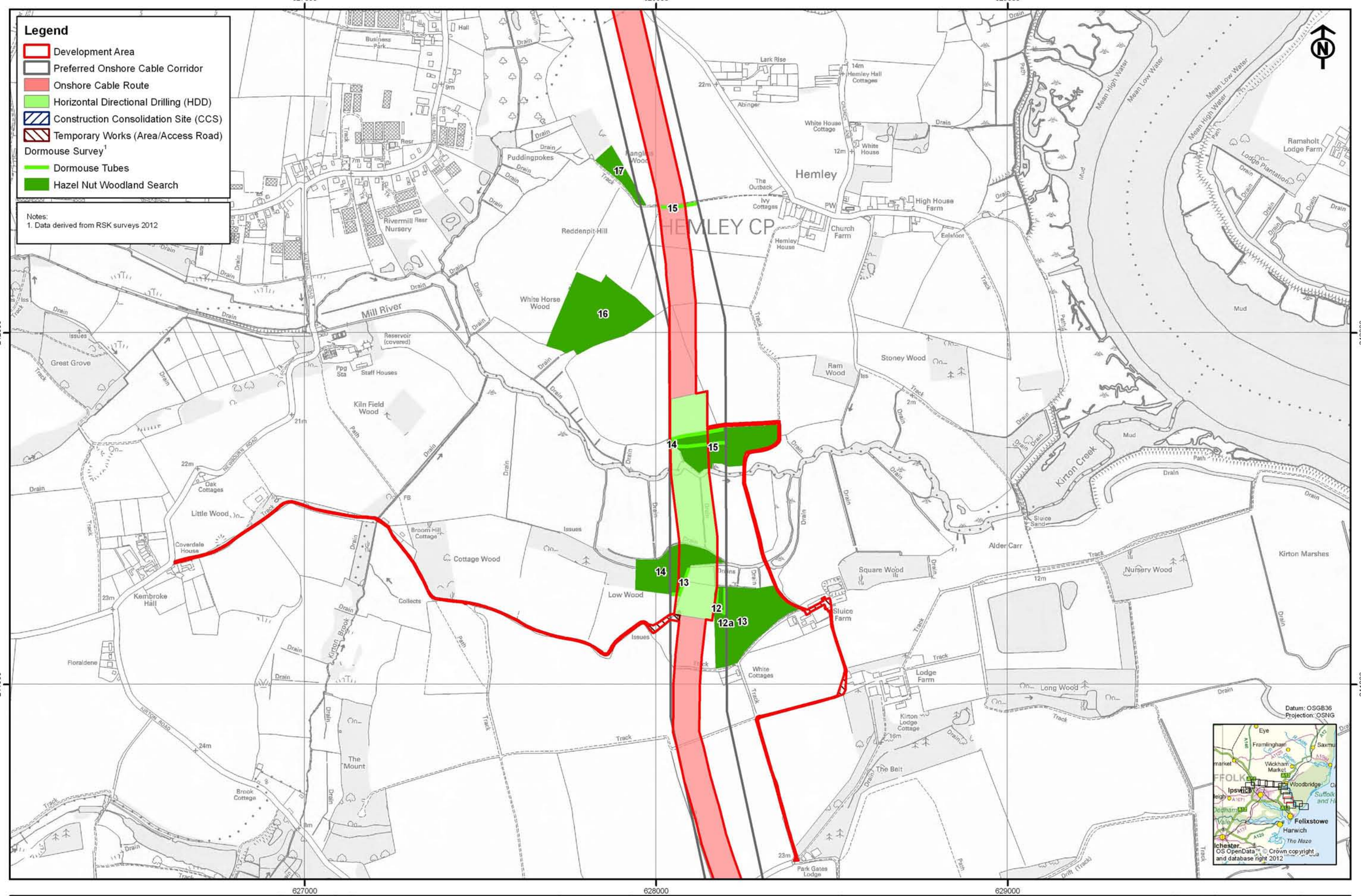

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Appendix 24.5

Figure 24.5.2

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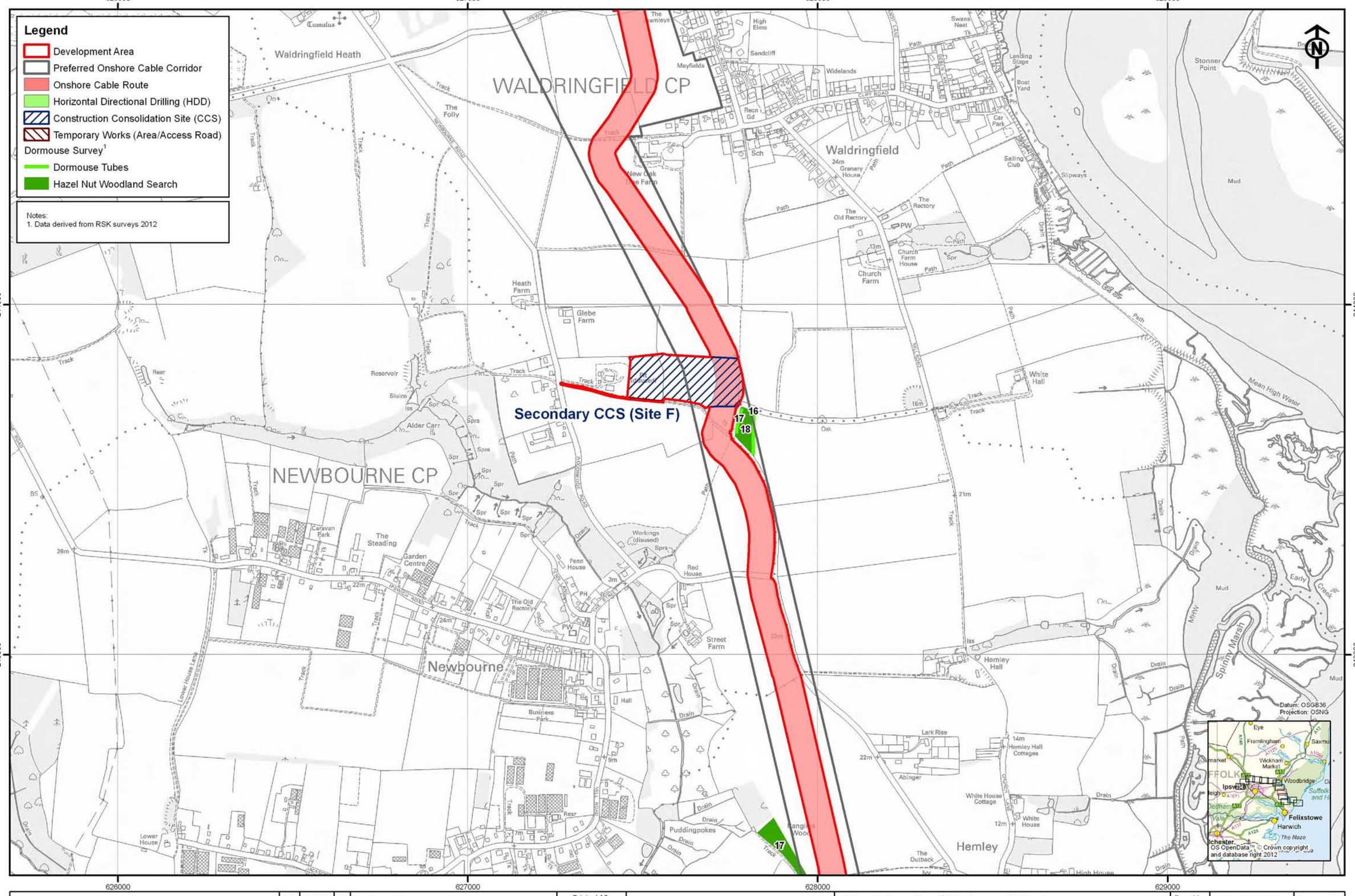

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Appendix 24.5

Figure 24.5.2

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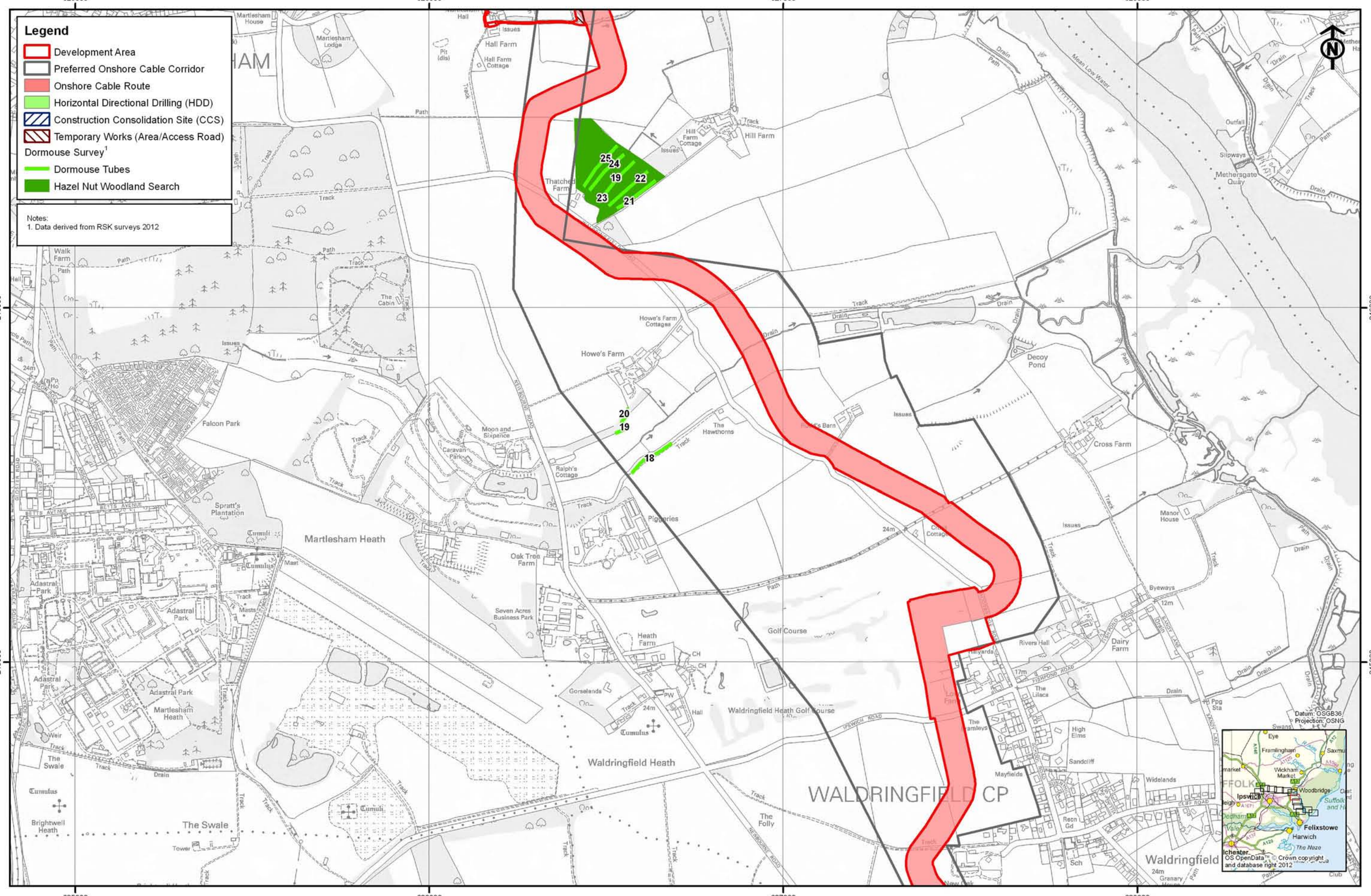

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Appendix 24.5

Figure 24.5.2

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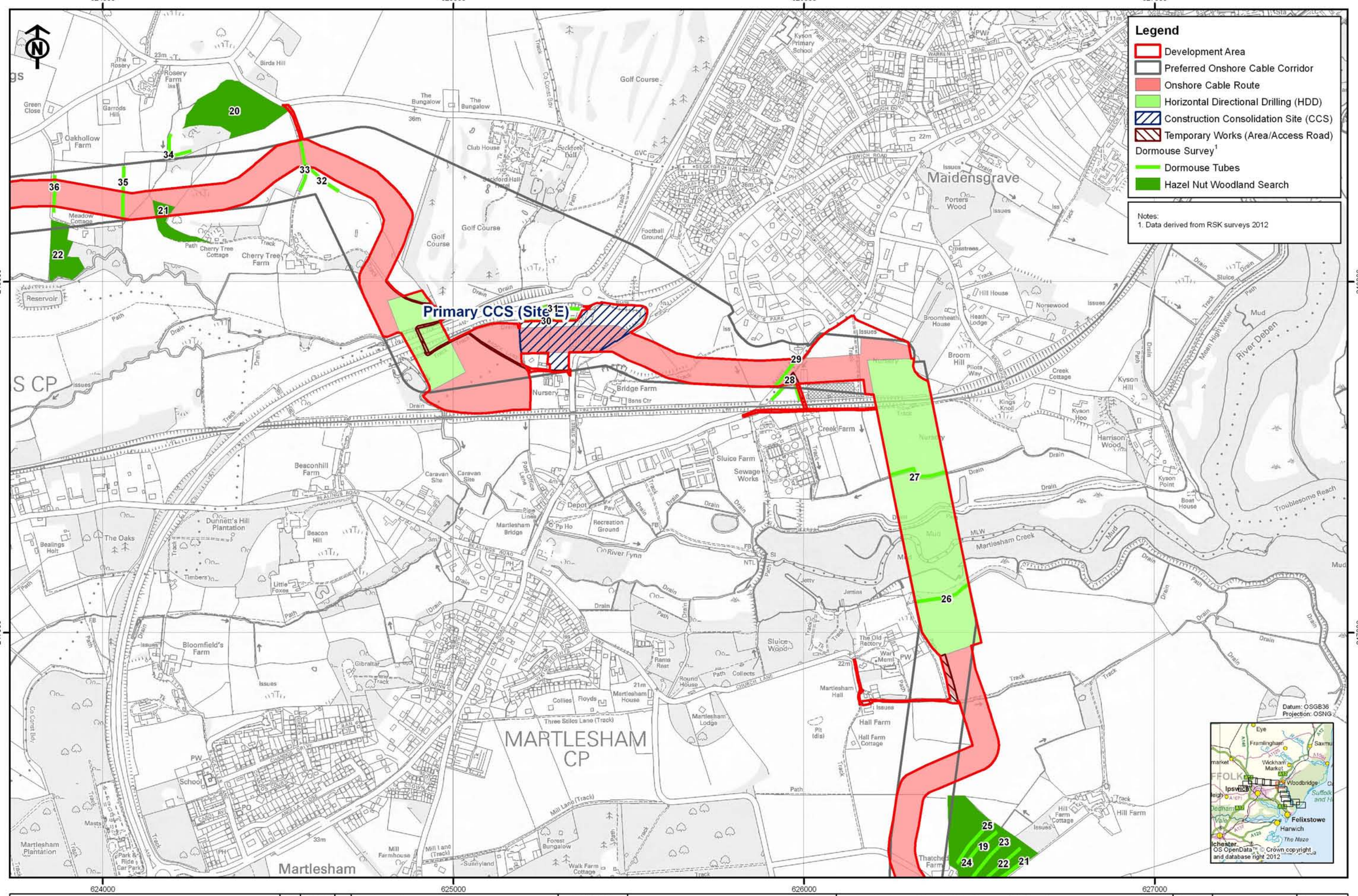

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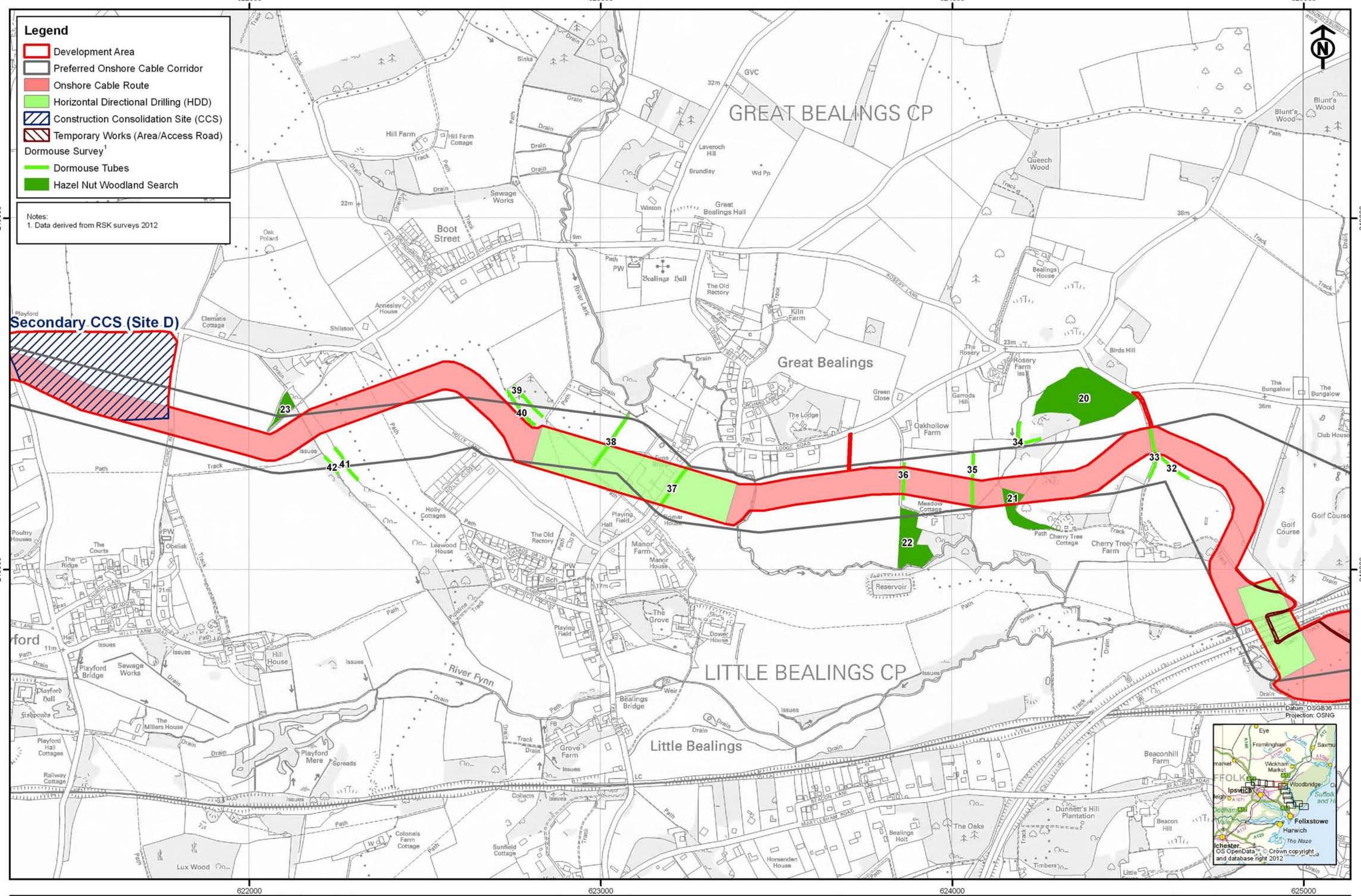

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Appendix 24.5

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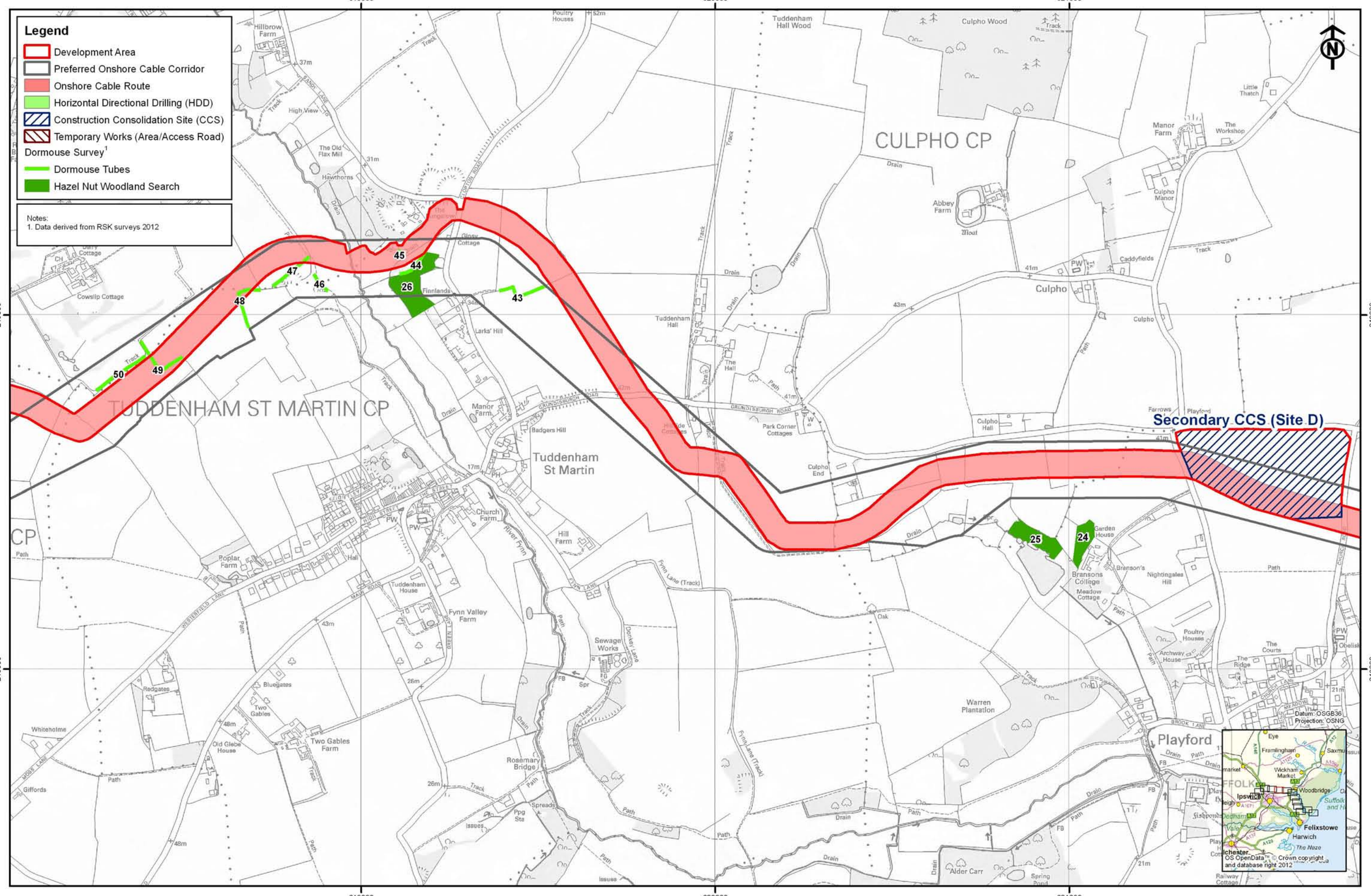

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Appendix 24.5

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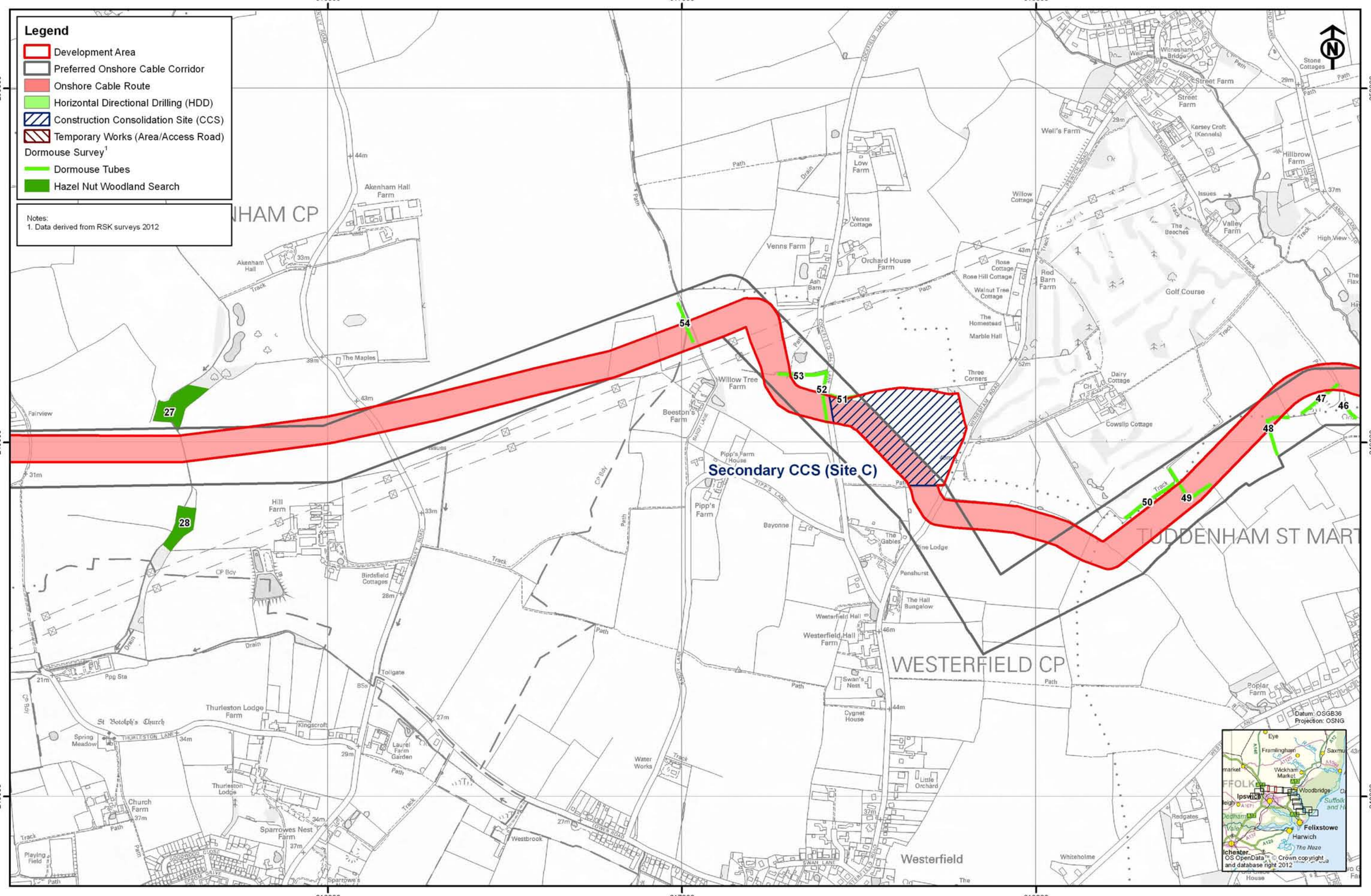

SCOTTISHPOWER RENEWABLES VATTENFALL

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01	30/08/12	SP	Updated cable route
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Figure 24.5.2

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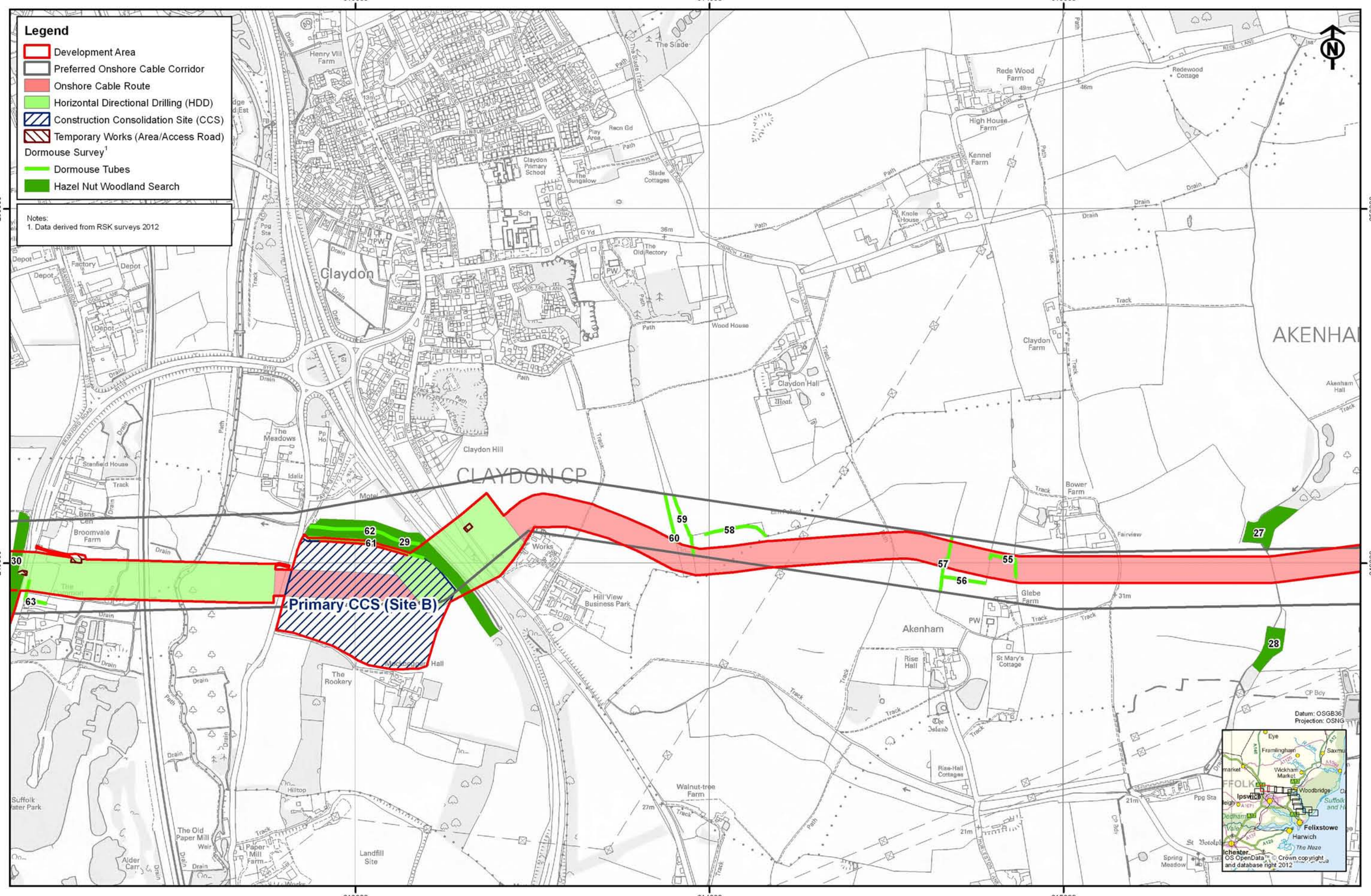

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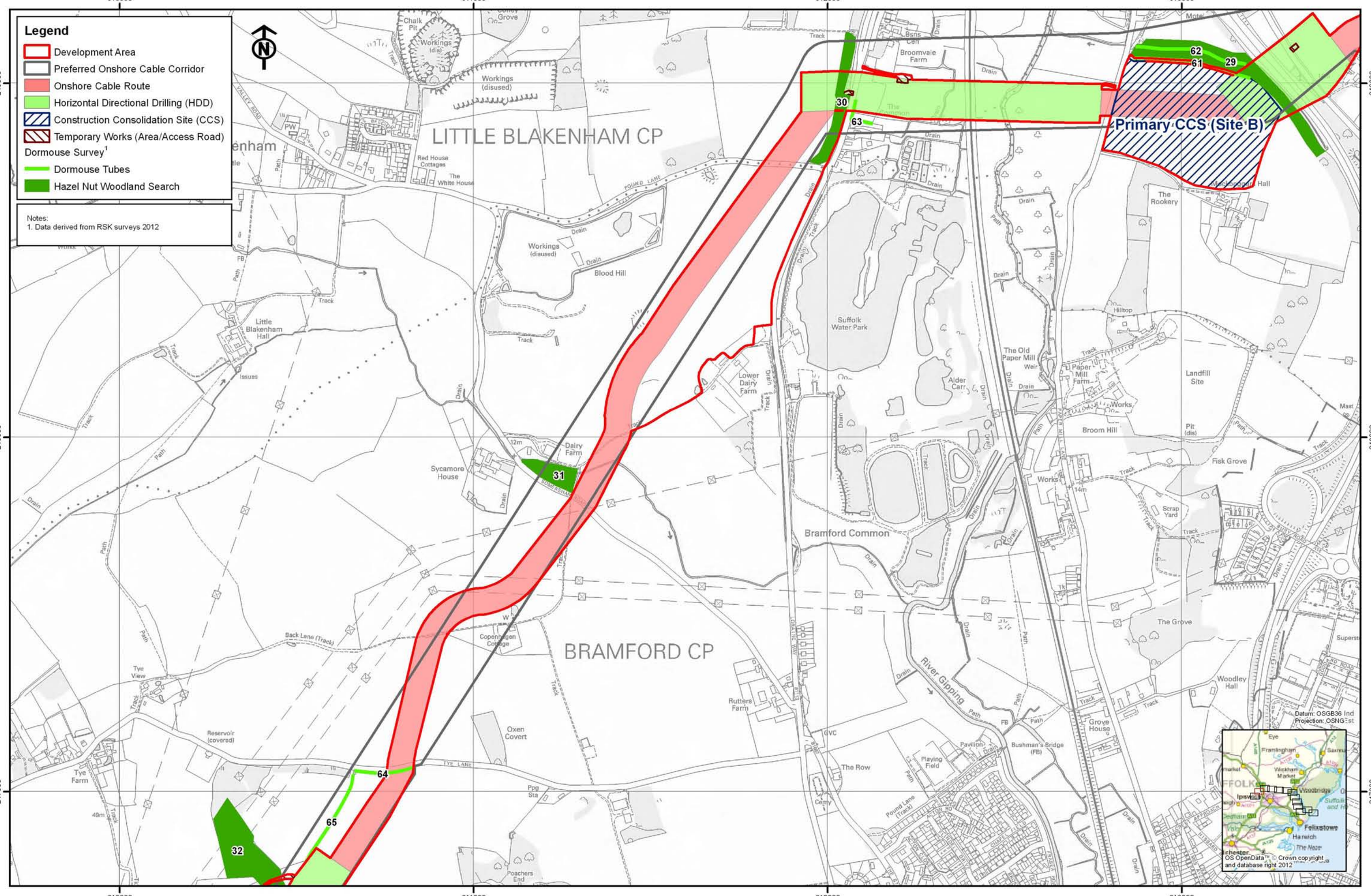

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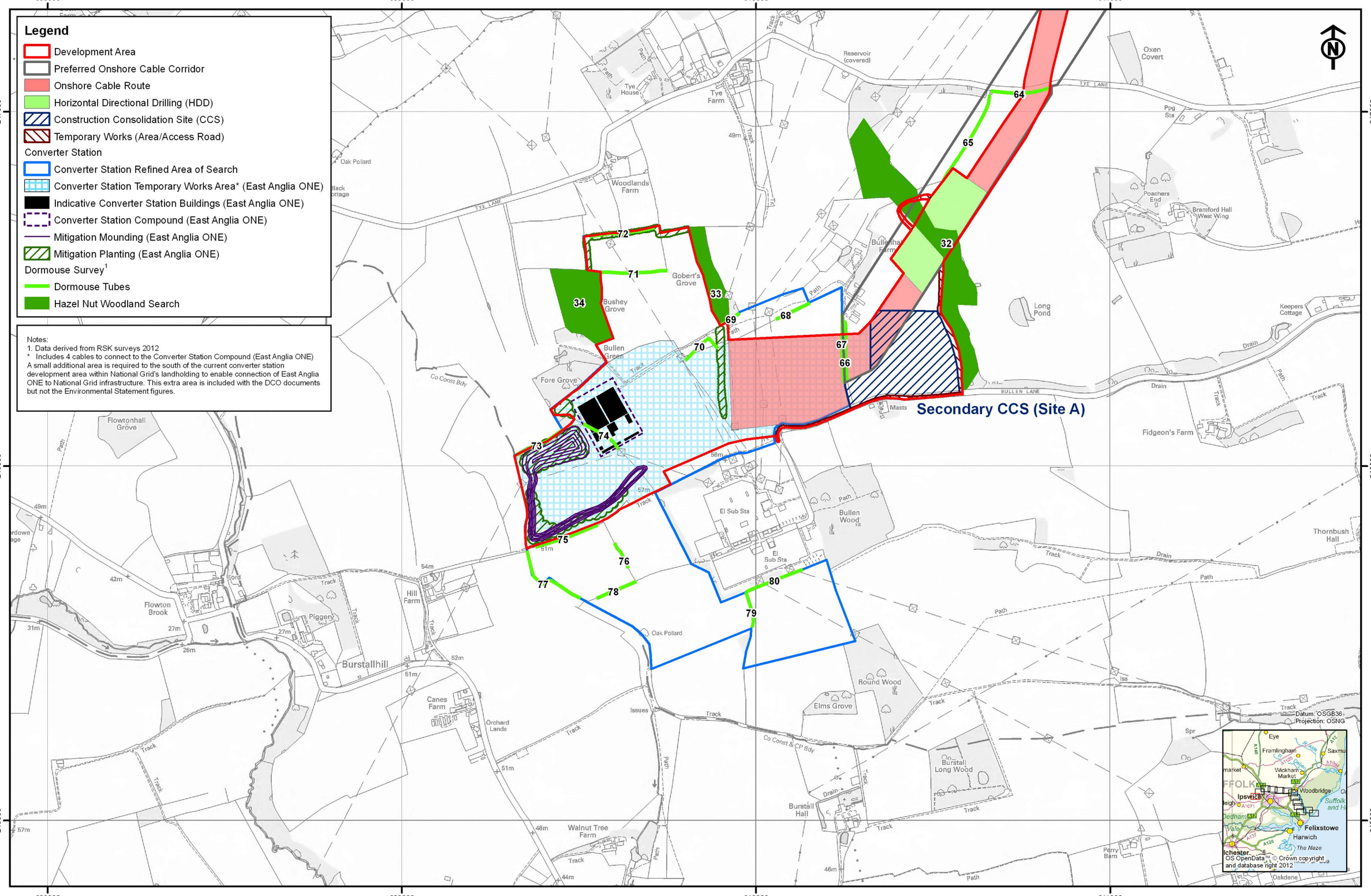

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7 APPENDIX A – LEGISLATION

7.1 General

This section briefly describes the legal protection afforded to protected species. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

7.2 Dormice

Common Dormouse (Muscardinus avellanarius) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under Section 9. Common Dormouse also receives protection under Schedule 6 of The Wildlife and Countryside Act 1981 (as amended) relating specifically to trapping and direct pursuit of these species. These species are also all listed as European Protected Species on Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations 1994 which gives them full protection under Regulation 39. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRoW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual;
- possess any part of an individual either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by these species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb these species whilst using any place of shelter or protection; or
- sell or attempt to sell any individual.

Great Crested Newt Survey Report

East Anglia ONE

Offshore Windfarm

Environmental Statement

Volume 3 Chapter 24 Ecology Appendices

Document Reference –

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Appendix 24.6

Great Crested Newt Survey Technical Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.6 - Great Crested Newt Survey Technical Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Great Crested Newt Survey Technical Report

Client: East Anglia Offshore Wind Limited

Date: 24th August 2012

Office: Helsby

Status: Final

Author	Clare Parker	**Technical reviewer**	Sarah Harmer
Signature		Signature	
Date:	24th August 2012	Date:	24th August 2012

Project manager	Tom Smith
Signature	
Date:	24th August 2012

RSK Environment (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of Great Crested Newt surveys carried in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. The Onshore Cable Route runs from a landfall to the south east of Ipswich, east of the River Deben near Bawdsey. The route then runs north-west towards Bramford to the west of Ipswich, a distance of approximately 37km. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.6.1*.

This document forms Appendix 24.6 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental statement.

The Great Crested Newt surveys comprised habitat suitability assessment surveys, scoping surveys, and presence-absence surveys carried out between March and June 2012.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. The Onshore Cable Route runs from a landfall north of the River Deben, at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km. Much of the land crossed is arable farmland, but the route crosses a number of hedgerows, field drains and ditches, areas of coastal habitats and small areas of woodland. The Onshore Cable Route also crosses previously-developed land and the River Deben.

1.3 Structure of this Report

The remainder of the report is set out as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the results of the surveys;
- *Section 4* provides the evaluation and conclusions;
- *Section 5* is the reference section;
- *Section 6* provides the figures;
- *Appendix A* gives relevant legislation; and
- *Appendix B* contains the raw survey data.

2 METHODS

2.1 Survey Scope

There are records of Great Crested Newts within 100m of the Onshore Cable Route. Initial field surveys (scoping survey) and presence/absence surveys were carried out along a 660m GCN survey corridor (the GCN survey corridor was made up of a 160m wide Preferred Onshore Cable Corridor, with a 250m buffer on each side of the Preferred Onshore Cable Corridor). A wider corridor was surveyed in a few locations where the cable route had not been decided at the point of survey.

2.2 Survey Constraints

Access was denied by some landowners along the Onshore Cable Route and it was therefore not possible to survey every water body. The water bodies where access was not possible are marked in purple in *Figure 24.6.2.*

2.3 Great Crested Newt Survey

2.3.1 General

The aquatic and terrestrial habitat within the 160m Preferred Onshore Cable Corridor and within a 250m buffer of the Preferred Onshore Cable Corridor (the distance which Great Crested Newts can often travel away from their breeding pond) was considered, along with the habitat-connectivity between suitable habitat areas.

All water bodies were identified within the GCN survey area by using aerial photography, maps and during walkover surveys. Water bodies isolated from the Onshore Cable Route by significant barriers to amphibian movement were discounted at this stage. This included prominent roads, rivers and densely built up areas. All water bodies identified as having ecological connectivity (of suitable habitat) within the Preferred Onshore Cable Corridor were assessed for their potential to support Great Crested Newts.

2.3.2 Personnel

Andrew Ross, Clare Parker, Jonathan Jackson, Paul Barnes, James Mepsted, James Pattenden, Beth Ludlow, Hannah Bilston and Will Holden carried out the surveys, (Natural England licence numbers CLS00524, 20113172, 20110548, CLS00706, CLS00477, 20110886, CLS00858, CLS00548 and CLS00586 respectively). All

personnel are experienced ecologists employed by RSK and are members of the Institute of Ecology and Environmental Management (IEEM).

2.3.3 Scoping Surveys

All water bodies were visited by an ecologist in order to determine their current status i.e. extant, dried up, polluted etc. If the water bodies were potentially suitable for Great Crested Newts then a Habitat Suitability Index (HSI) was carried out. A subjective assessment was also made based on the experience of the surveyor.

For the ditches identified at this stage a subjective recommendation for survey was made. This assessment was made using the experience of the surveyor. The main factor used to determine suitability was the amount of flow present. This is because Great Crested Newts are not known to use water bodies with significant flow (JNCC, 2003). Therefore any ditches with significant flow were discounted at this stage.

2.3.4 Habitat Suitability Index

Potentially suitable water bodies identified within 250m of the Preferred Onshore Cable Corridor were assessed to determine whether they were suitable for Great Crested Newt using a Habitat Suitability Index (HSI) developed by Oldham *et al*. (2000). Raw data for HSI scores are provided in *Appendix B*.

This is derived from assessment systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect Great Crested Newts as follows:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);
- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent water features (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

Each factor is scored, and the ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in Oldham *et al.* (2000) and a HSI result is calculated using the following formula:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)\ 1/10$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for Great Crested Newts according to the following categories:

- HSI <0.5 = poor
- HSI 0.5 – 0.59 = below average
- HSI 0.6 – 0.69 = average
- HSI 0.7 – 0.79 = good
- HSI > 0.8 = excellent

There is a positive correlation between HSI scores and presence and abundance of Great Crested Newts in ponds. Generally, ponds with high HSI scores are likely to support larger populations. However, the relationship is not sufficiently precise to conclude that a pond with a high HSI will definitely have a high newt population, or that a pond with a low HSI score will only have a low newt population or no newts at all.

During the HSI visits subjective assessments were also made based on the experience of the surveyor. This means that if ponds were extremely unlikely to support breeding Great Crested Newts then they were discounted at this stage. The HSI data was used to support these decisions. No HSI threshold was employed under which ponds were not surveyed. This resulted in ponds being surveyed even though they had a “Poor” HSI rating. No ponds were discounted with an HSI rating of “below-average” or above.

2.3.5 Presence/Absence Survey Techniques

All water bodies suitable for Great Crested Newts were surveyed four times (where possible) for presence or absence using the following four survey methods (where appropriate).

Egg Searching

This involves searching marginal and aquatic vegetation for Great Crested Newt eggs, which are laid individually on plant leaves, and the leaf folded characteristically around the egg. The large size and yellowish/white coloration readily distinguishes the eggs of Great Crested Newts from those of smaller species.

Netting

Netting is carried out using a long-handled dip-net with a very fine mesh. The perimeter of the water body is walked, and 15 minutes of netting is carried out for every 50 m of water-margin. The method is less effective than bottle trapping and torching when surveying for adult Great Crested Newts, but is very useful when searching for larvae. This method is used as an alternative or extra method of survey when weather conditions or other constraints did not allow bottle trapping to be carried out efficiently or safely. If a pond has significant quantities of dead leaf litter on the bottom, netting would not be carried out due to the amount of disturbance that would be caused and subsequent impact upon the water quality of the pond.

Torching

This technique is carried out at night, when newts are most active. Negative results are only meaningful when survey is carried out under suitable weather conditions. Ideal weather conditions are a night-time air temperature of more than 5˚ C, little or no wind, and no rain. Survey involves walking slowly around the edge of the pond and scanning the water with a torch (Clulite, 1,000,000 candle power) where access and safety permitted. Great Crested Newts can be easily identified and counted in clear water. The technique is less successful in thick weed or turbid water, but can still be used. Bright light may cause newts to seek cover where they will be undetected, but the technique is appropriate to establish presence and for estimating populations. The species, sex (if possible), number of newts, and survey times are recorded.

Bottle Trapping

This method involves trapping newts at night and if not carried out correctly it can be harmful to the trapped newts. Because of this, strict guidelines from Natural England are followed in accordance with Natural England licence conditions.

The method is reliable for detecting presence of Great Crested Newts, and is especially useful in weedy or turbid water where water visibility is poor or the vegetation is too dense to give good results from torch surveys. 'Funnel traps' constructed from plastic bottles attached to bamboo canes are submerged in the pond after dusk and removed early the following morning. Newts enter through the funnel entrance but cannot find their way back out again. The recommended density of traps is 1 trap every 2 m of margin, placed 2 m from the edge, though this depends upon habitat suitability, substrate as well as both incline and depth of the pond. Traps are checked in the early morning before the temperature rises, and the trapped newts are sexed, counted and released.

A cautionary approach to this method is used because there is a risk that newts may be harmed, even following standard trapping protocol as described by Natural England, and following questions raised on the safety of this technique (*i.e*. Denton 2002). The technique is also unsuitable during periods of hot weather when dissolved oxygen

levels in water decrease markedly, where water-levels are too low or if there is a risk of vandalism. If the risks are low, bottle trapping is maintained until the end of the survey period.

Population Estimate

If Great Crested Newts were detected then a further two surveys were carried out in order to gain a population estimate for the water body. This is calculated from the maximum number of newts caught or seen using one survey method. The maximum count breaks down into three size classes, presented in *Table 1.*

Table 1: Population Size Classes

Maximum Count recorded from any single survey method	Population Size Class
1-9	Small
10-99	Medium
100+	Large

3 RESULTS

3.1 Scoping surveys

A total of 112 water bodies were identified from maps, aerial photography and during walkover surveys in April 2012. These are presented in *Figure 24.6.2*. These water bodies break down into the following categories shown in *Table 2*. A list of which category each of the 112 water bodies falls into is presented in *Appendix B*.

Table 2: Results of Scoping Survey

Status of Water body	Number of Ponds / Ditches
Potentially suitable	65
No access	11
Dry during Scoping Survey	17
Flowing / Not surveyed due to Health and Safety Issues	19
Total	**112**

3.2 Habitat Suitability Index Scores and Subjective Assessment Conclusions

A total of 65 potentially suitable water bodies were subject to a Habitat Suitability Assessment. Raw data for these assessments are provided in *Appendix B*. These water bodies were split into suitable and unsuitable following these assessments, see *Table 3.* Unsuitable water bodies were not surveyed further. Descriptions of the reasoning behind unsuitable classifications are provided in *Appendix B*.

Table 3: Summary of Suitability Assessments

Status of Water body	Number of Ponds
Suitable (HSI score of “below average” or better and/or ecologist’s assessment)	62
Unsuitable (HSI score of “poor” and ecologists assessment)	3
Total	**65**

3.3 Presence Absence Surveys

A total of 62 water bodies were surveyed, a summary of the results are shown in *Table 4* and summarised in *Table 5*. The raw data is presented in Appendix B.

Table 4: Presence Absence Survey Results

Pond/Ditch Number	HIS Score	Great Crested Newt Present?	Population Size
1	0.63	No	-
2	0.67	No	-
3	0.66	No	-
3a	0.49	No	-
7	0.73	No	-
10	0.62	No	-
12	0.64	No	-
13	0.70	No	-
14	0.44	No	-
15	0.84	No	-
16a	0.48	No	-
18	0.64	No	-
19	0.61	No	-
22	0.30	No	-
24	0.79	No	-
24b	0.31	No	-
24c	0.51	No	-
24d	0.52	No	-
25	0.59	No	-
30	0.45	No	-
33	0.55	No	-
35	0.61	No	-
36	0.67	No	-
37	0.46	No	-
38	0.50	No	-

Pond/Ditch Number	HIS Score	Great Crested Newt Present?	Population Size
39	0.45	No	-
42	0.65	No	-
42a	0.63	No	-
42b	0.62	No	-
42c	0.69	No	-
42d	0.58	No	-
44	0.53	No	-
45	0.64	No	-
46	0.69	No	-
46a	0.65	Yes - Max count 1	Low
47	0.74	No	-
51	0.45	No	-
52	0.59	Yes - Max count 17	Medium
52a	0.67	Yes - Max count 40	Medium
53	0.71	Yes - Max count 3	Low
55	0.29	No	-
60	0.41	No	-
61	0.46	No	-
62	0.50	No	-
63	0.47	No	-
63a	0.41	No	-
66	0.33	No	-
67	0.34	No	-
68	0.40	No	-
69	0.26	No	-
71	0.60	No	-
72	0.79	Yes - Max count 10	Medium
79	0.70	No	-
81	0.70	Yes – Max count 4	Low
82	0.75	No	-

Pond/Ditch Number	HIS Score	Great Crested Newt Present?	Population Size
85	0.67	No	-

Table 5: Summary of Presence Absence Survey Results

Status of Water body	Number of Ponds
Absent	56
Low Population	3
Medium Population	3
High Population	0
Total	**62**

4 EVALUATION AND CONCLUSIONS

4.1 General Evaluation

The surveys show that Great Crested Newts could be affected by the development. Therefore a Great Crested Newt development licence must be obtained to cover all areas of work where newts or their habitat might be affected.

No Great Crested Newt breeding ponds will be lost as a result of the development. Newts will therefore only be at risk in their terrestrial phase. This could include individual newts being killed by machinery, either directly or as a result of vibration. The works may also affect dispersal routes as a linear trench is dug across suitable habitat near breeding ponds.

Table 6 highlights the ponds within 250m of the cable route with Great Crested Newt presence.

Table 6: Areas of the route with a risk of Great Crested Newts

Area Number	Ponds with Great Crested Newts present within 250 m	Significant area
1	46a	Yes
2	52 and 52a	Yes
3	53	Yes
4	72	Yes
5	81	Yes

Access was denied by some landowners along the Onshore Cable Route and it was therefore not possible to survey every water body. Further pre-construction surveys of these ponds should therefore be undertaken.

5 REFERENCES

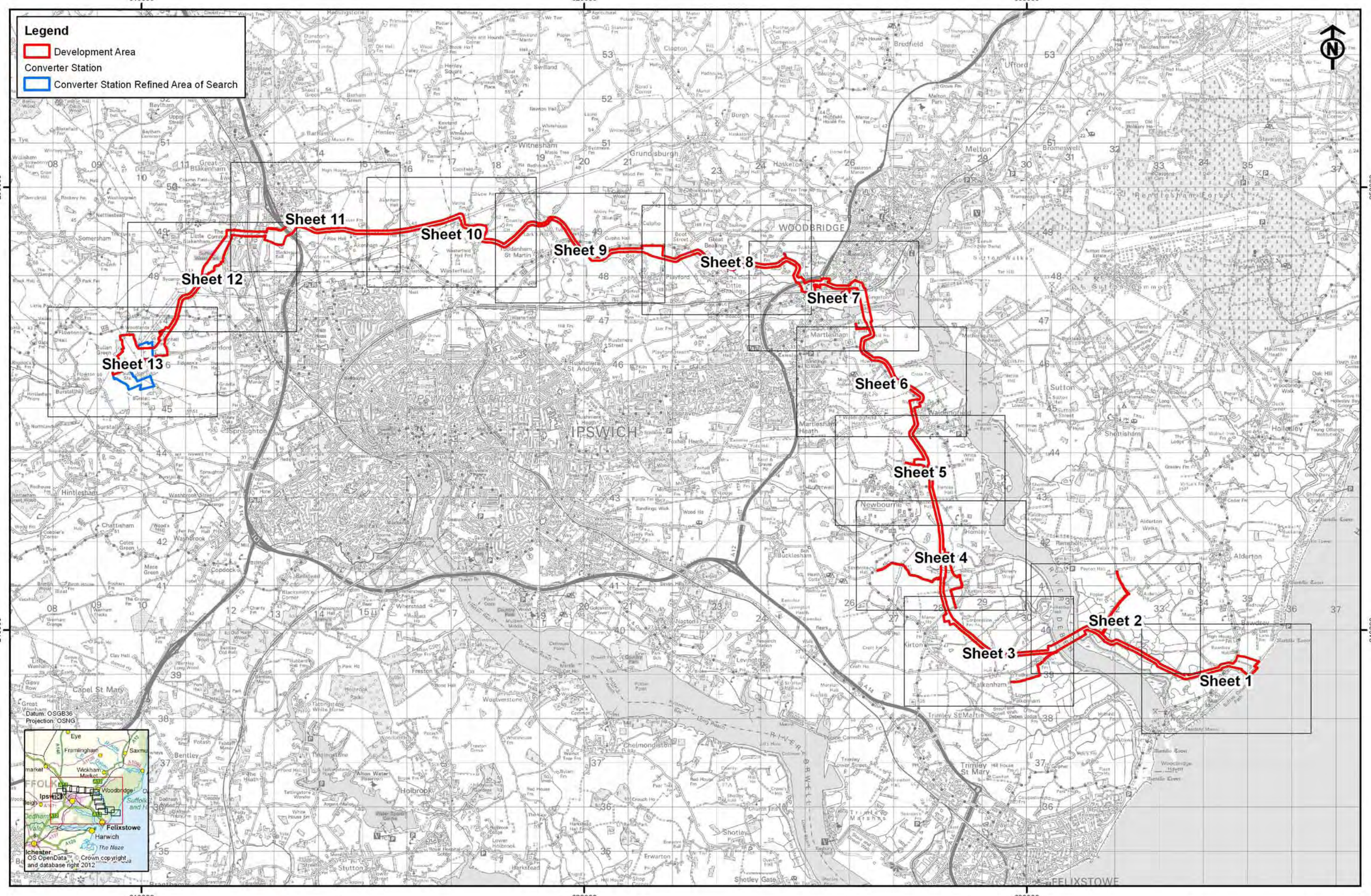
Gent, T. and Gibson, S., (2003), *Herpetofauna Workers' Manual*, JNCC

Oldham, R. S., Keeble, J., Swan, M. J. S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*), *Herpetological Journal*, **10**, 143 - 155.

6 FIGURES

Figure 24.6.1 – Route Overview

Figure 24.6.2 – Waterbody Locations



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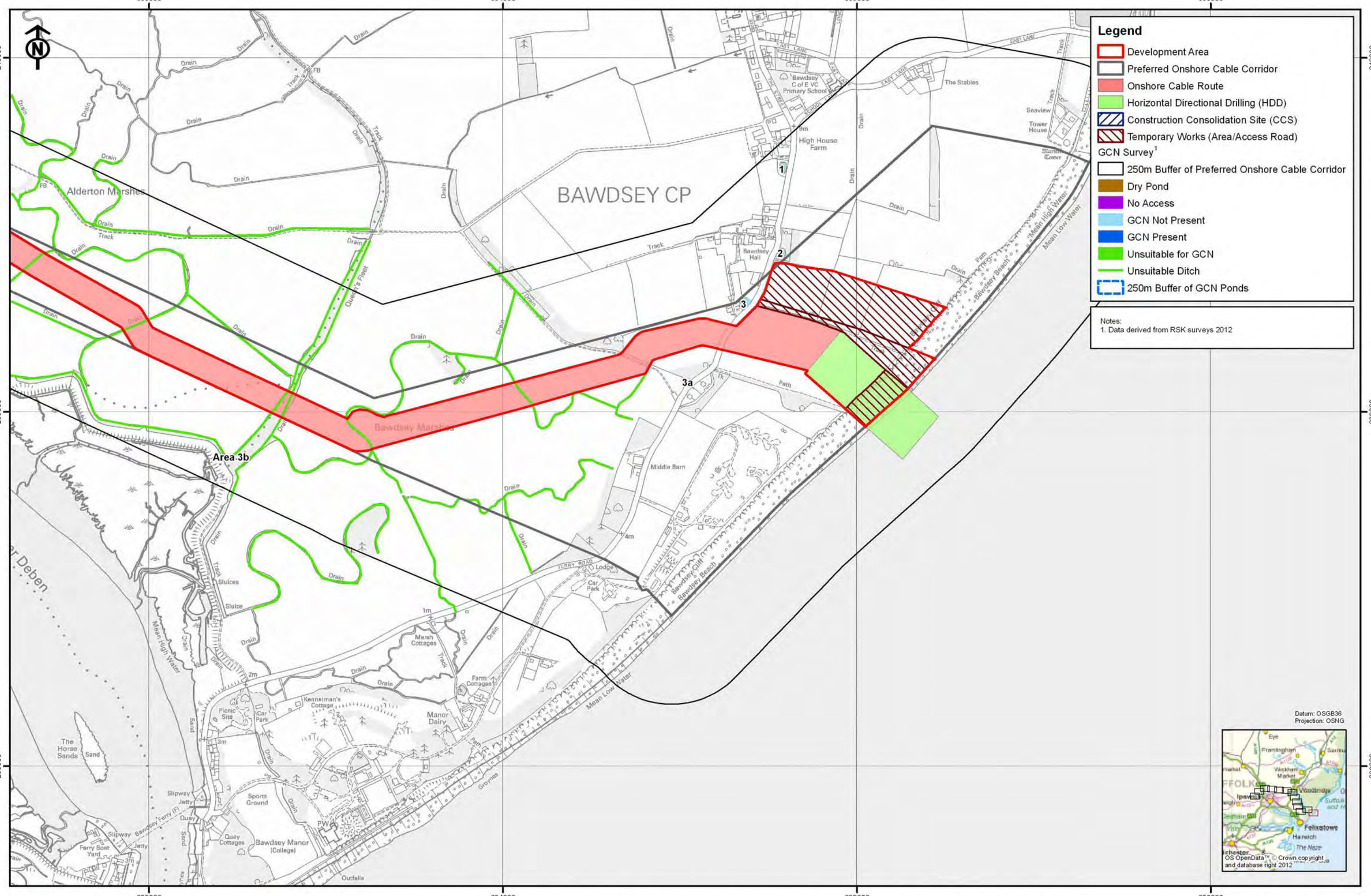

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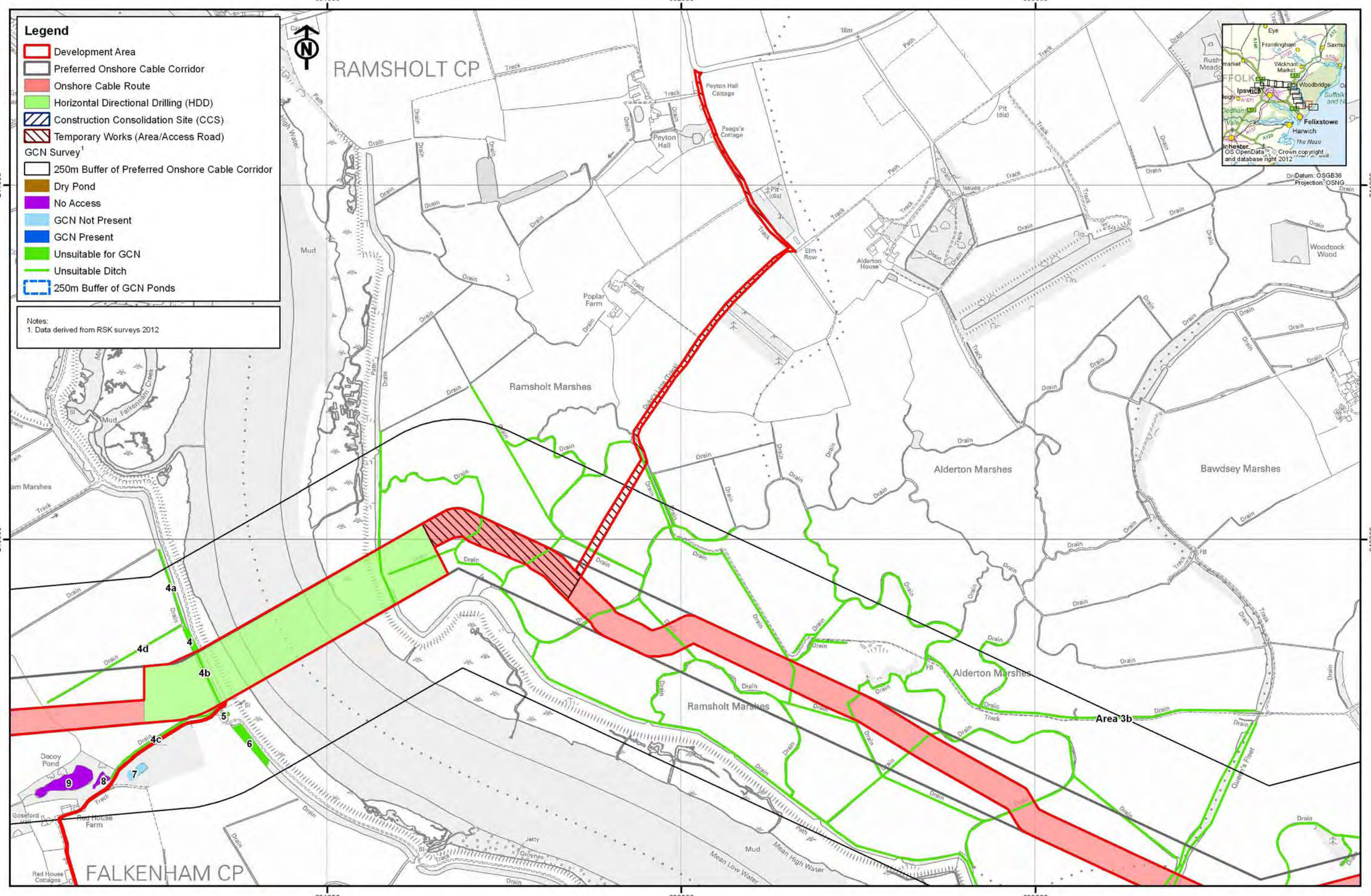

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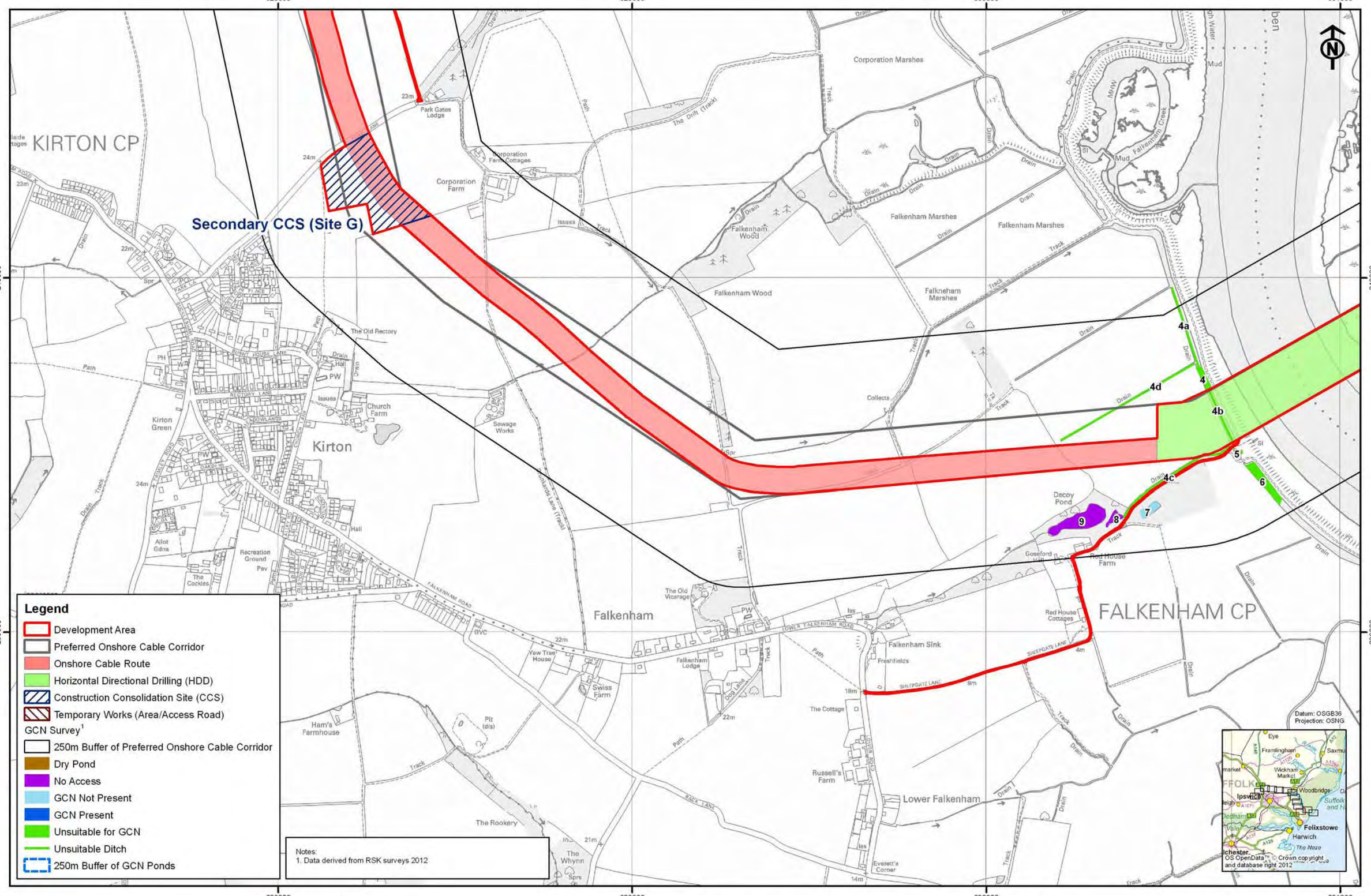

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Figure 24.6.2

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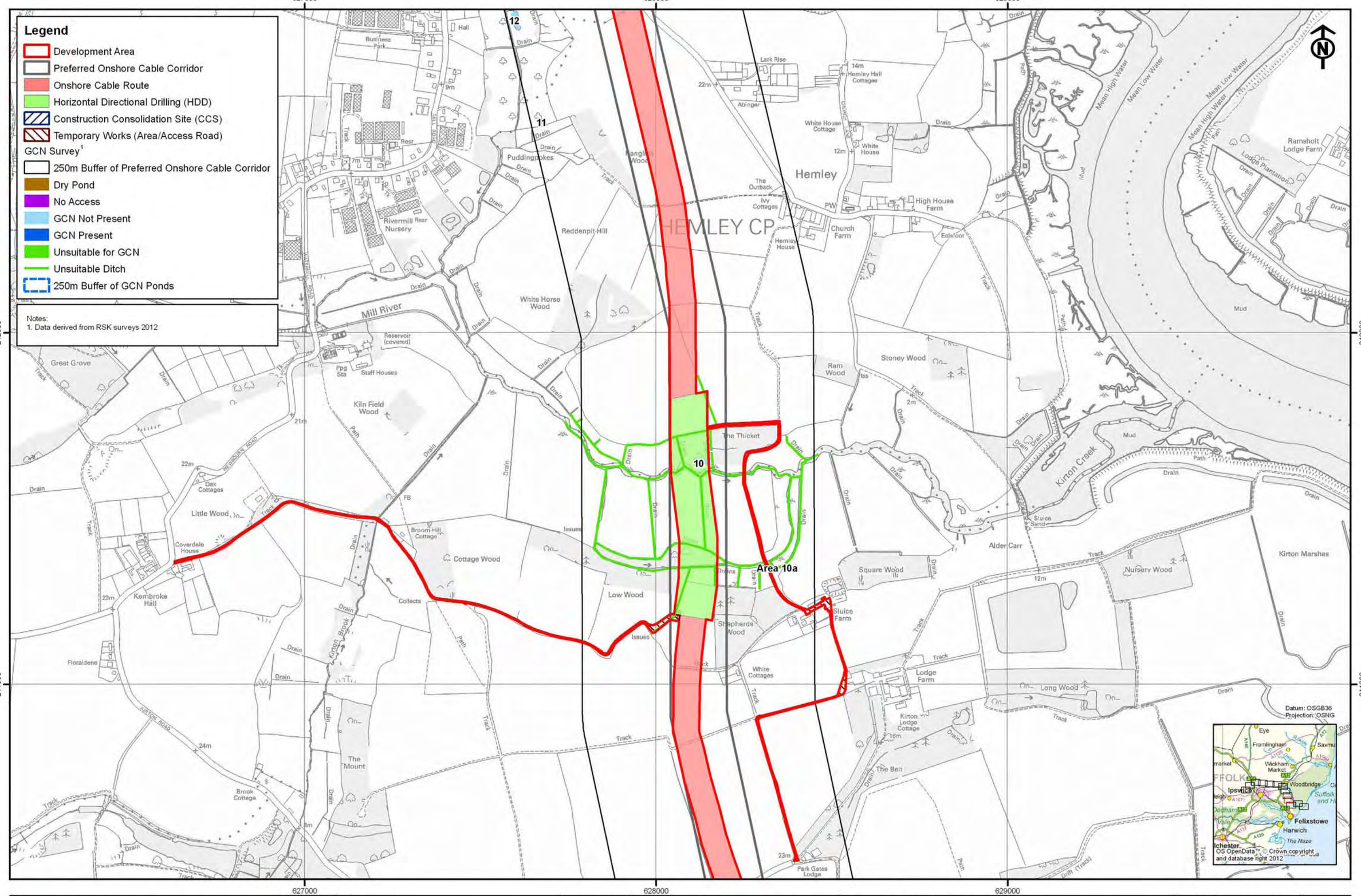

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

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Layout	N/A

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Figure 24.6.2

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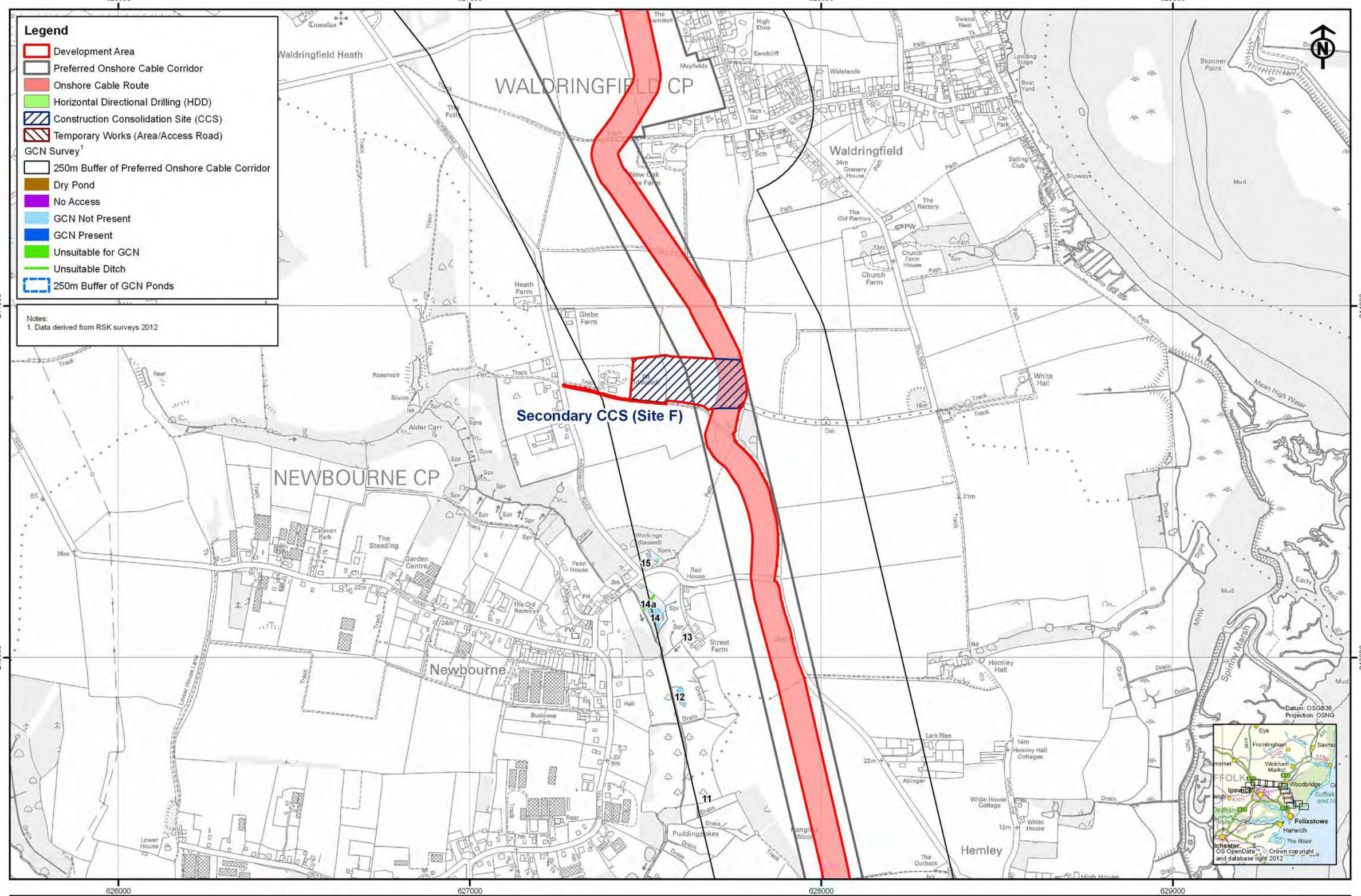

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

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Layout	N/A

Appendix 24.6

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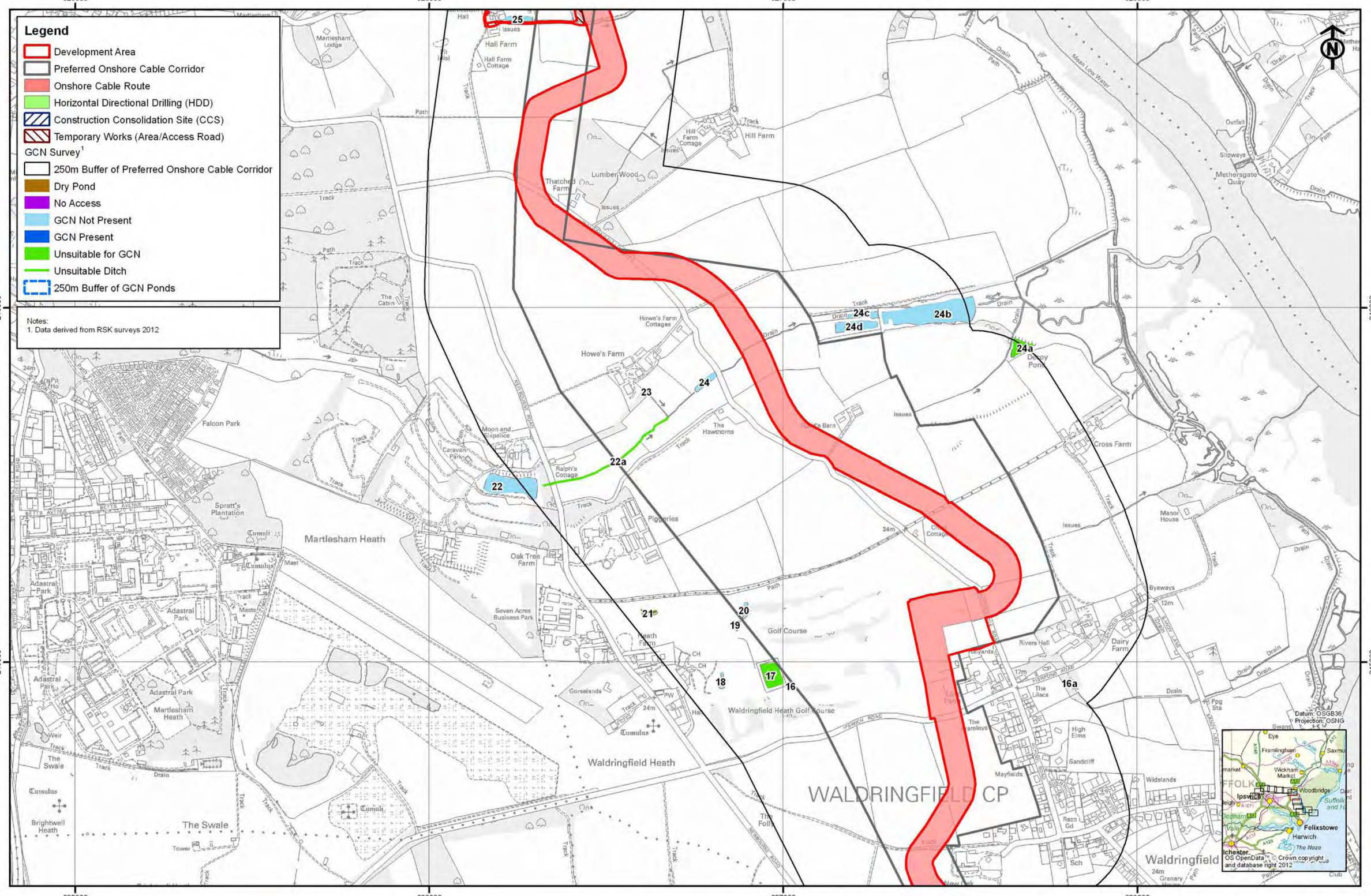

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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

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Layout	N/A

Appendix 24.6

Figure 24.6.2

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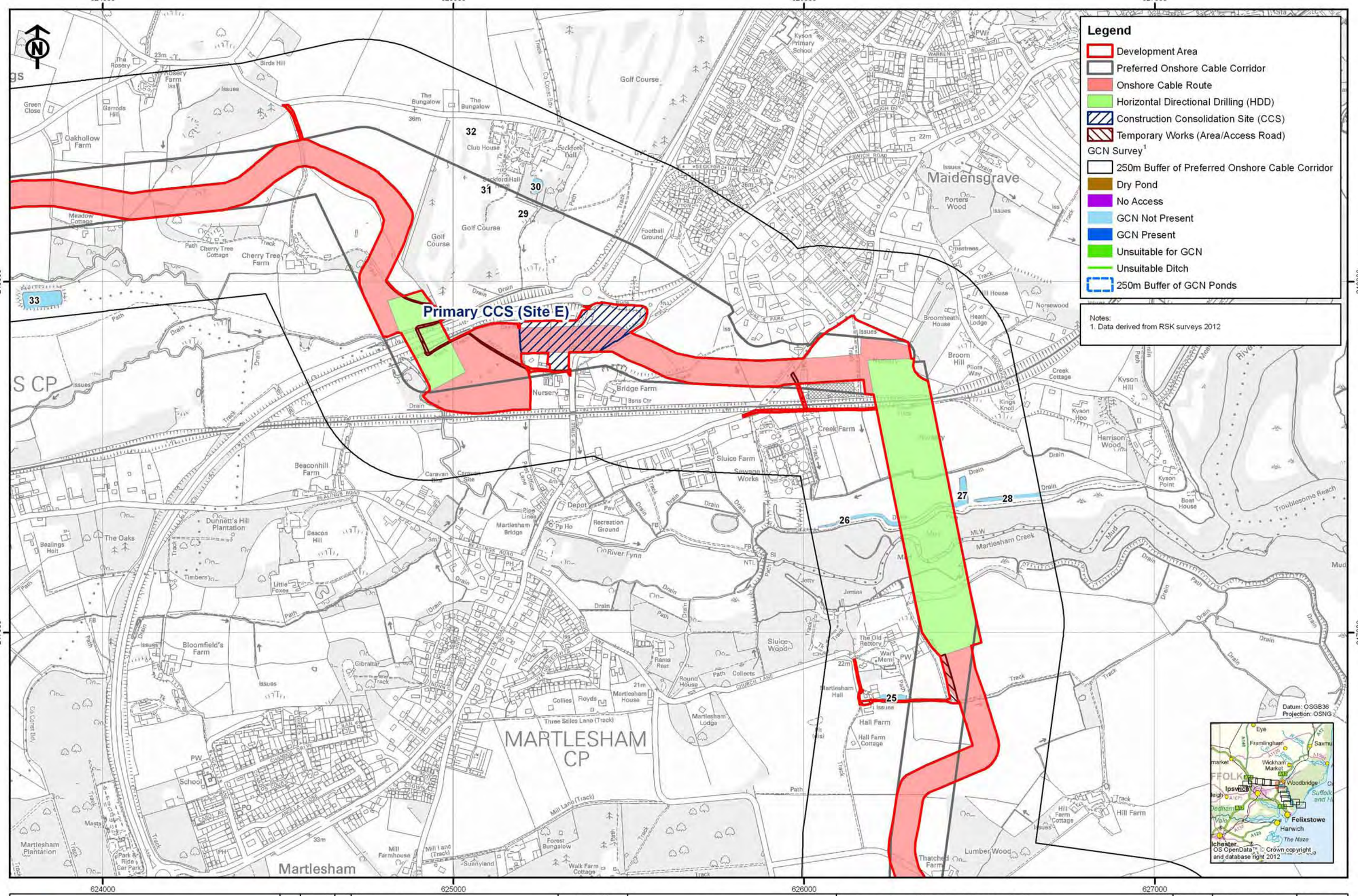

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Original A3 Plot Scale 1:10,000

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Layout	N/A

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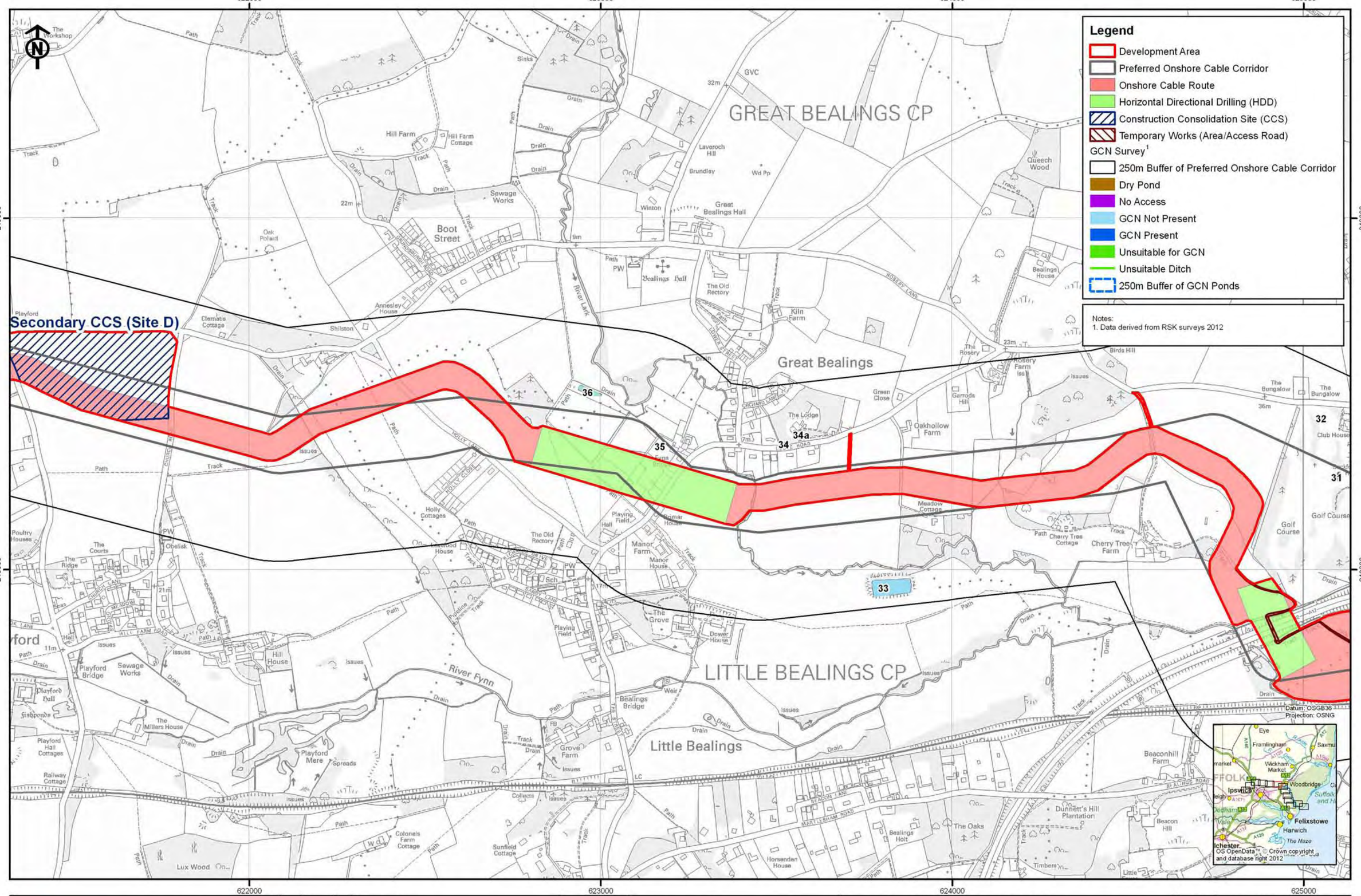

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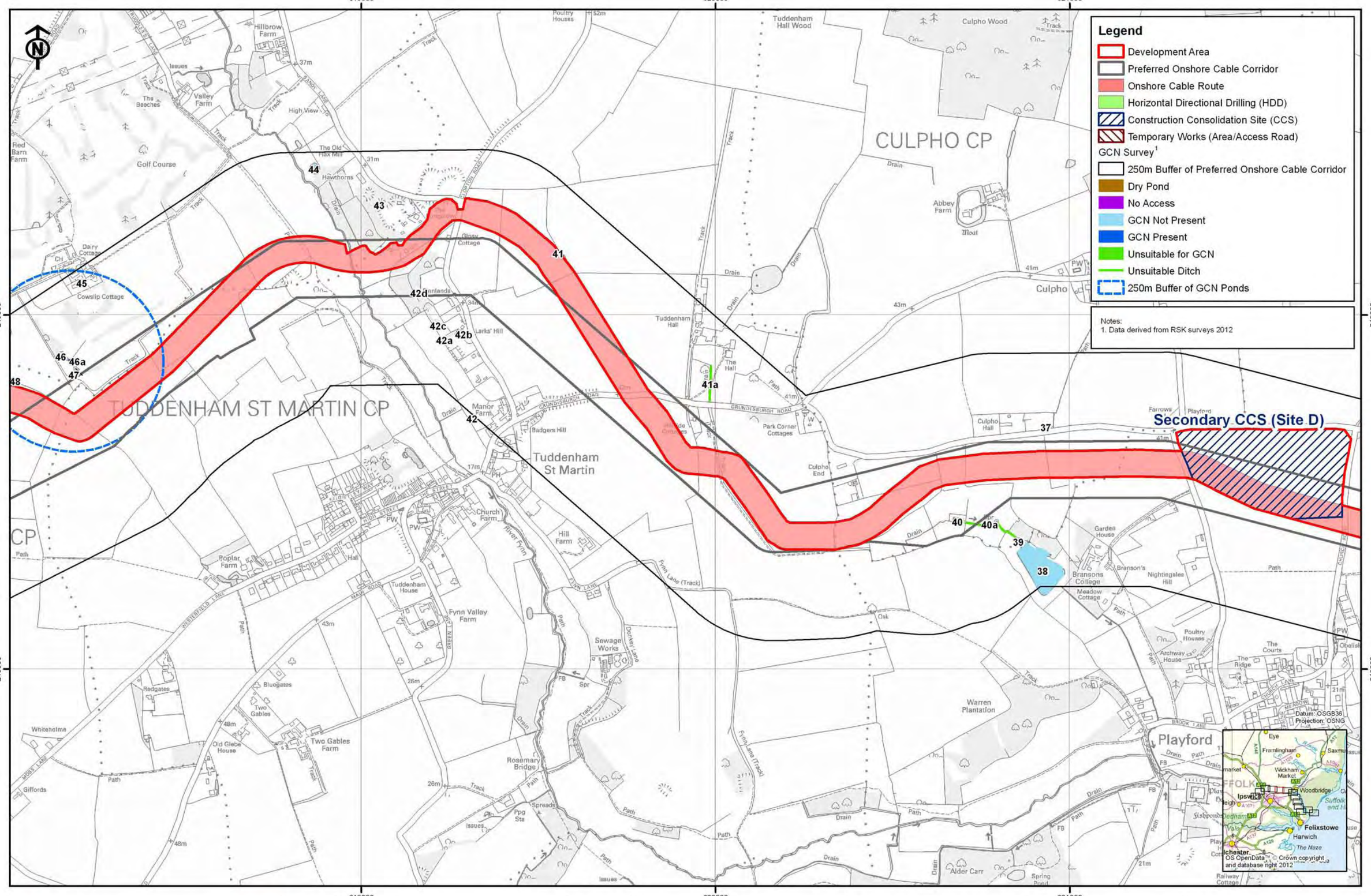

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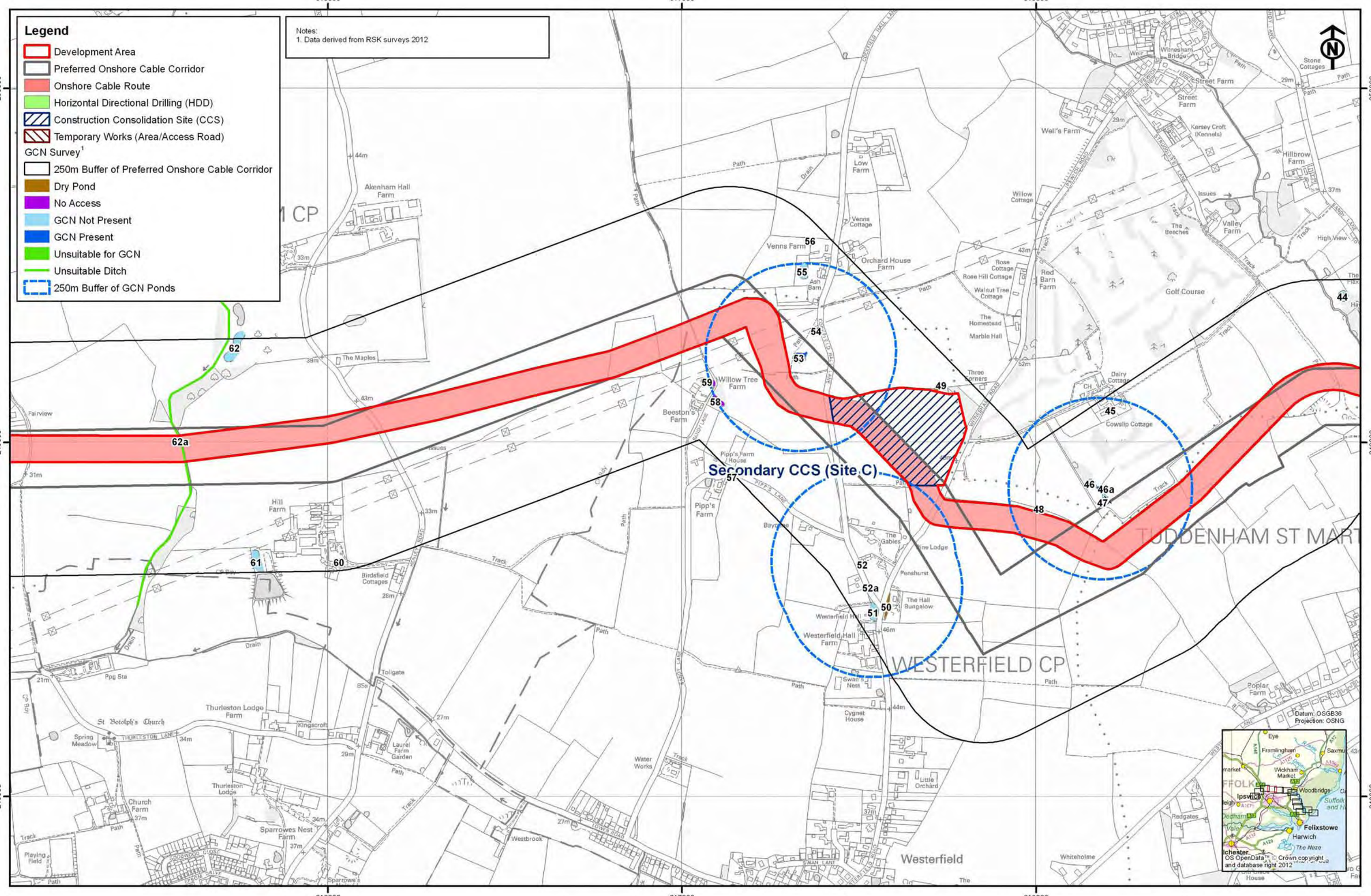

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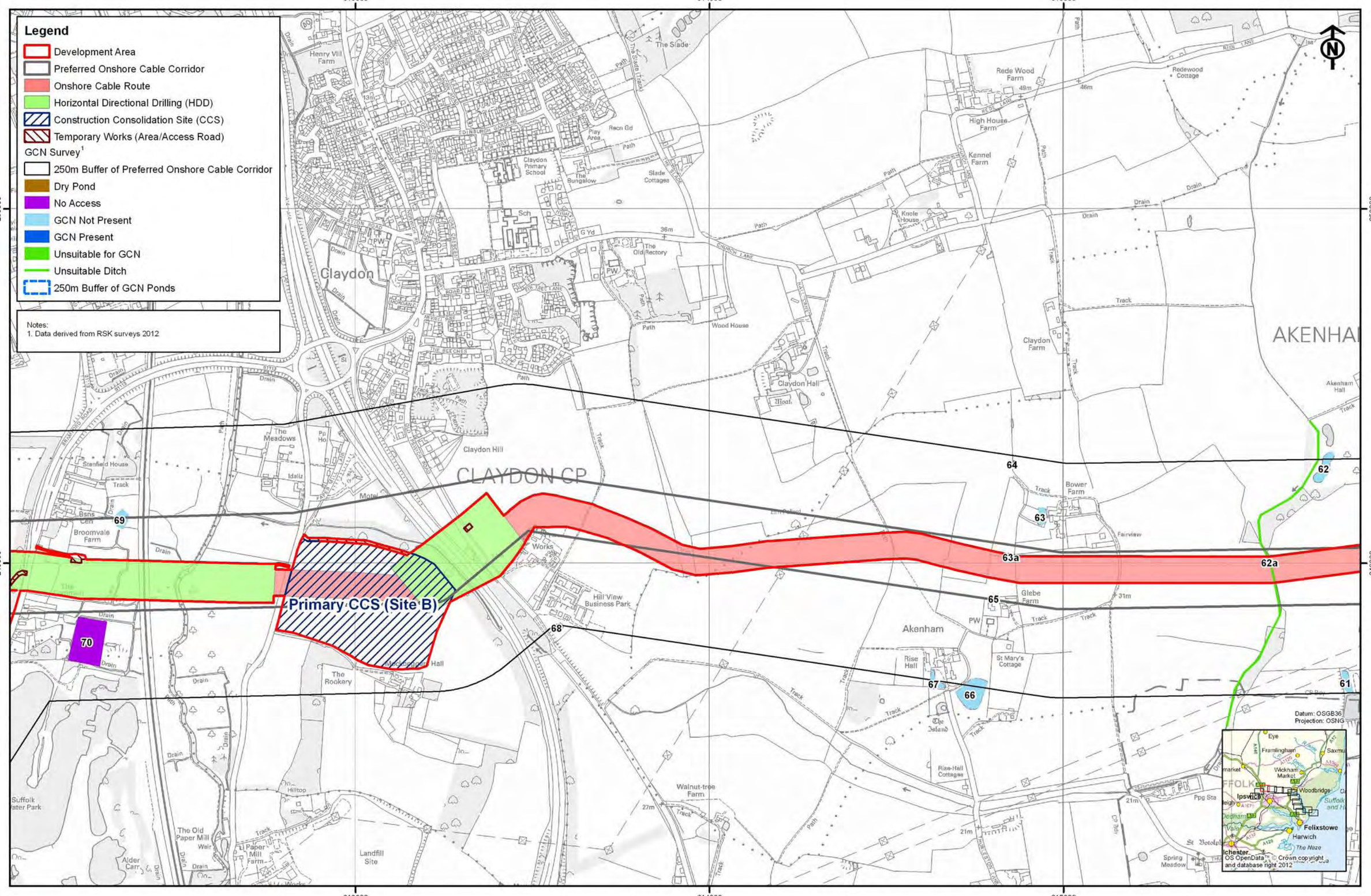

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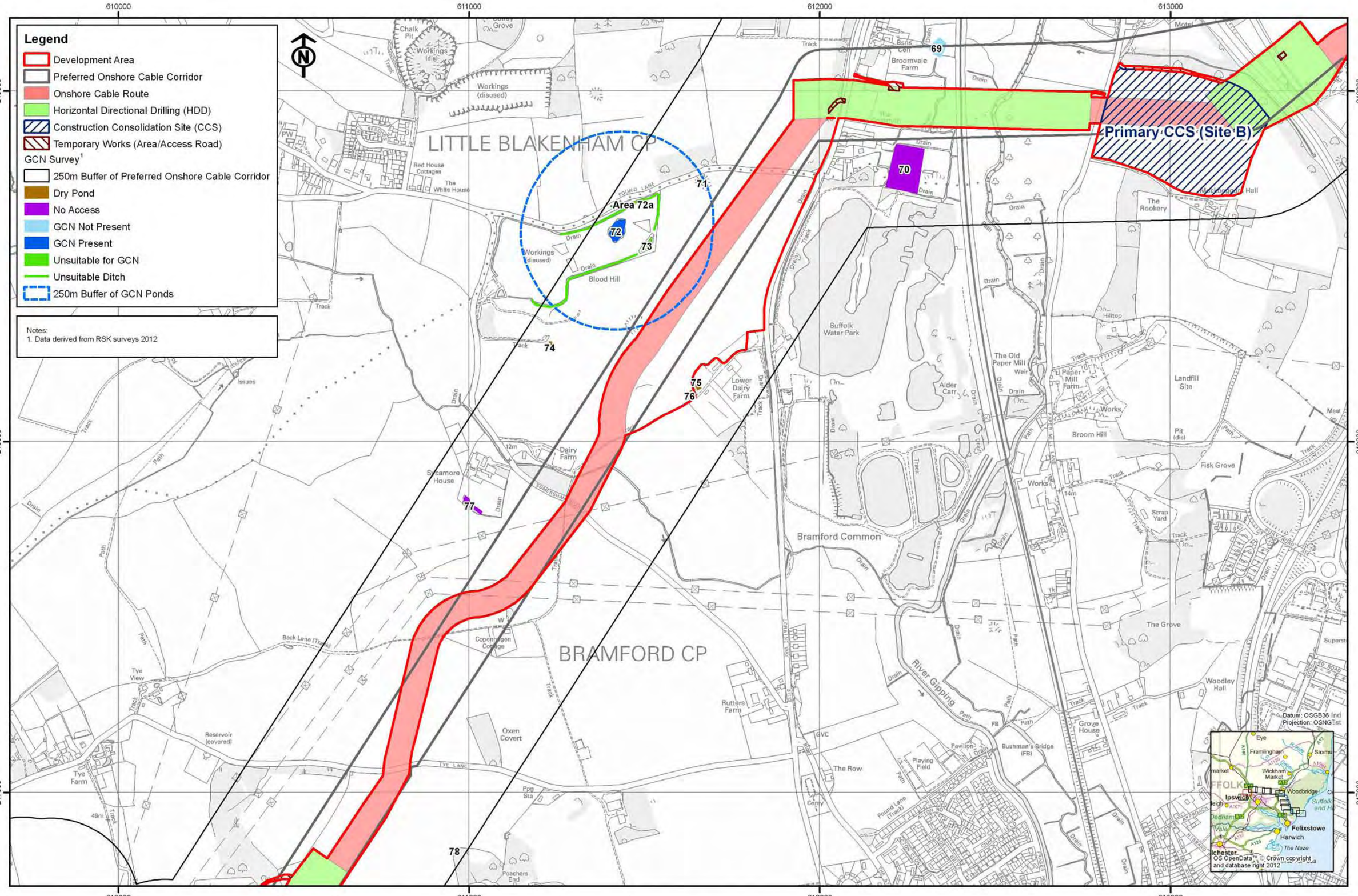

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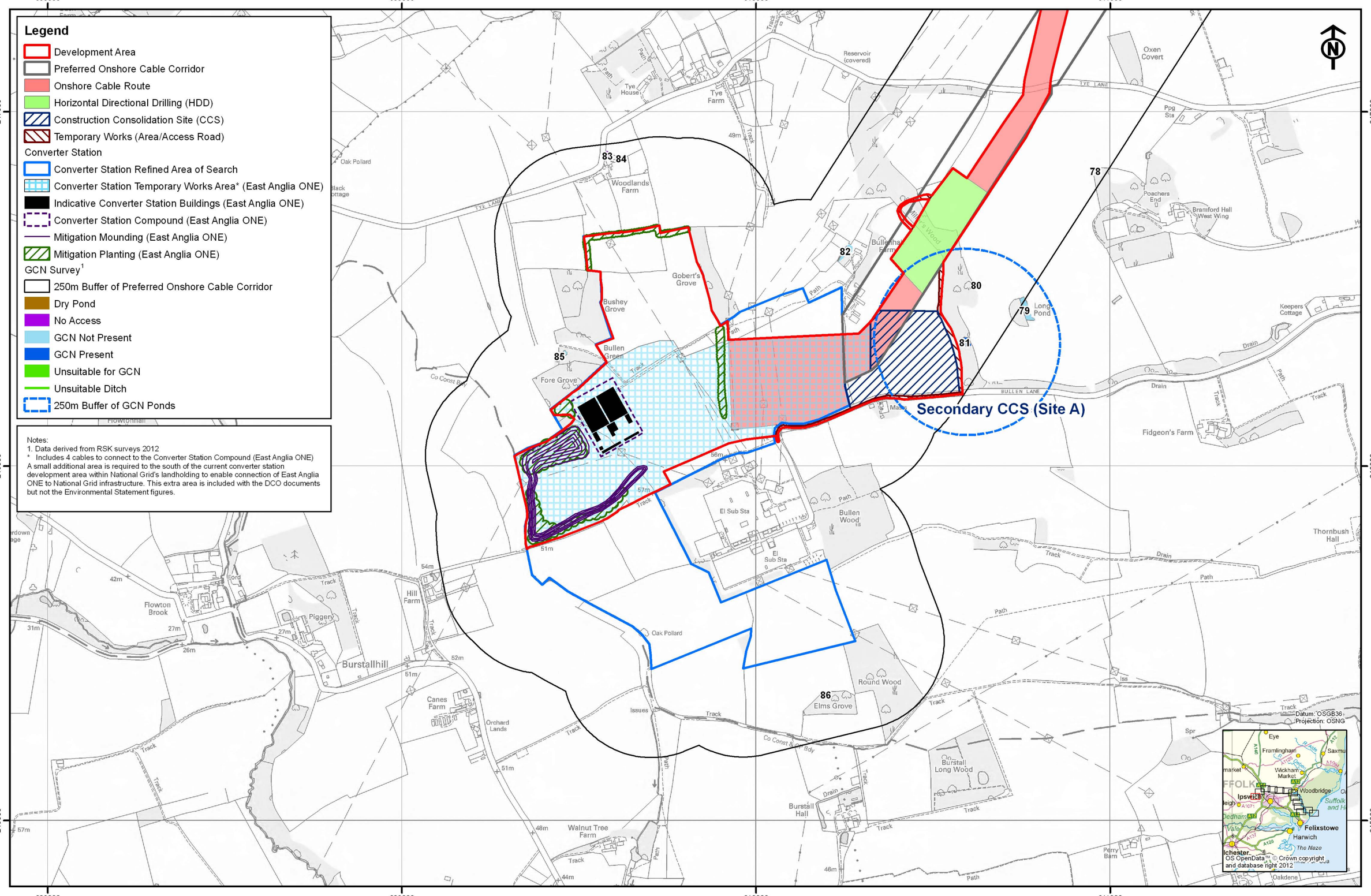

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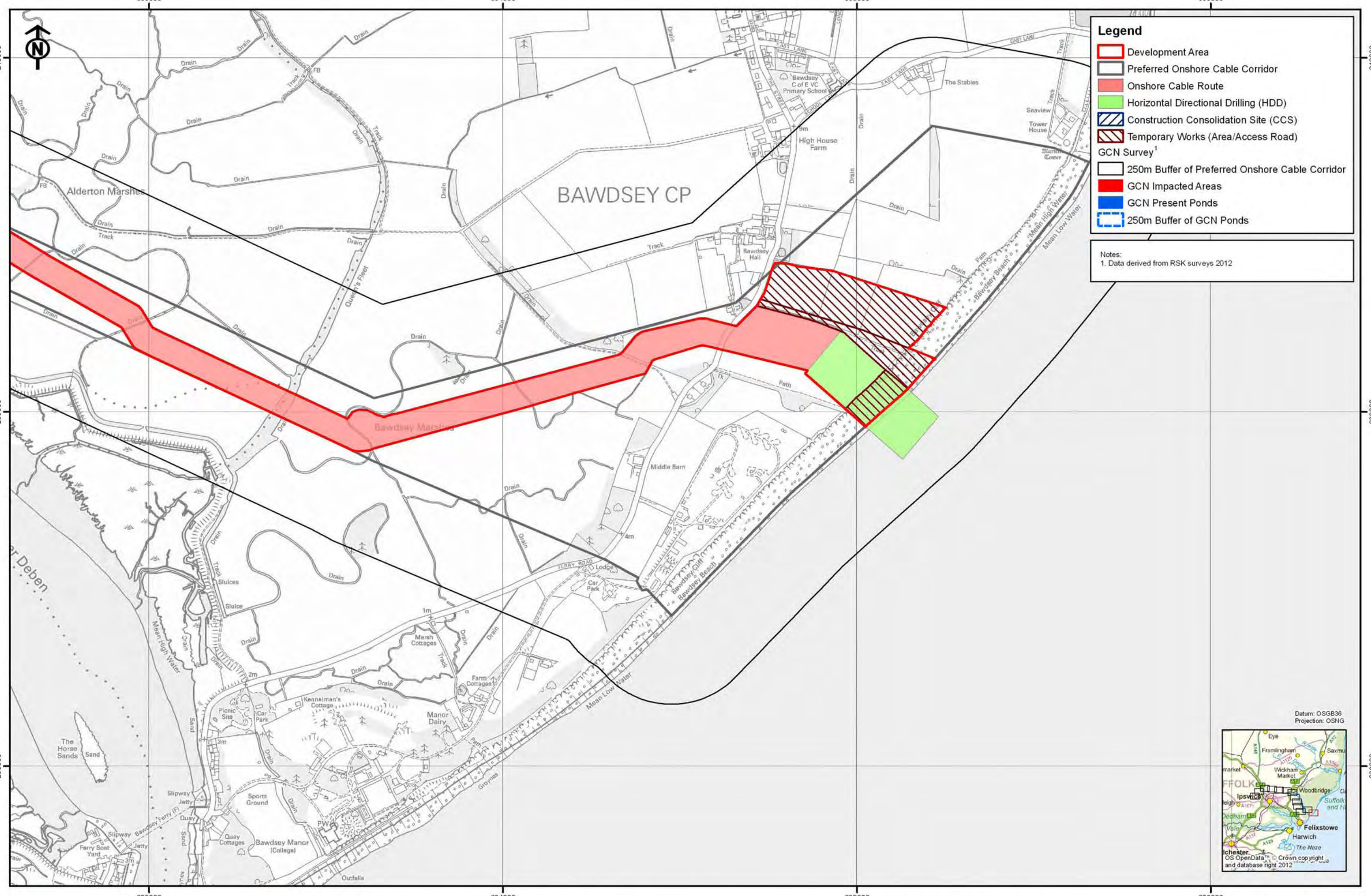

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Layout	N/A

Appendix 24.6

Figure 24.6.3

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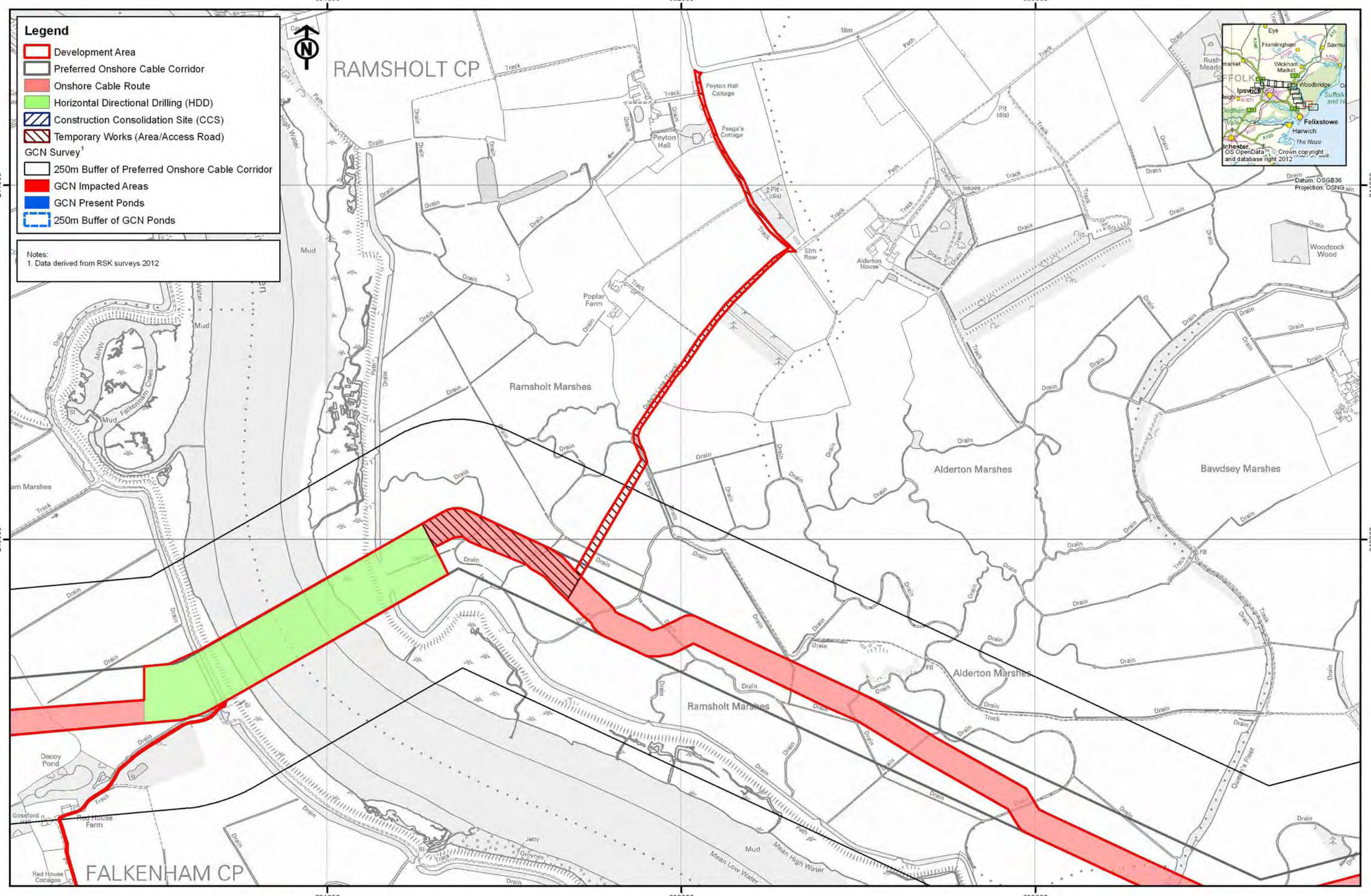

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01	30/08/12	SP	Updated cable route
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Layout	N/A

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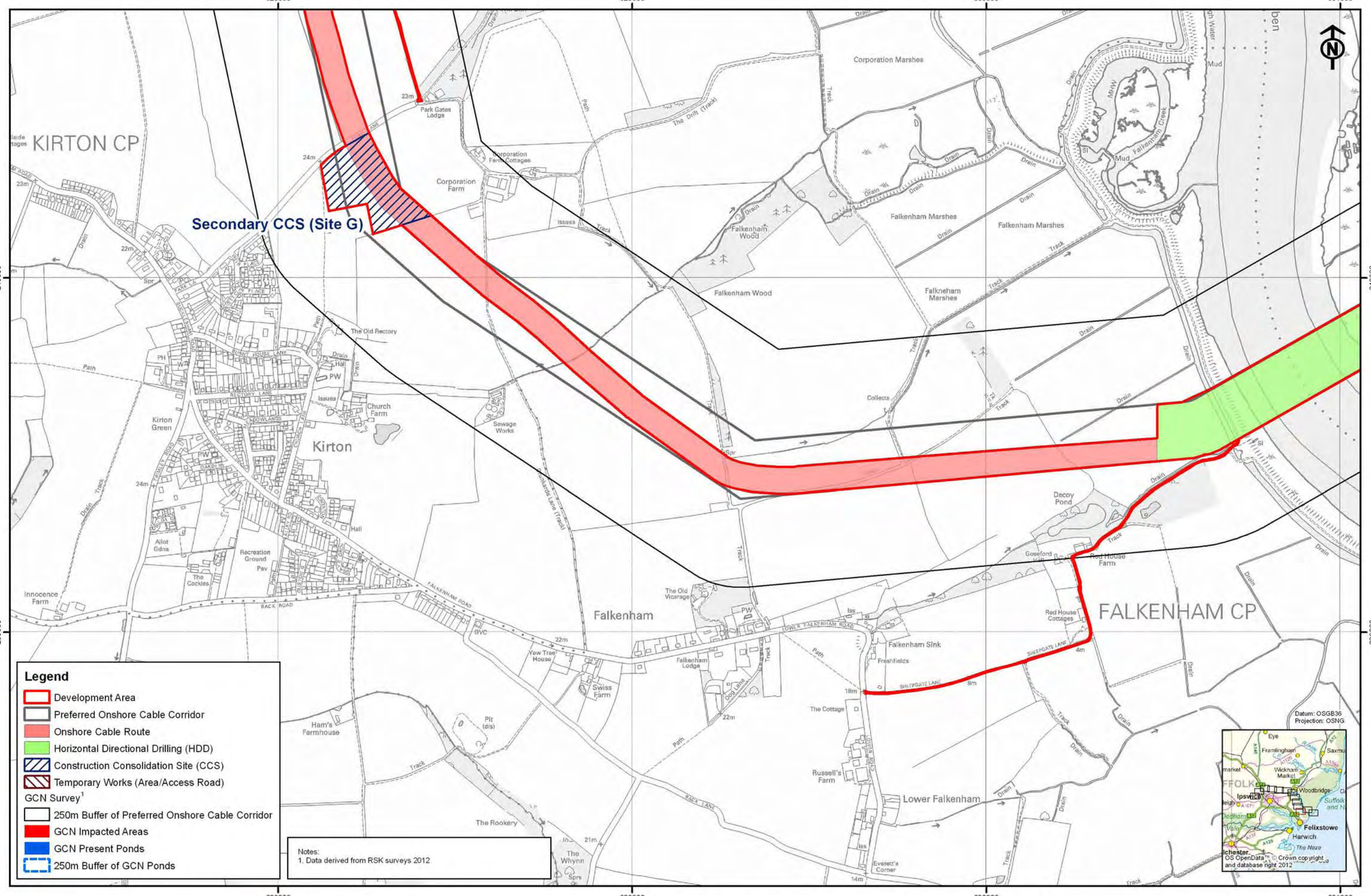

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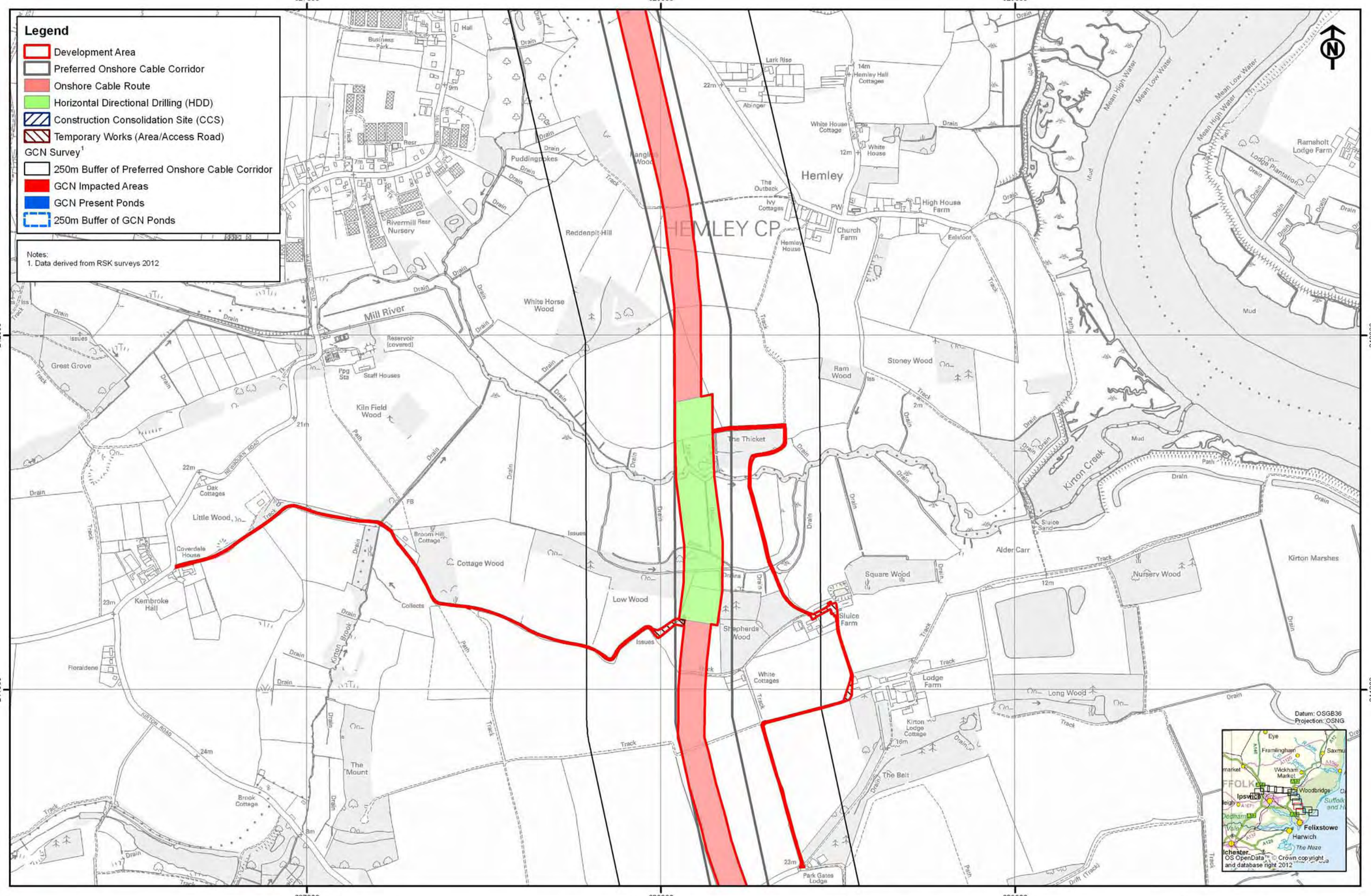

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01	30/08/12	SP	Updated cable route
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Rev	02
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Layout	N/A

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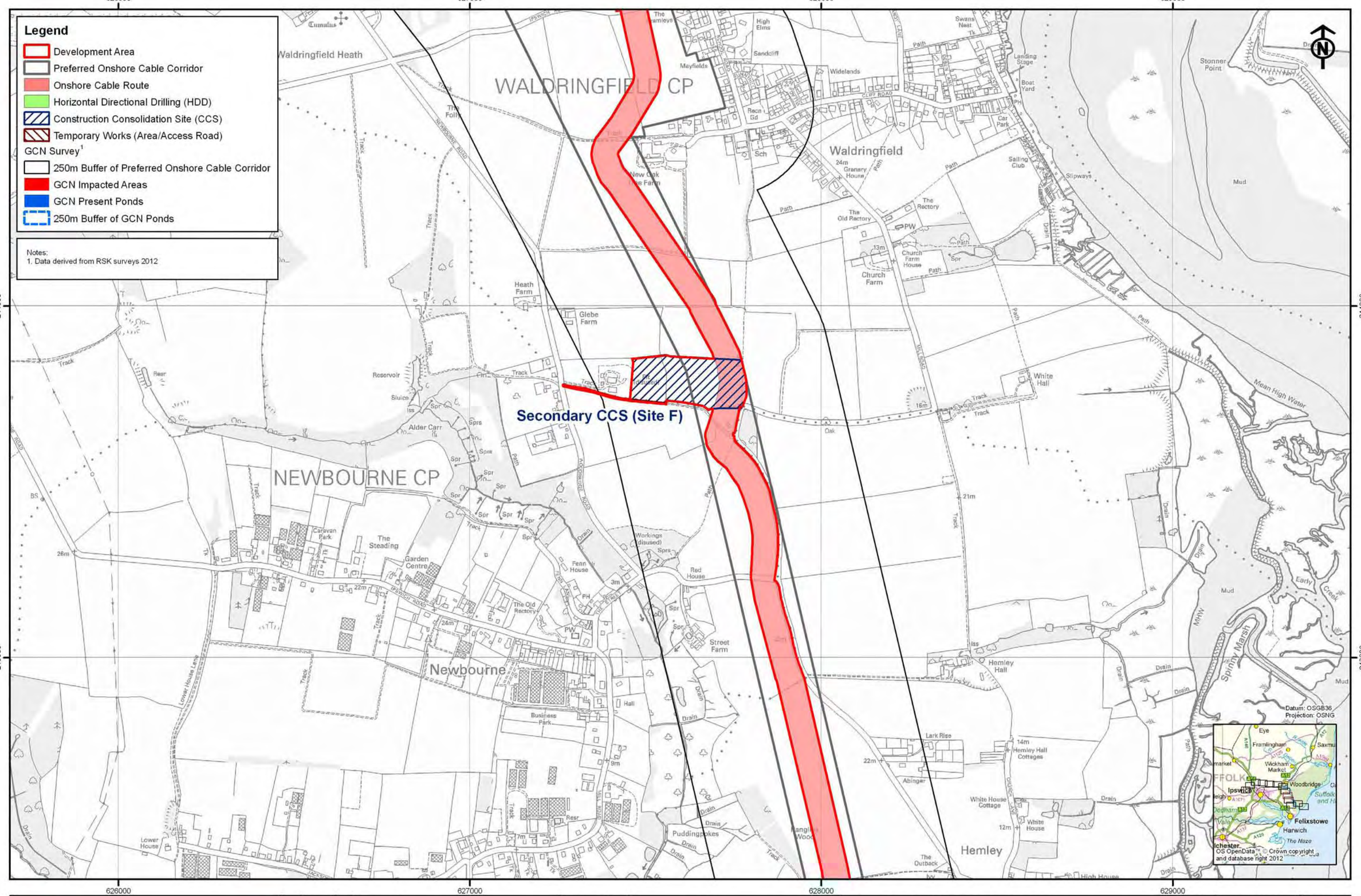

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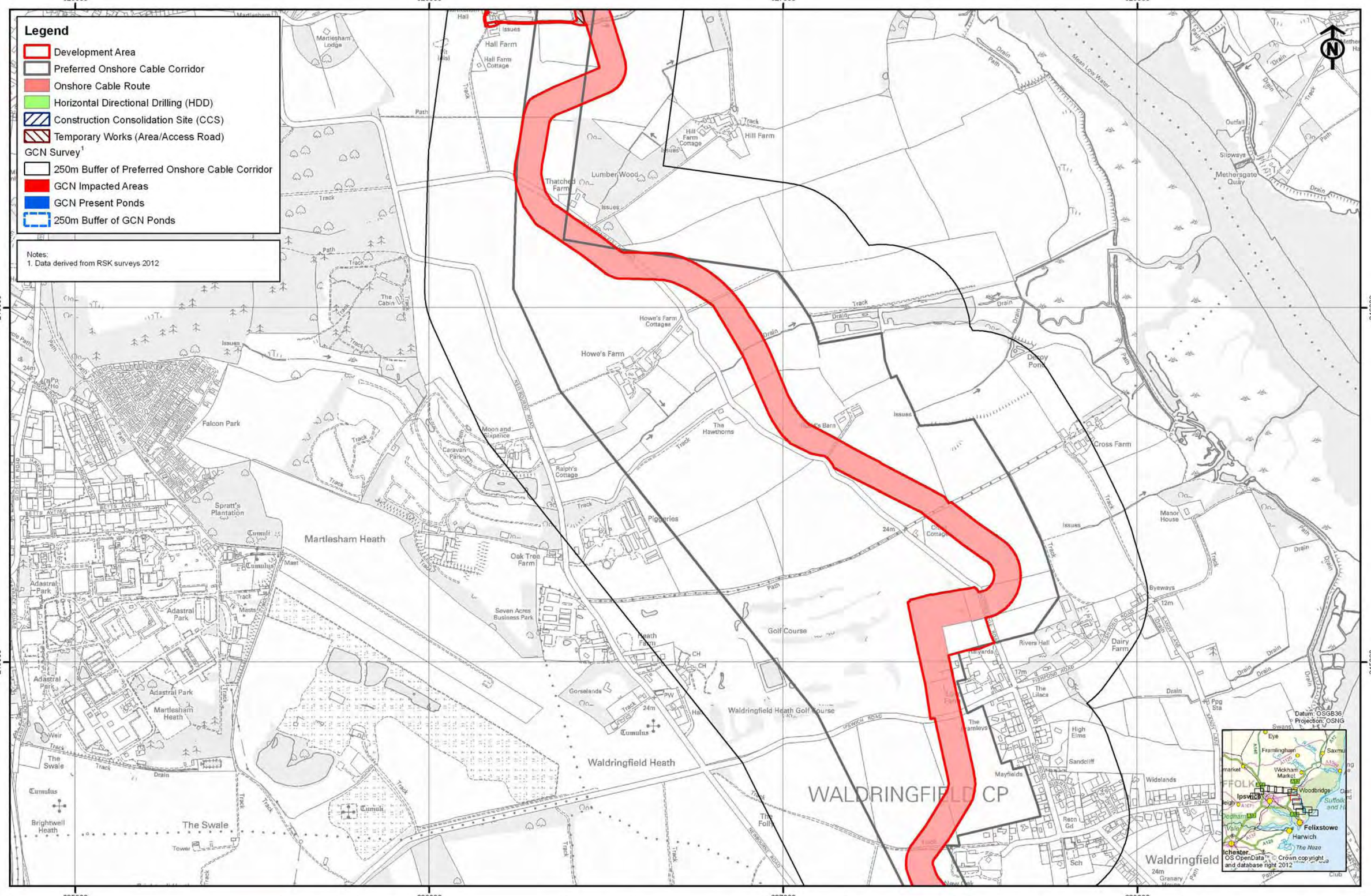

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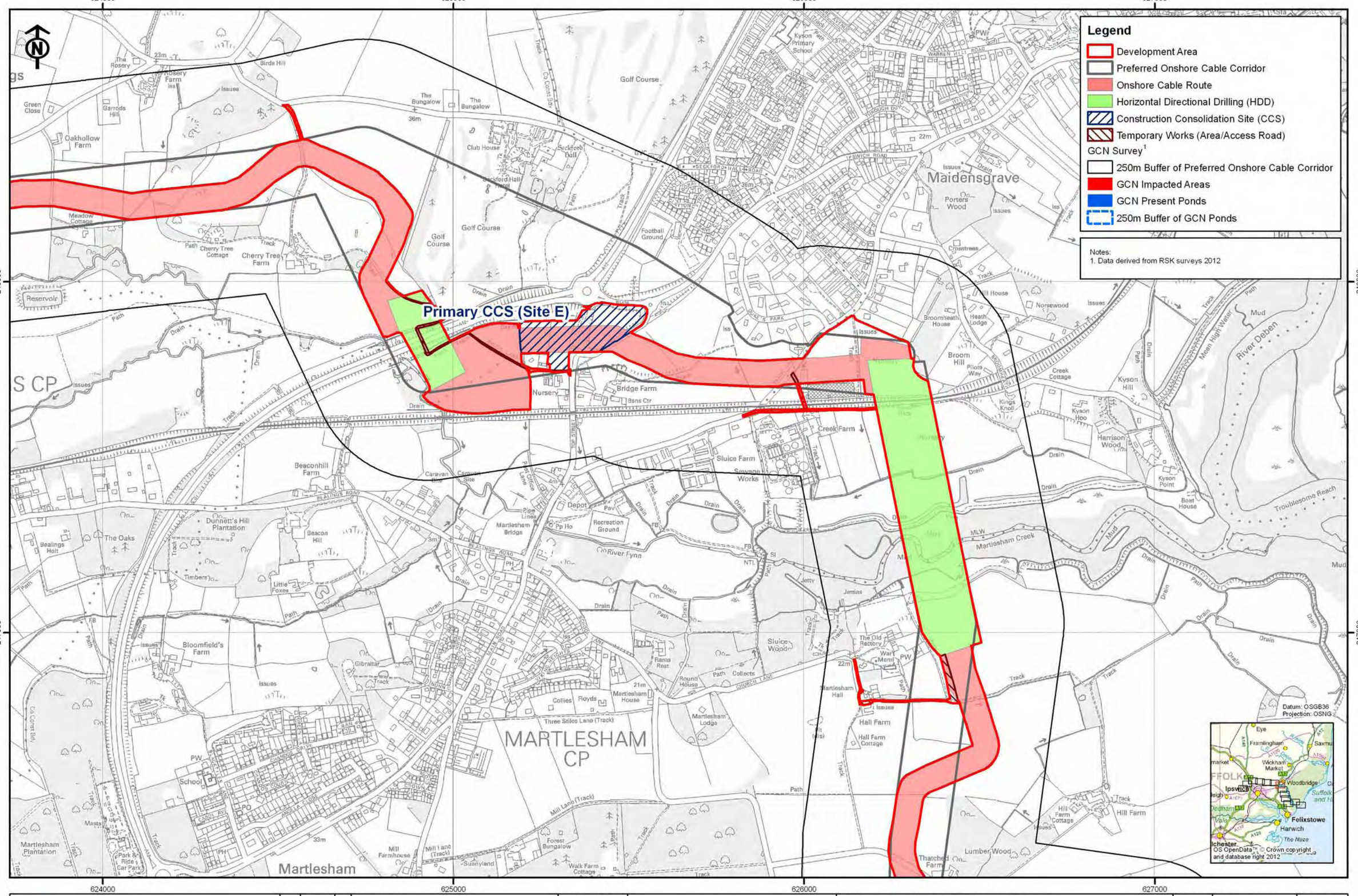

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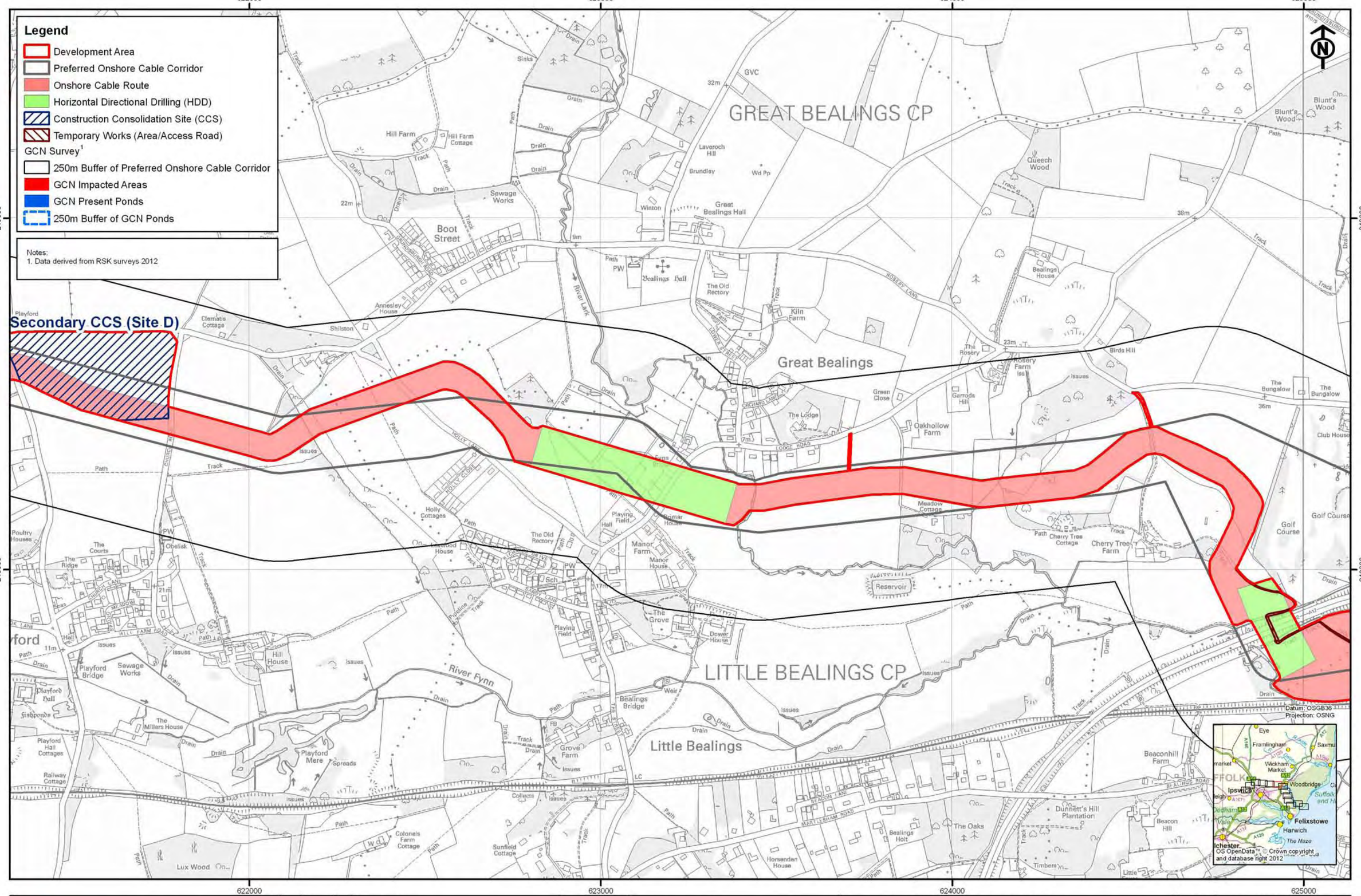

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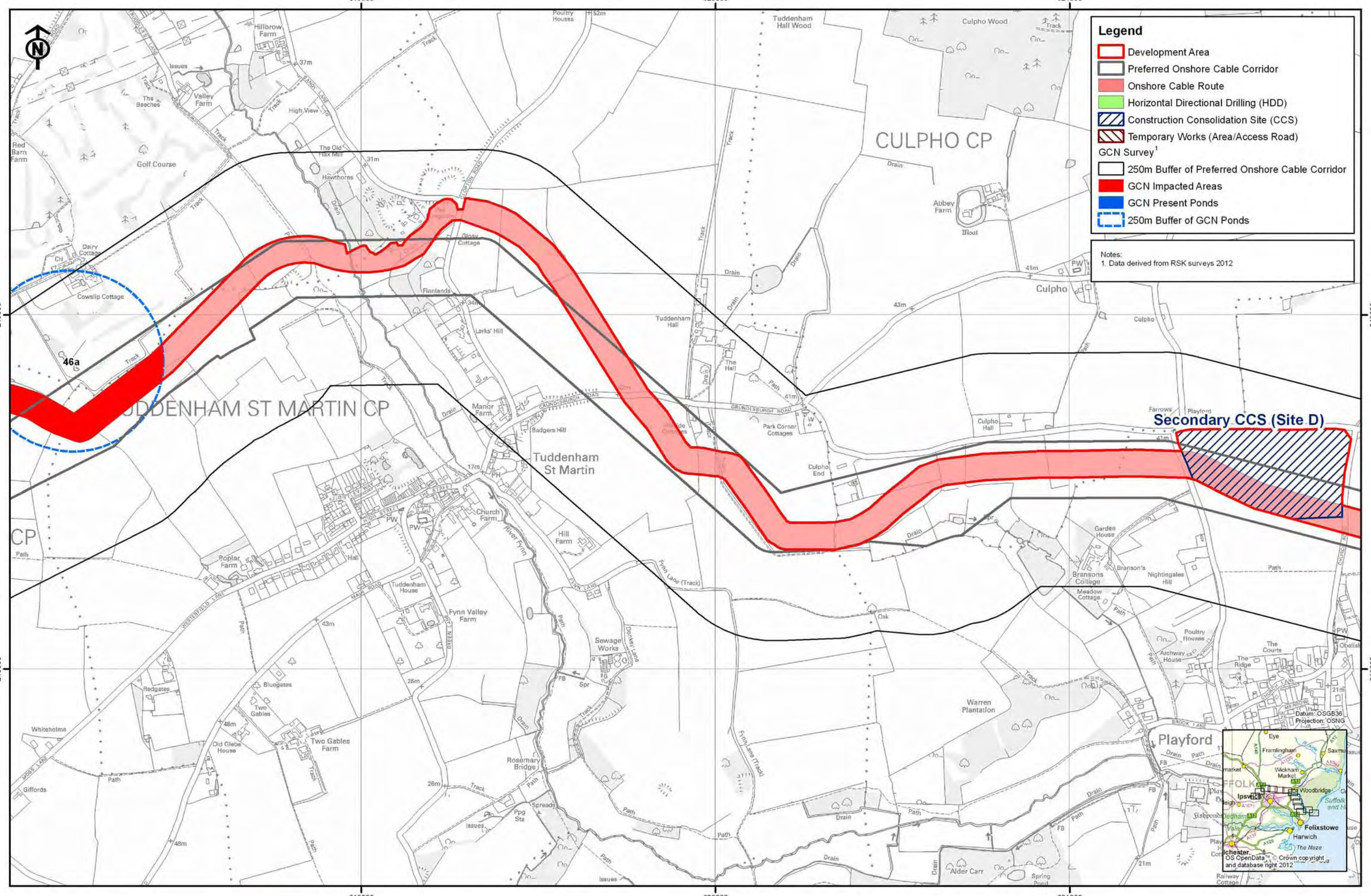

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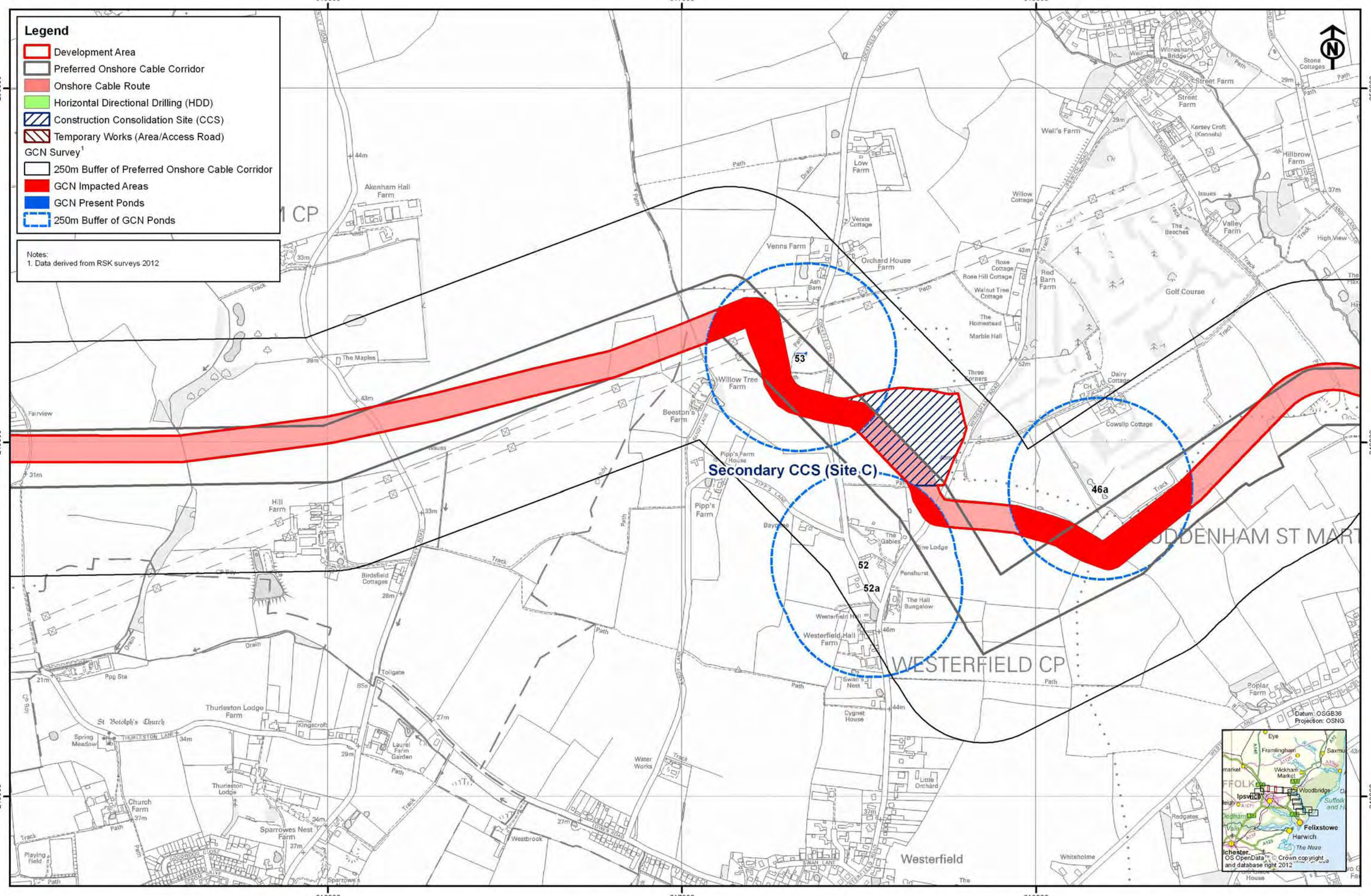

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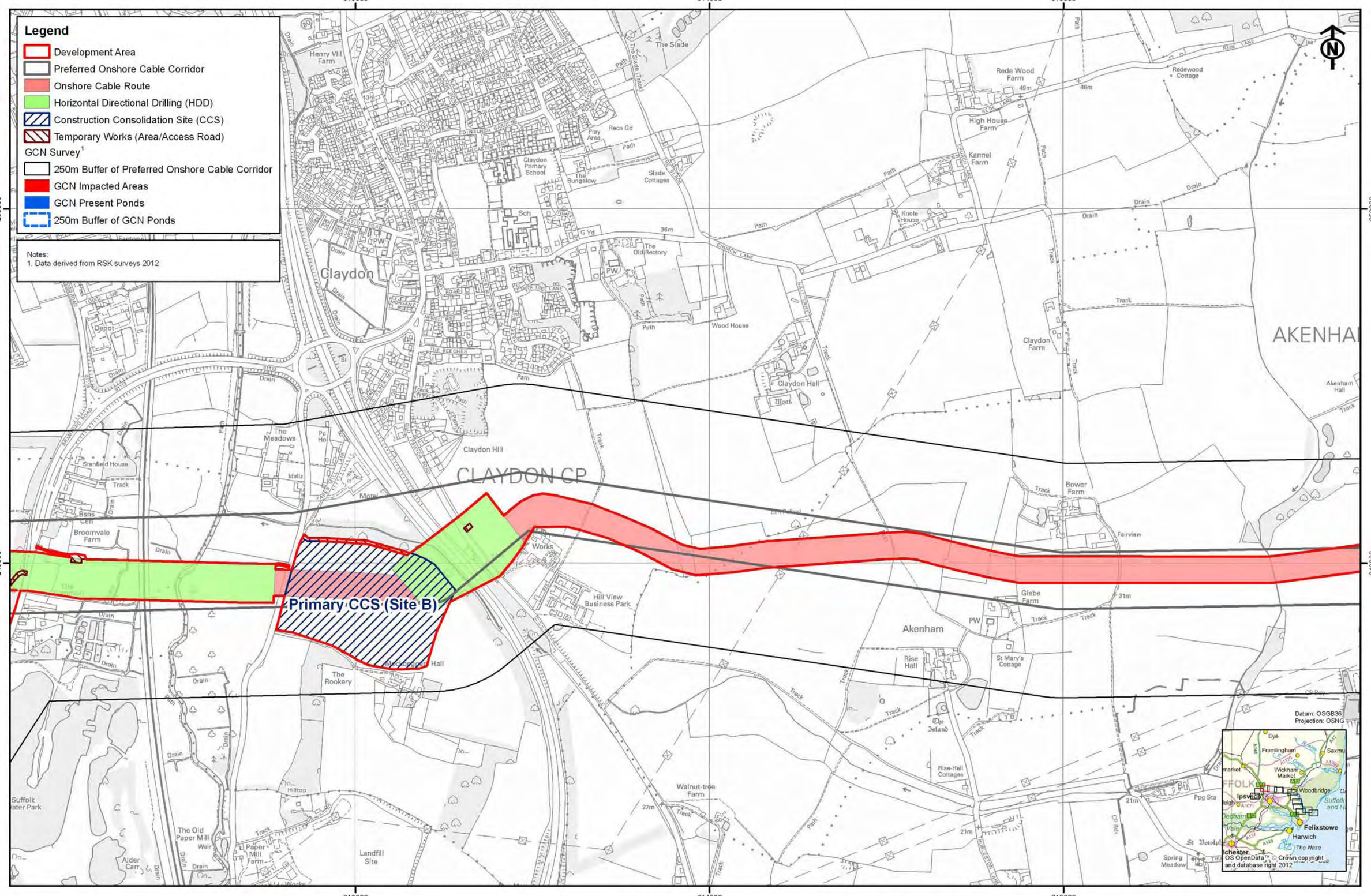

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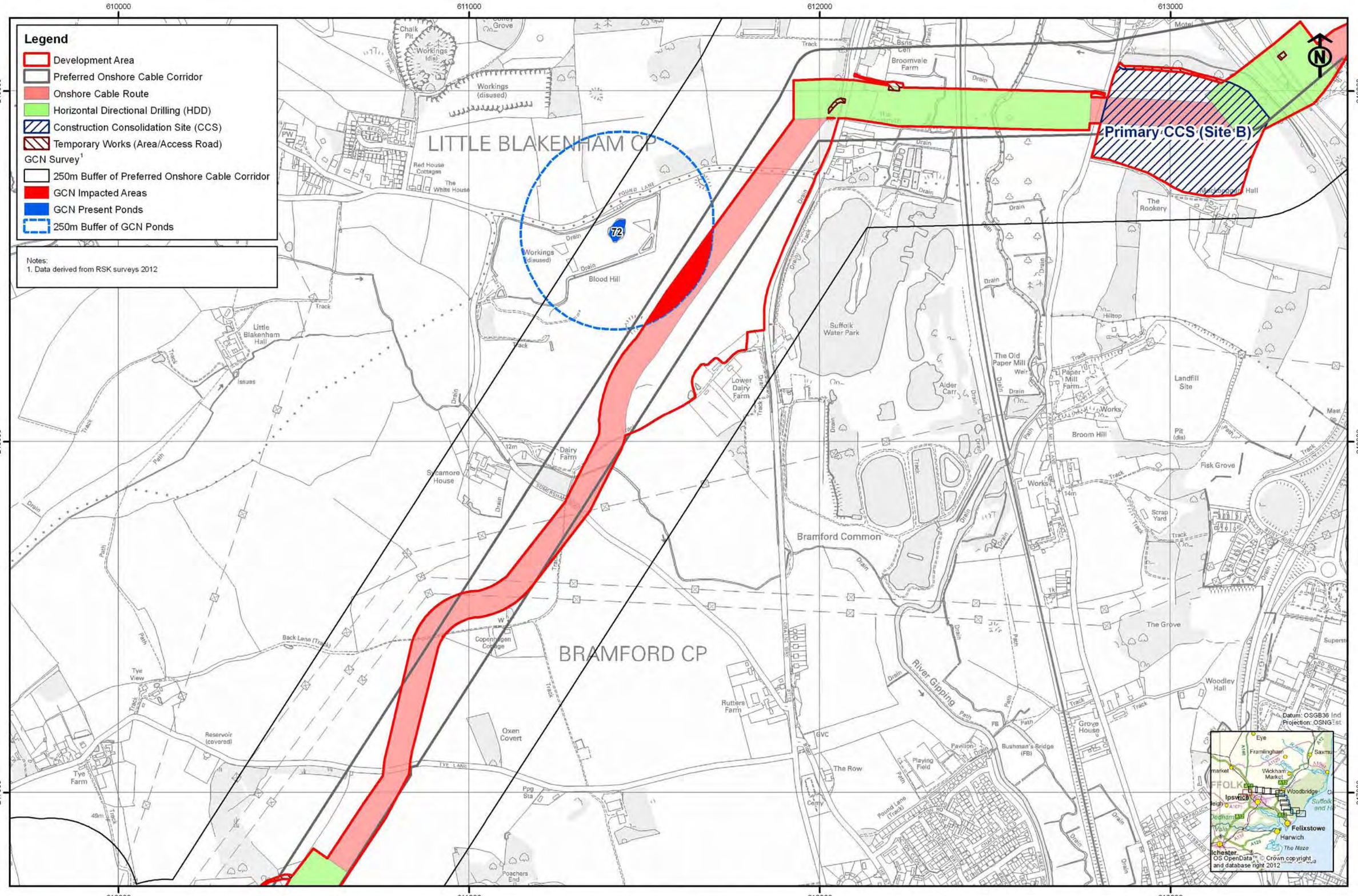

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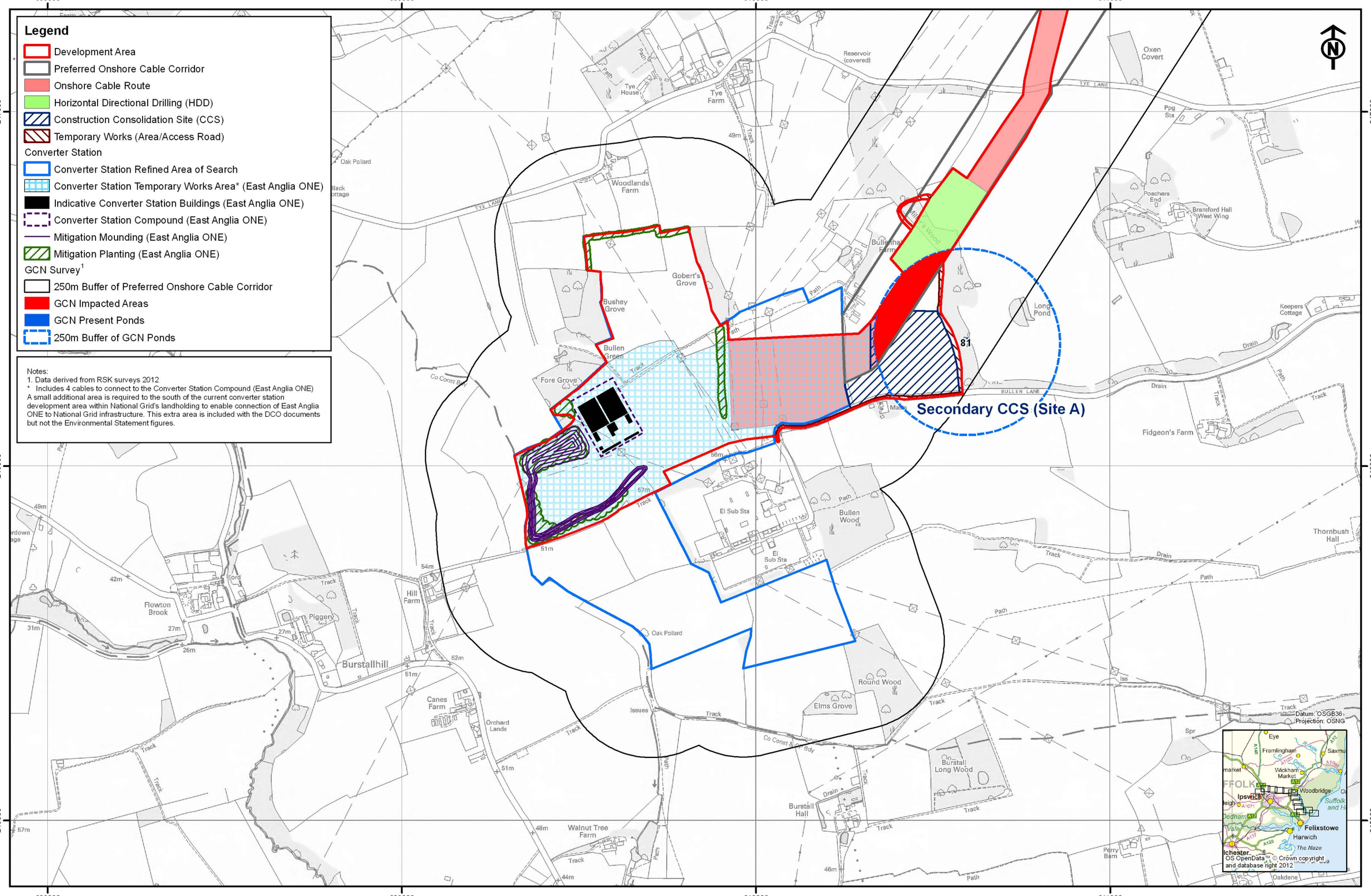

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7 APPENDIX A – LEGISLATION

7.1 General

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

7.2 Great Crested Newt

Great Crested Newts are protected by *The Wildlife and Countryside Act 1981 (as amended)*, extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take;
- possess or control;
- intentionally or recklessly damage, destroy or obstruct access to a breeding site or resting place; and
- intentionally or recklessly disturb whilst the animal occupies a breeding site or resting place.

Great Crested Newts are also European Protected Species listed on *The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended)*. This legislation makes it an offence to:

- deliberately capture, injure or kill;
- deliberately disturb, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destroy a breeding site or resting place; and
- possess, control, transport, sell, exchange, or offer for sale or exchange.

All breeding sites and resting places receive legal protection even if the animals are not present at the time.

8 APPENDIX B – SURVEY DATA

8.1 HSI Data

Pond ref	1	2	3	3a	7
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.6	0.44	1	0.1	0.5
SI3 - Pond drying	1	1	1	0.5	1
SI4 - Water quality	0.33	0.67	0.67	0.33	0.33
SI4 - Shade	1	0.6	0.2	0.2	1
SI6 - Fowl	0.67	0.67	0.67	0.67	1
SI7 - Fish	1	1	1	1	1
SI8 - Ponds	0.7	0.55	0.55	0.65	0.52
SI9 - Terr'l habitat	0.33	1	1	0.67	0.67
SI10 - Macrophytes	0.3	0.3	0.3	0.85	0.7
HSI	0.63	0.67	0.66	0.49	0.73
Rating	Average	Average	Average	Poor	Good

Pond ref	10	11	12	13	14
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.2	0.1	0.2	0.2	0.6
SI3 - Pond drying	0.5	0.1	1	1	0.9
SI4 - Water quality	0.33	0.33	1	1	0.67
SI4 - Shade	1	0.4	1	1	0.4
SI6 - Fowl	1	1	0.67	0.67	0.01
SI7 - Fish	1	1	0.33	1	0.33
SI8 - Ponds	0.45	1	0.9	0.9	0.75
SI9 - Terr'l habitat	0.67	0.67	0.67	0.67	1
SI10 - Macrophytes	0.9	0.3	0.4	0.35	0.5
HSI	0.62	0.44	0.64	0.70	0.42
Rating	Average	Poor	Average	Good	Poor

Pond ref	15	16a	18	19	20
SI1 - Location	1	1	1	1	1
SI2 - Pond area	1	0.82	0.1	0.1	0.1
SI3 - Pond drying	0.9	0.9	0.5	0.5	0.5
SI4 - Water quality	0.67	0.67	1	1	0.67
SI4 - Shade	1	1	1	1	1
SI6 - Fowl	1	0.01	1	1	1
SI7 - Fish	1	1	1	1	1
SI8 - Ponds	0.75	0.37	0.9	0.9	0.9
SI9 - Terr'l habitat	1	1	0.33	0.33	0.33
SI10 - Macrophytes	0.4	0.35	0.8	0.5	0.4
HSI	0.84	0.48	0.64	0.61	0.58
Rating	Excellent	Poor	Average	Average	Below Average

Pond ref	20	22	24	24b	24c
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.1	0.8	0.3	0.5	0.8
SI3 - Pond drying	0.5	0.9	1	0.9	0.9
SI4 - Water quality	0.67	0.33	0.67	0.67	0.67
SI4 - Shade	1	1	1	1	1
SI6 - Fowl	1	0.01	1	0.01	0.67
SI7 - Fish	1	0.01	1	0.01	0.01
SI8 - Ponds	0.9	0.9	0.95	0.75	0.75
SI9 - Terr'l habitat	0.33	1	0.67	1	1
SI10 - Macrophytes	0.4	0.3	0.7	0.35	0.45
HSI	0.58	0.30	0.79	0.31	0.51
Rating	Below Average	Poor	Good	Poor	Below average

Pond ref	24d	25	30	33	35
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.925	0.2	1	0.8	0.2
SI3 - Pond drying	0.9	1	1	1	0.9
SI4 - Water quality	0.67	0.67	0.33	0.33	0.33
SI4 - Shade	1	0.2	1	0.4	1
SI6 - Fowl	0.67	0.67	0.01	0.67	0.6
SI7 - Fish	0.01	1	1	0.33	1
SI8 - Ponds	0.75	0.75	0.55	0.55	0.75
SI9 - Terr'l habitat	1	0.67	0.67	0.67	0.67
SI10 - Macrophytes	0.5	0.6	0.3	0.3	0.4
HSI	0.52	0.59	0.45	0.55	0.61
Rating	Below average	Below Average	Poor	Below Average	Average

Pond ref	36	37	38	39	42
SI1 - Location	1	1	1	1	1
SI2 - Pond area	1	0.1	0.9	0.1	0.3
SI3 - Pond drying	0.5	0.1	0.9	0.1	0.9
SI4 - Water quality	0.33	0.67	1	0.67	1
SI4 - Shade	1	0.3	1	1	1
SI6 - Fowl	0.67	1	0.67	1	0.67
SI7 - Fish	0.67	1	0.01	0.33	0.33
SI8 - Ponds	0.55	0.75	0.55	0.55	0.93
SI9 - Terr'l habitat	0.67	1	1	1	0.67
SI10 - Macrophytes	0.7	0.3	0.3	0.3	0.35
HSI	0.67	0.46	0.50	0.45	0.65
Rating	Average	Poor	Below average	Poor	Average

Pond ref	42a	42b	42c	42d	44
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.1	0.1	0.1	0.1	1
SI3 - Pond drying	0.9	1	0.9	0.5	0.9
SI4 - Water quality	0.67	0.33	1	0.33	0.67
SI4 - Shade	1	1	1	1	1
SI6 - Fowl	1	0.67	1	1	0.67
SI7 - Fish	1	1	1	0.67	0.01
SI8 - Ponds	0.95	0.95	0.95	0.95	0.95
SI9 - Terr'l habitat	0.67	0.67	0.67	1	1
SI10 - Macrophytes	0.4	0.6	0.4	0.4	0.45
HSI	0.66	0.62	0.69	0.58	0.53
Rating	Average	Average	Average	Below Average	Below Average

Pond ref	45	46	46a	47	51
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.2	0.25	0.15	0.35	0.9
SI3 - Pond drying	0.5	0.9	0.9	0.5	0.9
SI4 - Water quality	0.67	0.67	0.67	0.67	0.33
SI4 - Shade	1	1	1	1	1
SI6 - Fowl	0.67	0.67	0.67	0.67	0.67
SI7 - Fish	1	1	1	1	0.01
SI8 - Ponds	0.8	1	1	1	0.95
SI9 - Terr'l habitat	0.67	0.67	0.67	0.67	0.67
SI10 - Macrophytes	0.5	0.35	0.35	0.95	0.3
HSI	0.64	0.69	0.65	0.74	0.45
Rating	Average	Average	Average	Good	Poor

Pond ref	52	52a	53	55	60
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.2	0.2	0.6	0.8	0.3
SI3 - Pond drying	0.5	0.9	1	0.9	1
SI4 - Water quality	0.67	1	0.33	0.33	0.01
SI4 - Shade	1	1	1	1	1
SI6 - Fowl	0.67	1	0.67	0.01	0.67
SI7 - Fish	0.67	0.33	1	0.01	0.33
SI8 - Ponds	0.75	0.75	1	0.85	0.95
SI9 - Terr'l habitat	0.67	1	0.67	0.67	0.67
SI10 - Macrophytes	0.35	0.4	0.35	0.3	0.35
HSI	0.59	0.67	0.71	0.29	0.41
Rating	Below average	Average	Good	Poor	Poor

Pond ref	61	62	63	63a	66
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.95	1	0.9	0.02	0.85
SI3 - Pond drying	0.9	0.9	0.9	0.1	0.9
SI4 - Water quality	0.01	0.67	0.33	0.33	0.67
SI4 - Shade	1	0.8	1	1	1
SI6 - Fowl	0.67	0.67	0.67	1	0.01
SI7 - Fish	0.33	0.01	0.01	1	0.01
SI8 - Ponds	1	0.85	1	1	0.95
SI9 - Terr'l habitat	0.67	1	0.67	0.67	1
SI10 - Macrophytes	0.35	0.35	0.4	0.3	0.3
HSI	0.46	0.50	0.47	0.41	0.33
Rating	Poor	Below Average	Poor	Poor	Poor

Pond ref	67	68	69	71	72
SI1 - Location	1	1	1	1	1
SI2 - Pond area	1	0.2	1	0.2	0.8
SI3 - Pond drying	0.9	1	0.9	0.5	0.5
SI4 - Water quality	0.67	1	0.33	0.33	1
SI4 - Shade	1	1	1	0.6	1
SI6 - Fowl	0.01	1	0.01	1	0.67
SI7 - Fish	0.01	0.01	0.33	1	1
SI8 - Ponds	0.95	0.35	0.55	0.95	0.7
SI9 - Terr'l habitat	1	0.33	0.67	1	1
SI10 - Macrophytes	0.35	0.5	0.3	0.3	0.5
HSI	0.34	0.40	0.40	0.60	0.79
Rating	Poor	Poor	Poor	Average	Good

Pond ref	78	79	81	82	85
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.1	0.6	0.6	0.4	0.4
SI3 - Pond drying	0.5	1	1	1	1
SI4 - Water quality	0.33	0.33	0.33	0.67	0.33
SI4 - Shade	0.6	1	1	1	1
SI6 - Fowl	1	0.67	0.67	0.67	0.67
SI7 - Fish	1	1	1	1	1
SI8 - Ponds	0.7	0.7	0.7	0.95	0.65
SI9 - Terr'l habitat	1	1	1	1	1
SI10 - Macrophytes	0.9	0.3	0.3	0.35	0.3
HSI	0.60	0.70	0.70	0.75	0.67
Rating	Average	Good	Good	Good	Average

8.2 Justification for water bodies not surveyed

A total of 5 water bodies were classified as not being suitable for Great Crested Newts following the HSI survey visit. This conclusion was reached based on a combination of factors. These included:

- a low HSI score;

- distance from the working area;
- a subjective assessment that included factors not considered as part of the HSI analysis; and
- Health and safety risks involved with surveying the water body.

Descriptions for these unsuitable ponds are provided below.

Pond 24a comprises a stagnant, very shallow pond. The pond is 5m wide and 15m in diameter. The water quality is extremely poor and is heavily polluted by surface run-off from surrounding fields. There is no egg laying material present. The temporary nature of the pond combined with the lack of egg laying material suggests that the pond is not suitable for Great Crested Newts. The HSI analysis presented in below supports the assessment of the pond as having an extremely low likelihood of supporting Great Crested Newts.

Pond 24a – HSI analysis

Pond ref – 24a	Notes	
SI1 - Location	A	1
SI2 - Pond area	Sub-optimal	0.6
SI3 - Pond drying	3 years in 10	0.5
SI4 - Water quality	Bad	0.01
SI4 - Shade	80%	0.6
SI6 - Fowl	Very high impact	0.01
SI7 - Fish	Absent	1
SI8 - Ponds	4	0.75
SI9 - Terr'l habitat	Good	1
SI10 - Macrophytes	None	0.3
HSI		**0.29**
Rating		Poor

Pond 34 is located in a garden and stocked with goldfish. The water quality was good, with a large number of aquatic invertebrates and frog spawn seen. The pond is heavily shaded with trees. The water was noticeably flowing into *Pond 34a* and then into the stream. The presence of heavy shading, fish and the flow of the water suggests that the pond is not suitable for Great Crested Newts. The HSI analysis presented in below supports the assessment of the pond as having an low likelihood of supporting Great Crested Newts.

Pond 34 – HSI analysis

Pond ref – 34	Notes	
SI1 - Location	A	1
SI2 - Pond area	Very Small	0.1
SI3 - Pond drying	Never dries	0.9
SI4 - Water quality	Good	1
SI4 - Shade	95%	0.3
SI6 - Fowl	Absent	1
SI7 - Fish	Goldfish present	0.01
SI8 - Ponds	5	0.75
SI9 - Terr'l habitat	Good	1
SI10 - Macrophytes	10%	0.35
HSI		**0.38**
Rating		Poor

Pond 34a is located in a garden and goldfish and sticklebacks are present. The water quality was good, with a large number of aquatic invertebrates and frog spawn seen. The water was noticeably flowing from *Pond 34* and then into the stream. The presence of fish and the flow of the water suggest that the pond is not suitable for Great Crested Newts. The HSI analysis presented in below supports the assessment of the pond as having an low likelihood of supporting Great Crested Newts.

Pond 34a – HIS analysis

Pond ref – 34a	Notes	
SI1 - Location	A	1
SI2 - Pond area	Small	0.2
SI3 - Pond drying	Never dries	0.9
SI4 - Water quality	Good	1
SI4 - Shade	65%	0.8
SI6 - Fowl	Absent	1
SI7 - Fish	Very high impact	0.01
SI8 - Ponds	4	0.75
SI9 - Terr'l habitat	Good	1
SI10 - Macrophytes	40%	0.7
HIS		**0.49**
Rating		Poor

8.3 Presence Absence Data Sheets

Raw data for the presence absence surveys are provided below. These data tables use the following abbreviations:

Bb – *Bufo bufo* (Common Toad)

Lh – *Lisotriton helveticus* (Palmate Newt)

Lv – *Lisotrition vulgaris* (Common/Smooth Newt)

Rt – *Rana temporaria* (Common Frog)

Tc – *Triturus cristatus* (Great Crested Newt)

U – Unknown small newt

A – Adult (♀ – Female, ♂ – Male)

SA – Sub-adult

J – Juvenile

L – Larvae

Waterbody Name	Pond	1		
Visit	1	2	3	4
Date	02/04/2012	12/04/2012	23/04/2012	02/05/2012
Surveyors	CP / RB	CP / IL	JJ / RB	CP / RB
Air temperature at dusk (˚C)	6.1	6.8	8.6	9.8
Water temperature at dusk (˚C)	12.5	11.8		13.3
Turbidity	3	0	0	1
Vegetation Cover	1	0	1	0
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	0
Other species recorded	13 Lv (2A♂, 11A♀), Rt (L)	44 Lv (14A♂, 40A♀), Rt (L)	17 Lv (13A♂, 14A♀), Bb (A)	3 Lv (1A♂, 2A♀), Rt (A, L)
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C. Very wet and windy.	26 traps.
Waterbody Name	**Pond**	**2**		
Visit	1	2	3	4
Date	26/03/2012	04/04/2012	12/04/2012	23/04/2012
Surveyors	CP /RB	CP / RB	CP / IL	JJ / RB
Air temperature at dusk (˚C)	8.1	7.2	6.8	8.6
Water temperature at dusk (˚C)	11.3	11.8	11.1	
Turbidity	2	2	0	2
Vegetation Cover	1	3	2	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	Rt (L)	1 Lv (1A♀), Rt (L)	3 Lv (3A♀)	9 Lv (2A♂, 7A♀)
Notes	Predicted air temperatures below 5˚C. 50% of pond inaccessible due to bramble cover around pond.	Predicted air temperatures below 5˚C. 50% of pond inaccessible due to bramble cover around pond.	Predicted air temperatures below 5˚C. 50% of pond inaccessible due to bramble cover around pond.	Predicted air temperatures below 5˚C. 50% of pond inaccessible due to bramble cover around pond.

Waterbody Name	**Pond**	**3**		
Visit	1	2	3	4
Date	26/03/2012	04/04/2012	12/04/2012	23/04/2012
Surveyors	CP /RB	CP / RB	CP / IL	JJ / RB
Air temperature at dusk (˚C)	7.9	7.4	6.6	8.5
Water temperature at dusk (˚C)	11.1	10.3	11.1	
Turbidity	0	3	1	1
Vegetation Cover	1	5	5	2
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	6 Lv (6A♂), 3 U (3A♀), Rt (A) and Bb (A)	Rt (A)	-	-
Notes	Predicted air temperatures below 5˚C. 20% of pond inaccessible due to bramble cover around pond. 100% pond weed covering	Predicted air temperatures below 5˚C. 20% of pond inaccessible due to bramble cover around pond. 100% pond weed covering	Predicted air temperatures below 5˚C. 20% of pond inaccessible due to bramble cover around pond. 100% pond weed covering	Predicted air temperatures below 5˚C. 60% of pond inaccessible due to bramble cover around pond. 50% pond weed covering
Waterbody Name	**Pond**	**3a**		
Visit	1	2	3	4
Date	19/03/2012	02/04/2012	12/04/2012	23/04/2012
Surveyors	CP / SB	CP / RB	CP / IL	JJ / RB
Air temperature at dusk (˚C)	6.7	6.4	6.4	8.7
Water temperature at dusk (˚C)	9.1	13.6	9.6	
Turbidity	1	1	0	0
Vegetation Cover	5	5	5	5
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	-	-	-	-

Notes	Predicted air temperatures below 5˚C. Torching limited by vegetation cover	Predicted air temperatures below 5˚C. 80% inaccessible by vegetation cover	Predicted air temperatures below 5˚C. 80% inaccessible by vegetation cover	Predicted air temperatures below 5˚C. 80% inaccessible by vegetation cover
Waterbody Name	**Pond**	**7**		
Visit	1	2	3	4
Date	20/03/2012	02/04/2012	16/04/2012	24/04/2012
Surveyors	CP / SB	CP / RB	JM / CJ	JJ / RB
Air temperature at dusk (˚C)	8.8	7.3	5.5	8
Water temperature at dusk (˚C)	4.1	10.3		
Turbidity	3	1	2	1
Vegetation Cover	2	1	2	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	1 Lv (1A♀), 3 Rt (A, L)	1 Rt (A)	1 Lv (1A♀)	4 Lv (4A♂)
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C. 60% inaccessible	Predicted air temperatures below 5˚C. 60% inaccessible	Predicted air temperatures below 5˚C.
Waterbody Name	**Pond**	**10**		
Visit	1	2	3	4
Date	20/03/2012	03/04/2012	16/04/2012	02/05/2012
Surveyors	CP / SB	CP / RB	JM / CJ	CP / RB
Air temperature at dusk (˚C)	9.1	7.6	5.7	9.5
Water temperature at dusk (˚C)	12	11.2		13.5
Turbidity	2	3	1	2
Vegetation Cover	1	1	3	4
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	1 Rt (A, L)	1 U (1A♀)	-	-

Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Raining. Too shallow to trap
Waterbody Name	**Pond**	**11**		
Visit	1	2	3	4
Date	20/03/2012	DRY	DRY	DRY
Surveyors	CP / SB			
Air temperature at dusk (˚C)	7.3			
Water temperature at dusk (˚C)	10.4			
Turbidity	1			
Vegetation Cover	0			
Egg search	0			
Torching	0			
Bottle trapping	-			
Netting	0			
Other species recorded	-			
Notes	Predicted air temperatures below 5˚C.			
Waterbody Name	**Pond**	**12**		
Visit	1	2	3	4
Date	02/04/2012	04/04/2012	02/05/2012	08/05/2012
Surveyors	CP / RB	CP / RB	CP / RB	JL/HB
Air temperature at dusk (˚C)	10	7.4	9.4	15.1
Water temperature at dusk (˚C)	13.1	12.5	13.2	8.8
Turbidity	0	0	2	3
Vegetation Cover	2	2	3	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	1♂, 1♀
Netting	0	0	0	-
Other species recorded	1 Lv (1A♂), Rt (L)	2 Lv (2A♀), Rt (L)	1 Lv (1A♀), Rt (L)	1 Lv (1A♀, L)

Notes	Predicted air temperatures below 5˚C. 20% inaccessible	Predicted air temperatures below 5˚C. 20% inaccessible	28 traps. Raining	Reed area with nesting birds - did not trap around whole perimeter of pond. 30 traps
Waterbody Name	**Pond**	**13**		
Visit	1	2	3	4
Date	02/04/2012	04/04/2012	02/05/2012	08/05/2012
Surveyors	CP / RB	CP / RB	CP / RB	JL/HB
Air temperature at dusk (˚C)	8.4	7.9	9.5	15.1
Water temperature at dusk (˚C)	13.1	12.9	13.3	10.9
Turbidity	0	0	0	0
Vegetation Cover	1	1	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	48 Lv (25 A♂, 23 A♀), 1U (1J), Rt (A,L)	34 Lv (16 A♂, 18A♀) Rt (20A, J)	33 Lv (7A♂, 26A♀)	53 Lv (23♂, 30♀, 2J)
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Raining	Pond lined and deep so difficult but not impossible to trap. Due to depth would only be able to deploy a few traps.
Waterbody Name	**Pond**	**14**		
Visit	1	2	3	4
Date	02/05/2012	08/05/2012	14/05/2012	24/05/2012
Surveyors	CP / RB	JL/HB	CP / GW	JJ/CJ
Air temperature at dusk (˚C)	9.1	15.1	7.5	13
Water temperature at dusk (˚C)	13.1	11.1	11.4	
Turbidity	2	2	2	2
Vegetation Cover	4	4	4	2
Egg search	0	0	0	0
Torching	0	0	0	0

Bottle trapping	0	0	-	-
Netting	0	-	0	0
Other species recorded	Rt (2A, L)	5 Lv (1A♂, 4A♀)	Rt (5A, L)	Fish
Notes	30 traps. Raining. 10% inaccessible	Accessibility difficult due to vegetation. 25 traps.	Predicted air temperatures below 5˚C. Accessibility difficult due to vegetation.	
Waterbody Name	**Pond**	**15**		
Visit	1	2	3	4
Date	16/04/2012	25/04/2012	08/05/2012	28/05/2012
Surveyors	JM / CJ	JJ / RB	JL/HB	CP/RB
Air temperature at dusk (˚C)	3.8	12.6	15.1	14.4
Water temperature at dusk (˚C)			7.2	11.1
Turbidity	0	0	0	1
Vegetation Cover	4	2	4	4
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	0	0
Netting	0	0	-	0
Other species recorded	-	3 Lv (2A♂, 1A♀) Rt (1A)	2 Lv (2A♂) Rt (1A)	Rt(20L)
Notes	Predicted air temperatures below 5˚C. 5% inaccessible. Scum covering majority of pond surface	30 traps	Nesting birds on bank. 20 traps.	30% inaccessible, scum covering most of the pond surface
Waterbody Name	**Pond**	**16a**		
Visit	1	2	3	4
Date	19/04/2012	03/05/2012	14/05/2012	17/05/2012
Surveyors	JM / CT	JP / SH	CP / GW	CP / GW
Air temperature at dusk (˚C)	8.6	7.5	7.5	10.8
Water temperature at dusk (˚C)			12.6	13.3
Turbidity	3	3	4	2
Vegetation Cover	1	1	4	4

Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	0
Netting	0	0	0	0
Other species recorded	2 Lv (2A♀) Rt (1A)	Rt (1A)	Rt (1A)	0
Notes	Predicted air temperatures below 5˚C. 90% inaccessible	15 traps. 50% inaccessible	Predicted air temperatures below 5˚C. 30% inaccessible	9 Traps. 30% inaccessible
Waterbody Name	**Pond**	**18**		
Visit	1	2	3	4
Date	21/03/2012	03/04/2012	16/04/2012	24/04/2012
Surveyors	CP / SB	CP / RB	JM / CJ	JJ / RB
Air temperature at dusk (˚C)	5.3	8.3	3.5	6.7
Water temperature at dusk (˚C)	11.8	12.4		
Turbidity	3	2	4	0
Vegetation Cover	0	1	1	2
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	3 Lv (2A♂, 1A♀) 20 U (20A♀) Rt (20A, L), Bb (21A, L)	9 Lv (4A♂, 5A♀)	19 Lv (5A♂, 14(8)A♀, L)	15 Lv (3A♂, 12A♀, L) Bb (L)
Notes	Pond lined	Raining. Pond lined	Pond lined	Pond lined
Waterbody Name	**Pond**	**19**		
Visit	1	2	3	4
Date	21/03/2012	03/04/2012	16/04/2012	24/04/2012
Surveyors	CP / SB	CP / RB	JM / CJ	JJ / RB
Air temperature at dusk (˚C)	4.2	7.8	5.3	6.7
Water temperature at dusk (˚C)	13.8	12.8	11	
Turbidity	3	2	2	1
Vegetation Cover	0	1	1	2
Egg search	0	0	0	0
Torching	0	0	0	0

Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	5 Lv (5A♂) 25 U (25♀) Rt (20A, L) Bb (20A, L)	50 Lv (11A♂, 39A♀) Rt (3A, L) Bb (1A)	48 Lv (15A♂, 33(13)A♀) Bb (2A, L)	40 Lv (17A♂, 23A♀) Bb (4A)
Notes	Pond lined	Pond lined	Pond lined	Pond lined
Waterbody Name	**Pond**	**20**		
Visit	1	2	3	4
Date	21/03/2012	DRY	DRY	DRY
Surveyors	CP / SB			
Air temperature at dusk (˚C)	5.1			
Water temperature at dusk (˚C)	13.2			
Turbidity	1			
Vegetation Cover	0			
Egg search	0			
Torching	0			
Bottle trapping	-			
Netting	0			
Other species recorded	1♂ LV, 3♀ LV/LH. 5RT, 10+BB			
Notes	Pond lined			
Waterbody Name	**Pond**	**22**		
Visit	1	2	3	4
Date	17/04/2012	25/04/2012	01/05/2012	08/05/2012
Surveyors	JJ / JB	JJ / RB	JP / GW	JL/HB
Air temperature at dusk (˚C)	4	12.6	7.8	15.1
Water temperature at dusk (˚C)				11.5
Turbidity	5	4	5	4
Vegetation Cover	0	0	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	0	0
Netting	0	0	0	-
Other species recorded	Rt (L)	Rt (L) Bb (L)	Rt (L)	1 Lv (1A♂)

Notes	Predicted air temperatures below 5˚C.	30 traps	29 traps	28 traps. Nesting moorhen on SE corner. Very deep in places
Waterbody Name	**Pond**	**24**		
Visit	1	2	3	4
Date	22/03/2012	16/04/2012	26/04/2012	14/05/2012
Surveyors	CP / SB	JJ / JB	JJ / RB	PB / RB
Air temperature at dusk (˚C)	9.8	4	12.1	8.9
Water temperature at dusk (˚C)	11.4			
Turbidity	3	3	4	1
Vegetation Cover	3	1	3	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	-
Netting	0	0	0	0
Other species recorded	Rt (1A)	Rt (L)	1 Lv (1A♀)	Rt (1A, 1J)
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	15 traps	Predicted air temperatures below 5˚C.
Waterbody Name	**Pond**	**24b**		
Visit	1	2	3	4
Date	16/04/2012	26/04/2012	14/05/2012	22/05/2012
Surveyors	JJ / JB	JJ / RB	PB / RB	JJ/CJ
Air temperature at dusk (˚C)	4	12.5	9.2	10
Water temperature at dusk (˚C)				
Turbidity	3	5	2	2
Vegetation Cover	1	1	1	0
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	0
Netting	0	0	0	-
Other species recorded	Rt (L)	0	Rt (L)	Rt (L)

Notes	Predicted air temperatures below 5˚C.	30 traps	Predicted air temperatures below 5˚C. Northern boundary inaccessible due to nesting swan	Fish. 5% of shoreline inaccessible
Waterbody Name	**Pond**	**24c**		
Visit	1	2	3	4
Date	16/04/2012	26/04/2012	14/05/2012	22/05/2012
Surveyors	JJ / JB	JJ / RB	PB / RB	JJ/CJ
Air temperature at dusk (˚C)	4	12.4	8.2	10
Water temperature at dusk (˚C)				
Turbidity	3	5	2	2
Vegetation Cover	1	1	3	0
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	0
Netting	0	0	0	-
Other species recorded	-	0	-	Fish
Notes	Predicted air temperatures below 5˚C.	30 traps	Predicted air temperatures below 5˚C.	
Waterbody Name	**Pond**	**24d**		
Visit	1	2	3	4
Date	16/04/2012	26/04/2012	14/05/2012	22/05/2012
Surveyors	JJ / JB	JJ / RB	PB / RB	JJ/CJ
Air temperature at dusk (˚C)	4	12.5	8.2	10.2
Water temperature at dusk (˚C)				
Turbidity	3	5	2	2
Vegetation Cover	1	1	3	0
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	0
Netting	0	0	0	-
Other species recorded	-	0	-	Rt(L)

Notes	Predicted air temperatures below 5˚C.	30 traps	Predicted air temperatures below 5˚C.	Fish
Waterbody Name	**Pond**	**25**		
Visit	1	2	3	4
Date	22/03/2012	04/04/2012	10/04/2012	17/04/2012
Surveyors	CP / SB	BL / JB	AR / RB	JJ / JB
Air temperature at dusk (˚C)	10.3	7.3	6.2	4
Water temperature at dusk (˚C)	12.1			
Turbidity	1	1	2	1
Vegetation Cover	5	4	4	4
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	Rt (2A, L)	6 Lv (2A♂, 4(1) A♀) Rt (3A) Bb (1A)	7 Lv (7A♀)	12 Lv (2A♂, 10A♀) Rt (L)
Notes	Predicted air temperatures below 5˚C. 100% cover of pond weed. Accessed path side only	Predicted air temperatures below 5˚C. 100% cover of pond weed. Accessed path side only	Predicted air temperatures below 5˚C. 100% cover of pond weed. Accessed path side only	Predicted air temperatures below 5˚C. Accessed path side only
Waterbody Name	**Pond**	**30**		
Visit	1	2	3	4
Date	26/03/2012	10/04/2012	17/04/2012	25/04/2012
Surveyors	CP /RB	AR / RB	JJ / JB	JJ / RB
Air temperature at dusk (˚C)	7.9	6.9	4	11.1
Water temperature at dusk (˚C)	12.6			
Turbidity	3	3	3	4
Vegetation Cover	0	0	0	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	0

Other species recorded	Rt (1A, L) Bb (1A)	Rt (L)	Rt (L)	2 Lv (2A♀) Bb (2A, L) Rt (L)
Notes	Predicted air temperatures below 5˚C. 20% of pond inaccessible due to bramble cover around pond.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	30 traps
Waterbody Name	**Pond**	**33**		
Visit	1	2	3	4
Date	26/03/2012	02/04/2012	25/04/2012	02/05/2012
Surveyors	CP /RB	BL / JB	JJ / RB	JP / GW
Air temperature at dusk (˚C)	5.1	7.8	12	7.8
Water temperature at dusk (˚C)	13.1			
Turbidity	4	3	2	3
Vegetation Cover	1	1	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	0
Netting	0	0	0	0
Other species recorded	Rt (L)	-	1 Lv (1A♀) Bb (2A, L) Rt (L)	0
Notes	Predicted air temperatures below 5˚C. Lined. 20% of pond inaccessible due to woodpiles along banks	Predicted air temperatures below 5˚C.	15 traps	Lined
Waterbody Name	**Pond**	**34**		
Visit	1	2	3	4
Date	10/04/2012	Water Flowing	Water Flowing	Water Flowing
Surveyors	AR / RB			
Air temperature at dusk (˚C)	9.3			
Water temperature at dusk (˚C)				
Turbidity	0			
Vegetation Cover	1			

Egg search	0			
Torching	0			
Bottle trapping	-			
Netting	0			
Other species recorded	Rt (1A, L) Bb (L)	-	-	-
Notes	Predicted air temperatures below 5˚C.			
Visit	1	2	3	4
Date	10/04/2012	Water Flowing	Water Flowing	Water Flowing
Surveyors	AR / RB			
Air temperature at dusk (˚C)	9.3			
Water temperature at dusk (˚C)				
Turbidity	0			
Vegetation Cover	3			
Egg search	0			
Torching	0			
Bottle trapping	-			
Netting	0			
Other species recorded	-			
Notes	Predicted air temperatures below 5˚C. 30% inaccessible			
Waterbody Name	**Pond**	**35**		
Visit	1	2	3	4
Date	20/03/2012	02/04/2012	16/05/2012	24/05/2012
Surveyors	JM / JB	JB / BL	PB / RB	JJ/CJ
Air temperature at dusk (˚C)	9	8.4	7.9	12.9
Water temperature at dusk (˚C)	10.7			
Turbidity	3	3	1	1
Vegetation Cover	1	2	1	2
Egg search	0	0	0	0
Torching	0	0	0	-
Bottle trapping	-	-	-	0

Netting	0	0	0	0
Other species recorded	4 U (4A♀)	0	9 Lv (9A♂) 7 U (7A♀) Rt (L)	4 Lv(3A♂,1♀) Bb(1A)
Notes	Predicted air temperatures below 5˚C. Unable to net 30%	Predicted air temperatures below 5˚C. Unable to net 10%	Predicted air temperatures below 5˚C. Unable to net 10%	Unable to trap, sides too steep
Waterbody Name	**Pond**	**36**		
Visit	1	2	3	4
Date	03/04/2012	11/04/2012	18/04/2012	01/05/2012
Surveyors	BL / JB	AR / RB	JM / CJ	JP / GW
Air temperature at dusk (˚C)	7.8	6.2	8.4	7.8
Water temperature at dusk (˚C)				
Turbidity	2	0	0	3
Vegetation Cover	3	3	2	2
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	0
Other species recorded	Rt (1A) Bb (2A)	Rt (1A, L)	Rt (L) Bb (L)	Rt (L)
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	40 traps
Waterbody Name	**Pond**	**37**		
Visit	1	2	3	4
Date	17/04/2012	23/04/2012	01/05/2012	16/05/2012
Surveyors	JJ / JB	BL / JL	JP / GW	PB / RB
Air temperature at dusk (˚C)	4	5	7.8	8.3
Water temperature at dusk (˚C)				
Turbidity	5	4	4	4
Vegetation Cover	0	0	0	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	-
Netting	0	0	0	0

Other species recorded	0	0	1 Lh (1A♂)	0
Notes	Predicted air temperatures below 5˚C. Very turbid due to heavy rain	Predicted air temperatures below 5˚C.	Trapped	Predicted air temperatures below 5˚C.
Waterbody Name	**Pond**	**38**		
Visit	1	2	3	4
Date	11/04/2012	18/04/2012	23/04/2012	02/05/2012
Surveyors	AR / RB	JM / CJ	BL / JL	JP / GW
Air temperature at dusk (˚C)	8.6	8.1		7.8
Water temperature at dusk (˚C)				
Turbidity	4	2	4	3
Vegetation Cover	0	1	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	0
Other species recorded	Bb (L)	Rt (L)	Rt (L)	0
Notes	Predicted air temperatures below 5˚C. 80% inaccessible due to deep water with dense reed bed and bramble	Predicted air temperatures below 5˚C. 60% inaccessible due to deep water with dense reed bed and bramble	Predicted air temperatures below 5˚C. 30% inaccessible due to deep water with dense reed bed and bramble	30% inaccessible due to deep water with dense reed bed and bramble
Waterbody Name	**Pond**	**39**		
Visit	1	2	3	4
Date	11/04/2012	18/04/2012	23/04/2012	02/05/2012
Surveyors	AR / RB	JM / CJ	BL / JL	JP / GW
Air temperature at dusk (˚C)	8.2	8.1		7.8
Water temperature at dusk (˚C)				
Turbidity	0	1	1	1
Vegetation Cover	3	3	3	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0

Netting	0	0	0	0
Other species recorded	-	-	-	0
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Trapped
Waterbody Name	**Pond**	**42**		
Visit	1	2	3	4
Date	20/03/2012	02/04/2012	18/04/2012	23/04/2012
Surveyors	JM / JB	BL / JB	JM / CJ	BL / JL
Air temperature at dusk (˚C)	4.9	8.2	8.9	5
Water temperature at dusk (˚C)	11.9			
Turbidity	2	3	3	4
Vegetation Cover	1	1	1	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	Rt (2A) Bb (1A)	3 Lv (1A♂, 2A♀) Rt (L)	Rt (1A, L)	Rt (1A, L)
Notes	Predicted air temperatures below 5˚C. Unable to net 40%	Predicted air temperatures below 5˚C. Unable to net 40%	Predicted air temperatures below 5˚C. 10% inaccessible	Predicted air temperatures below 5˚C. 10% inaccessible
Waterbody Name	**Pond**	**42**		
Visit	1	2	3	4
Date	25/04/2012	15/05/2012	17/05/2012	11/06/2012
Surveyors	BL/JL	PB / RB	PB / RB	WH/ JW
Air temperature at dusk (˚C)	-	6.1	10.7	10.0
Water temperature at dusk (˚C)	-			-
Turbidity	3	1	1	1
Vegetation Cover	4	5	5	5
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	-	-	0
Other species recorded	0	0	2 Lv (2A♀)	0

Notes	Concrete lined, 90% duckweed	Concrete lined, 90% duckweed - not netted due to lemna	Concrete lined, 90% duckweed - not netted due to lemna	Duckweed covering pond
Waterbody Name	**Pond**	**42b**		
Visit	1	2	3	4
Date	25/04/2012	15/05/2012	17/05/2012	11/06/2012
Surveyors	BL/JL	PB / RB	PB / RB	WH/JW
Air temperature at dusk (˚C)	-	6.2	10.8	10.0
Water temperature at dusk (˚C)	-	-	-	-
Turbidity	3	1	1	1
Vegetation Cover	2	2	2	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	-
Netting	0	0	0	0
Other species recorded	0	2 U (2A♀)	2 U (2A♀) Bb (1A)	1 Lv (1A♂), 2Rt (2A)
Notes	Pond is lined.	Predicted temperature below 5˚C / Pond lined	Pond is lined / water shrew found	Pond is lined unable to trap
Waterbody Name	**Pond**	**42c**		
Visit	1	2	3	4
Date	25/04/2012	15/05/2012	17/05/2012	11/06/2012
Surveyors	BL/JL	PB / RB	PB / RB	WH/JW
Air temperature at dusk (˚C)	-	5.8	10.7	10.0
Water temperature at dusk (˚C)	-			-
Turbidity	2	1	1	1
Vegetation Cover	3	1	1	2
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	0	-	0	0
Netting	-	0	0	-
Other species recorded	Rt (16A, L)	3 Lv (3A♂) 3 U (3A♀) Rt (L)	9 Lv (9A♂) 5 U (5A♀, L) Rt (12A, L) Bb (3A)	5 Lv (4A♀, 1A♂) Rt (1A, L)
Notes	15 traps.	Predicted temperature below 5˚C.	15 traps.	

Waterbody Name	**Pond**	**42d**		
Visit	1	2	3	4
Date	25/04/2012	15/05/2012	17/05/2012	11/06/2012
Surveyors	BL/JL	PB / RB	PB / RB	WH/JW
Air temperature at dusk (˚C)	-	6.6	10.7	DRY
Water temperature at dusk (˚C)	-			
Turbidity	3	0	1	
Vegetation Cover	4	5	5	
Egg search	0	0	0	
Torching	-	0	0	
Bottle trapping	0	-	-	
Netting	0	-	0	
Other species recorded	0	0	0	
Notes	90% pond surface occupied by duckweed. 5 traps.	Predicted temperature below 5˚C. 90% pond surface occupied by Lemna - not netted to stop transfer of lemna	Too shallow to trap	
Waterbody Name	**Pond**	**44**		
Visit	1	2	3	4
Date	18/04/2012	24/04/2012	02/05/2012	16/05/2012
Surveyors	JM / CJ	BL / JL	JP / GW	PB / RB
Air temperature at dusk (˚C)	8.5	7	7.6	6.7
Water temperature at dusk (˚C)				-
Turbidity	2	3	2	2
Vegetation Cover	2	2	2	4
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	-
Netting	0	0	0	0
Other species recorded	-	Rt (1A)	Rt (1A, L)	Rt (1A, L)

Notes	Predicted air temperatures below 5˚C. Large areas of pond bank blocked with phragmites	Predicted air temperatures below 5˚C. Large areas of pond bank blocked with phragmites	trapped	Predicted air temperatures below 5˚C. 70% of pond bank blocked with phragmites
Waterbody Name	**Pond**	**45**		
Visit	1	2	3	4
Date	03/04/2012	12/04/2012	19/04/2012	24/04/2012
Surveyors	BL / SB	AR / RB	JM / CT	BL / JL
Air temperature at dusk (˚C)	7	8.1	8.9	7.5
Water temperature at dusk (˚C)				
Turbidity	2	1	2	3
Vegetation Cover	2	2	2	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	2 Lv (1A♂, 1A♀) Rt (L)	14 Lv (7A♀, 7A♂) Rt (L)	8 Lv (4A♀, 4A♂) Rt (L)	3 Lv (3A♀) Rt (L)
Notes	Predicted air temperatures below 5˚C. Unable to net / torch back wall	Predicted air temperatures below 5˚C. 25% inaccessible	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.
Waterbody Name	**Pond**	**46**		
Visit	1	2	3	4
Date	22/03/2012	03/04/2012	12/04/2012	19/04/2012
Surveyors	JM / JB	BL / JB	AR / RB	JM / CT
Air temperature at dusk (˚C)	9.1		8.1	8.9
Water temperature at dusk (˚C)	13.5			
Turbidity	3	3	4	2
Vegetation Cover	1	4	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	0	-	-	-
Netting	0	0	0	0

Other species recorded	1 Lv (1A♀) 1 U (1A♂) Bb (2A, L)	5 Lv (2A♀, 3A♂)	44 Lv (23A♀, 21A♂) Rt (L)	13 Lv (8(1)A♀, 5A♂) Rt (L)		
Notes	Pond lined	Pond lined	Pond lined	Predicted air temperatures below 5˚C.		
Waterbody Name	**Pond**	**46a**				
Visit	1	2	3	4	5	6
Date	22/03/2012	03/04/2012	12/04/2012	19/04/2012	24/04/2012	03/05/2012
Surveyors	JM / JB	BL / JB	AR / RB	JM / CT	BL / JL	JP / SH
Air temperature at dusk (˚C)	7.9		8.1	8.9	5	7.5
Water temperature at dusk (˚C)	14					
Turbidity	1	3	1	1	2	3
Vegetation Cover	1	4	4	4	4	4
Egg search	0	0	0	0	0	0
Torching	0	0	0	0	1 Tc (1A♂)	0
Bottle trapping	-	-	-	-	-	-
Netting	0	0	0	0	0	0
Other species recorded	6 Lv (2A♂, 4(2)A♀) Bb (2A)	9 (3A♀, 6A♂)	26 Lv (15A♀, 11A♂) Rt (L)	11 Lv (10(3)A♀, 1A♂) Rt (L)	5 Lv (5A♀)	0
Notes	Pond lined	Pond lined	Pond lined	Pond lined	Pond lined	Pond lined
Waterbody Name	**Pond**	**47**				
Visit	1	2	3	4		
Date	22/03/2012	03/04/2012	12/04/2012	19/04/2012		
Surveyors	JM / JB	BL / JB	AR / RB	JM / CT		
Air temperature at dusk (˚C)	7.9		8.1	8.9		
Water temperature at dusk (˚C)	10.6					
Turbidity	1	1	1	1		
Vegetation Cover	4	4	5	4		
Egg search	0	0	0	0		
Torching	0	0	0	0		
Bottle trapping	-	-	-	-		
Netting	0	0	0	0		
Other species recorded	Bb (4A)	6 Lv (2A♀, 4A♂) Rt (2A)	13 Lv (3A♀, 10A♂)	14 Lv (8(6)♀, 6A♂) Bb (1A)		

Notes	Pond lined. Dense bulrush limiting access	Pond lined. Dense bulrush limiting access	Pond lined. Dense bulrush limiting access	Pond lined. Dense bulrush limiting access
Waterbody Name	**Pond**	**51**		
Visit	1	2	3	4
Date	27/03/2012	02/04/2012	10/04/2012	17/04/2012
Surveyors	CP / RB	JB / BL	CP / IL	CP / GW
Air temperature at dusk (˚C)	6.9	7.5	5.7	6.5
Water temperature at dusk (˚C)	12.8		12	10.1
Turbidity	5	3	3	4
Vegetation Cover	1	1	1	2
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	-
Netting	0	0	0	0
Other species recorded	Rt (L)	0	0	-
Notes	Predicted air temperatures below 5˚C. Unable to net / torch 40%	Predicted air temperatures below 5˚C. Unable to net / torch 40%	Predicted air temperatures below 5˚C. Unable to net / torch 40%	Predicted air temperatures below 5˚C. Unable to net / torch 40%

Waterbody Name	**Pond**	**52**				
Visit	1	2	3	4	5	6
Date	03/05/2012	14/05/2012	16/05/2012	21/05/2012	29/05/2012	31/05/2012
Surveyors	CP / RB	CP / GW	CP / GW	JJ/CJ	CP/RB	CP/RB
Air temperature at dusk (˚C)	7.5	8.8	8.7	11.6	13.4	13.6
Water temperature at dusk (˚C)	13.4	11.8	12		16.1	16.1
Turbidity	5	3	3	3	5	3
Vegetation Cover	1	1	1	2	1	2
Egg search	0	1 Tc	-	0	-	-
Torching	0	6 Tc (4A♂, 2A♀)	17 Tc (11A♂, 6A♀)	6 Tc (6A♂)	4 Tc (3A♂, 1A♀)	7 Tc (4A♂, 3A♀)
Bottle trapping	2 Tc (2A♂)	-	-	10Tc (3A♂, 7A♀)	1 Tc (1A♀)	1 Tc (1A♀)
Netting	0	0	0	-	-	-
Other species recorded	0	2 Lv (1A♀, 1A♂)	2 Lv (2A♀)	-	1 Lv (1A♂), Bb(1A)	2 Lv (2A♀, 1J)

Notes	12 traps. Very flooded and murky. 50 % inaccessible	Predicted ait temperatures below 5˚C. 50 % inaccessible	Predicted ait temperatures below 5˚C. No egg search as GCN eggs previously found. 50 % inaccessible		No egg search as GCN eggs previously found. 50% inaccessible. Steep banks.	No egg search as GCN eggs previously found. 50% inaccessible. Steep banks.
Waterbody Name	**Pond**	**52a**				
Visit	1	2	3	4	5	6
Date	03/05/2012	14/05/2012	16/05/2012	21/05/2012	29/05/2012	31/05/2012
Surveyors	CP / RB	CP / GW	CP / GW	JJ/CJ	CP/RB	CP/RB
Air temperature at dusk (˚C)	8	8	8.7	11.6	13.4	13.6
Water temperature at dusk (˚C)	-	13.6	14.4	-	17.5	-
Turbidity	5	2	3	0	1	1
Vegetation Cover	1	1	4	5	4	4
Egg search	0	1 Tc	-	0	-	-
Torching	0	2 Tc (2(2)A♀)	3 Tc (2A♂, 1(1)A♀)	22 Tc (17A♂, 5A♀)	29 Tc (11A♂, 18A♀)	40 Tc (12A♂, 28A♀)
Bottle trapping	-	-	-	-	-	-
Netting	1 Tc (1A♂)	1 Tc (1A♂)	0	-	-	-
Other species recorded	4 Tc (4A♂)	1 Lv (1A♂)	5 Lv (4A♀, 1A♂) Rt (10A, L)	9 Lv (5A♀, 4A♂)	60 Lv (18A♀, 42A♂), Rt (1A), Bb(1A)	48 Lv (11A♂, 37A♀), Rt (1A), Bb(1A)
Notes	Very flooded and murky. Lined	Predicted ait temperatures below 5˚C / Lined	Predicted ait temperatures below 5˚C. No egg search as GCN eggs previously found. Scum covering 60% of pond	Unable to bottle trap- pond lined. Unable to net, would cause too much disturbance to garden pond	Unable to bottle trap- pond lined. Unable to net, would cause too much disturbance to garden pond. Fish seen. No egg search as GCN eggs previously found.	Unable to bottle trap- pond lined. Unable to net, would cause too much disturbance to garden pond. Fish seen. No egg search as GCN eggs previously found.
Waterbody Name	**Pond**	**53**				
Visit	1	2	3	4	5	6
Date	21/03/2012	28/03/2012	12/04/2012	17/04/2012	01/05/2012	17/05/2012
Surveyors	JM / JB	CP / RB	RB / AR	JJ / JB	JP / GW	CP / GW
Air temperature at dusk (˚C)	5.1	7.8	8.2	4	7.8	8.7
Water temperature at dusk (˚C)	11.4	11.5				13.3

Turbidity	3	2	1	3	4	3
Vegetation Cover	0	1	3	1	3	1
Egg search	0	0	0	0	0	0
Torching	0	0	2 Tc (2A♀)	0	0	3 Tc (2A♂, 1(1)A♀)
Bottle trapping	-	0	-	-	-	-
Netting	0	0	0	0	0	0
Other species recorded	Bb (11A)	1 Lv (1A♀) Rt (1A, L) Bb (1A)	3 Lv (3J)	0	0	Rt (L)
Notes	Predicted air temperatures below 5˚C. 20% of shoreline unsafe to net / torch.	10% inaccessible. 29 traps used	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Bulls in field	Bulls in field
Waterbody Name	**Pond**	**55**				
Visit	1	2	3	4		
Date	04/04/2012	10/04/2012	16/04/2012	03/05/2012		
Surveyors	BL / JB	CP / IL	CP / GW	JP / SH		
Air temperature at dusk (˚C)		9.9	5.6	7.5		
Water temperature at dusk (˚C)		12.5	10.9			
Turbidity	4	5	5	5		
Vegetation Cover	1	1	1	2		
Egg search	0	0	0	0		
Torching	0	0	0	0		
Bottle trapping	-	-	-	0		
Netting	0	0	0	0		
Other species recorded	0	-	Rt (L)	Rt (L)		
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	30 traps		
Waterbody Name	**Pond**	**60**				
Visit	1	2	3	4		
Date	21/03/2012	28/03/2012	11/04/2012	17/04/2012		
Surveyors	JM / JB	CP / RB	AR / RB	CP / GW		
Air temperature at dusk (˚C)	3.9	8.6	6.5	6.7		
Water temperature at dusk (˚C)	11.1	14.1		10.9		

Turbidity	3	4	4	3
Vegetation Cover	3	1	4	3
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	-
Netting	0	0	0	0
Other species recorded	Bb (21A, L) Rt (L)	4 Lv (4A♂) Rt (2J, L)	Rt (L)	1 Lv (1A♀)
Notes	Predicted air temperatures below 5˚C. 20% of shoreline unsafe to net / torch.	50% inaccessible. 5 traps	Predicted air temperatures below 5˚C. 75% inaccessible.	Predicted air temperatures below 5˚C. 50% inaccessible.
Waterbody Name	**Pond**	**61**		
Visit	1	2	3	4
Date	21/03/2012	28/03/2012	11/04/2012	17/04/2012
Surveyors	JM / JB	CP / RB	AR / RB	CP / GW
Air temperature at dusk (˚C)	3.2	6.3	6.6	6.6
Water temperature at dusk (˚C)	12.3	14.3		10.3
Turbidity	4	4	5	3
Vegetation Cover	1	0	0	0
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	-
Netting	0	0	0	0
Other species recorded	Rt (6A)	Bb (9A)	0	0
Notes	Predicted air temperatures below 5˚C. 95% of shoreline unsafe to net.	20 traps used	Predicted air temperatures below 5˚C. Very turbid - limited torching	Predicted air temperatures below 5˚C.
Waterbody Name	**Pond**	**62**		
Visit	1	2	3	4
Date	01/05/2012	15/05/2012	17/05/2012	25/05/2012
Surveyors	CP / RB	PB / RB	CP / GW	JJ/CJ
Air temperature at dusk (˚C)	12.8	5.5	10.9	16
Water temperature at dusk (˚C)	14.3		15.8	

Turbidity	2	2	4	2
Vegetation Cover	2	3	2	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	0	-	0	0
Netting	0	0	0	-
Other species recorded	2 Lv (1A♂, 1A♀) Rt (L)	2 Lv (2A♂) Rt (L) Bb (L)	4 Lv (2A♂, 2A♀) Rt (L)	5 Lv (5A♂), Rt (3A, L)
Notes	45 traps. 40% inaccessible	Predicted air temperatures below 5˚C	45 traps.	Fish. 30 traps.
Waterbody Name	**Pond**	**63**		
Visit	1	2	3	4
Date	22/03/2012	04/04/2012	03/05/2012	10/05/2012
Surveyors	JM / JB	BL / JB	JP / SH	BL/JL
Air temperature at dusk (˚C)	9.3		7.5	15.5
Water temperature at dusk (˚C)	11.9			14.3
Turbidity	4	3	4	4
Vegetation Cover	1	2	1	2
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	-
Other species recorded	Rt (9A, L) Bb (32A, L)	Bb (3A)	0	Rt (1A, L)
Notes	Predicted air temperatures below 5˚C. Only 5% of shoreline torched due to obstructions	Predicted air temperatures below 5˚C. 40% inaccessible	Pond lined	Hard ground in places and steep sides prevented bottle trapping in some places. 29 traps.
Waterbody Name	**Pond**	**63a**		
Visit	1	2	3	4
Date	22/03/2012	22/05/2012	25/05/2012	31/05/2012
Surveyors	JM / JB	JJ/CJ	JJ/CJ	CP/RB
Air temperature at dusk (˚C)	9.8	10	16	DRY
Water temperature at dusk (˚C)	11.4			

Turbidity	1	0	0	
Vegetation Cover	0	0	0	
Egg search	0	0	0	
Torching	0	0	0	
Bottle trapping	-	-	-	
Netting	0	0	0	
Other species recorded	0	0	Bt (1A)	
Notes	Predicted air temperatures below 5˚C.	Too shallow to bottle trap	Too shallow to bottle trap	
Waterbody Name	**Pond**	**66**		
Visit	1	2	3	4
Date	01/05/2012	10/05/2012	16/05/2012	21/05/2012
Surveyors	CP / RB	BL/JL	CP / GW	JJ/CJ
Air temperature at dusk (˚C)	11.6	15.5	7	11.6
Water temperature at dusk (˚C)	12.5	15.4	14.1	16.3
Turbidity	2	4	1	4
Vegetation Cover	1	1	1	0
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	0	-	0
Netting	0	-	0	-
Other species recorded	1 Lv (1(1)A♀) Rt (L) Bb (L)	Rt (1A, L)	Rt (L) Bb (L)	2 Lv (2A♂)
Notes	Didn't trap due to huge volume of tadpoles present	40% of bank not accessible due to scrub and trees. 25 traps.	Predicted air temperatures below 5˚C.	Large carp. 25 traps.
Waterbody Name	**Pond**	**67**		
Visit	1	2	3	4
Date	01/05/2012	16/05/2012	21/05/2012	29/05/2012
Surveyors	CP / RB	PB / RB	JJ/CJ	CP/RB
Air temperature at dusk (˚C)	12.8	7.8	11.6	12.5
Water temperature at dusk (˚C)	14.3	-	-	-
Turbidity	4	3	1	4
Vegetation Cover	2	0	0	1

Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	0	-	0	-
Netting	0	0	-	-
Other species recorded	5 Lv (5A♂) Rt (L)	2 Lv (2A♀)	0	2 Rt (2A)
Notes	24 traps. 10% inaccessible	Predicted air temperatures below 5˚C.	44 traps used	Too shallow to trap. 10% inaccessible.
Waterbody Name	**Pond**	**68**		
Visit	1	2	3	4
Date	27/03/2012	04/04/2012	26/04/2012	03/05/2012
Surveyors	CP / RB	BL / JB	BL / JL	JP / SH
Air temperature at dusk (˚C)	4.5		10	7.5
Water temperature at dusk (˚C)	13.5			
Turbidity	0	1	1	1
Vegetation Cover	1	2	3	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	0
Netting	0	0	0	0
Other species recorded	8 Lv (8A♂) 1 Lh (1A♀) 11 U (11A♀) Bb (2A)	2 Lv (1A♂, 1A♀) Rt (2A)	4 Lv (2A♂, 2A♀) Rt (L)	18 Lv (4A♂, 14A♀) Rt (L)
Notes	Predicted air temperatures below 5˚C. Netting limited by depth of water and reeds.	Predicted air temperatures below 5˚C	20 traps	15 traps
Waterbody Name	**Pond**	**69**		
Visit	1	2	3	4
Date	27/03/2012	10/04/2012	16/04/2012	26/04/2012
Surveyors	CP / RB	CP / IL	CP / GW	BL / JL
Air temperature at dusk (˚C)	5.6	8.9	5.4	10
Water temperature at dusk (˚C)	13.1	12	11.4	
Turbidity	1	0	0	3
Vegetation Cover	0	0	1	0
Egg search	0	0	0	0

Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	0
Other species recorded	-	-	0	0
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	30 traps
Waterbody Name	**Pond**	**71**		
Visit	1	2	3	4
Date	28/03/2012	10/04/2012	16/04/2012	26/04/2012
Surveyors	CP / RB	CP / IL	CP / GW	BL / JL
Air temperature at dusk (˚C)	6.8	6.7	4.8	10
Water temperature at dusk (˚C)	11.3	11.3	6.9	
Turbidity	4	0	1	4
Vegetation Cover	1	0	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	-	0
Netting	0	0	0	0
Other species recorded	Rt (1A)	0	0	2 Lv (2A♀)
Notes	Too shallow to trap at edges and mud very deep!	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	15 traps

Waterbody Name	**Pond**	**72**				
Visit	1	2	3	4	5	6
Date	11/04/2012	16/04/2012	17/04/2012	26/04/2012	10/05/2012	24/05/2012
Surveyors	CP / IL	CP / GW	CP / GW	BL / JL	BL / JL	JJ/CJ
Air temperature at dusk (˚C)	5.8	4.6	5.5	10	14.5	13.4
Water temperature at dusk (˚C)	9.8	10.6	10.3		14.1	-
Turbidity	0	1	1	1	1	0
Vegetation Cover	2	3	2	3	3	1
Egg search	1	-	-	-	0	0
Torching	5 Tc (1A♂, 4A♀)	7 Tc (4A♂, 3(2)A♀)	9 Tc (4A♂, 5(4)A♀)	3 Tc (2A♂, 1A♀)	2 Tc (2A♀)	10 Tc (7A♂, 3A♀)
Bottle trapping	-	-	-	0	1 Tc (1A♀)	-

Netting	1 Tc (1A♀)	0	0	0	-	0
Other species recorded	2 Lv (2A♀)	4 Lv (2A♀, 2A♂)	5 Lv (3A♀, 2A♂)	9 Lv (4A♀, 5A♂)	4 Lv (1A♂, 3A♀)	0
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	25 traps	20 traps.	Water temperature more than 18˚C
Waterbody Name	**Pond**	**78**				
Visit	1	2	3	4		
Date	10/05/2012	DRY	DRY	DRY		
Surveyors	BL/JL					
Air temperature at dusk (˚C)	17					
Water temperature at dusk (˚C)	15					
Turbidity	3					
Vegetation Cover	4.5					
Egg search	0					
Torching	0					
Bottle trapping	0					
Netting	-					
Other species recorded	1 Lv (1A♀)					
Notes	Dense macrophyte cover. 5 traps.					
Waterbody Name	**Pond**	**79**				
Visit	1	2	3	4		
Date	11/04/2012	17/04/2012	30/04/2012	03/05/2012		
Surveyors	CP / IL	JM / CJ	CP / RB	CP / RB		
Air temperature at dusk (˚C)	6.9	7	11.7	7.5		
Water temperature at dusk (˚C)	11.9		14.3	13.8		
Turbidity	4	4	5	5		
Vegetation Cover	1	1	1	0		
Egg search	0	0	0	0		
Torching	0	0	0	0		
Bottle trapping	-	-	0	0		
Netting	0	0	0	0		
Other species recorded	0	0	0	0		

Notes	Predicted air temperatures below 5˚C. 10% inaccessible	Predicted air temperatures below 5˚C. Most banks too steep to net. Water very green with algae	10% inaccessible. 27 traps used. Water very green with algae	10% inaccessible. 32 traps used. Water very green with algae		
Waterbody Name	**Pond**	**81**				
Visit	1	2	3	4	5	6
Date	11/04/2012	17/04/2012	30/04/2012	03/05/2012	16/05/2012	24/05/2012
Surveyors	CP / IL	JM / CJ	CP / RB		CP / GW	JJ/CJ
Air temperature at dusk (˚C)	6.9	6.8	11.5	7.5	8.3	16
Water temperature at dusk (˚C)	11.4		14.2	13.4	12.9	-
Turbidity	5	2	2	3	3	3
Vegetation Cover	0	1	0	1	1	0
Egg search	0	0	0	0	0	0
Torching	0	1 Tc (1A♀)	1 Tc (1(1)A♀)	1 Tc (1A♀)	0	1 Tc (1A♂)
Bottle trapping	-	-	2 Tc (2(2)A♀)	0	-	4 Tc (1A♂, 3A♀)
Netting	0	0	0	0	0	-
Other species recorded	0	1 Lv (1A♀)	1 Lv (1A♀)	1 Lv (1A♀)	3 Lv (3A♀)	4 Lv (2A♂, 2A♀)
Notes	Predicted air temperatures below 5˚C. Green Pond - limited torching	Predicted air temperatures below 5˚C. 10% inaccessible	15 traps	30 traps	Predicted air temperatures below 5˚C. 10% inaccessible	15 traps used
Waterbody Name	**Pond**	**82**				
Visit	1	2	3	4		
Date	29/03/2012	11/04/2012	17/04/2012	30/04/2012		
Surveyors	CP / RB	CP / IL	JM / CJ	CP / RB		
Air temperature at dusk (˚C)	8.8	7.6	7.3	11.9		
Water temperature at dusk (˚C)	12.1	12.2		13		
Turbidity	1	4	4	2		
Vegetation Cover	2	1	0	1		
Egg search	0	0	0	0		
Torching	0	0	0	0		
Bottle trapping	-	-	-	0		
Netting	0	0	0	0		

Other species recorded	-	Water vole	0	-
Notes	Predicted air temperatures below 5˚C. 30% inaccessible	Predicted air temperatures below 5˚C. 30% inaccessible	Predicted air temperatures below 5˚C. 20% inaccessible	30% inaccessible. 10 traps
Waterbody Name	**Pond**	**85**		
Visit	1	2	3	4
Date	11/04/2012	17/04/2012	03/05/2012	25/05/2012
Surveyors	CP / IL	JM / CJ	CP / RB	JJ/CJ
Air temperature at dusk (˚C)	6	7	7.5	16
Water temperature at dusk (˚C)	10.9		13.1	-
Turbidity	1	2	3	2
Vegetation Cover	1	0	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	-	-	0	0
Netting	0	0	0	-
Other species recorded	0	0	1 Lv (1A♀)	2 Lv (2A♀)
Notes	Predicted air temperatures below 5˚C.	Predicted air temperatures below 5˚C.	15 traps	9 traps used

Water Vole and Otters Survey Report

Appendix 24.7

Water Vole and European Otter Technical Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.7 - Water Vole and European Otter Technical Report

854188

AUGUST 2012

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the results of *Arvicola amphibius* (Water Vole) and *Lutra lutra* (European Otter) surveys carried out by RSK Environment in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. The Onshore Cable Route runs from a landfall to the east of Ipswich, north of the River Deben at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km.

This report forms Appendix 24.7 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.7.1.*

Habitat suitable for Water Vole and European Otter was identified during initial ecological surveys. Following this, further surveys were carried out to determine if Water Voles and European Otters are present within the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search.

Incidental sightings of Water Vole and European Otter field signs were recorded during the initial ecological surveys but a thorough search was not undertaken at that stage. However, relevant results from the initial surveys are included in this report.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. The Onshore Cable Route runs from a landfall north of the River Deben, at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km. Much of the land crossed is arable farmland, but the route crosses a number of hedgerows, field drains and ditches, areas of coastal habitats and small areas of woodland. The Onshore Cable Route also crosses previously-developed land and the River Deben.

1.3 Structure of this Report

The remainder of this report is structured as follows:

- *Section 1* gives an introduction;
- *Section 2* describes the survey methods;
- *Section 3* describes the results;
- *Section 4* gives evaluations and conclusions;
- *Section 5* gives figures and plates; and
- *Section 6* gives references.

2 METHODS

2.1 General

Paul Barnes, Gareth Blockley and Sarah Brooks carried out the surveys aided by assistants. The surveys took place between 25th June and 26th July 2012. All personnel are employees of RSK, member of the Institute of Ecology and Environmental Management (IEEM) and have experience in carrying out Water Vole and European Otter surveys.

2.2 Field Survey – Water Vole

2.2.1 Habitat Assessment

Habitat was assessed for Water Voles according to subjective criteria, which were then used to categorize habitat according to suitability for the species. The following habitat factors are taken into consideration:

- water quality;
- water-level regime;
- channel dimensions;
- bank type and material;
- vegetation for cover and food sources;
- shading;
- predation and competition; and
- habitat management.

Habitat suitability was classified as follows:

- Suitable – habitat that has all the elements required for Water Voles certainly in the summer, and probably through most winters.
- Suitable (Sub-optimal) – habitat that has some of the habitat features that are suitable for Water Vole, but with some constraints so that suitability throughout the year is not certain.
- Unsuitable – habitat lacking one or more crucial element for use by Water Voles. This category does not necessarily preclude the habitat being used by commuting Water Voles, but it would not be able to support a resident population.

2.2.2 Evidence of Water Vole Activity

Survey for evidence of Water Vole followed standard methods adapted from Strachan and Moorhouse (2011). All suitable habitat was systematically and thoroughly searched for signs of the species where access was possible. June and July are suitable times of the year to survey for Water Voles as they are active above ground, and latrines are

maintained from February through to November by territorial individuals (Strachan and Moorhouse, 2011).

Surveys involved an intensive search of the bank side and water-edge habitat, searching for Water Vole field signs including:

- burrows;
- feeding platforms and evidence of feeding;
- food remains;
- latrines; and
- footprints.

2.3 Field Survey – European Otter

2.3.1 Habitat Assessment

An initial assessment of all watercourses, areas of wetland and adjacent habitat was made for their suitability for European Otters. This included an assessment of water depth, water quality, vegetation and cover.

2.3.2 Evidence of European Otter Activity

A thorough and systematic search of all suitable habitat was made for signs indicating use by European Otter, including the following:

- footprints;
- slides;
- feeding evidence;
- spraint (droppings);
- holts (underground resting places); and
- couches (temporary resting places).

Any evidence found was mapped where encountered (*Figure 24.7.2*).

2.4 Constraints

Many of the features surveyed were dry, shallow or overgrown at the time of survey making them unsuitable or sub-optimal habitat at this time of year (June and July). Where features were overgrown there is inherent difficulties with effectively surveying for evidence of both European Otter and Water Vole.

In some cases, access to the feature to survey at water level was not possible due to deep water or silt in the channel. Where this was the case the feature was surveyed from the banks using binoculars.

Access was not available for *Features 64, 65,* 88 and 89 (See Figure 24.7.2) and these will need to be surveyed when access is arranged. It should be noted however that these are either not within the Onshore Cable Route or are crossed by HDD methods and therefore should remain unaffected. In addition, access was restricted for *Features 54* and *82* so that large sections could not be surveyed extensively.

3 RESULTS

3.1 General

All accessible areas suitable for Water Vole and European Otter were assessed for their suitability and for evidence of both species.

Locations of Water Vole and European Otter evidence recorded during the survey are shown in *Figure 24.7.2* and summarised below.

3.2 Water Vole

Evidence of Water Vole (actual sightings, burrows, latrines, pathways and feeding signs) were recorded and are summarised in *Table 1* below. The features where evidence was found are highlighted in blue.

Table 1: Summary of results of Water Vole Survey

Site Number	Sightings	Latrines	Burrows	Footprints	Pathways	Feeding Remains
Water Vole Present						
No Access						
Access Restricted						
Ditch 1	-	-	-	-	-	-
Ditch 2	-	-	-	-	-	-
Ditch 3	-	-	-	-	-	-
Ditch 4	-	-	-	-	-	-
Ditch 5	-	-	-	-	-	-
Ditch 6	-	-	-	-	-	-
Ditch 7	-	-	-	-	-	-
Ditch 8	-	-	-	-	-	-
Ditch 9	-	-	-	-	-	-
Ditch 10	-	-	-	-	-	-
Ditch 11	-	-	-	-	-	-
Ditch 12	-	-	-	-	-	-
Ditch 13	-	-	-	-	-	-
Ditch 14	-	-	-	-	-	-
Ditch 15	-	-	-	-	-	-
Ditch 16						

Site Number	Sightings	Latrines	Burrows	Footprints	Pathways	Feeding Remains
Ditch 17	-	-	-	-	-	-
Ditch 18	-	-	-	-	-	-
Ditch 19	-	-	✓	-	-	-
Ditch 20	-	-	✓	-	-	-
Ditch 21	-	-	-	-	-	-
Ditch 22	-	-	-	-	-	-
Ditch 23	-	-	-	-	-	✓
Ditch 24	-	-	-	-	-	✓
Ditch 25	-	-	-	-	-	-
Ditch 26	-	-	-	-	-	-
Ditch 27	-	-	-	-	-	-
Ditch 28	-	-	-	-	-	-
Ditch 29	-	-	-	-	-	-
Ditch 30	-	-	-	-	-	-
Ditch 31	-	-	-	-	-	-
Ditch 32	-	-	-	-	-	-
Ditch 33	-	-	-	-	-	-
Ditch 34	-	-	-	-	-	-
Ditch 35	-	✓	-	-	-	✓
Ditch 36	-	-	-	-	-	✓
*Ditch 37	-	✓	✓	-	✓	✓
Ditch 38	-	-	-	-	-	-
Ditch 39	-	-	-	-	-	-
Ditch 40	-	-	-	-	-	-
Ditch 41	-	-	-	-	-	-
Ditch 42	-	-	-	-	-	-
Ditch 43	-	✓	-	-	-	✓
Ditch 44	-	-	-	-	-	-
*45 (Pond)	-	✓	✓	✓	✓	✓
Ditch 46	-	-	-	-	-	-
Ditch 47	-	-	-	-	-	-
Ditch 48	-	-	-	-	-	-
Ditch 49	-	-	-	-	-	-
Ditch 50	-	-	-	-	-	-
Ditch 51	-	-	-	-	-	-
52 (River)	-	-	-	-	-	-
Ditch 53	-	-	-	-	-	-
Ditch 54	-	-	-	-	-	-
Ditch 55	-	-	-	-	-	-
Ditch 56	-	-	-	-	-	-

Site Number	Sightings	Latrines	Burrows	Footprints	Pathways	Feeding Remains
Ditch 57	-	-	-	-	-	-
Ditch 58	-	-	-	-	-	-
Ditch 59	-	-	-	-	-	-
Ditch 60	-	-	-	-	-	-
*61 (River)	-	✓	✓	✓	✓	✓
*Ditch 62	-	✓	✓	✓	✓	✓
Ditch 63	-	-	-	-	-	-
Ditch 64						
Ditch 65						
Ditch 66	-	-	-	-	-	-
Ditch 67	-	-	-	-	-	-
Ditch 68	-	-	-	-	-	-
Ditch 69	-	-	-	-	-	-
Ditch 70	-	-	✓	-	-	✓
Ditch 71	-	-	-	-	-	-
Ditch 72	-	-	-	-	-	-
Ditch 73	-	-	-	-	-	-
Ditch 74		✓	✓	-	✓	✓
Ditch 75	-	✓	-	-	-	✓
Ditch 76	-	-	-	-	-	-
77 (River)	-	-	-	-	-	-
78 (Pond)	-	-	-	-	-	-
Ditch 79	-	-	-	-	-	-
Ditch 80	-	-	✓	-	-	✓
Ditch 81	-	-	-	-	✓	✓
Ditch 82	-	-	-	-	-	-
Ditch 83	-	-	-	-	-	-
Ditch 84	-	-	-	-	-	-
Ditch 85	-	-	-	-	-	-
Ditch 86	-	-	-	-	-	-
Ditch 87	-	-	-	-	-	-
Ditch 88						
Ditch 89						
*Ditch 90	-	✓	✓	-	-	✓

*Features identified as 'key areas' for Water Vole

Eighty-six features were assessed for their suitability for Water Vole and for physical evidence of the species. Evidence of Water Vole was found at 17 of these features (19, 20, 23, 24, 35, 36, 37, 43, 45, 61, 62, 70, 74, 75, 80, 81 and 90). Four features were not accessed. No signs of Water Voles were recorded at the remaining 69 features.

In the majority of cases where no Water Vole evidence was found the features were sub-optimal or unsuitable for the species. Many of the ditches were heavily vegetated and overgrown with water depth <0.30m, in some cases these features were dry.

Water Vole 'Key areas' were identified in features 37, 45, 61, 62, and 90. These 'Key areas' contained burrow networks and a high density of latrines. Medium to high abundances of Water Voles are currently using these features.

Smaller densities of Water Vole evidence was found at features 19, 20, 23, 24, 35, 36, 43, 70, 74, 75, 80 and 81.

3.3 European Otter

All 90 identified features were surveyed for evidence of European Otter where access was available. Incidental evidence of European Otter located outside of the survey corridor was also recorded during the surveys. European Otter spraint was found at features 11 (top of bank), 26 (on top of concrete bridge), 37 (top of bank), 61 (under bridge), 62 (on silt bar), 80 (under road bridge), 81 (under road bridge), 83, 89 and 90 (on silt bar). Incidental sightings (outside of the survey area) of spraint were recorded on features 12 and 21. Both of these features are linear and connected to the survey area therefore European Otter movement along these features within the Preferred Onshore Cable Corridor is highly probable.

There are numerous locations suitable for couches and holts along the route. Despite this no holts or couches were positively identified during the surveys.

4 EVALUATION

4.1 Water Vole

Evidence of Water Vole was found in 17 of the 86 surveyed features. Five of these features were identified as 'key areas' for Water Vole.

Four features were not accessed at the time of survey. These features must be surveyed before the commencement of works if affected.

No evidence of Water Vole was recorded at the remaining 69 features. The drying out and/or vigorous vegetation growth of some of the features during the summer months may have temporarily pushed the Water Voles away from the survey area into adjacent, connected but better-quality habitat. There is potential for Water Voles (particularly dispersing juveniles) to use these features earlier and/or later in the year provided they are suitable.

4.2 European Otter

Evidence of European Otter was limited to spraints. No couches or holts were positively identified from the surveys. Despite this, there are numerous locations suitable on the features that European Otters could use for couches and holts.

European Otter are highly mobile and could commute through and/or forage in the majority of the features surveyed. A pre-construction survey will be required to ensure no holts or couches have been established in the interim period from these survey to construction commencement.

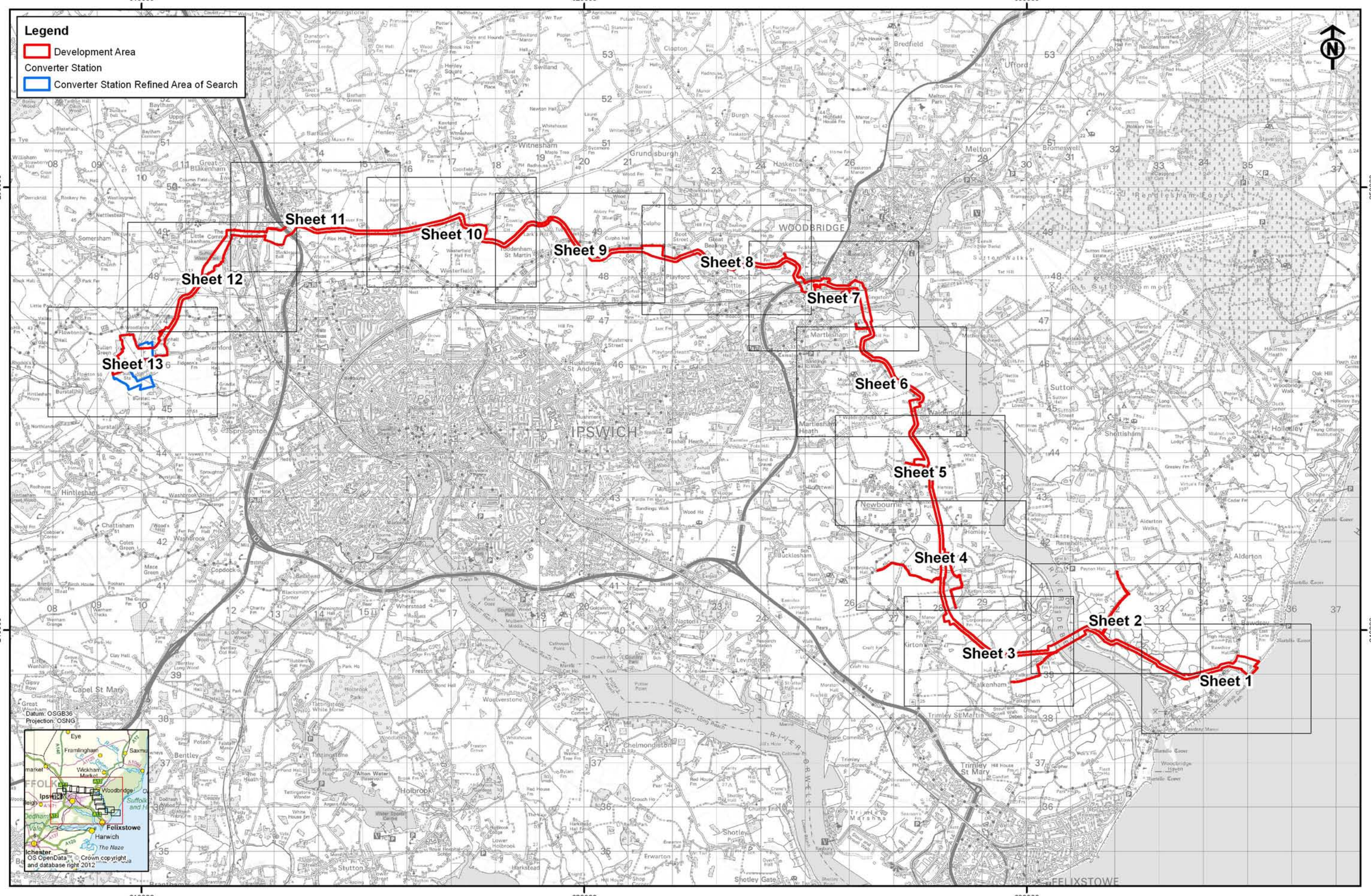
4.3 Further actions

Pre-construction surveys for Water Vole and European Otter will be undertaken immediately before any development works are carried out to assess activity levels of both species in any areas that development works may affect. Following this, mitigation strategies will be implemented where necessary.

5 FIGURES

Figure 24.7.1 - Site location plan

Figure 24.7.2 - Water Vole and European Otter Survey Map



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Appendix 24.7

Figure 24.7.1

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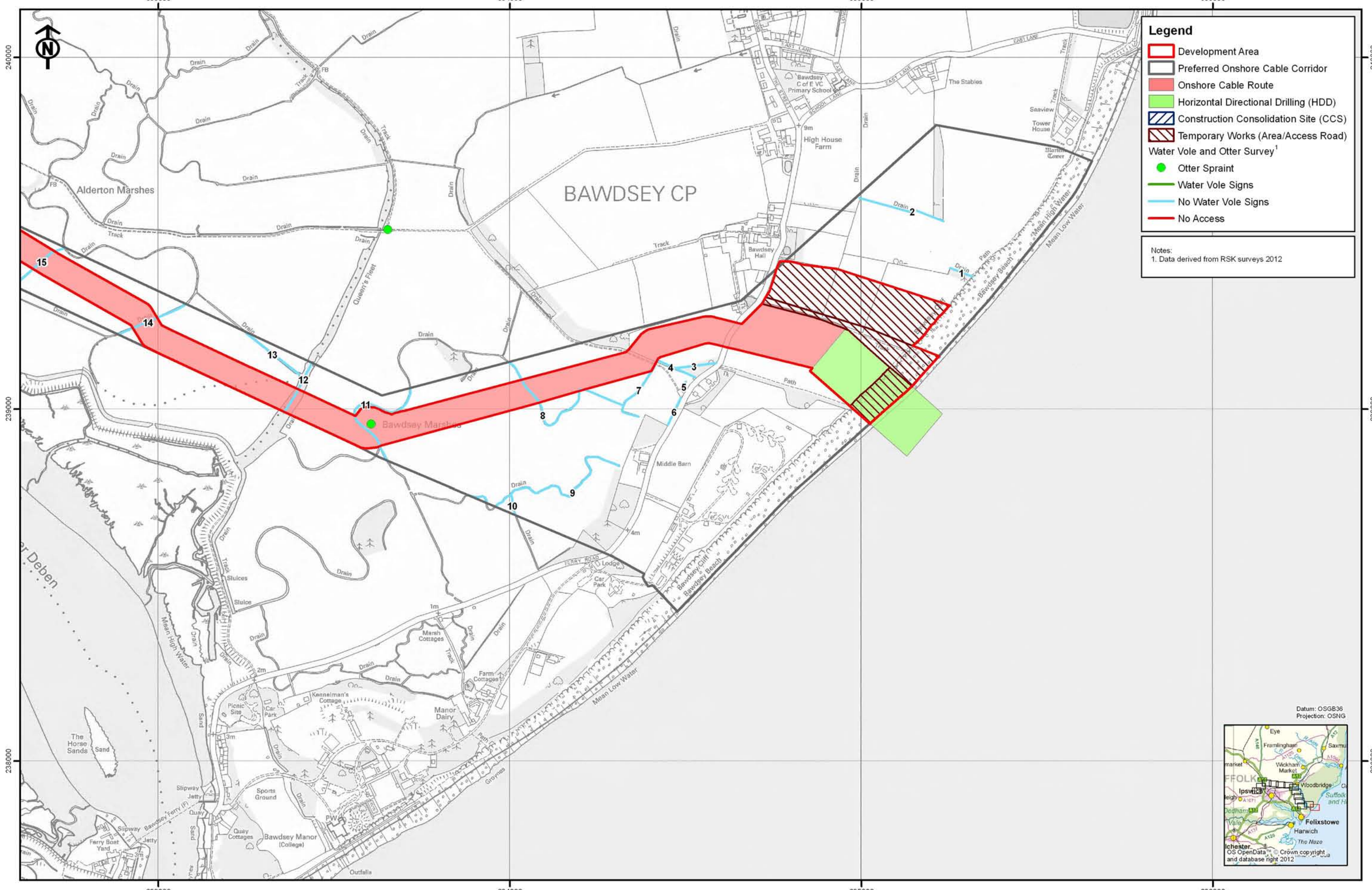

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Figure 24.7.2

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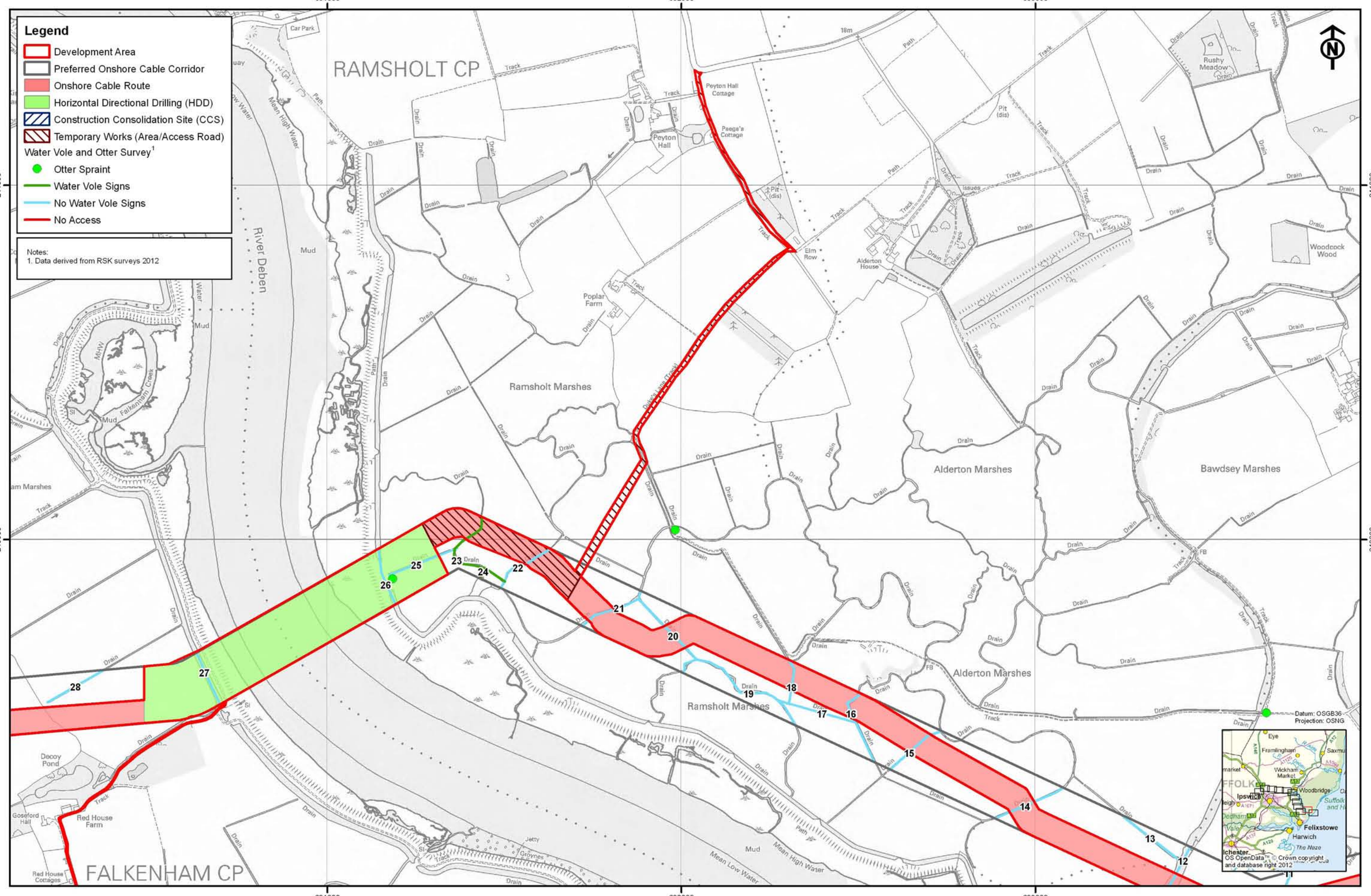

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Figure 24.7.2

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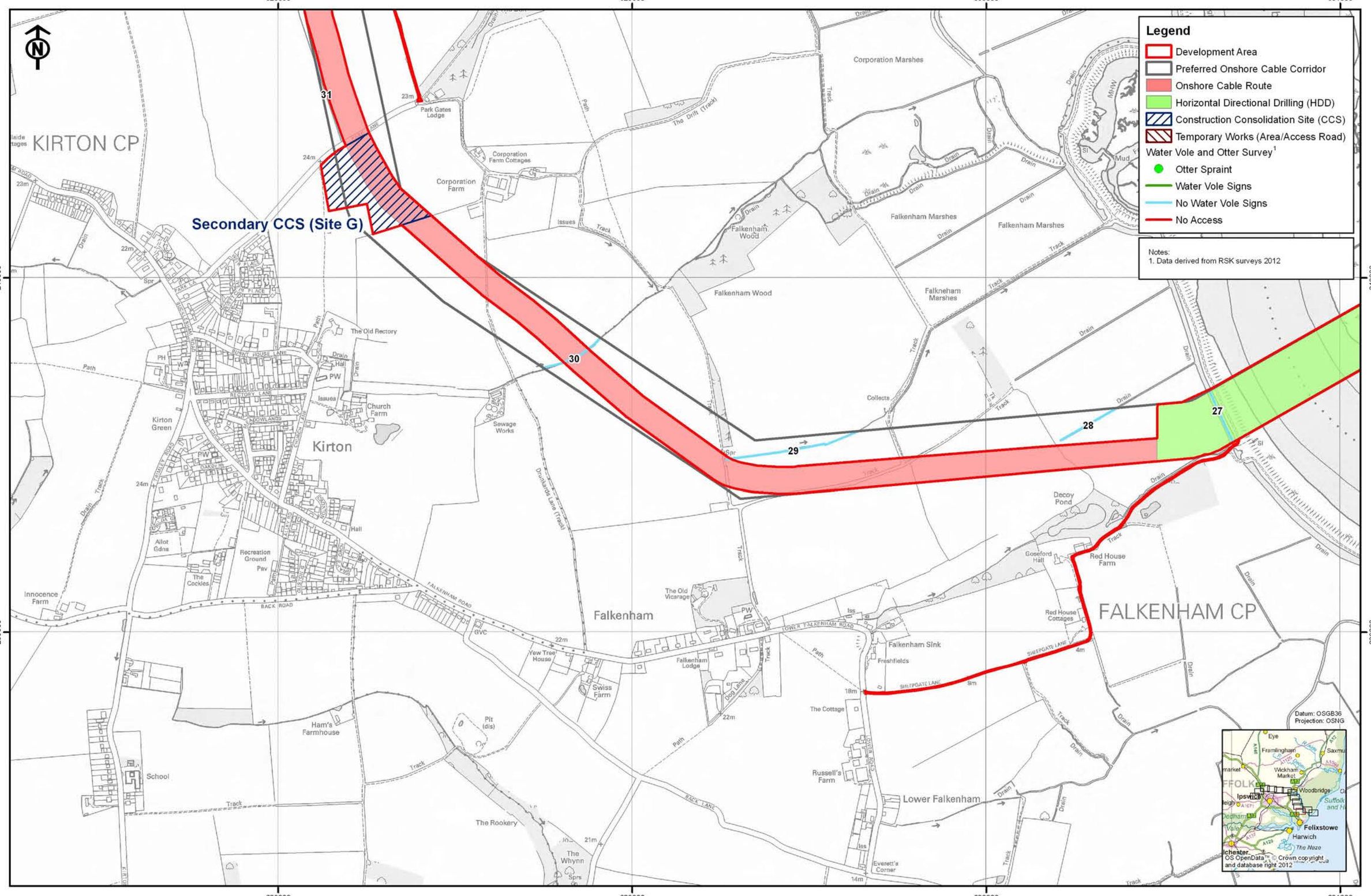

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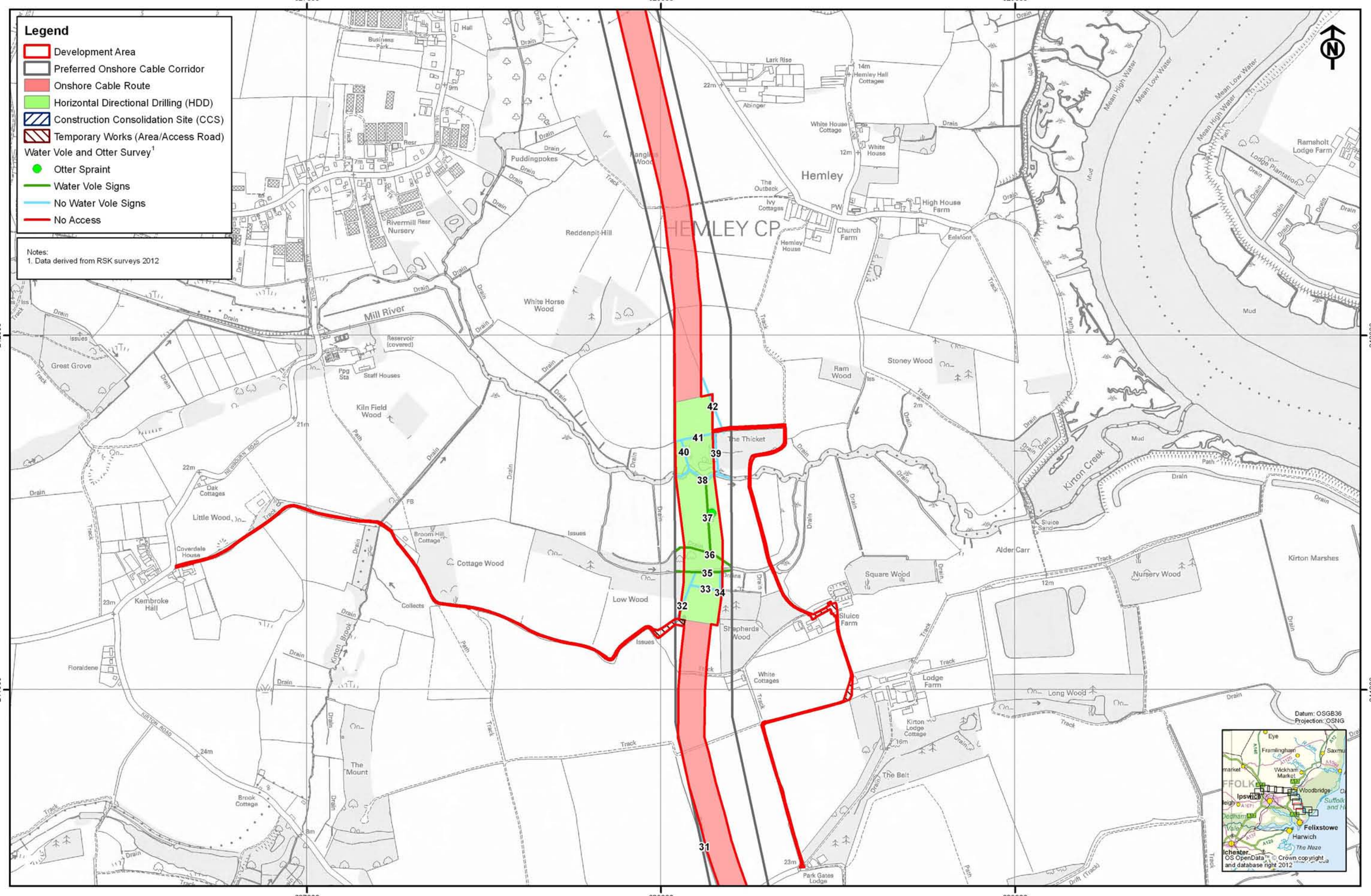

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Figure 24.7.2

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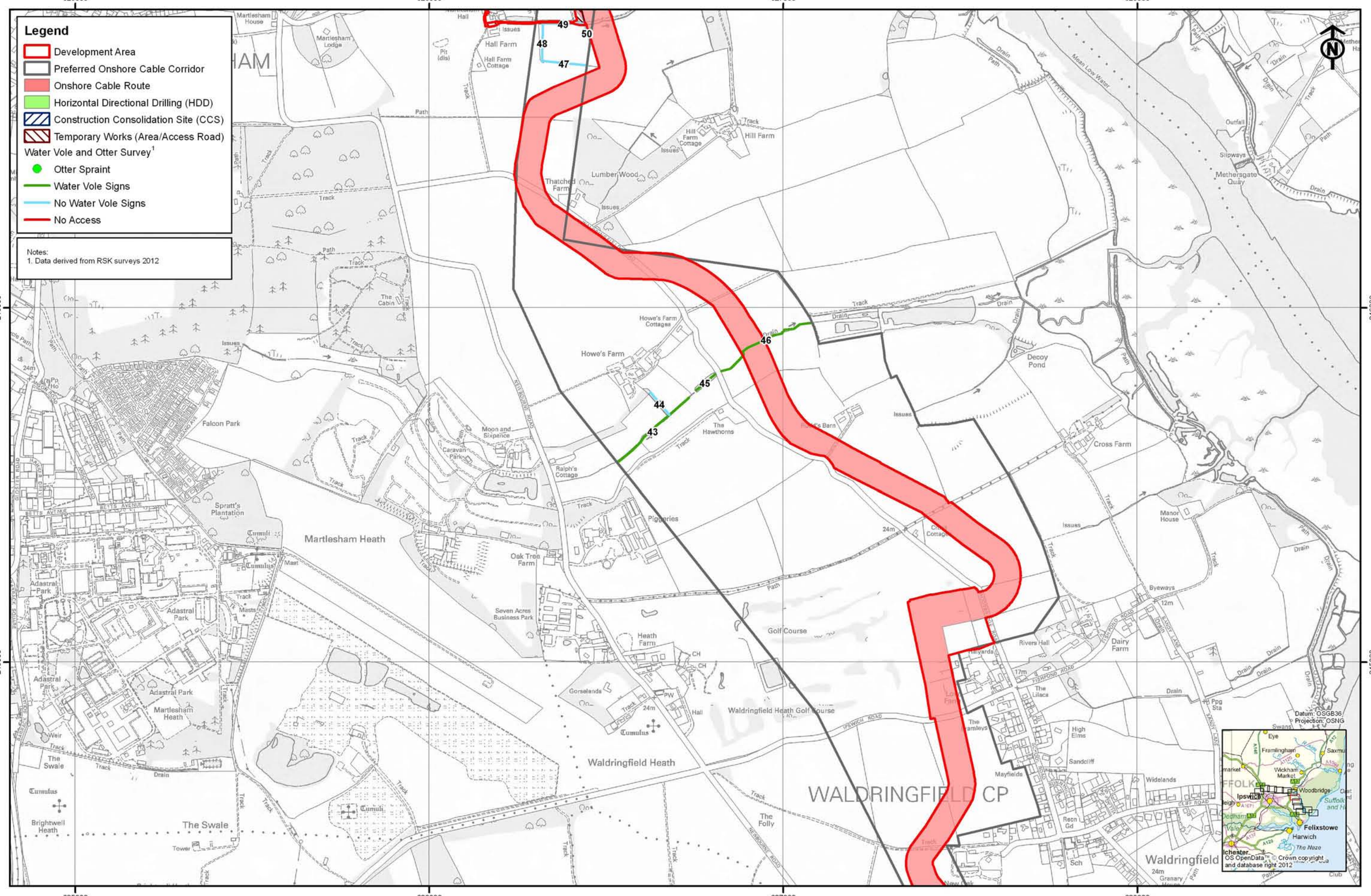

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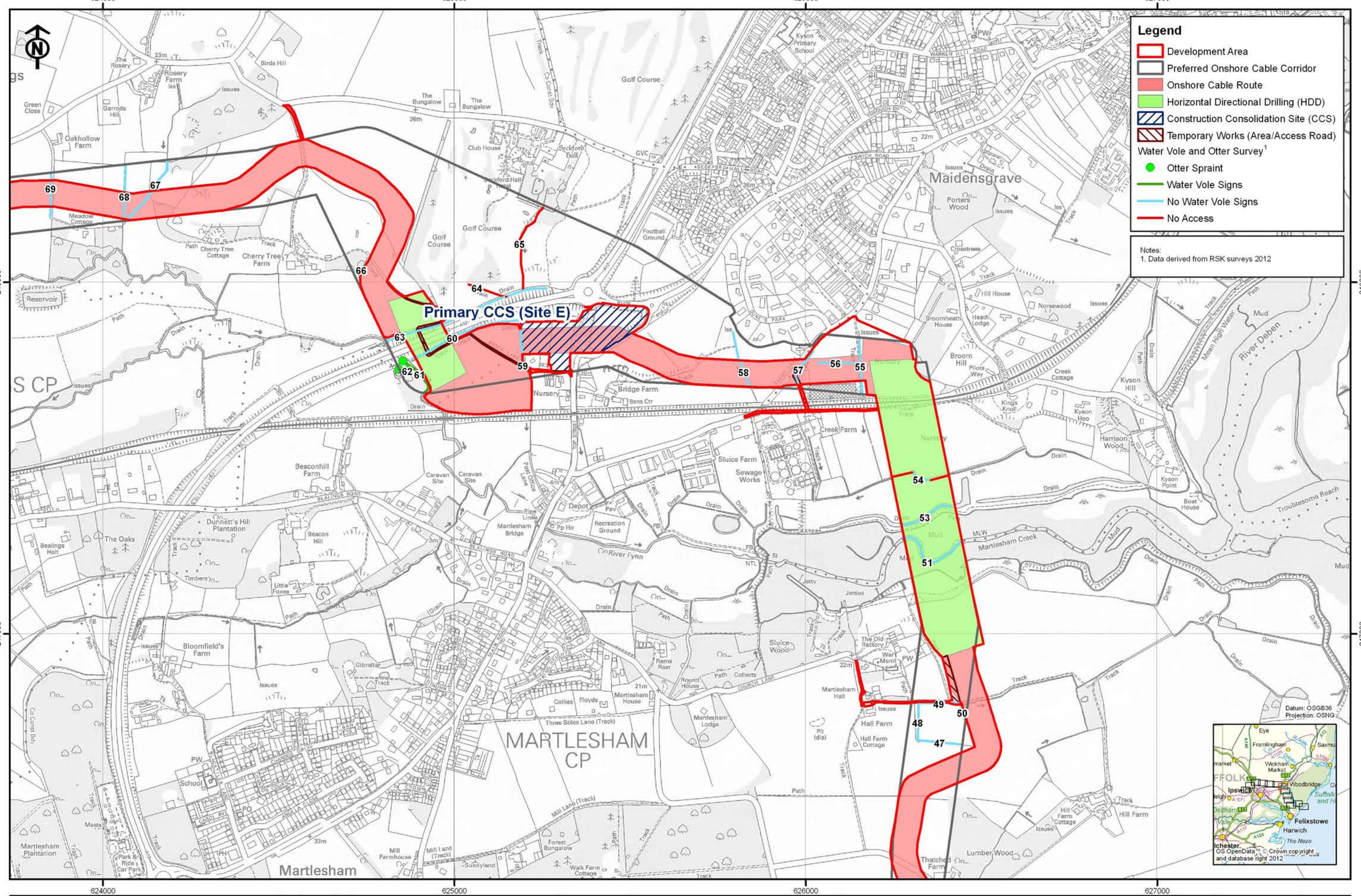

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Figure 24.7.2

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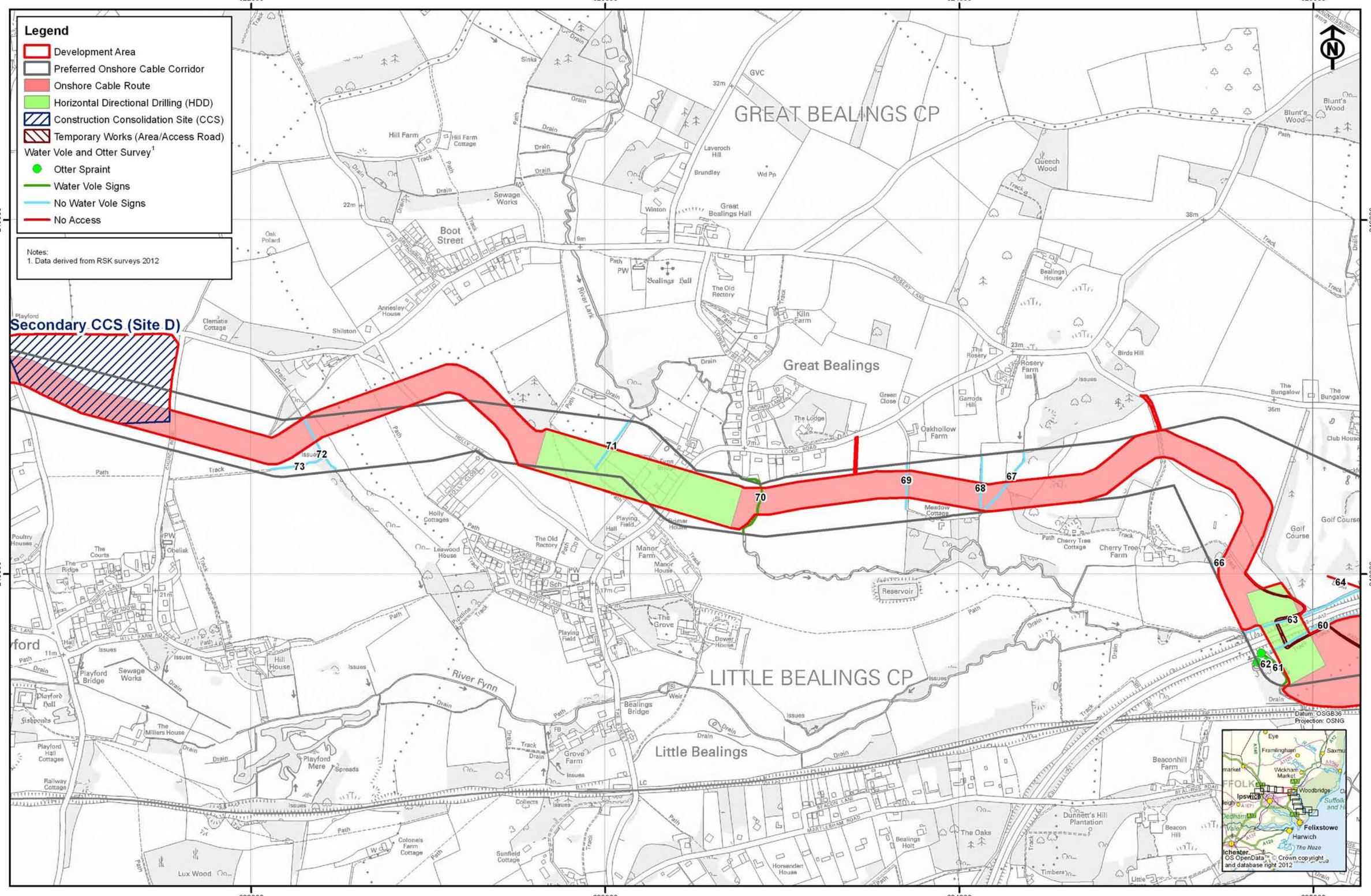

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Figure 24.7.2

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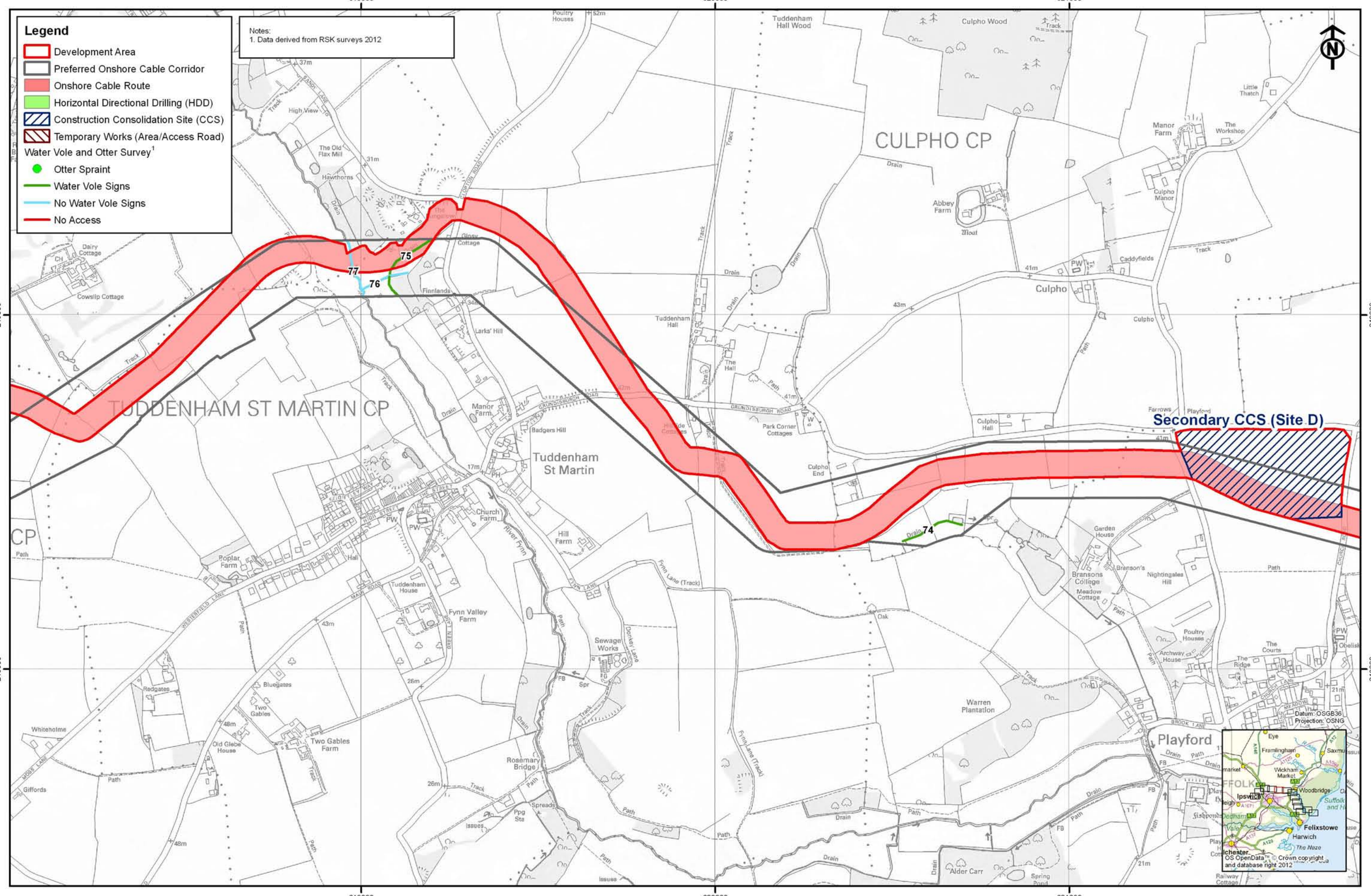

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Figure 24.7.2

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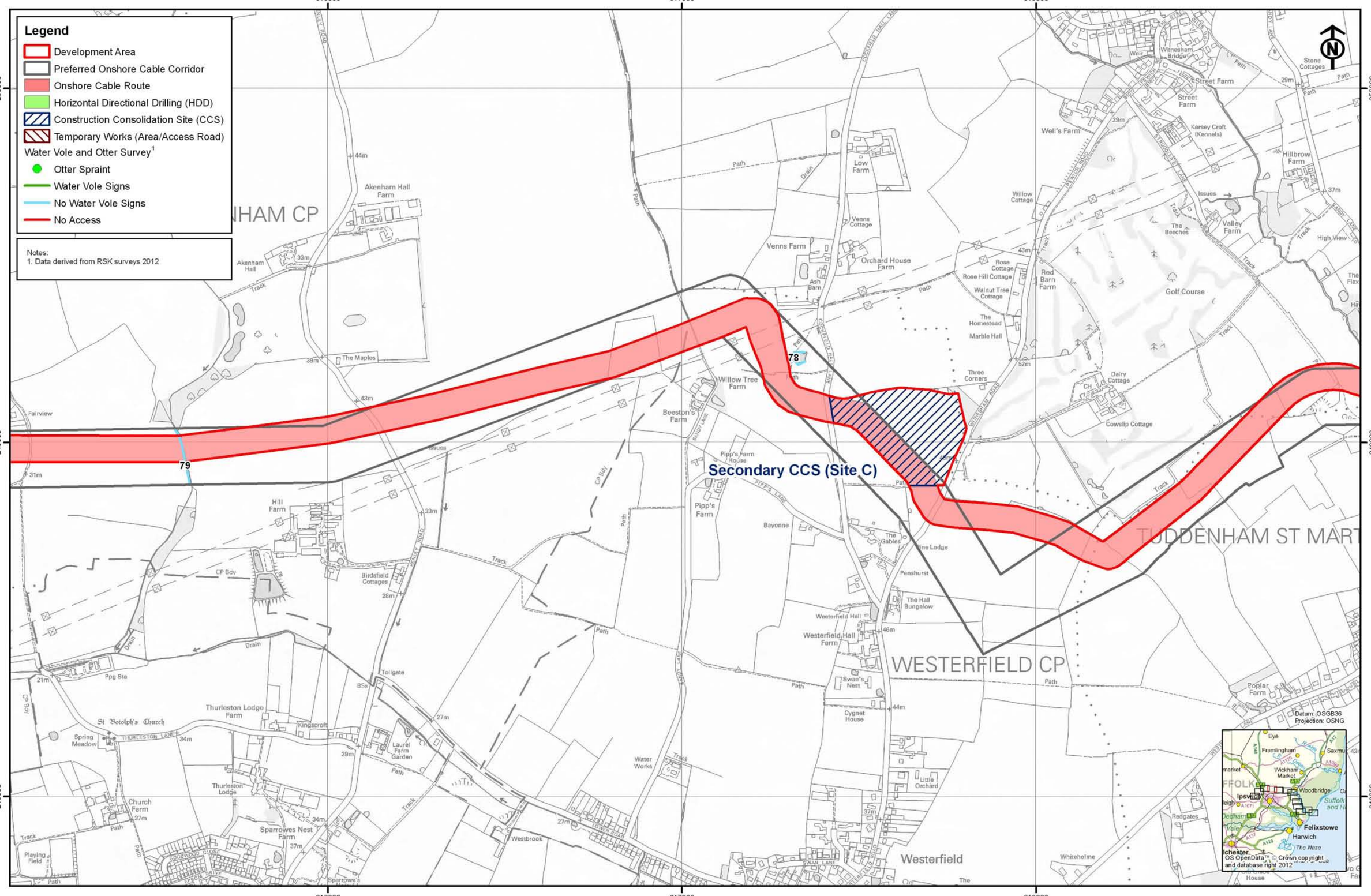

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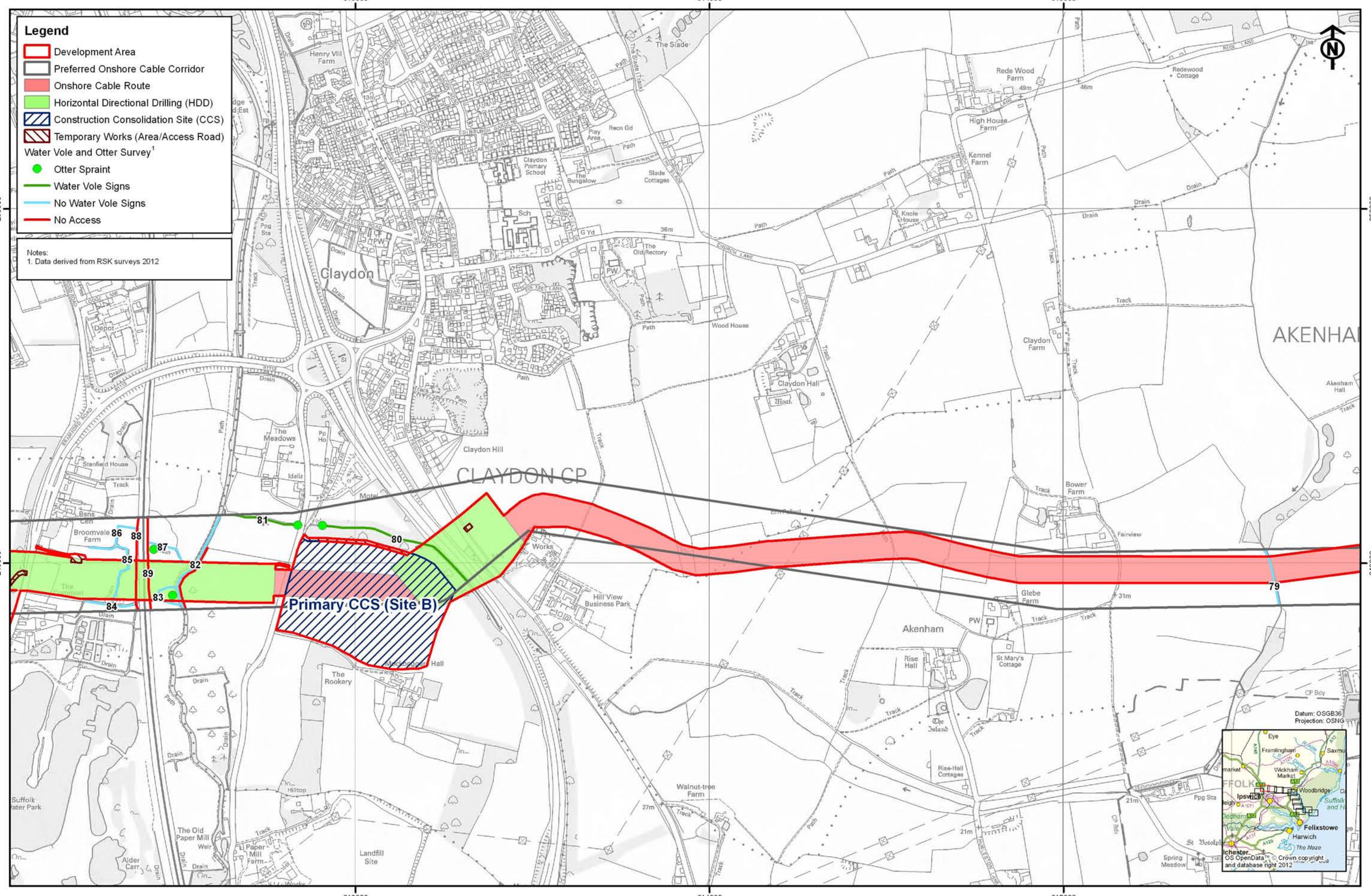

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Figure 24.7.2

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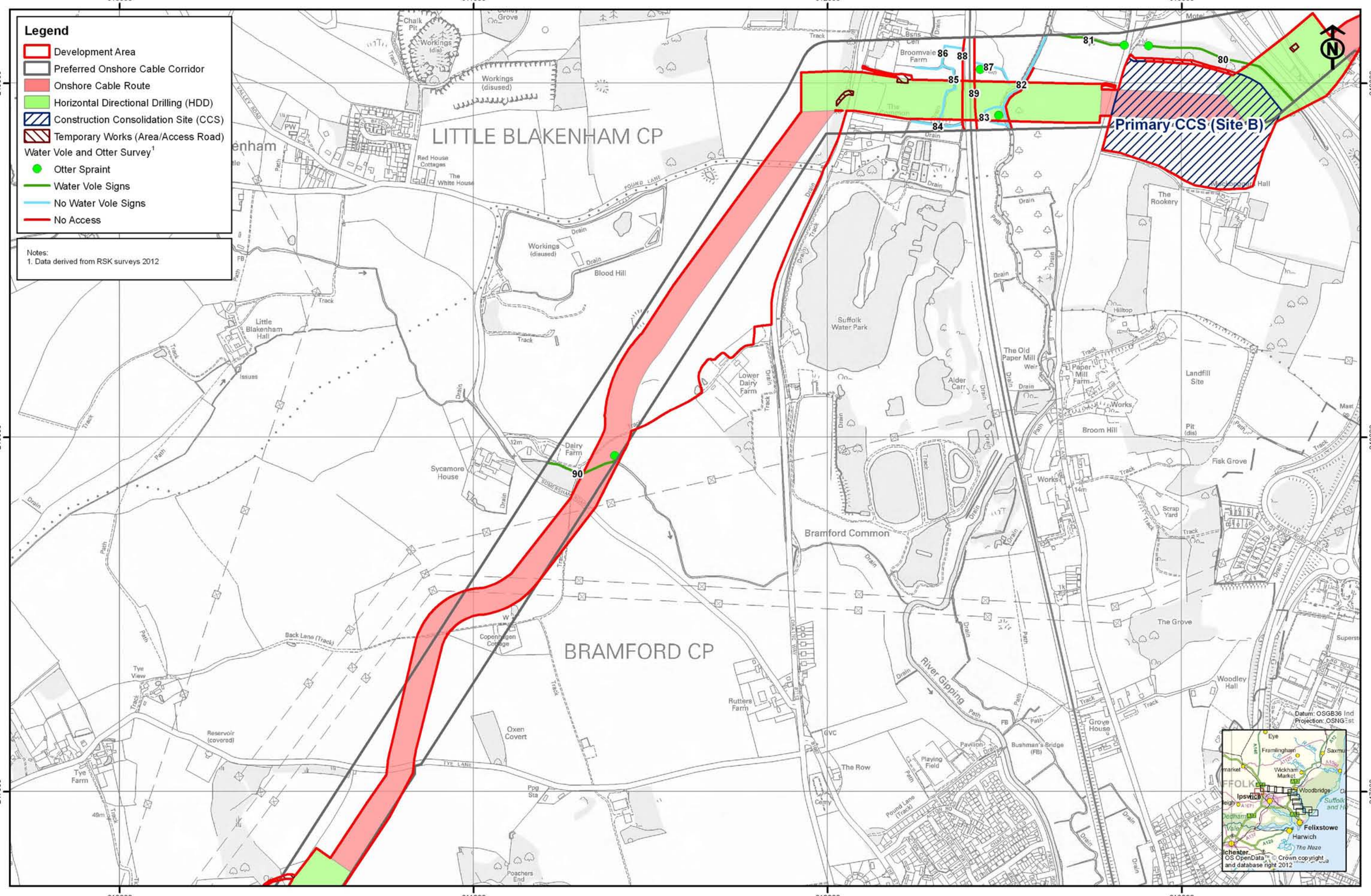

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Figure 24.7.2

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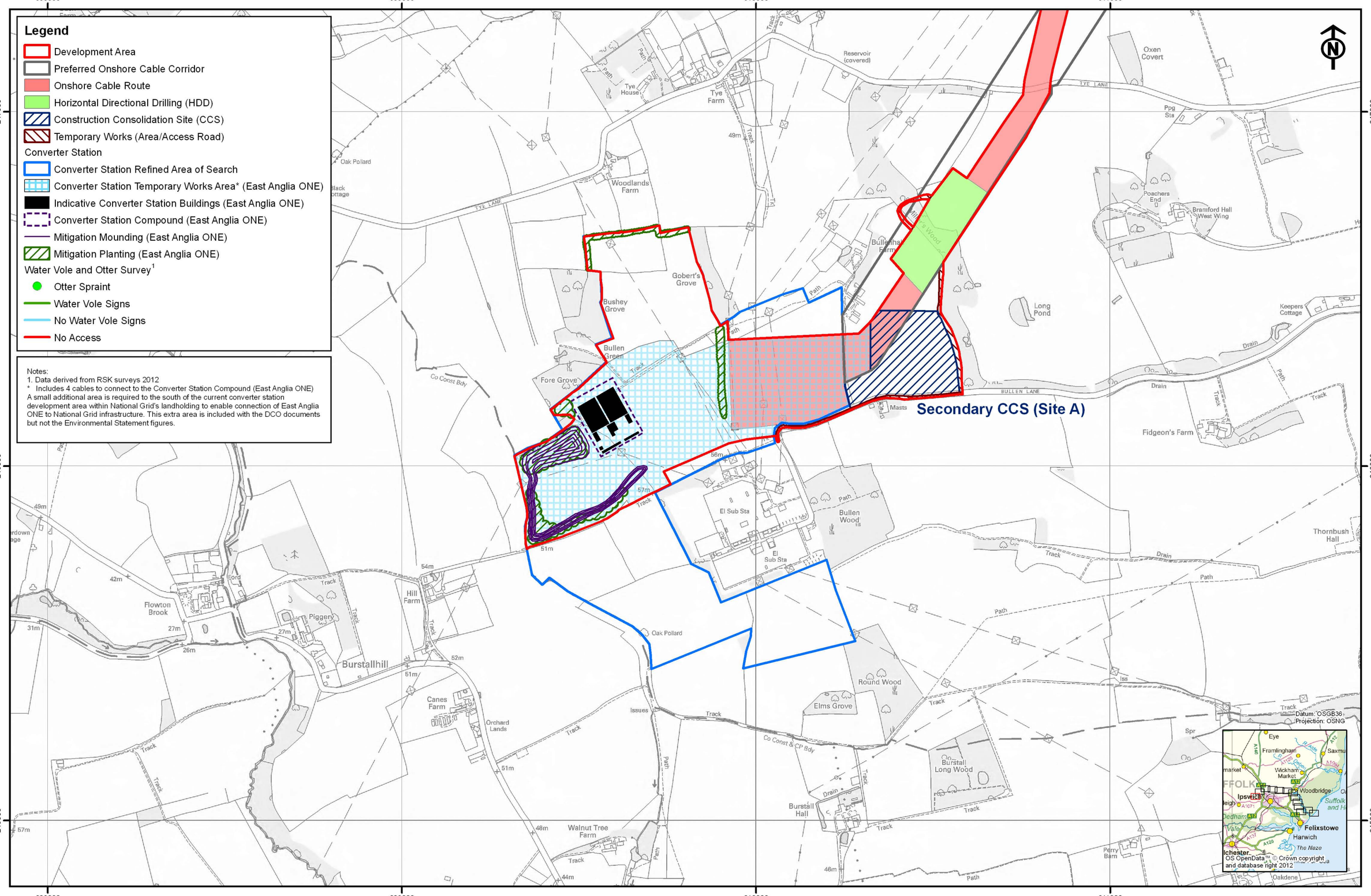

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Figure 24.7.2

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6 REFERENCES

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APPENDIX A – WATER VOLE HABITAT SURVEY

All water bodies subjected to a full habitat survey were identified as having potential for Water Voles after the initial ecological surveys in April. Water bodies that have dried up since April are assessed in this section for their current suitability. They may still be regarded as suitable overall as in wetter weather conditions and at different times of the year conditions are likely to change significantly.

Ditch 1

Assessment of Water Vole Habitat Suitability for Ditch 1

Factor	Assessment
Water Quality	✓
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	x
Un-shaded	x
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 1 is unsuitable for Water Voles. It is fully shaded by overhanging trees and lacks suitable vegetation for cover and foraging.

Ditch 2

Assessment of Water Vole Habitat Suitability for Ditch 2

Factor	Assessment
Water Quality	✓
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	-
Free from predation and competition (and no stock poaching)	-
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 2 is suitable for Water Voles although the lack of water means it is sub-optimal. Despite this the banks are suitable for burrowing and there is a variety of vegetation for cover and foraging.

Ditch 3

Assessment of Water Vole Habitat Suitability for Ditch 3

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 3 is unsuitable for Water Voles. It is very shallow (almost dry), fully shaded by overhanging trees and lacks suitable vegetation for cover and foraging.

Ditch 4

Assessment of Water Vole Habitat Suitability for Ditch 4

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 4 is unsuitable for Water Voles. It is very shallow (almost dry), fully shaded by overhanging trees and lacks suitable vegetation for cover and foraging.

Pond 5

Assessment of Water Vole Habitat Suitability for Pond 5

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown

Overall Assessment of Suitability	**Unsuitable**

Ditch 51 is unsuitable for Water Voles. It is dry, fully shaded by overhanging trees and lacks suitable vegetation for cover and foraging.

Ditch 6

Assessment of Water Vole Habitat Suitability for Ditch 6

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 6 is unsuitable for Water Voles. It is very shallow (almost dry), fully shaded by overhanging trees and lacks suitable vegetation for cover and foraging.

Ditch 7

Assessment of Water Vole Habitat Suitability for Ditch 7

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 7 is suitable for Water Voles. Despite this it is very overgrown with tall grasses and herbs resulting in no open water. The channel is heavily silted and water depth is <0.3m throughout.

Ditch 8

Assessment of Water Vole Habitat Suitability for Ditch 8

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓

Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 7 is suitable for Water Voles. Despite this it is very overgrown at the eastern end with tall grasses and herbs resulting in no open water. The channel is heavily silted throughout. Water depth is <0.3m at the eastern end but becomes deeper as the channel progresses west. At the western end the channel is >1m deep.

Ditch 9

Assessment of Water Vole Habitat Suitability for Ditch 9

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Bank side vegetation is cut short.
Overall Assessment of Suitability	**Suitable**

Ditch 9 is suitable for Water Voles. The bank are suitable for burrowing and there is a variety of vegetation (tall herbs and grass with occasional scrub patches) for cover and foraging. The northern section of the ditch past the junction with ditch 10 has had the vegetation cut short.

Ditch 10

Assessment of Water Vole Habitat Suitability for Ditch 10

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Bank side vegetation is cut short
Overall Assessment of Suitability	**Suitable**

Ditch 10 is suitable for Water Voles. The banks are suitable for burrowing and there is a variety of vegetation (tall herbs and grasses with occasional scrub patches) for cover and foraging.

Ditch 10

Assessment of Water Vole Habitat Suitability for Ditch 10

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Bank side vegetation is cut short
Overall Assessment of Suitability	**Suitable**

Ditch 10 is suitable for Water Voles. The banks are suitable for burrowing and there is a variety of vegetation (tall herbs and grasses with occasional scrub patches) for cover and foraging.

Ditch 11

Assessment of Water Vole Habitat Suitability for Ditch 11

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	✓
Appropriate management regime	No management regime in place
Overall Assessment of Suitability	**Suitable**

Ditch 11 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall herbs and grasses all of which provide cover and suitable foraging. The banks are shallow and the dense vegetation cover would restrict burrowing. There is open water with submerged aquatic plants.

Ditch 12 (Queens Fleet)

Assessment of Water Vole Habitat Suitability for Ditch 12

Factor	Assessment
Water Quality	✓

Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 12 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall herbs and grasses all of which provide cover and suitable foraging. The banks are shallow and the dense vegetation cover would restrict burrowing. There is substantial open water.

Ditch 13

Assessment of Water Vole Habitat Suitability for Ditch 13

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	✓
Appropriate management regime	No management regime in place
Overall Assessment of Suitability	**Suitable**

Ditch 13 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall herbs and grasses all of which provide cover and suitable foraging. The banks are steep however, the dense vegetation cover would restrict burrowing.

Ditch 14

Assessment of Water Vole Habitat Suitability for Ditch 14

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	✓
Appropriate management regime	No management regime in place

Overall Assessment of Suitability	**Suitable**

Ditch 14 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall herbs and grasses all of which provide cover and suitable foraging. The banks are suitable for burrowing.

Ditch 15

Assessment of Water Vole Habitat Suitability for Ditch 15

Factor	Assessment
Water Quality	✓
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 15 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall herbs and grasses all of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing and current water depth is <0.3m.

Ditch 16

Assessment of Water Vole Habitat Suitability for Ditch 16

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 16 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall herbs and grasses all of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is >1m but totally shaded by the Common Reed.

Ditch 17

Assessment of Water Vole Habitat Suitability for Ditch 17

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 17 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is >1m but totally shaded by the vegetation.

Ditch 18

Assessment of Water Vole Habitat Suitability for Ditch 18

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 18 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 0.5 but totally shaded by the vegetation.

Ditch 19

Assessment of Water Vole Habitat Suitability for Ditch 19

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown

Overall Assessment of Suitability	**Suitable**

Ditch 19 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 1-2m and heavily shaded by vegetation. There are small areas of open water.

Ditch 20

Assessment of Water Vole Habitat Suitability for Ditch 20

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 20 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 1-2m and heavily shaded by vegetation. There are small areas of open water.

Ditch 21

Assessment of Water Vole Habitat Suitability for Ditch 21

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 21 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses and arable crop escapes, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 1-2m and heavily shaded by vegetation. There are small areas of open water.

Ditch 22

Assessment of Water Vole Habitat Suitability for Ditch 22

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 22 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 0.5m and heavily shaded by vegetation. There are no areas of open water.

Ditch 23

Assessment of Water Vole Habitat Suitability for Ditch 23

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 23 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 1m and heavily shaded by vegetation. There are no areas of open water.

Ditch 24

Assessment of Water Vole Habitat Suitability for Ditch 24

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓

Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 24 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is approximately 1m and heavily shaded by vegetation. There are no areas of open water.

Ditch 25

Assessment of Water Vole Habitat Suitability for Ditch 25

Factor	Assessment
Water Quality	✓
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 25 is suitable for Water Voles. The bank side vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses, both of which provide cover and suitable foraging. The dense vegetation cover would restrict burrowing. Water depth is <0.3m and the ditch is dry at the western end. The water level is heavily shaded by vegetation. There are no areas of open water.

Ditch 26

Assessment of Water Vole Habitat Suitability for Ditch 26

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 26 is suitable for Water Voles. The bank side and channel vegetation is dominated by Phragmites (Common Reed) with occasional tall grasses on the banks, both of which provide cover and suitable foraging. The banks are shallow and sub-optimal for burrowing. Water depth varies throughout the channel from being dry to >1m. There are areas of open water due to the wide channel (approximately 10-15m).

Ditch 27

Table 1 – Assessment of Water Vole Habitat Suitability for Ditch 27

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	x
Suitable vegetation (*Critical*)	x
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 27 is suitable for Water Voles. The bank side and channel vegetation is dominated by tall grasses and herbs with limited cover and foraging. The banks are shallow and sub-optimal for burrowing. Water depth is >1m. There are areas of open water due to the wide channel (approximately 10-15m).

Ditch 28

Assessment of Water Vole Habitat Suitability for Ditch 28

Factor	Assessment
Water Quality	✓
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 28 is suitable for Water Voles. The bank side and channel vegetation is dominated by tall grasses and herbs with limited cover and foraging. The banks are suitable for burrowing. Water depth is <0.3m and the channel heavily silted. There are no areas of open water.

Ditch 29

Assessment of Water Vole Habitat Suitability for Ditch 29

Factor	Assessment
Water Quality	x
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 29 is unsuitable for Water Voles. The bank side and channel vegetation is dominated by tall grasses and herbs with limited cover and foraging. The ditch is dry and there are no areas of open water.

Ditch 30

Assessment of Water Vole Habitat Suitability for Ditch 30

Factor	Assessment
Water Quality	x
Stable/Long term water	x
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 30 is unsuitable for Water Voles. The bank side and channel vegetation is dominated by tall grasses and herbs with limited cover and foraging. The ditch is dry and there are no areas of open water.

Ditch 31

Assessment of Water Vole Habitat Suitability for Ditch 31

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown

Overall Assessment of Suitability	**Unsuitable**

Ditch 31 is unsuitable for Water Voles. There is a small channel bordered by a hedgerow. The ditch is dry and there are no areas of open water.

Ditch 32

Assessment of Water Vole Habitat Suitability for Ditch 32

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 32 is unsuitable for Water Voles. The ditch is dry and there are no areas of open water.

Ditch 33

Assessment of Water Vole Habitat Suitability for Ditch 33

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 33 is unsuitable for Water Voles. The ditch is dry and there are no areas of open water.

Ditch 34

Assessment of Water Vole Habitat Suitability for Ditch 34

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X

Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 34 is unsuitable for Water Voles. The ditch is dry and there are no areas of open water.

Ditch 35

Assessment of Water Vole Habitat Suitability for Ditch 35

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 35 is suitable for Water Voles. The ditch is dry at the southern end and there are no areas of open water. The vegetation is dominated by reeds/sedges, tall grasses and occasional bank side trees/shrubs and herbs.

Ditch 36

Assessment of Water Vole Habitat Suitability for Ditch 36

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 36 is suitable for Water Voles. The vegetation is dominated by reeds/sedges, grasses and occasional bank side trees and shrubs. The banks are shallow and burrowing is restricted.

Ditch 37

Assessment of Water Vole Habitat Suitability for Ditch 37

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 37 is suitable for Water Voles. The vegetation is dominated by reeds/sedges and tall grasses. The banks are shallow and burrowing is restricted. The northern section of the ditch is overgrown and very little Water vole evidence is present in this section. The southern section is more open and all the Water Vole evidence is concentrated in this section.

Ditch 38

Assessment of Water Vole Habitat Suitability for Ditch 38

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 38 is suitable for Water Voles. The vegetation is dominated by dense reeds that restrict burrowing. The banks vary in steepness, the south bank being an earth cliff. The ditch was not safe to access from water level due to deep silt.

Ditch 39

Assessment of Water Vole Habitat Suitability for Ditch 39

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓

Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 39 is suitable for Water Voles. Despite this it is currently sub-optimal due to the lack of water. Dense reeds that restrict burrowing dominate the vegetation at the southern end. The banks are generally shallow. Broadleaved woodland and long grasses border the ditch.

Ditch 40

Assessment of Water Vole Habitat Suitability for Ditch 40

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 40 is suitable for Water Voles. Despite this it is currently sub-optimal due to the lack of water, especially at the northern end. Dense reeds that restrict burrowing dominate the vegetation at the southern end. The banks are generally shallow. Broadleaved woodland and long grasses border the ditch. The northern section is slightly cattle poached.

Ditch 41

Assessment of Water Vole Habitat Suitability for Ditch 41

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 41 is currently unsuitable for Water Voles. It is completely dry.

Ditch 42

Assessment of Water Vole Habitat Suitability for Ditch 42

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 42 is currently unsuitable for Water Voles. It is completely dry.

Ditch 43

Assessment of Water Vole Habitat Suitability for Ditch 43

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 43 is suitable for Water Voles. It has steep sides suitable for burrowing and is fenced off to protect it from the adjacent livestock pasture. Suitable vegetation is present but limited and concentrated towards the eastern end.

Ditch 44

Assessment of Water Vole Habitat Suitability for Ditch 44

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown

Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 44 is currently suitable for Water Voles. Currently it is virtually dry. It is most suitable where it meets ditch 43.

Ditch 45 (Pond)

Assessment of Water Vole Habitat Suitability for Ditch 45

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 45 is suitable for Water Voles. It has steep sides suitable for burrowing and is fenced off to protect it from the adjacent livestock pasture. It is a wider stretch of water between ditch 43 and 46 forming a ponds.

Ditch 46

Assessment of Water Vole Habitat Suitability for Ditch 46

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 46 is suitable for Water Voles. Water is fed from ditch 45 and 43 via a culvert under the road. It has steep sides suitable for burrowing. There is suitable vegetation but as the ditch runs east it becomes more overgrown and shaded at water level.

Ditches 47, 48, 49 and 50

Assessment of Water Vole Habitat Suitability for Ditches 47, 48, 49 and 50

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

These four ditches form a network around a field of rough overgrown pasture. They are deep ditches up to 4m deep with <15cm of water depth. Due to their depth they are fully shaded at water level from both the hedgerows that they are in and the tall grasses and herbs present on the banks.

Ditch 51

Assessment of Water Vole Habitat Suitability for Ditch 51

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 51 is unsuitable for Water Voles. There is no apparent channel, the area being reed bed in the high tide area of Martlesham Creek. At the time of survey the area was dry. When wet the water is likely to be brackish.

Ditch 52

Assessment of Water Vole Habitat Suitability for Ditch 52

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown

Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 51 is unsuitable for Water Voles. The channel (Martlesham Creek) is tidal and so brackish.

Ditch 53

Assessment of Water Vole Habitat Suitability for Ditch 53

Factor	Assessment
Water Quality	Unknown (likely to be brackish)
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 53 is suitable for Water Voles. It is a wide channel bordered by Phragmites reed bed. Burrowing is limited to the southern bank and there is a well-used footpath that runs along the top of this bank.

Ditch 54

Assessment of Water Vole Habitat Suitability for Ditch 54

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 54 is suitable for Water Voles. The water is between 1 and 2 m deep with a deep silt layer. The channel is heavily shaded by scrub meaning suitable riparian vegetation is limited. Access was restricted to an approximate 15m section of the ditch due to the deep water, steep sides and dense bramble cover.

Ditch 55

Assessment of Water Vole Habitat Suitability for Ditch 55

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 55 is suitable for Water Voles. It is a small channel with steep side suitable for burrowing. Reeds, herbs and tall grasses dominate the vegetation. There are occasional bank side trees. Water depth is <10cm.

Ditch 56

Assessment of Water Vole Habitat Suitability for Ditch 56

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (Sub-optimal)**

Ditch 56 is suitable for Water Voles. It is a recently excavated channel with banks steep enough for burrowing. Despite this there is no suitable vegetation and the ditch is not connected to any surrounding ditches.

Ditch 57

Assessment of Water Vole Habitat Suitability for Ditch 57

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown

Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 57 is unsuitable for Water Voles. It is a roadside drainage ditch with deep, near vertical banks. The channel is heavily shaded by broadleaved woodland to the south. There is very little riparian vegetation and water depth is <10cm. There is also no connectivity to other more suitable ditches.

Ditch 58

Assessment of Water Vole Habitat Suitability for Ditch 58

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 58 is suitable for Water Voles. It is a field drainage ditch with steep banks suitable for burrowing. Suitable riparian vegetation is dominated by herbs and tall grasses. At the time of survey the ditch was very overgrown and water depth was <10cm.

Ditch 59

Assessment of Water Vole Habitat Suitability for Ditch 59

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 59 is suitable for Water Voles. It is a small drainage ditch with banks <0.5 m high suitable for burrowing. There is a lack of suitable riparian vegetation being limited to short grass. Water depth was <10cm.

Ditch 60

Assessment of Water Vole Habitat Suitability for Ditch 60

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 60 is unsuitable for Water Voles. It is a concrete road drainage ditch. Suitable riparian vegetation is limited to the far western end. The ditch is completely dry and likely to be that way all year except during heavy rain.

Ditch 61 and 62

Assessment of Water Vole Habitat Suitability for Ditch 61 and 62

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Managed
Overall Assessment of Suitability	**Suitable**

Ditches 61 and 62 are suitable for Water Voles. They are sections of the River Fynn with banks suitable for burrowing and plenty of suitable vegetation. The channel looks to have been actively managed for wildlife.

Ditch 63

Assessment of Water Vole Habitat Suitability for Ditch 63

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	X
Suitable vegetation (*Critical*)	X
Un-shaded	✓

Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 63 is unsuitable for Water Voles. It is a concrete road drainage ditch like *Ditch 60*. Suitable riparian vegetation is limited, although more so than *Ditch 60*. The ditch is completely dry and likely to be that way all year except during heavy rain.

Ditch 64 and 65

Access was not possible to these ditches.

Ditch 66

Assessment of Water Vole Habitat Suitability for Ditch 66

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 66 is suitable for Water Voles. It is a small section of a field drainage ditch with steep banks suitable for burrowing. Suitable riparian vegetation is dominated by reeds and tall grasses. The ditch is heavily shaded except for the survey area.

Ditch 67

Assessment of Water Vole Habitat Suitability for Ditch 67

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 67 is suitable for Water Voles. It is a field drainage ditch with shallow banks suitable for burrowing. Suitable riparian vegetation is dominated by herbs and tall grasses with occasional reeds. At the time of survey the ditch was very overgrown and water depth was <10cm.

Ditch 68

Assessment of Water Vole Habitat Suitability for Ditch 68

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 68 is unsuitable for Water Voles. It is a field drainage ditch in a hedgerow. It has shallow banks suitable for burrowing. Suitable riparian vegetation is limited and the channel is fully shaded. At the time of survey the ditch water depth was <10cm.

Ditch 69

Assessment of Water Vole Habitat Suitability for Ditch 69

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 68 is unsuitable for Water Voles. It is a field drainage ditch in a hedgerow. It has shallow banks suitable for burrowing. Suitable riparian vegetation is limited and the channel is fully shaded. At the time of survey the ditch water depth was <10cm and dry at the northern end.

Ditch 70

Assessment of Water Vole Habitat Suitability for Ditch 70

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓

Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 70 is suitable for Water Voles. It is a section of the River Lark. The banks are suitable for burrowing and there is plenty of suitable riparian vegetation with occasional overhanging trees.

Ditch 71

Assessment of Water Vole Habitat Suitability for Ditch 71

Factor	Assessment
Water Quality	X
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	X
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 71 is unsuitable for Water Voles. It is a field drainage ditch in a mature hedgerow. The banks are suitable for burrowing. However suitable riparian vegetation is limited due to the ditch being completely shaded by the hedgerow and large trees. At the time of survey the ditch was completely dry.

Ditch 72

Assessment of Water Vole Habitat Suitability for Ditch 72

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Unsuitable**

Ditch 72 is unsuitable for Water Voles. It is a field drainage ditch partly shaded by woodland and dense scrub. It has shallow banks suitable for burrowing. There is suitable riparian vegetation but the ditch was very overgrown at the time of survey. At the time of survey the ditch water depth was <10cm.

Ditch 73

Ditch 73 no longer exists and consists of a redundant hedgerow base now vegetated with tall grasses.

Ditch 74

Assessment of Water Vole Habitat Suitability for Ditch 74

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 74 is suitable for Water Voles. It is a shallow ditch with banks suitable for burrowing and vegetated with reeds, sedges, herbs and tall grasses. The ditch opens up at the eastern end but is very overgrown in the narrower sections of the channel. At the time of survey the channel was dry at the western end.

Ditch 75

Assessment of Water Vole Habitat Suitability for Ditch 75

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 75 is suitable for Water Voles. The channel is narrow and the banks small but steep at the southern end where the ditch is situated in woodland. At the northern end there is no obvious

channel, just an area dominated by reeds and sedges. The ditch is dry at the far southern end, wet in the middle and restricted to damp ground in the middle section.

Ditch 76

Assessment of Water Vole Habitat Suitability for Ditch 76

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 76 is suitable for Water Voles. The ditch is a narrow, shallow field drainage ditch that runs into *Ditch 77*. The ditch is overgrown with herbs and tall grasses and water depth is <10cm.

Ditch 77

Assessment of Water Vole Habitat Suitability for Ditch 77

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 77 is suitable for Water Voles. The ditch forms a section of the River Fynn. The banks are steep and suitable for burrowing. There is suitable vegetation on the banks and the water depth is 1 – 2 m. Access to survey at water level was not possible at the time of the survey due to the deep water and silt.

Pond 78

Pond 78 is not suitable for Water Voles. The pond is situated in a cattle field and is heavily poached. Suitable vegetation on the banks is limited and there are no earth banks suitable for burrowing.

Ditch 79

Assessment of Water Vole Habitat Suitability for Ditch 79

Factor	Assessment
Water Quality	✓
Stable/Long term water	X
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	X
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable (sub-optimal)**

Ditch 79 is suitable for Water Voles. The ditch has steep banks suitable for burrowing which are vegetated with herbs and tall grasses. The eastern bank comprises a mature hedgerow. At the time of survey the water depth was <30cm.

Ditch 80

Assessment of Water Vole Habitat Suitability for Ditch 80

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Managed
Overall Assessment of Suitability	**Suitable**

Ditch 80 is suitable for Water Voles. The ditch has steep banks suitable for burrowing. There is suitable vegetation dominated by tall grasses and herbs. The ditch vegetation had been cut recently. The water depth was approximately 0.5 m.

Ditch 81

Assessment of Water Vole Habitat Suitability for Ditch 81

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown

Appropriate management regime	Managed
Overall Assessment of Suitability	**Suitable**

Ditch 81 is suitable for Water Voles. The ditch has steep banks suitable for burrowing. There is suitable vegetation dominated by tall grasses and herbs. The ditch vegetation had been cut recently. The water depth was approximately 0.5 m.

Ditch 82

Assessment of Water Vole Habitat Suitability for Ditch 82

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 82 is suitable for Water Voles. The ditch forms a section of the River Fynn. The banks are small and shallow with restricted burrowing potential. They are heavily vegetated with herbs and tall grasses. The water is deep and access to survey the channel from water level was not possible. In addition a substantial section of the channel could not be access on one side.

Ditch 83

Assessment of Water Vole Habitat Suitability for Ditch 83

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 82 is suitable for Water Voles. It is a small channel with its flow controlled from a weir on *Ditch 82*. The banks are shallow and suitable for burrowing. There is a large amount of suitable vegetation for foraging and cover, being dominated by reeds, sedges, herbs and tall grasses. Water depth is approximately 0.5 – 1m.

Ditch 84

Assessment of Water Vole Habitat Suitability for Ditch 84

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 84 is suitable for Water Voles. The banks are steep and suitable for burrowing. There is plenty of suitable vegetation dominated by reeds, herbs and tall grasses with occasional overhanging trees. Water depth is approximately 1 – 2 m.

Ditch 85 and 86

Assessment of Water Vole Habitat Suitability for Ditch 85 and 86

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditches 85 and 86 are suitable for Water Voles. The banks are steep and suitable for burrowing. There is plenty of suitable vegetation dominated by reeds, herbs and tall grasses with occasional overhanging trees. Water depth is approximately 1 – 2 m.

Ditch 87

Ditch 87 no longer exists as a ditch and is reduced to a shallow depression in the ground that is poached by cattle. It is completely dry and vegetated with short grasses as the rest of the pasture.

Ditch 88 and 89

Ditch 88 and *89* are railway drainage ditches adjacent to the railway. Access was not possible at the time of survey.

Ditch 90

Assessment of Water Vole Habitat Suitability for Ditch 90

Factor	Assessment
Water Quality	✓
Stable/Long term water	✓
Bank suitable for burrowing (*Critical*)	✓
Suitable vegetation (*Critical*)	✓
Un-shaded	✓
Free from predation and competition (and no stock poaching)	Unknown
Appropriate management regime	Unknown
Overall Assessment of Suitability	**Suitable**

Ditch 90 is suitable for Water Voles. It has tall steep banks suitable for burrowing and covered in suitable vegetation for foraging and cover. The vegetation is dominated by herbs and tall grasses. Water depth was <0.5 m but is likely to vary greatly with rainfall.

APPENDIX B - LEGAL CONTEXT

Water Vole

Arvicola amphibius (Water Vole) is fully protected under Section 9 of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Protection was extended by the Countryside and Rights of Way Act 2000.

Under this legislation, it is an offence to:

- intentionally kill, injure or take (capture) a Water Vole;
- possess or control a live or dead Water Vole, or any part of a Water Vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection, or to intentionally or recklessly disturb Water Voles while they are using such a place; or
- sell, offer for sale or advertise for live or dead Water Voles.

The Water Vole is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP).

European Otter

Lutra lutra (European Otter) is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receives full protection under *Section 9*. This species is also listed as a European Protected Species on *Schedule 2* of the *Conservation (Natural Habitats, etc.) Regulations 2010* which gives it full protection under *Regulation 39*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The European Otter is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRoW Act.

The European Otter is also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

The European sub-species is also listed as globally threatened on the IUCN/WCMC RDL.

East Anglia
Offshore Wind

Reptile Survey Report

Appendix 24.8

Reptile Survey Technical Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.8 - Reptile Survey Technical Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Reptile Survey Technical Report

Client: East Anglia Offshore Wind Limited

Date: 13th August 2012

Office: Helsby

Status: Final

Author	Clare Parker	**Technical reviewer**	Sarah harmer
Date:	13th August 2012	Date:	13th August 2012
Project manager	Tom Smith		
Date:	13th August 2012		

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of reptile surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. This report forms Appendix 24.8 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement.

The Onshore Cable Route runs from a landfall to the east of Ipswich, north of the River Deben at Bawdsey. The route then runs north-west towards Bramford to the north of Ipswich, a distance of approximately 37km. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.8.1*. The reptile surveys comprised habitat suitability assessment surveys and presence-absence surveys carried out between May and August 2012.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. Much of the land crossed is arable farmland, but the route crosses a number of hedgerows, field drains and ditches, areas of coastal habitats and small areas of woodland. The Onshore Cable Route also crosses previously-developed land and the River Deben.

1.3 Structure of this Report

The remainder of the report is set out as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the results of the surveys;
- *Section 4* provides the evaluation and conclusions;
- *Section 5* is the reference section;
- *Section 6* provides the figures;
- *Appendix A* gives relevant legislation; and
- *Appendix B* contains the raw survey data.

2 METHODS

2.1 Survey Scope

There are existing records of all four of the commoner species within 100 m of the Onshore Cable Route - Adder (*Vipera berus*), Common Lizard (*Zootoca vivipara*), Grass Snake (*Natrix natrix*) and Slow Worm (*Anguis fragilis*))

A survey corridor of 75m comprising the Onshore Cable Route and Converter Station Development Area, was used in most areas, though a wider corridor was surveyed in a few places where a final route had not been decided.

2.2 Survey Constraints

At the commencement of the surveys access was restricted in several small areas however the coverage of the surveys allowed for sufficient data to be collected to assess the reptile populations along the Onshore Cable Route.

2.3 Reptile Survey

2.3.1 Habitat Assessment

An Extended Phase 1 Habitat Survey was undertaken by RSK Environment in February 2012 which identified areas that are suitable for one or more of the four commoner reptile species. Particular attention was paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub).

Areas of optimal reptile habitat crossed by the Onshore Cable Route were then surveyed to confirm reptile presence/absence.

2.3.2 Artificial Refuge Surveys

The standard method for establishing reptile presence is to use artificial refuges (roofing felt tiles 'tins' approximately 0.5 m^2) placed in the areas identified as suitable for reptiles. The felt tiles attract reptiles, which use them for shelter and to aid temperature regulation, which allows surveyors to find reptiles that would otherwise be widely dispersed and well-hidden.

80 locations were identified and surveyed using this method, including woodland, scrub, vegetated tracks/paths, rough grassland, and the banks of waterbodies including ditches. Approximately 1,785 felt tiles were placed in the suitable habitat and then checked periodically between May and August 2012 when reptiles are active. The felt tiles were checked for reptiles on five occasions during suitable weather (ideally in bright sunshine between the hours of 0830 to 1100 and 1600 to 1830 with air

temperatures between 9 and 15ºC, or if there is hazy or intermittent sunshine and little wind then between 9 and 18ºC, not during rain).

When checking tins, a general watch was kept for other signs of reptiles, e.g. Grass Snake eggs, excrement or sloughed skins (often found beneath refuges).

3 RESULTS

3.1 Reptile surveys

Common Lizard, Grass Snake and Slow-worm were recorded, but not Adder.

Table 1 summarises the results of the survey locations where reptiles are present. *Column 1* gives the numbers that relate to the survey locations shown in *Figure 24.8.2. Columns 2 – 6* give information on species and numbers recorded on visits 1 to 5 respectively. The species recorded are given using the following codes: Af – Slow Worm (*Anguis fragilis*), Zv - Common Lizard (*Zootoca vivipara*) and Nn – Grass Snake (*Natrix natrix*), followed by the number of individuals observed in brackets. *Column 7* concludes the findings at each survey location in terms of the numbers present (based on experience and professional judgement). Full survey results (including locations where no reptiles were identified) can be found in Appendix B.

Table 1: Summary of Reptile Survey Results

Site No.	Area Description	Check 1	Check 2	Check 3	Check 4	Check 5	Population Conclusion
002	Cliff edge	Zv (6)	Zv (8)	-	Cliff has become overgrown and unsafe to access.		Moderate
003	Grassland area with scattered trees	Zv (8)	Zv (3)	Zv (2)	-	Zv (1)	Moderate
005	Drainage ditch	-	Zv (1)	-	-	-	Low
007	Grassland/scrub area	Zv (6)	-	Zv (1)	Habitat no longer suitable for reptiles.		Moderate
009	Drainage ditch	-	Zv (1)	-	-	-	Low
011	Drainage ditch	- (incidental sighting of Zv(1) during otter survey)	Zv (1)	Zv (3)	-	-	Low
012	Drainage ditch	- (incidental sighting of Zv(1) during	-	Zv (9)	-	-	Moderate

Site No.	Area Description	Check 1	Check 2	Check 3	Check 4	Check 5	Population Conclusion
		otter survey)					
013	Drainage ditch	-	-	Zv (1)	-	-	Low
014	Drainage ditch	-	-	-	-	Zv (2)	Low
015	Drainage ditch	Zv (2)	-	Zv (1)	-	Zv (2)	Low
016	Drainage ditch	Zv (3)	-	-	-	Zv (1)	Low
017	Drainage ditch	Zv (4)	-	-	-	Zv (1)	Low
018	Drainage ditch	Zv (8)	-	-	-	Zv (4)	Moderate
020	Drainage ditch	Zv (6)	-	Zv (5)	Zv (3)	Zv (11)	Moderate
021	Drainage ditch	Zv (7) (incidental sighting of Zv(5) during otter survey)	-	-	Zv (2)	Zv (1)	Moderate
022	Marshy area	Zv (8)	Zv (2)	-	-	Zv (2)	Moderate
023	River flood protection embankment	-	Af (3) Zv (4)	Zv (7) Af (2)	Zv (1) Af (1)	Zv (3)	Moderate
024	Drainage ditch	-	Zv (1)	-	-	-	Low
030	Drainage ditch	Zv (1)	-	-	-	Habitat no longer suitable for reptiles.	Low
031	Marshy area	Af (4)	-	Af (1), Zv (1)	-	Af (1)	Low
033	Along hedgerow	Zv (1)	-	-	-	-	Low
034	Roadside bank	Zv (3)	-	Zv (2)	Zv (2)	-	Low
036	Along hedgerow	-	-	Zv (2)	-	-	Low

Site No.	Area Description	Check 1	Check 2	Check 3	Check 4	Check 5	Population Conclusion
038	Roadside bank	-	Zv (2)	-	Zv (2)	-	Low
039	Along hedgerow	-	-	-	-	Nn (1)	Low
041	River flood protection embankment	Af (1) Nn (2)	Af (1) Zv (1)	-	Nn (1)	-	Moderate
042	Drainage ditch / hedgerow	- (incidental sighting of Nn(1) during otter survey)	-	-	-	-	Low
043	Along railway embankment	Af (2) Zv (1)	Af (5)	Zv (3)	Af (5)	Af (1)	Moderate
044	Drainage ditch	-	-	-	Zv (1) Af (1)	-	Low
045	Grassland / scrub area	Zv (5)	Zv (4)	Zv (4)	Zv (2)	Zv (1)	Moderate
046	Along hedgerow	Zv (1)	-	-	-	-	Low
048	Grassland area	Zv (2)	-	-	-	-	Low
049	Grassland / scrub area	Af (1)	Af (1)	Af (3)	Zv (1) Af (2)	-	Low
050	Grassland area	Nn (2) Zv (3)	Af (4) Zv (1)	Zv (2) Af (1)	Af (12)	Af (11) Zv (5)	Moderate
053	Grassland area	-	-	-	Af (3)	Af (2)	Low
054	Woodland edge	-	-	Af (2)	Af (2)	Af (1)	Low
057	Grassland area	Af (2)	-	Af (3)	-	Af (1)	Low
058	Roadside bank	-	Af (2)	Af (1)	-	Af (1)	Low
063	Along hedgerow	-	-	Nn (1)	Nn (1)	-	Low
067	Woodland edge	Af (1)	Zv (1) Af (2)	-	Zv (skin)	-	Low
068	Drainage ditch	- (incidental	Zv (1)	-	-	-	Low

Site No.	Area Description	Check 1	Check 2	Check 3	Check 4	Check 5	Population Conclusion
		sighting of Zv(1) during otter survey)					
069	Roadside bank	-	-	Zv (3)	Zv (5)	-	Moderate
070	Grass field	- (incidental sighting of Nn(1), Zv(1) during otter survey)	Habitat no longer suitable for reptiles.				Low
072	Drainage ditch	-	-	Nn (1)	-	-	Low
079	Along hedgerow	Zv (1)	-	Af (4)	-	-	Low
080	Grassland / scrub area	Af (1)	Af (4)	-	-	Af (1)	Low

4 EVALUATION AND CONCLUSIONS

4.1 General Evaluation

Three of the commoner species of reptile; Common Lizard (*Zootoca vivipara*), Slow Worm (*Anguis fragilis*) and Grass Snake (*Natrix natrix*) were recorded along the Onshore Cable Route during the presence/absence surveys, albeit at generally low levels in most areas.

The following 9 areas have higher number of reptiles:

- Sea cliff embankment at Bawdsey - Reptile location 002;
- Area of open woodland plantation – Reptile location 003;
- Area of scrub and bramble – Reptile location 007;
- Drainage ditches across the Alderton and Ramsholt Marshes – Reptile locations 012, 018, 020, 021 and 041;
- River flood defence embankments – Reptile locations 022 and 023;
- Railway embankment – Reptile location 043;
- Large area of grass and scrub – Reptile location 045;
- Area of grass, scrub and bracken – Reptile location 050; and
- Roadside grass bank – Reptile location 069.

5 REFERENCES

Beebee, T. & Griffith, R. (2000). *Amphibians and Reptiles*. HarperCollins, London.

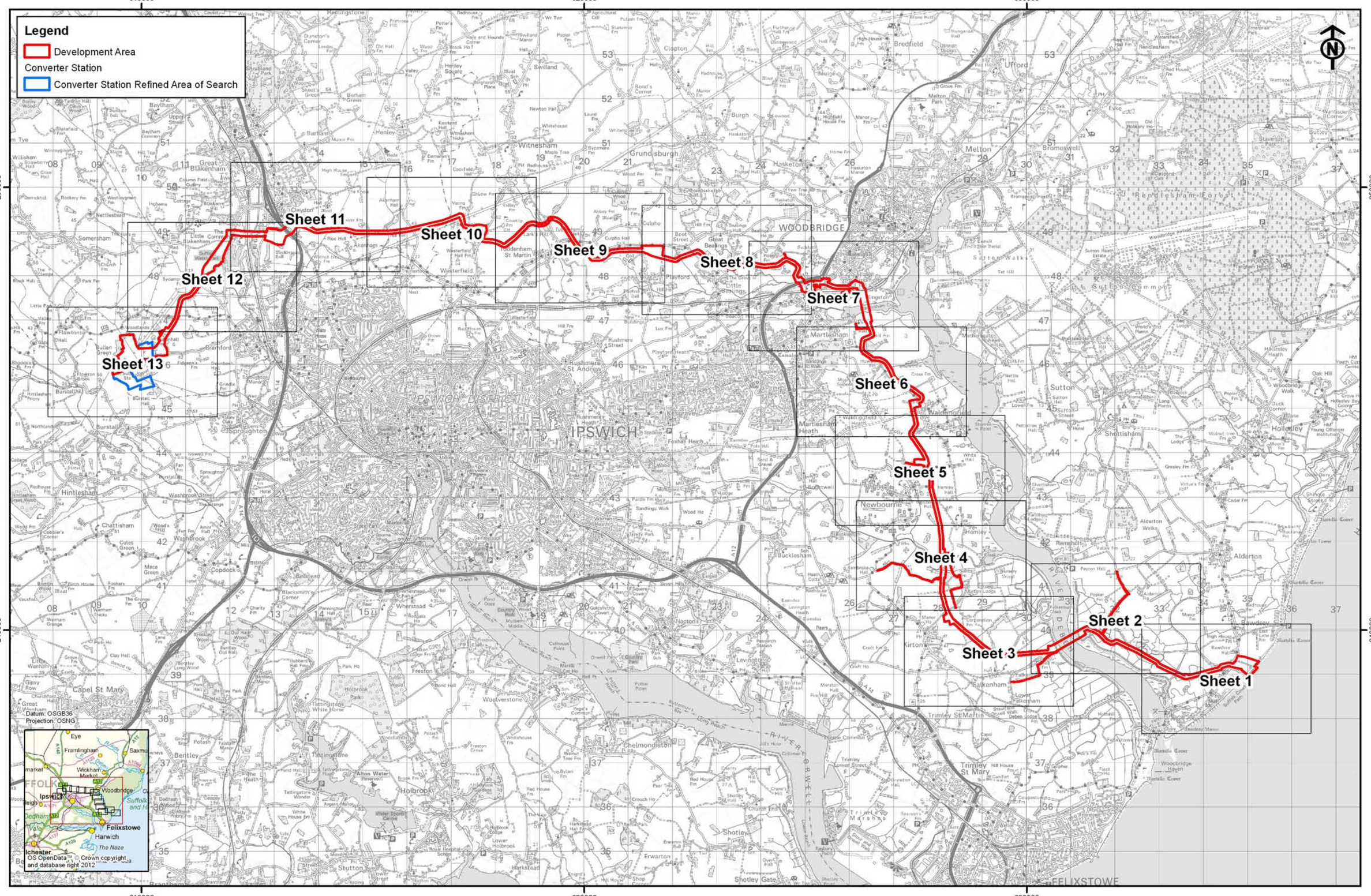
English Nature, (1996). *Reptile survey methods: Proceedings of a seminar held on 7 November 1995 at the Zoological Society of London's meeting rooms*, Regent's Park, London.

Gent, T & Gibson, S. (1998). *The Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.

6 FIGURES

Figure 24.8.1: Route Overview

Figure 24.8.2: Reptile Survey Locations



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02	01/10/12	SP	Development Area
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Original A3 Plot Scale 1:80,000

0 1 2 4 km

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Reptile Survey
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Appendix 24.8

Figure 24.8.1

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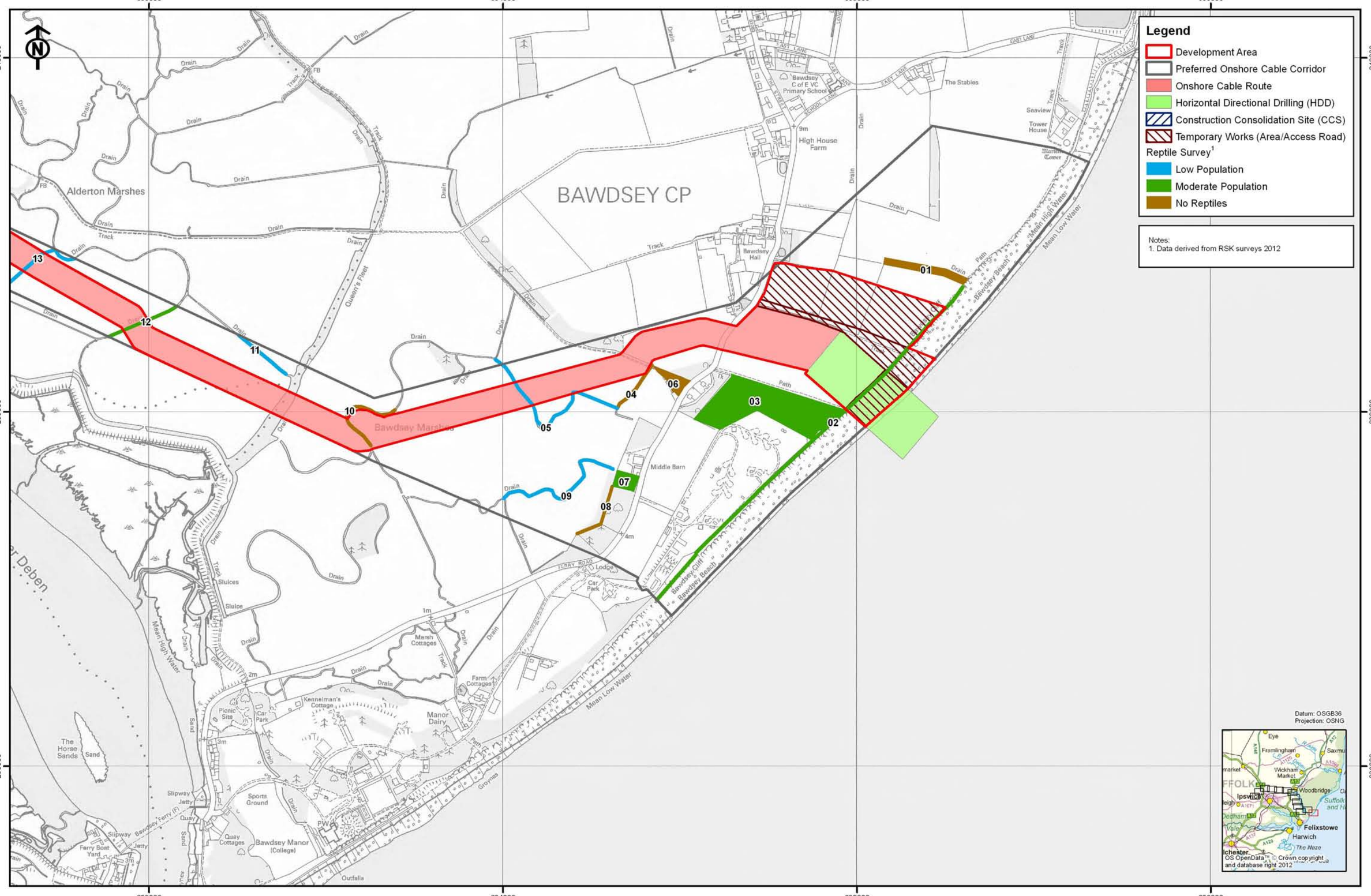

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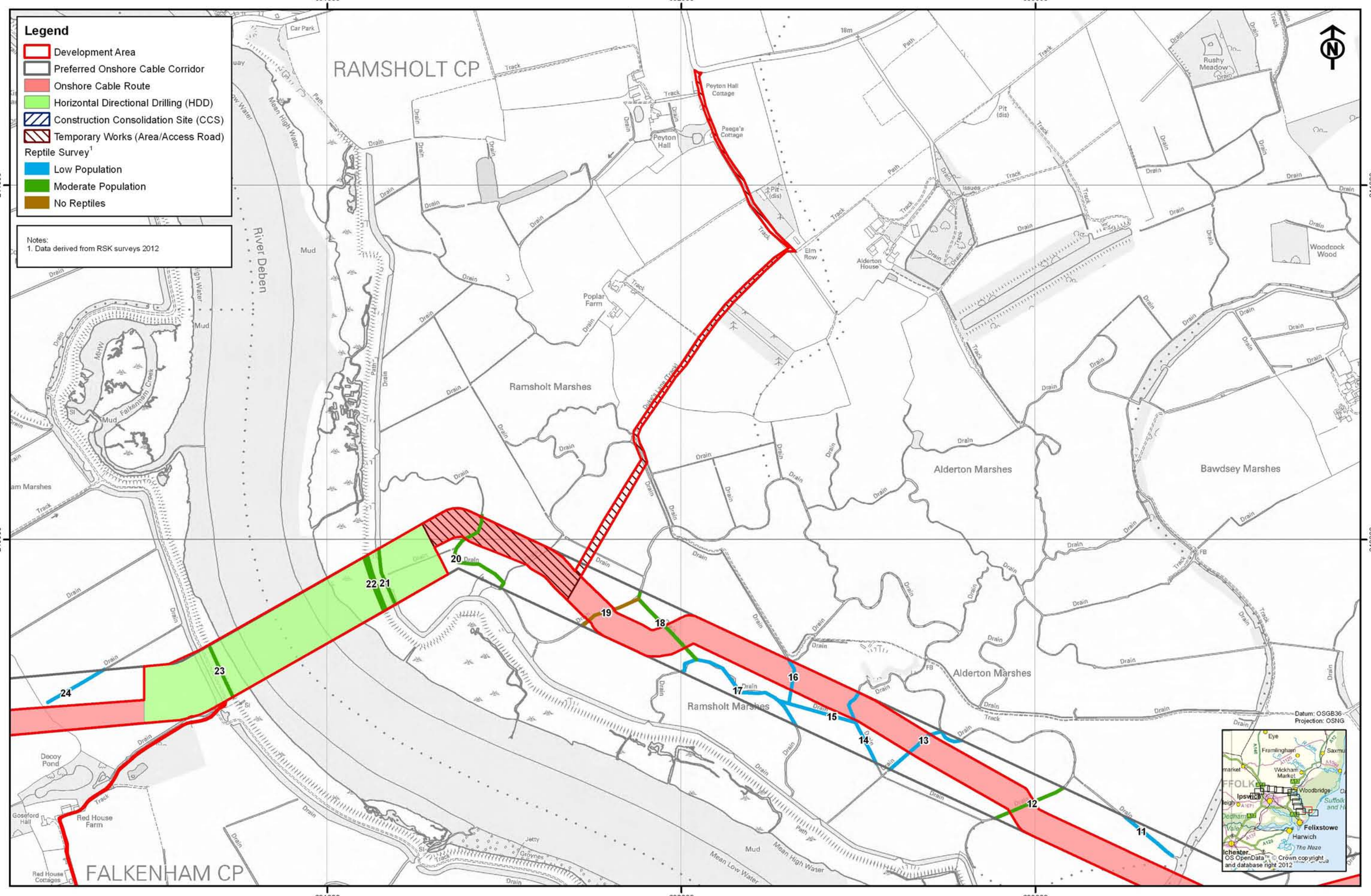

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Appendix 24.8

Figure 24.8.2

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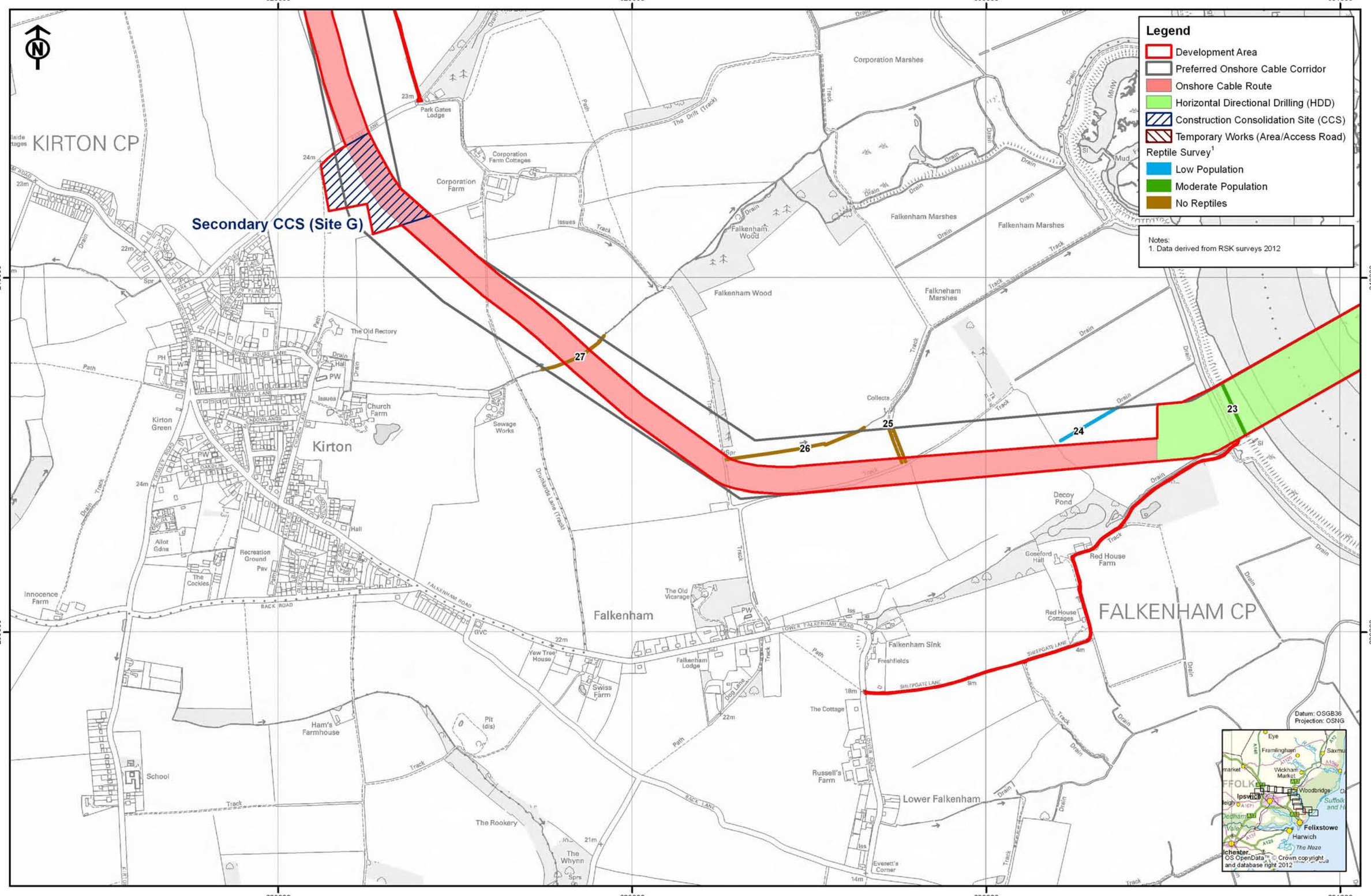

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Figure 24.8.2

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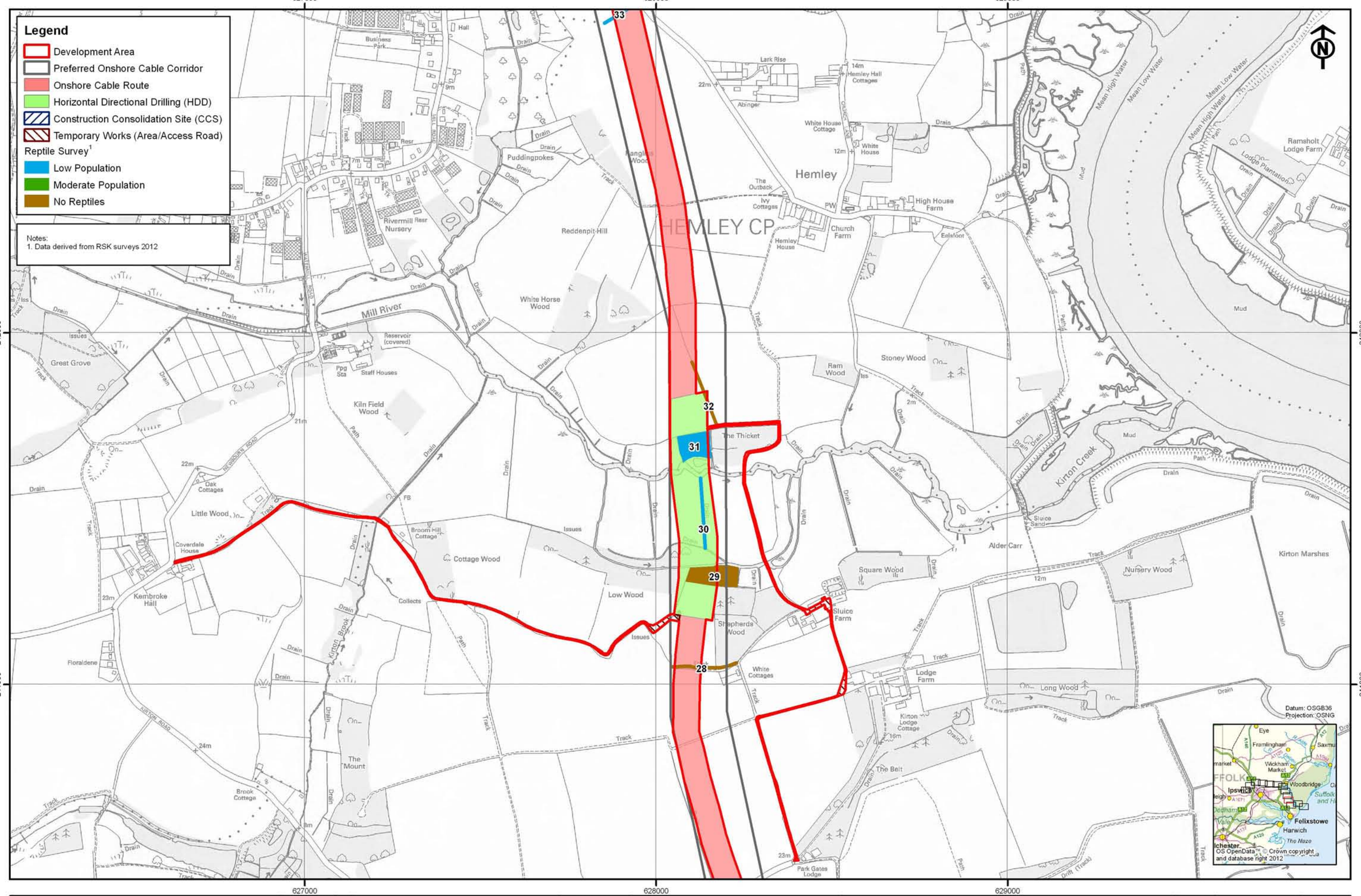

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Figure 24.8.2

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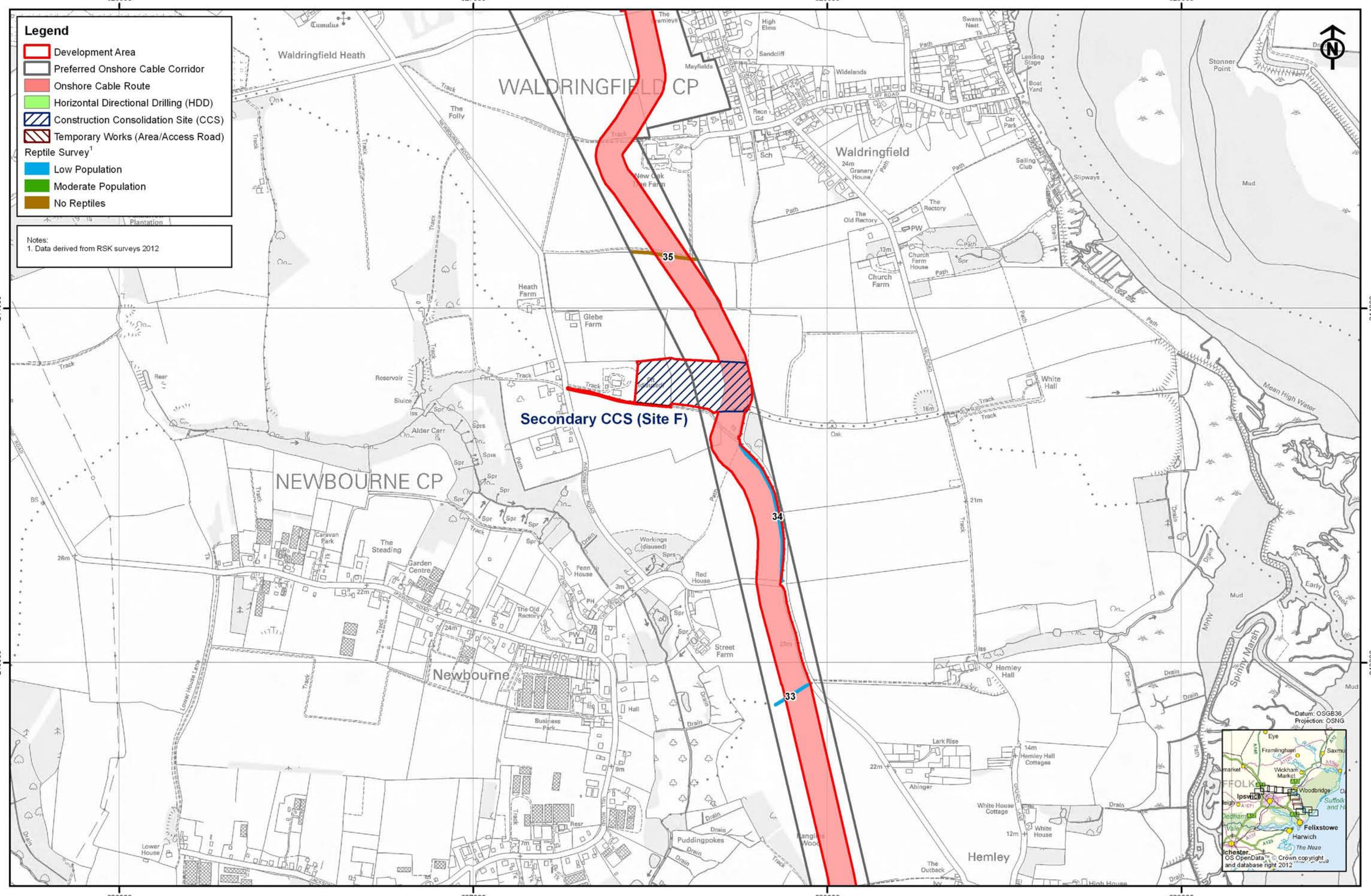

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Appendix 24.8

Figure 24.8.2

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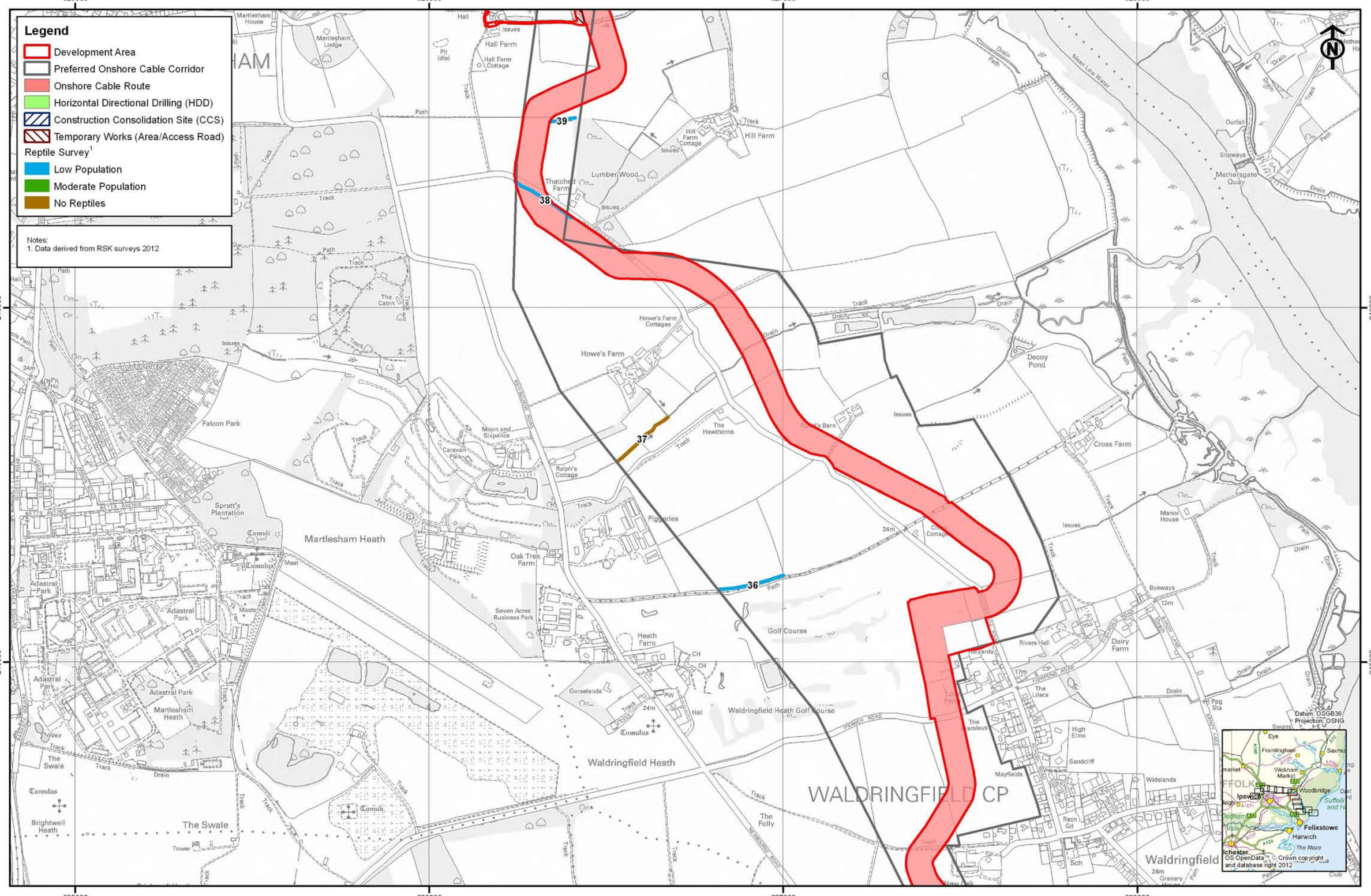

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01	30/08/12	SP	Updated cable route
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Figure 24.8.2

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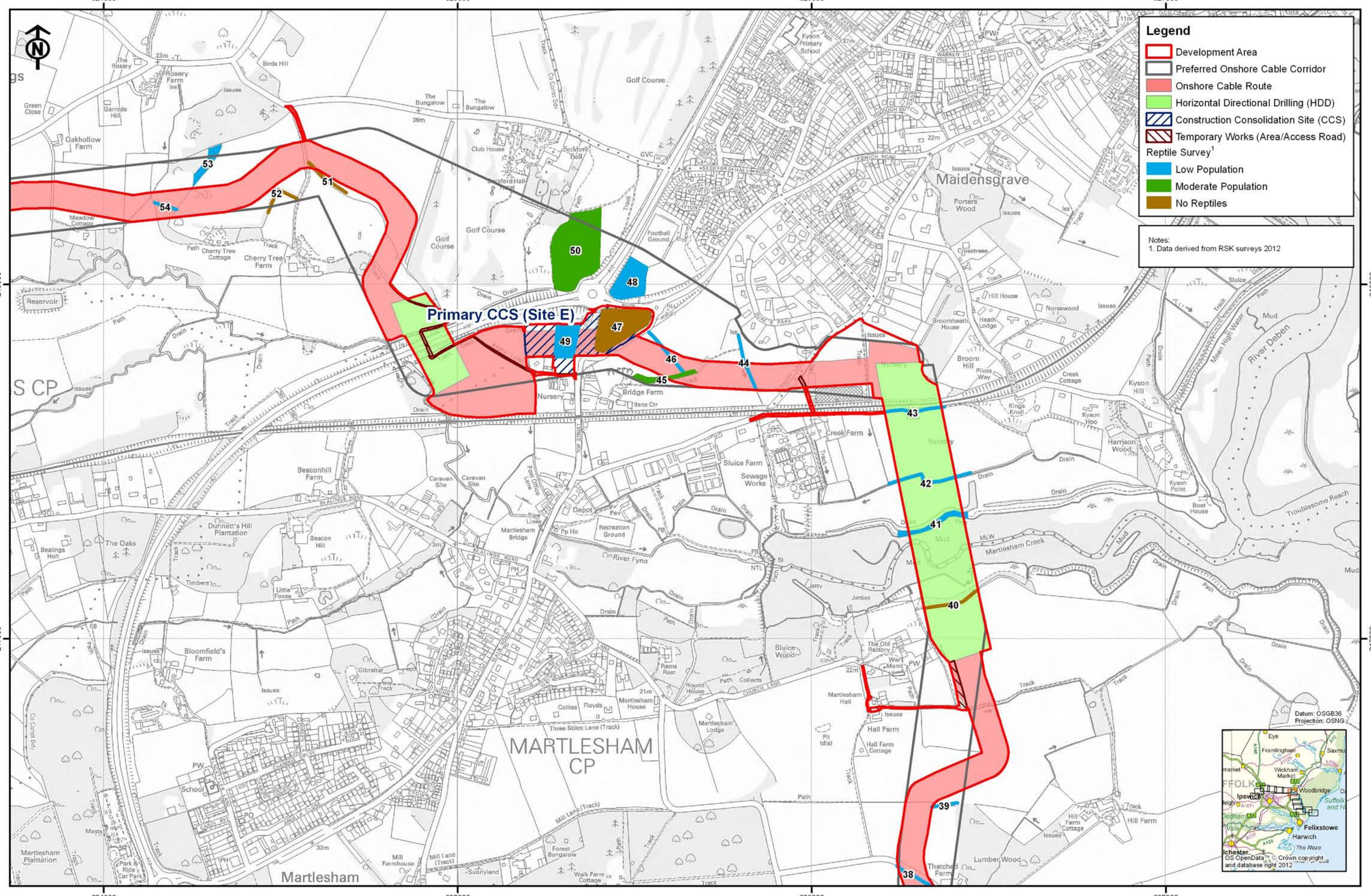

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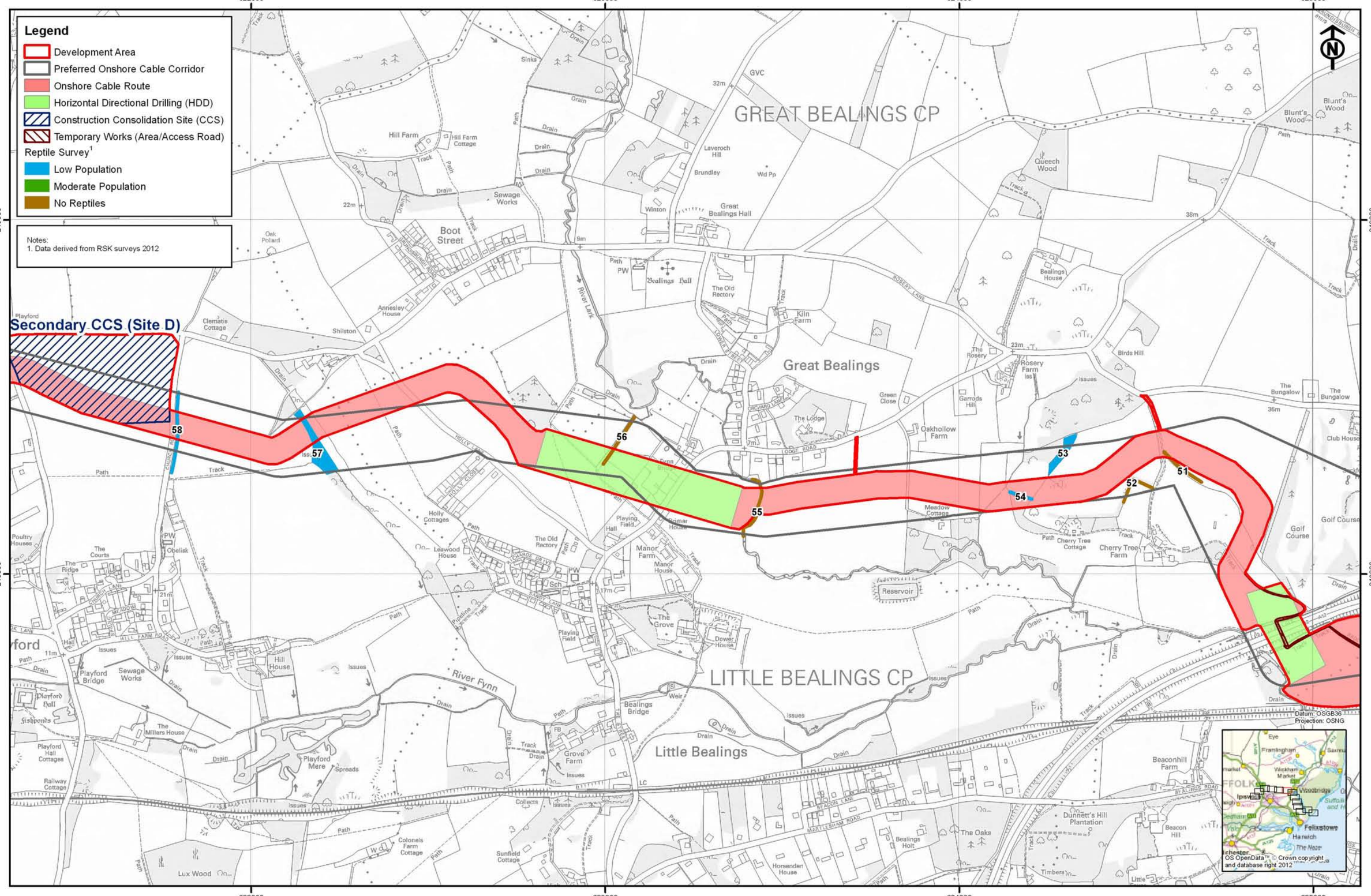

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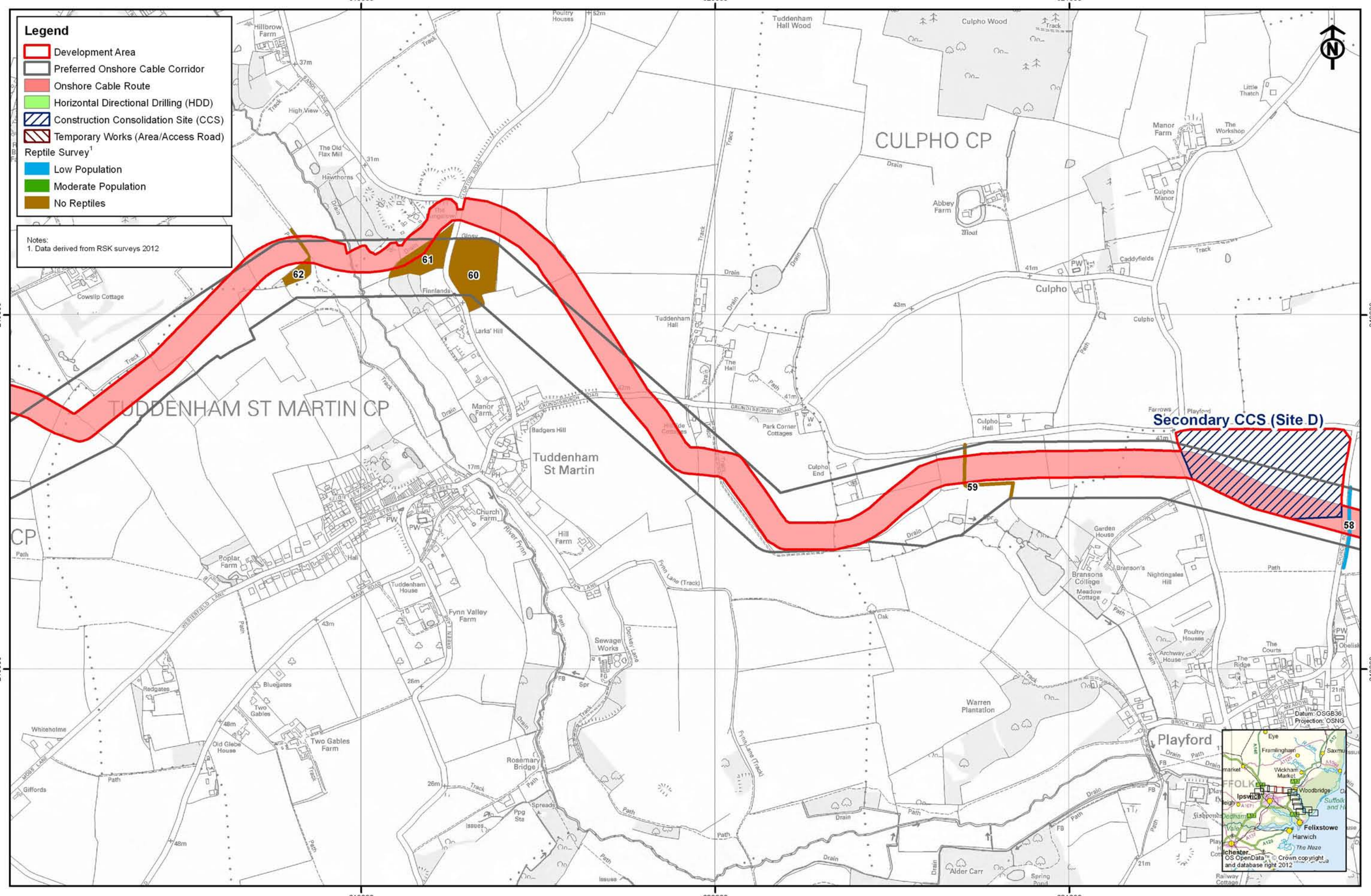

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Figure 24.8.2

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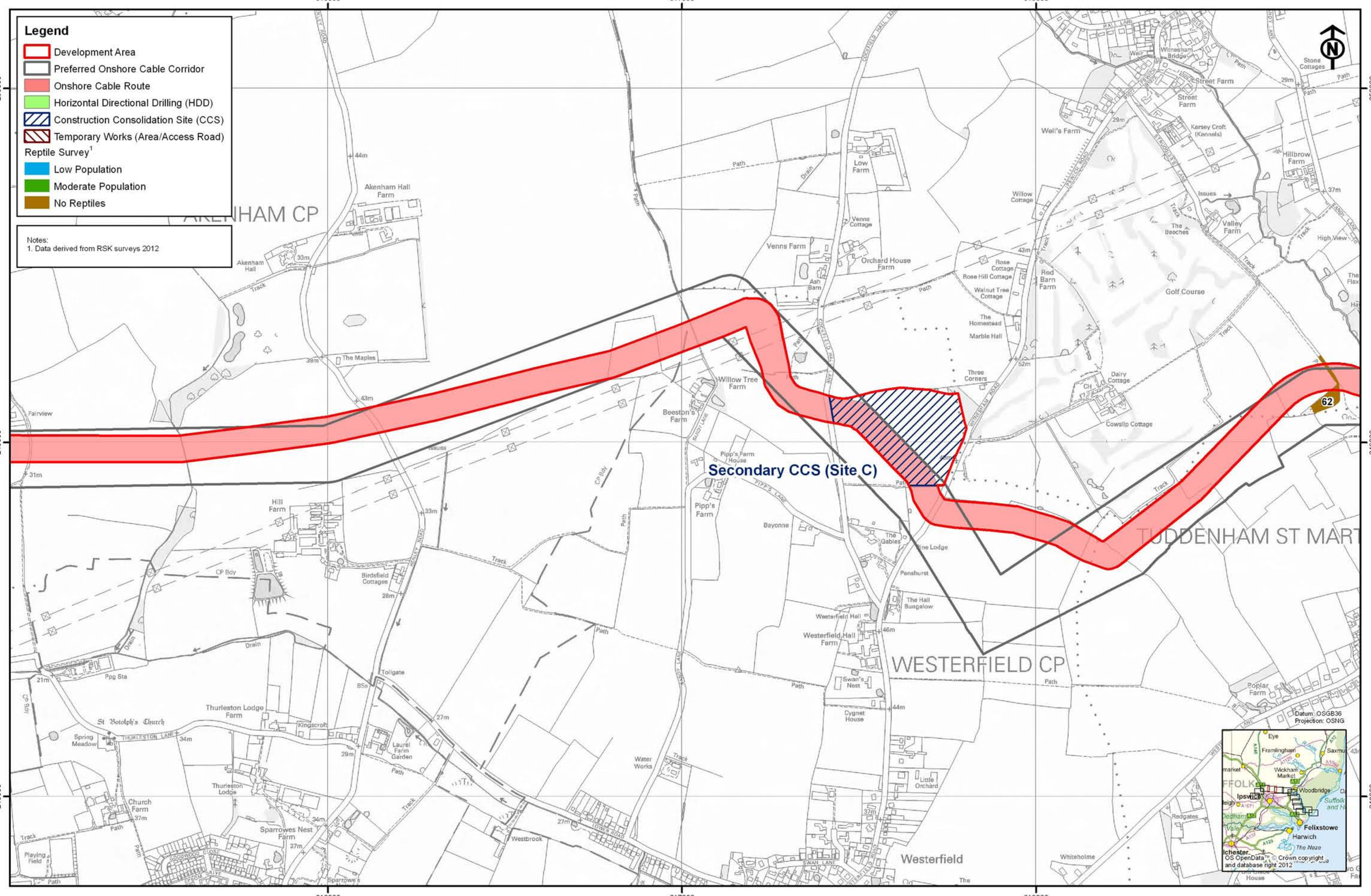

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Figure 24.8.2

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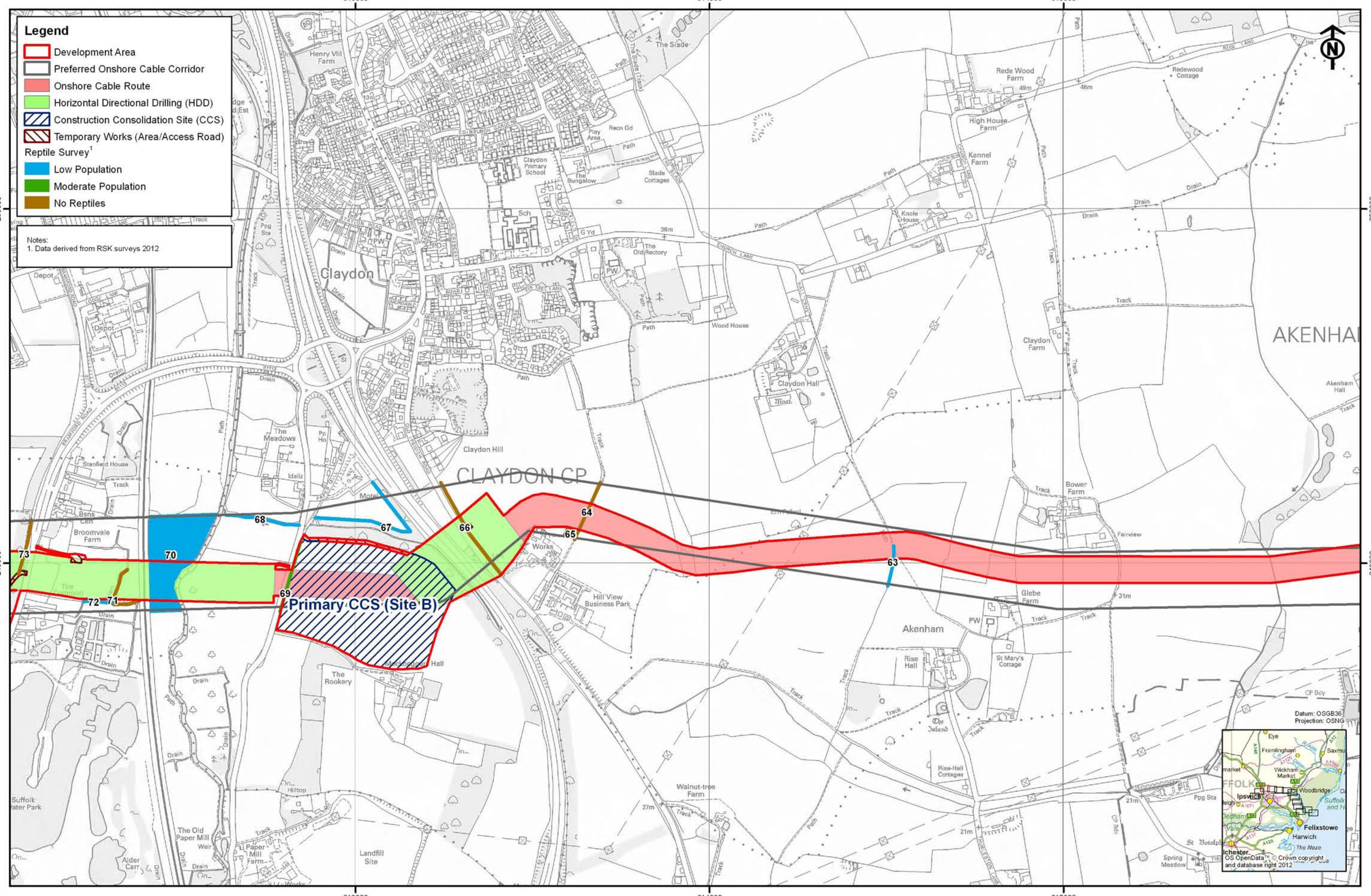

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SCOTTISHPOWER RENEWABLES VATTENFALL

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Figure 24.8.2

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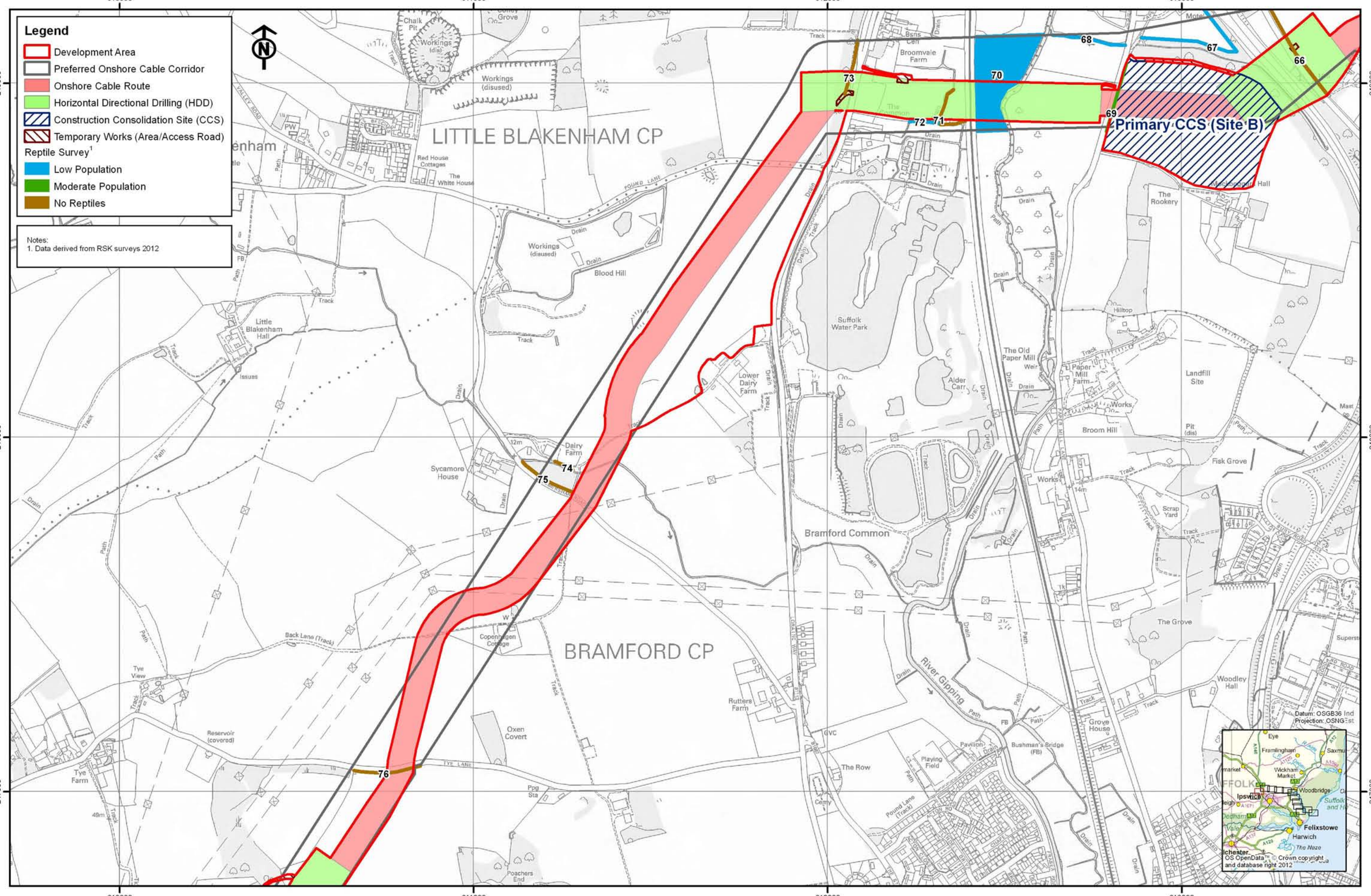

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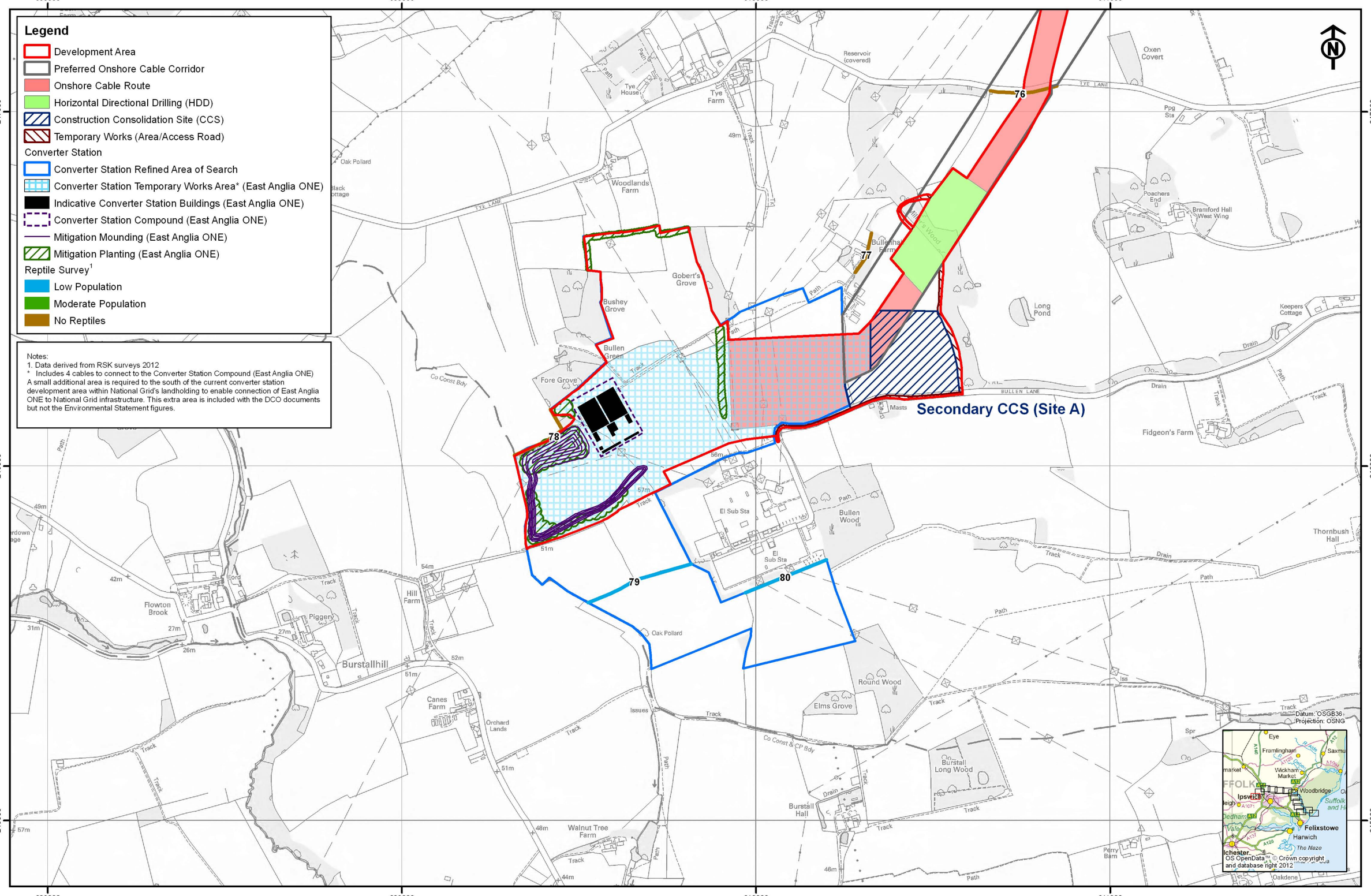

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00	15/08/12	SP	First issue

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Figure 24.8.2

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7 APPENDIX A – LEGISLATION

7.1 General

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

7.2 Common Reptiles

Zootoca vivipara (Common Lizard), *Natrix natrix* (Grass Snake), *Anguis fragilis* (Slow-worm), and *Vipera berus* (Adder) are listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1)*. This protection was extended by the CRoW Act.

Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

8 APPENDIX B – FULL SURVEY RESULTS

Table 2: Full survey data

Survey Location	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6 (if required)
REP 001	Bb (19SA) Rt (1SA)	Bb (4A, 31J) Rt (1A)	Bb (16SA)	Bb (3SA) Rt (1A)	-	N/A
REP 002	Bb (6SA) Zv (6A)	Bb (6A, 6J) Zv (5A, 3J)	Bb (7SA)	-	-	N/A
REP 003	Bb (2A, 17SA) Zv (5A, 3SA)	Bb (3A, 17J) Zv (3J)	Zv (A2), Bb (33SA)	Bb (8SA)	Zv (1A)	N/A
REP 004	Bb (5A, 3SA)	Bb (10J)	-	Bb (1A, 8J)	Bb (7J)	N/A
REP 005	Bb (2A, 10SA)	Bb (7J) Zv (1A)	-	Bb (3J)	Rt (2A) Bb (1A)	N/A
REP 006	-	Bb (1A, 5J) Rt (1A)	Bb (10SA)	-	-	N/A
REP 007	Zv (6SA)	Bb (6A, 45J)	Zv (1A), Bb (16SA)	-	-	N/A
REP 008	Bb (4A)	Bb (1A, 26J)	-	Bb (8J)	Zv (3A) Bb (9A)	N/A
REP 009	Bb (3A)	Bb (1A, 3J) Rt (1A) Zv (1A)	-	Zv (1A) Bb (2A)	Bb (3J) Rt (1A) Zv (3A)	N/A
REP 010	-	Bb (17SA) Rt (2SA)	Bb (30J, 5A)	Zv (1A) Bb (1A, 7J)	Bb (55J)	N/A
REP 011	Bb (5A, 5SA)	Zv (1A)	Zv (3A)	Zv (1A)	Bb (2SA)	N/A
REP 012	Bb (2A)	Zv (9A) Bb (1SA)	Zv (9A) Bb (1SA)	Zv (1A)	Zv (1A, 3J) Bb (5SA)	N/A
REP 013	Bb (4A)	Bb (10SA) Unsuitable conditions (too hot)	Zv (1A) Bb (25SA)	-	Bb (1A)	Bb (1J)
REP 014	Bb (3A)	Bb (6SA) Unsuitable conditions (too hot)	Bb (1J)	-	Zv (2A)	Zv (1A)

Survey Location	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6 (if required)
REP 015	Bb (4A, 1SA) Zv (2A)	Bb (6SA) Unsuitable conditions (too hot)	Zv (1A) Rt (1SA)	Bb (1A)	-	Zv (2A)
REP 016	Bb (3A, 1SA) Zv (3A)	Bb (1SA) Unsuitable conditions (too hot)	-	Rt (1A)	-	Zv (1A)
REP 017	Bb (3A, 3SA) Zv (4A)	Bb (5SA) Unsuitable conditions (too hot)	-	-	Bb (2A)	Zv (1A)
REP 018	Bb (3A, 6SA) Zv (6A, 2SA)	Bb (6SA) Unsuitable conditions (too hot)	Bb (1SA)	-	Bb (1A)	Zv (4A)
REP 019	Bb (3A, 6SA)	Bb (3SA) Unsuitable conditions (too hot)	Bb (2SA)	-	-	Bb (1SA)
REP 020	Bb (2A, 3SA) Zv (6A)	- Unsuitable conditions (too hot)	Bb (1SA)	Zv (5A)	Zv (2A, 1J) Bb (2A,4J) Rt (2A)	Zv (6A, 5J)
REP 021	Bb (2A, 2SA) Zv (7A)	- Unsuitable conditions (too hot)	Bb (1SA)	Zv (2A)	-	Zv (1A)
REP 022	Bb (3A) Zv (5A, 3SA)	Bb (4SA) Zv (2A)	Bb (2SA)	-	Zv (1A, 1J)	N/A
REP 023	Bb (1J)	Bb (8SA) Af (3A) Zv (4A)	Bb (23SA) Zv (7A) Af (2A)	Bb (23SA) Zv (1A) Af (1A)	Bb (2A 5J) Af (1J) Zv (3A)	N/A
REP 024	Bb (6J)	Bb (6SA) Zv (1J)	Bb (2SA)	Bb (5J)	-	N/A
REP 025	Lv (1J)	-	-	-	-	-
REP 026	Bb (1J)	-	-	-	-	N/A
REP 027	Bb (7J)	Bb (11SA)	Bb (1SA)	-	-	-
REP 028	Bb (8SA)	Bb (3SA, 1A) Rt (1SA)	Bb (1A, 2J)	Tiles removed – habitat no longer suitable.		
REP 029	Bb (3SA)	Bb (1SA,	-	-	Tiles removed – habitat no	

Survey Location	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6 (if required)
		1A)			longer suitable.	
REP 030	Zv (1A)	Bb (1SA, 1A)	Bb (1A)	-	-	N/A
REP 031	Af (4A) Bb (6SA) Rt (1A)	Bb (SA4)	Af (1A) Bb (1A) Zv (1A)	-	Af (1A) Zv (2J)	N/A
REP 032	Bb (3SA)	-	-	Bb (2SA) Rt (1A)	Rt (1A)	N/A
REP 033	Zv (1A)	-	-	-	Bb (25J)	N/A
REP 034	Zv (3J)	-	Bb (1A) Zv(2A)	Zv (2A)	-	N/A
REP 035	-	-	Rt (2A)	-	-	N/A
REP 036	-	-	Zv (2A)	-	-	N/A
REP 037	-	-	-	-	-	N/A
REP 038	-	Zv (1A,1J)	-	Zv (2A)	-	N/A
REP 039	-	Bb (1A)	Bb (3A)	-	Nn (1SA)	N/A
REP 040	-	-	-	-	-	N/A
REP 041	Af (1A) Nn (J2)	Af (1J) Zv (1A)	-	-	-	N/A
REP 042	Bb (1SA)	-	-	-	-	N/A
REP 043	Af (2A) Bb (1SA) Zv (1A)	Af (4A, 1J)	Lv (3J)	Af (5A)	Af (1A)	N/A
REP 044	-	-	Zv (1A) Af (1A)	-	-	N/A
REP 045	Zv (4A, 1SA)	Zv (4SA)	Zv (4A) Only quarter of tiles found	Bb (1SA)	Zv (2A)	Zv (1A) Bb (1SA)
REP 046	Zv (1A)	-	-	-	-	N/A
REP 047	-	-	-	-	-	N/A
REP 048	Zv (2A)	-	-	-	-	N/A
REP 049	Af (1A)	Af (1J)	Lv (1A) Af (3J) Bb (1A)	Zv (1A) Af (1A, 1J)	-	N/A
REP 050	Nn (2A)	Af (3J)	Zv (2A)	Af (5A, 7J)	Zv (5A)	N/A

Survey Location	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6 (if required)
	Zv (3A)	Zv (1A)	Af (1J) Bb (3SA)	Bb (2SA)	Af (9J, 2SA) Bb (3SA)	
REP 051	Bb (1SA)	Bb (6J)	Bb (4SA)	-	Bb (4SA)	N/A
REP 052	Bb (2SA)	-	Bb (3SA)	-	-	N/A
REP 053	-	Bb (3J)	-	Af (2A, 1SA)	Af (2A)	N/A
REP 054	Bb (3SA)	Bb (5J)	Af (1A, 1SA)	Af (1A, 1SA)	Af (1A)	N/A
REP 055	-	-	Bb (4SA)	-	Bb (3SA)	N/A
REP 056	-	Rt (3SA) Bb (2A)	Bb (2SA)	Bb (1A, 1SA)	Bb (2A) Rt (1A)	N/A
REP 057	Af (2A) Bb (20SA, 2A)	Bb (22SA)	Af (1A, 2J)	Af (1A)	Bb (1SA)	N/A
REP 058	Bb (1A, 4SA)	Af (2A)	Af (1A)	-	Af (1A)	N/A
REP 059	Bb (1A, 5SA)	-	Bb (2SA)	Bb (3SA)	-	N/A
REP 060	-	-	-	Bb (2SA)	-	N/A
REP 061	Bb (22SA) Rt (2A)	Bb (7SA)	-	-	-	N/A
REP 062	Bb (4SA)	Bb (5SA)	-	Bb (2SA)	Bb (1SA)	N/A
REP 063	Bb (2SA)	Bb (3SA)	Bb (1A) Nn (1J)	Nn (1J)	Bb (2SA)	N/A
REP 064	-	-	-	-	-	N/A
REP 065	-	-	-	-	-	N/A
REP 066	Bb (3A)	-	-	-	-	N/A
REP 067	Af (1SA)	Zv (1A) Af (1AF, 1J)	-	-	-	N/A
REP 068	-	Zv (1A)	-	-	-	N/A
REP 069	-	-	Zv (1A, 2J)	Zv (3A, 2J)	-	N/A
REP 070	-	Area no longer suitable				N/A
REP 071	-	-	-	-	-	N/A
REP 072	- Unsuitable conditions (too cold)	-	-	Nn (1J)	-	-

Survey Location	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6 (if required)
REP 073	-	-	-	-	-	N/A
REP 074	- Unsuitable conditions (too cold)	-	-	-	-	-
REP 075	- Unsuitable conditions (too cold)	-	-	-	-	-
REP 076	-	-	-	-	-	N/A
REP 077	- Unsuitable conditions (too cold / wet)	-	-	-	-	-
REP 078	-	-	-	-	-	N/A
REP 079	Zv (A)	-	Af (4SA)	-	-	N/A
REP 080	Af (1A)	Af (1A, 3J)	-	-	Af (1J)	N/A

Af – Slow Worm (*Anguis fragilis*)
Zv – Common Lizard (*Zootoca vivipara*),
Nn – Grass Snake (*Natrix natrix*)
Lv – Smooth Newt (*Lissotriton vulgaris*)
Bb – Common Toad (*Bufo bufo*)
Rt – Common Frog (*Rana temporaria*)

Juvenile – J, Sub adult – SA, Adult – A

Table 3: Survey dates and weather conditions for each survey location

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
REP 001	1	31/05/12	11.00	18.7	4	8	Wet night	Yes
	2	21/06/12	12.00	17.5	3	8	Damp	Yes
	3	10/07/12	10.00	17.6	3	8	Dry	Yes
	4	24/07/12	07.30	19.0	1	1	Dry	Yes
	5	02/08/12	10.30	18.0	3	8	Dry	Yes
REP 002	1	06/06/12	13.55	18.5	5	3	Spitting	Fair
	2	21/06/12	13.00	17.5	4	7	Damp	Yes
	3	10/07/12	11.00	17.6	3	8	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
		No more checks						
REP 003	1	31/05/12	09.30	18.1	4	8	Wet night	Yes
	2	21/06/12	14.00	17.5	3	8	Damp	Yes
	3	10/07/12	09.00	17.8	3	8	Dry	Yes
	4	24/07/12	06.30	14.2	1	1	Dry	Yes
	5	02/08/12	11.15	19.0	3	8	Dry	Yes
REP 004	1	06/06/12	15.15	18.6	5	3	Patchy rain	Fair
	2	21/06/12	16.15	19.0	2	8	Damp	Fair
	3	10/07/12	14.10	17.6	3	7	Dry	Yes
	4	24/07/12	08.20	19.5	1	1	Dry	Yes
	5	31/07/12	14.00	19.0	2	7	Dry	Yes
REP 005	1	06/06/12	15.45	17.9	4	3	Dry	Yes
	2	21/06/12	16.15	19.0	2	8	Damp	Fair
	3	10/07/12	15.40	17.1	1	7	Dry	Yes
	4	31/07/12	14.15	19.1	2	7	Dry	Yes
	5	07/08/12	11.30	19.0	4	7	Dry	Yes
REP 006	1	31/05/12	10.15	17.1	4	8	Wet night	Yes
	2	21/06/12	16.45	19	2	8	Damp	Fair
	3	10/07/12	13.50	17.5	2	7	Dry	Yes
	4	24/07/12	08.15	19.7	1	1	Dry	Yes
	5	31/07/12	14.20	19.0	2	7	Dry	Yes
REP 007	1	31/05/12	11.00	17.5	4	8	Wet night	Yes
	2	21/06/12	14.50	19.0	2	8	Damp	Fair
	3	10/07/12	13.30	19.4	1	7	Dry	Yes
		No more checks						
REP 008	1	06/06/12	16.30	17.9	3	5	Dry	Yes
	2	21/06/12	15.15	19.0	2	8	Damp	Fair
	3	10/07/12	14.30	17.5	1	7	Dry	Yes
	4	24/07/12	08.45	19.8	1	1	Dry	Yes
	5	30/07/12	15.05	19.0	2	7	Dry	Yes
REP 009	1	06/06/12	17.05	17.8	3	6	Dry	Yes
	2	21/06/12	16.15	19.0	2	8	Damp	Fair
	3	10/07/12	15.40	17.1	1	7	Dry	Yes
	4	31/07/12	14.40	19.0	2	7	Dry	Yes
	5	07/08/12	11.10	19.0	2	7	Dry	Yes
REP 010	1	06/06/12	17.50	17.8	3	6	Dry	Yes
	2	26/06/12	10.05	18.9	3	2	Hot & sunny	Yes
	3	10/07/12	08.30	17.1	7	8	Dry	Yes
	4	30/07/12	16.45	18.7	3	8	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
	5	07/08/12	10.40	19.4	2	7	Dry	Yes
REP 011	1	06/06/12	09.00	14.5	4	6	Spitting	Fair
	2	10/07/12	16.30	15.6	3	8	Dry	Yes
	3	24/07/12	09.20	19.7	1	1	Dry	Fair
	4	30/07/12	16.20	19.0	5	8	Dry	Yes
	5	07/08/12	10.50	19.4	4	7	Dry	Yes
REP 012	1	06/06/12	09.45	14.5	4	6	Dry	Yes
	2	10/07/12	16.30	15.6	3	8	Dry	Yes
	3	24/07/12	09.20	19.7	1	1	Dry	Fair
	4	30/07/12	16.15	19.0	5	8	Dry	Yes
	5	07/08/12	10.50	19.4	4	7	Dry	Yes
REP 013	1	07/06/12	10.00	15.1	4	6	Dry	Yes
	2	26/06/12	12.20	21.8	4	1	Hot & sunny	No
	3	11/07/12	10.40	13.7	4	6	Dry	Yes
	4	30/07/12	14.20	20.2	4	5	Dry	Yes
	5	02/08/12	08.40	16.9	3	8	Dry	Yes
	6	07/08/12	09.20	17.2	4	6	Dry	Yes
REP 014	1	07/06/12	10.10	15.3	4	5	Dry	Yes
	2	26/06/12	12.15	23.8	4	1	Hot & sunny	No
	3	11/07/12	10.30	19.1	4	6	Dry	Yes
	4	30/07/12	14.15	20.2	5	4	Dry	Yes
	5	02/08/12	08.40	16.5	3	3	Dry	Yes
	6	07/08/12	09.10	17.2	4	6	Dry	Yes
REP 015	1	07/06/12	10.25	15.3	3	5	Dry	Yes
	2	26/06/12	12.10	22.6	4	1	Hot & sunny	No
	3	11/07/12	10.20	19.6	4	8	Dry	Yes
	4	30/07/12	14.10	19.9	4	5	Dry	Yes
	5	02/08/12	08.40	16.6	3	8	Dry	Yes
	6	07/08/12	09.00	17.2	4	8	Dry	Yes
REP 016	1	07/06/12	10.48	15.1	3	5	Dry	Yes
	2	26/06/12	12.05	21.2	4	1	Hot & sunny	No
	3	11/07/12	10.10	19.8	4	8	Dry	Yes
	4	30/07/12	14.00	19.9	4	5	Dry	Yes
	5	02/08/12	08.25	16.8	3	8	Dry	Yes
	6	07/08/12	08.45	17.2	4	6	Dry	Yes
REP 017	1	07/06/12	11.20	15.5	3	5	Dry	Yes
	2	27/06/12	10.05	24.6	4	7	Hot & sunny	Yes
	3	11/07/12	11.35	20.0	4	8	Dry	No
	4	30/07/12	14.40	18.7	4	5	Dry	Yes
	5	02/08/12	09.00	16.2	3	8	Dry	Yes
	6	07/08/12	10.05	17.6	4	6	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
REP 018	1	07/06/12	11.40	15.2	3	5	Dry	Yes
	2	27/06/12	10.35	24.8	4	7	Hot & sunny	No
	3	11/07/12	11.15	21.0	4	8	Dry	Yes
	4	30/07/12	14.50	19.0	4	5	Dry	Yes
	5	02/08/12	09.05	16.4	3	8	Dry	Yes
	6	07/08/12	10.10	17.6	4	6	Dry	Yes
REP 019	1	07/06/12	12.05	15.3	4	6	Dry	Yes
	2	27/06/12	10.50	24.0	3	5	Hot & sunny	No
	3	11/07/12	11.15	21.0	4	8	Dry	Yes
	4	30/07/12	13.00	18.7	4	5	Dry	Yes
	5	02/08/12	09.10	16.6	3	8	Dry	Yes
	6	07/08/12	10.20	17.6	4	6	Dry	Yes
REP 020	1	07/06/12	12.40	16.0	4	6	Dry	Yes
	2	27/06/12	08.45	21.9	3	7	Hot & sunny	No
	3	11/07/12	12.00	20.0	4	5	Dry	Yes
	4	30/07/12	13.10	18.7	4	5	Dry	Yes
	5	02/08/12	09.20	16.8	3	8	Dry	Yes
	6	07/08/12	12.10	18.1	4	8	Dry	Yes
REP 021	1	07/06/12	13.10	16.1	4	7	Dry	Yes
	2	27/06/12	09.05	21.9	4	7	Hot & sunny	No
	3	11/07/12	12.15	19.0	4	5	Dry	Yes
	4	30/07/12	13.30	19.0	4	5	Dry	Yes
	5	02/08/12	09.30	16.7	3	8	Dry	Yes
	6	07/08/12	12.05	18.1	4	8	Dry	Yes
REP 022	1	07/06/12	13.40	16.1	4	8	Dry	Yes
	2	27/06/12	09.15	22.8	4	7	Hot & sunny	Fair
	3	11/07/12	12.30	18.0	4	5	Dry	Yes
	4	27/07/12	09.45	17.8	1	7	Dry	Yes
	5	30/07/12	15.40	19.0	5	6	Dry	Yes
REP 023	1	20/06/12	12.50	19.5	3	3	Hot & sunny	Fair
	2	28/06/12	08.30	20.8	4	6	Hot & sunny	Fair
	3	11/07/12	15.40	17.0	3	5	Dry	Yes
	4	26/07/12	10.45	20.6	2	1	Hot & sunny	Fair
	5	31/07/12	09.00	14.9	1	8	Dry	Yes
REP 024	1	20/06/12	12.20	19.5	3	3	Hot & sunny	Fair
	2	28/06/12	9.00	20.3	4	5	Hot & sunny	Fair
	3	11/07/12	17.00	17.0	3	5	Dry	Yes
	4	26/07/12	09.30	21.0	2	1	Hot & sunny	Fair
	5	31/07/12	10.15	14.9	1	8	Dry	Dry
REP 025	1	28/06/12	10.30	21.9	4	7	Hot & sunny	No
	2	11/07/12	16.45	18.0	3	6	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
	3	26/07/12	10.00	20.3	1	1	Dry	Fair
	4	31/07/12	10.30	15.0	1	8	Dry	Yes
	5	06/08/12	12.00	18.6	2	4	Dry	Yes
	6	08/08/12	09.50	15.7	1	7	Dry	Yes
REP 026	1	20/06/12	11.45	19.5	3	3	Hot & sunny	Fair
	2	28/06/12	10.15	21.8	4	7	Hot & sunny	Yes
	3	12/07/12	08.20	16.0	3	2	Dry	Yes
	4	31/07/12	10.40	14.0	1	8	Dry	Yes
	5	08/08/12	10.00	15.7	1	7	Dry	Yes
REP 027	1	20/06/12	11.30	20.0	3	3	Hot & sunny	Fair
	2	28/06/12	09.55	22.2	4	7	Hot & sunny	No
	3	12/07/12	08.40	17.0	3	2	Dry	Yes
	4	26/07/12	10.15	19.5	2	1	Dry	Yes
	5	31/07/12	11.00	14.0	1	8	Dry	Yes
	6	08/08/12	10.20	15.7	1	7	Dry	Yes
REP 028	1	18/05/12	11.30	16.1	3	6	Dry	Yes
	2	30/05/12	11.15	18.0	3	6	Dry	Yes
	3	20/06/12	11.05	19.5	3	3	Hot & sunny	Fair
		No more checks						
REP 029	1	18/05/12	10.50	16.9	3	6	Dry	Yes
	2	30/05/12	11.30	18.5	3	6	Dry	Fair
	3	20/06/12	10.30	19.5	3	3	Hot & sunny	Fair
	4	12/07/12	10.30	19.0	3	3	Dry	Fair
		No more checks						
REP 030	1	18/05/12	10.30	16.5	3	6	Dry	Yes
	2	30/05/12	12.00	18.5	3	3	Dry	Fair
	3	20/06/12	10.00	19.5	3	3	Hot & sunny	Fair
	4	12/07/12	09.20	19.0	3	2	Dry	Fair
	5	26/07/12	09.20	19.4	2	1	Dry	Yes
REP 031	1	18/05/12	10.15	16.3	3	5	Dry	Yes
	2	30/05/12	12.20	19.4	3	6	Dry	Fair
	3	19/06/12	13.00	19.5	2	4	Hot & sunny	Fair
	4	12/07/12	09.00	15.8	3	2	Dry	Yes
	5	20/07/12	09.20	17.0	1	5	Dry	Yes
REP 032	1	18/05/12	10.00	16.3	3	5	Dry	Yes
	2	30/05/12	12.50	19.8	3	1	Dry	Fair
	3	12/07/12	08.45	15.0	3	2	Dry	Yes
	4	20/07/12	08.50	16.0	1	5	Dry	Yes
	5	26/07/12	09.00	19.4	2	1	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
REP 033	1	18/05/12	09.45	16.3	2	5	Dry	Yes
	2	19/06/12	12.15	19.5	2	4	Hot & sunny	Fair
	3	12/07/12	08.30	15.5	3	1	Dry	Yes
	4	26/07/12	09.10	20.0	2	2	Dry	Yes
	5	31/07/12	11.45	14.0	1	8	Dry	Yes
REP 034	1	18/05/12	09.15	15.8	3	6	Dry	Yes
	2	30/05/12	10.05	17.2	4	3	Dry	Yes
	3	19/06/12	12.00	18.0	2	5	Hot & sunny	Yes
	4	11/07/12	15.55	16.0	1	7	Showering	Fair
	5	26/07/12	08.45	18.3	2	2	Dry	Yes
REP 035	1	17/05/12	15.30	14.5	2	7	Dry	Yes
	2	19/06/12	11.15	18.5	2	5	Hot & sunny	Yes
	3	11/07/12	15.20	16.1	1	6	Showering	Fair
	4	26/07/12	08.00	17.6	2	5	Dry	Yes
	5	01/08/12	09.20	19.2	1	6	Dry	Yes
REP 036	1	17/05/12	15.00	14.9	2	8	Dry	Yes
	2	18/06/12	17.15	17.5	2	6	Warm	Yes
	3	11/07/12	14.45	16.0	3	6	Showering	Fair
	4	26/07/12	07.15	16.4	2	7	Dry	Yes
		No more checks						
REP 037	1	17/05/12	14.00	15.3	2	8	Dry	Yes
	2	11/07/12	16.10	17.8	2	5	Dry	Yes
	3	26/07/12	07.30	15.9	2	6	Dry	Yes
	4	01/08/12	10.00	19.9	1	6	Dry	Yes
	5	03/08/12	10.00	18.9	2	1	Dry	Yes
REP 038	1	17/05/12	12.00	15.7	2	8	Dry	Yes
	2	18/06/12	16.00	17.5	2	6	Warm	Yes
	3	11/07/12	13.30	19.8	2	5	Dry	Yes
	4	17/07/12	13.15	22.0	3	7	Dry	Yes
	5	26/07/12	06.45	17.0	2	7	Dry	Yes
REP 039	1	17/05/12	12.20	15.7	2	8	Dry	Yes
	2	18/06/12	16.15	17.5	2	6	Warm	Yes
	3	11/07/12	13.40	17.8	2	5	Drizzle	Yes
	4	17/07/12	13.00	22.0	3	7	Dry	Yes
	5	26/07/12	07.00	17.0	2	7	Dry	Yes
REP 040	1	17/05/12	11.20	15.3	3	8	Dry	Yes
	2	14/16/12	17.15	16.5	4	3	Dry	Yes
	3	25/07/12	09.35	19.9	1	1	Dry	Yes
	4	01/08/12	10.30	20.0	1	6	Dry	Yes
	5	03/08/12	09.15	17.0	3	1	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
REP 041	1	17/05/12	10.45	15.3	3	8	Dry	Yes
	2	14/16/12	16.30	17.0	4	3	Dry	Yes
	3	11/07/12	13.00	16.5	3	7	Dry	Yes
	4	25/07/12	12.00	19.8	1	1	Dry	Yes
	5	01/08/12	09.50	19.5	2	6	Dry	Yes
REP 042	1	17/05/12	10.00	15.1	2	8	Dry	Yes
	2	14/16/12	16.00	17.0	4	3	Dry	Yes
	3	09/07/12	18.00	19.0	3	6	Dry	Fair
	4	17/07/12	11.00	19.0	3	6	Dry	Yes
	5	25/07/12	08.00	17.8	1	1	Dry	Yes
REP 043	1	17/05/12	09.30	15.1	2	8	Dry	Yes
	2	14/16/12	15.45	17.0	4	3	Dry	Yes
	3	09/07/12	18.00	19.0	3	6	Dry	Fair
	4	17/07/12	11.30	22.0	2	6	Dry	Yes
	5	25/07/12	08.00	17.8	1	1	Dry	Yes
REP 044	1	17/05/12	11.00	14.6	2	4	Dry	Yes
	2	14/16/12	15.00	17.5	4	3	Dry	Yes
	3	09/07/12	14.15	21.7	3	6	Dry	Fair
	4	01/08/12	08.55	18.8	2	6	Dry	Yes
	5	03/08/12	08.50	18.0	3	1	Dry	Yes
REP 045	1	17/05/12	11.15	14.9	2	5	Dry	Yes
	2	31/05/12	19.00	15.7	6	8	Damp	Yes
	3	14/06/12	15.25	17.0	4	3	Dry	Yes
	4	09/07/12	14.40	23.6	3	6	Dry	Fair
	5	17/07/12	09.30	19.0	2	6	Dry	Yes
	6	25/07/12	07.15	14.0	1	1	Dry	Yes
REP 046	1	17/05/12	10.45	14.8	1	4	Dry	Yes
	2	31/05/12	18.45	15.8	6	8	Damp	Yes
	3	14/06/12	15.10	17.0	4	3	Dry	Yes
	4	09/07/12	14.00	21.7	3	6	Dry	Fair
	5	17/07/12	09.30	19.0	2	6	Dry	Yes
REP 047	1	17/05/12	10.00	15.4	3	8	Dry	Yes
	2	17/07/12	07.30	16.0	3	6	Dry	Yes
	3	25/07/12	06.45	13.5	1	1	Dry	Yes
	4	31/07/12	13.20	19.4	1	8	Dry	Yes
	5	03/08/12	08.50	18.5	3	2	Dry	Yes
REP 048	1	16/05/12	17.00	15.7	4	5	Dry	Yes
	2	13/07/12	10.30	17.0	2	8	Dry	Yes
	3	17/07/12	07.50	16.0	3	4	Dry	Yes
	4	25/07/12	07.50	16.3	1	1	Dry	Yes
	5	31/07/12	13.50	19.5	1	8	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
REP 049	1	31/05/12	18.20	16.6	6	8	Damp	Yes
	2	14/06/12	14.30	17.5	4	2	Dry	Yes
	3	09/07/12	13.30	18.5	3	8	Dry	Yes
	4	13/07/12	10.30	17.0	2	8	Dry	Yes
	5	17/07/12	07.15	16.0	3	6	Dry	Yes
REP 050	1	16/05/12	16.00	15.8	4	5	Dry	Yes
	2	14/06/12	12.40	17.5	3	1	Dry	Yes
	3	09/07/12	16.10	19.0	3	8	Dry	Yes
	4	26/07/12	08.35	18.9	3	2	Dry	Yes
	5	31/07/12	14.10	19.2	2	8	Dry	Yes
REP 051	1	16/05/12	14.30	15.9	3	4	Dry	Yes
	2	14/06/12	10.50	16.0	4	1	Dry	Yes
	3	09/07/12	16.40	19.0	3	8	Dry	Yes
	4	26/07/12	07.45	19.0	1	7	Dry	Yes
	5	31/07/12	14.55	16.1	1	8	Dry	Yes
REP 052	1	16/05/12	14.40	15.9	3	4	Dry	Yes
	2	14/06/12	11.15	16.0	4	1	Dry	Yes
	3	09/07/12	16.55	19.0	3	8	Dry	Yes
	4	26/07/12	07.30	16.1	1	7	Dry	Yes
	5	31/07/12	14.40	19.5	1	8	Dry	Yes
REP 053	1	16/05/12	15.00	15.1	2	5	Dry	Yes
	2	14/06/12	12.10	15.5	4	1	Dry	Yes
	3	11/07/12	11.00	17.0	2	6	Showering	Fair
	4	26/07/12	08.05	18.2	2	6	Dry	Yes
	5	30/07/12	16.05	16.9	5	6	Dry	Yes
REP 054	1	16/05/12	15.30	15.1	2	5	Dry	Yes
	2	14/06/12	11.50	15.5	3	1	Dry	Yes
	3	26/07/12	08.20	18.2	2	6	Dry	Yes
	4	30/07/12	15.45	16.9	6	6	Dry	Yes
	5	03/08/12	09.40	18.9	3	3	Dry	Yes
REP 055	1	16/05/12	12.30	17.3	3	2	Dry & sunny	Yes
	2	14/06/12	10.15	15.5	2	2	Dry	Yes
	3	11/07/12	10.30	16.0	4	4	Dry	Yes
	4	26/07/12	07.10	15.1	1	8	Dry	Yes
	5	31/07/12	15.15	19.0	1	8	Dry	Yes
REP 056	1	13/06/12	15.00	15.0	2	8	Dry	Yes
	2	11/07/12	10.00	15.5	2	8	Dry	Yes
	3	13/07/12	11.00	17.0	2	8	Dry	Yes
	4	26/07/12	06.55	14.8	1	7	Dry	Yes
	5	30/07/12	15.50	16.8	1	7	Dry	Yes
REP	1	16/05/12	10.05	11.8	2	1	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
057	2	13/06/12	14.50	12.5	2	8	Dry	Yes
	3	11/07/12	09.20	15.0	4	7	Dry	Yes
	4	30/07/12	16.45	16.8	4	6	Dry	Yes
	5	03/08/12	09.10	18.4	3	3	Dry	Yes
REP 058	1	16/05/12	11.00	11.8	2	2	Cold night	Yes
	2	13/06/12	14.50	12.3	1	7	Dry	Yes
	3	02/07/12	16.45	21.0	3	7	Warm & dry	Fair
	4	11/07/12	09.00	14.0	2	8	Dry	Fair
	5	17/07/12	17.30	22.0	1	7	Dry	Fair
REP 059	1	16/05/12	11.45	17.2	1	4	Cold night	Yes
	2	17/07/12	16.30	22.0	1	7	Dry	Fair
	3	26/07/12	06.35	13.6	2	8	Dry	Yes
	4	31/07/12	16.10	17.6	1	8	Dry	Yes
	5	03/08/12	09.50	18.9	3	3	Dry	Yes
REP 060	1	16/05/12	12.00	16.8	2	2	Dry & sunny	Yes
	2	13/06/12	15.00	11.3	1	7	Dry	Yes
	3	02/07/12	15.50	20.0	3	8	Warm & dry	Fair
	4	11/07/12	08.20	13.0	3	8	Dry	Yes
	5	17/07/12	17.00	22.0	1	7	Dry	Fair
REP 061	1	17/05/12	12.05	15.8	2	5	Dry	Yes
	2	14/06/12	09.05	15.0	3	1	Dry	Yes
	3	11/07/12	17.00	17.0	1	7	Dry	Yes
	4	31/07/12	12.05	15.9	1	7	Dry	Yes
	5	07/08/12	14.45	18.9	1	3	Dry	Yes
REP 062	1	16/05/12	11.20	15.1	2	2	Dry & sunny	Yes
	2	13/06/12	13.50	10.0	2	3	Dry	Yes
	3	10/07/12	16.00	20.1	2	8	Dry	Yes
	4	19/07/12	12.30	18.0	2	8	Dry	Fair
	5	25/07/12	08.20	20.4	1	1	Dry	Yes
REP 063	1	16/05/12	09.45	11.8	3	1	Dry	Yes
	2	13/06/12	12.00	9.15	2	2	Dry	Yes
	3	03/07/12	14.30	20.0	2	8	Spitting	Fair
	4	10/07/12	15.30	18.5	2	7	Dry	Yes
	5	19/07/12	11.30	18.0	3	8	Dry	Yes
REP 064	1	12/06/12	17.30	12.0	3	8	Dry	Yes
	2	29/06/12	11.10	21.8	5	6	Dry	Fair
	3	03/07/12	14.45	22.0	2	8	Warm	Fair
	4	10/07/12	14.40	18.9	2	7	Dry	Yes
	5	19/07/12	10.45	19.0	2	4	Dry	Yes
REP 065	1	12/06/12	17.10	13.0	2	8	Dry	Yes
	2	29/06/12	11.00	21.8	5	6	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
	3	03/07/12	15.00	22.0	2	8	Warm	Fair
	4	10/07/12	14.30	18.6	2	7	Dry	Yes
	5	19/07/12	10.45	19.0	2	4	Dry	Yes
REP 066	1	12/06/12	16.50	13.0	2	8	Dry	Yes
	2	25/06/12	17.50	20.2	2	3	Dry	Fair
	3	03/07/12	14.15	21.0	2	8	Spitting	Fair
	4	10/07/12	14.15	18.9	2	7	Dry	Yes
	5	19/07/12	10.45	19.0	2	4	Dry	Yes
REP 067	1	29/06/12	11.20	20.1	5	7	Dry	Fair
	2	10/07/12	11.35	17.5	2	7	Dry	Yes
	3	13/07/12	10.00	17.0	2	8	Dry	Yes
	4	19/07/12	09.50	20.0	2	6	Dry	Yes
	5	25/07/12	07.35	16.5	1	1	Dry	Fair
REP 068	1	29/06/12	11.30	20.1	5	7	Dry	Fair
	2	10/07/12	12.15	19.4	2	7	Dry	Yes
	3	19/07/12	09.50	20.0	2	6	Dry	Yes
	4	31/07/12	09.55	15.5	1	7	Dry	Yes
		No more checks						
REP 069	1	12/06/12	16.50	13.0	2	8	Dry	Yes
	2	25/06/12	17.30	20.5	2	3	Dry	Fair
	3	10/07/12	12.25	19.4	2	7	Dry	Yes
	4	19/07/12	10.15	20.0	2	6	Dry	Yes
	5	25/07/12	07.40	17.0	1	1	Dry	Yes
REP 070	1	12/06/12	15.00	14.5	4	8	Dry	Fair
	2	10/07/12	13.30	19.0	2	6	Dry	Yes
		No more checks						
REP 071	1	15/05/12	17.45	12.9	5	5	Damp	Fair
	2	12/06/12	14.30	14.0	5	8	Dry	Fair
	3	10/07/12	10.50	17.1	4	8	Dry	Yes
	4	19/07/12	09.15	18.0	2	6	Dry	Yes
	5	25/07/12	07.20	16.3	1	1	Dry	Yes
REP 072	1	15/05/12	17.45	12.9	5	5	Damp	No
	2	12/06/12	13.50	14.0	5	8	Dry	Fair
	3	10/07/12	10.30	17.0	4	8	Dry	Yes
	4	19/07/12		18.0	2	6	Dry	Yes
	5	25/07/12	07.15	16.3	1	1	Dry	Yes
	6	31/07/12	09.50	14.0	2	6	Dry	Yes
REP 073	1	12/06/12	14.15	14.0	5	8	Dry	Fair
	2	10/07/12	10.20	17.0	4	8	Dry	Yes

Site No	Survey Visit	Date	Time	Temp (air)	Wind (Beaufort)	Cloud (Octas)	Additional Weather Notes	Suitable Conditions Yes, No or Fair
	3	13/07/12	10.30	17.0	2	8	Dry	Yes
	4	19/07/12	09.00	17.6	2	6	Dry	Yes
	5	25/07/12	07.05	16.3	1	1	Dry	Yes
REP 074	1	15/05/12	17.05	12.4	5	7	Damp	No
	2	12/06/12	13.00	12.5	5	8	Dry	Fair
	3	10/07/12	13.10	20.2	3	7	Dry	Fair
	4	19/07/12	08.45	17.0	2	2	Dry	Yes
	5	25/07/12	06.45	15.3	1	1	Dry	Yes
	6	30/07/12	13.15	17.2	4	6	Dry	Yes
REP 075	1	15/05/12	17.05	12.4	5	7	Damp	No
	2	12/06/12	13.20	12.5	5	8	Dry	Fair
	3	10/07/12	12.45	20.8	3	7	Dry	Fair
	4	19/07/12	08.45	17.0	2	2	Dry	Yes
	5	25/07/12	06.35	15.3	1	1	Dry	Yes
	6	30/07/12	13.20	17.2	4	6	Dry	Yes
REP 076	1	15/05/12	12.55	14.2	5	7	Dry	Fair
	2	12/06/12	10.50	14.3	5	8	Spitting	Fair
	3	05/07/12	10.00	22.0	2	7	Humid & dry	Fair
	4	10/07/12	08.00	17.3	2	6	Dry	Yes
	5	18/07/12	09.00	17.0	1	8	Humid	Fair
REP 077	1	15/05/12	16.40	12.8	5	7	Showers	No
	2	12/06/12	12.45	12.0	5	8	Dry	Fair
	3	04/07/12	09.40	21.2	3	7	Humid & warm	Fair
	4	10/07/12	10.05	18.0	1	7	Dry	Fair
	5	18/07/12	09.30	19.0	2	8	Humid & damp	Fair
	6	25/07/12	09.20	24.1	1	1	Dry	Fair
REP 078	1	12/06/12	11.10	12.3	5	8	Dry	Fair
	2	05/07/12	09.00	22.0	2	6	Humid & warm	Fair
	3	10/07/12	08.15	16.2	3	7	Dry	Yes
	4	19/07/12	10.30	19.0	3	8	Humid & damp	Fair
	5	25/07/12	11.00	25.6	1	1	Dry	Fair
REP 079	1	12/06/12	11.30	11.8	5	8	Dry	Fair
	2	04/07/12	10.25	22.4	3	7	Humid & warm	Fair
	3	10/07/12	09.25	17.5	2	8	Dry	Yes
	4	18/07/12	10.30	19.0	3	8	Humid & damp	Fair
	5	25/07/12	10.00	24.8	1	1	Dry	Fair
REP 080	1	12/06/12	12.10	12.2	5	8	Dry	Fair
	2	04/07/12	10.50	22.6	3	7	Humid & warm	Fair
	3	10/07/12	09.00	17.5	2	8	Dry	Yes
	4	18/07/12	10.45	19.0	3	8	Humid & damp	Fair
	5	25/07/12	10.10	24.8	1	1	Dry	Fair

Terrestrial Invertebrate Surveys Report

Appendix 24.9

Terrestrial Invertebrate Survey Report

Commissioned by
RSK
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

EAST ANGLIA CABLE INVERTEBRATE SURVEY REPORT

Report number BS/2709/12

August 2012

Prepared by

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ACKNOWLEDGEMENTS

Field work for this survey was undertaken by Marcel ASHBY, Tristan BANTOCK and Colin PLANT.

Specimen identification was mostly undertaken in-house by the three above named persons, but **Colin Plant Associates (UK)** also wishes to acknowledge the specialist taxonomic input received from Norman HEAL (Coleoptera), Rob PARKER (butterflies) and John & Barbara ISMAY (Diptera).

1 INTRODUCTION AND METHODOLOGY

1.1 Introduction

1.1.1 **Colin Plant Associates (UK)** were commissioned by **RSK**, on 24th May 2012, to undertake an examination of invertebrate habitats along the proposed route of a subterranean cable from its landfall on the North Sea coast of Suffolk to a sub-station at Bramford in the same county. This report forms Appendix 24.9 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement.

1.1.2 The entire length of the proposed route was examined during 4th and 5th May 2012. Much of the route passes across arable fields of no supposed invertebrate interest; we did not walk these areas, but all remaining places, including all hedges and lane verges, were examined on foot.

1.1.3 As a result of our findings on this "walkover" survey, we were able to determine those areas where the invertebrate interest might be raised and to which further visits ought to be made.

1.1.4 Subsequent visits were made on several dates throughout June and July 2012 by three persons. On these visits, invertebrate species sampling was undertaken where we deemed it appropriate to facilitate an understanding of the ecological worth of a particular area. At some, we then returned at a more appropriate date in order to look for certain target invertebrate species.

1.1.5 Colin Plant Associates were not commissioned to examine any area below the tide line. Consequently, this report does not cover the marine elements of the route.

1.2 Survey Constraints

1.2.1 As a direct consequence of the widely documented southwards shift of the jet stream, an air current in the upper atmosphere, from its normal path north of Scotland to flow across central France, a continuous series of atmospheric depressions brought rain to all of Britain on a daily basis during the period from 24th April to 20th July. Apart from a short spell from 23rd to 29th May, rain fell at least once on every day, often heavily and sometimes torrentially so, with much, well-publicised flooding across the country.

1.2.4 After the second week of July the jet steam moved back to the north and following a dry day on 21st July, the next week was blisteringly hot and sunny; we were able to fit in a number of final site visits in this period.

1.2.2 This had an adverse effect on invertebrate survey – and seemingly on invertebrates. Throughout the period, many normally common and widespread species were not encountered using active sampling, though some were present in malaise traps and other passive systems that could not be used in the present survey. Numbers of individuals within almost all species were severely depressed and this situation was also repeated in passive traps. At a practical level, use of sweep nets on wet vegetation is not possible and this restricted our abilities to some degree.

1.2.3 As a result of the walkover survey rather few areas warranting sampling were in fact identified; in general all three surveyors felt that the route largely crossed areas of land having minimal invertebrate value within the ecology of the wider landscape. This allowed us to dedicate the reduced number of weather-appropriate sampling days available towards examination of the few key areas that were judged likely to be of greater importance.

1.3 Methodology

1.3.1 Active sampling was undertaken by direct observation and by the following active sampling methods at location detailed in Sections 2 and 3:

Sweep-netting. A stout hand-held net is moved vigorously through vegetation to dislodge resting insects. The technique may be used semi-quantitatively by timing the number of sweeps through vegetation of a similar type and counting selected groups of species. This technique is effective for many invertebrates, including several beetle families, most plant bug groups and large number of other insects that live in vegetation of this type. However, it does not sample invertebrates that are confined to lower levels such as the litter layer, which we look for by hand-searching and sieving litter over a white sheet.

Beating trees and bushes. A cloth tray, held on a folding frame, is positioned below branches of trees or bushes and these are sharply tapped with a stick to dislodge insects. Black or white trays are used depending upon which group of invertebrates has been targetted for search. Insects are collected from the tray using a pooter. This technique is effective in obtaining records of most arboreal species, including many beetle groups, bugs, caterpillars of Lepidoptera, spiders and others.

Suction Sampling consists of using a converted leaf blower to collect samples from grass and other longer ground vegetation. The sample is then everted into a net bag and the invertebrates removed with a pooter. The advantage of suction sampling is that it catches species, which do not fly readily or which live in deep vegetation. It is particularly productive for Coleoptera, some Diptera and Arachnida.

1.3.2 A search for existing data conducted by our client revealed a small number of noteworthy and other invertebrate species that had been recorded by various third parties near to the proposed route of the construction corridor. We made specific efforts to locate these species and their habitats during our sampling visits.

1.3.3 The nature of the habitats and the extent of the survey area, as well as the timing of the survey in combination with the weather conditions, contra-indicated the use of passive sampling, such as the use of pitfall traps, malaise traps and other techniques. For example weather conditions prevented use of moth traps during the survey period.

2 IDENTIFICATION OF INVERTEBRATE HABITATS IN THE CORRIDOR

2.1 With the exception that we did not walk across arable fields bearing a crop, we have examined all the land within the final intended corridor of works. It is our opinion that most of the route affects areas of land that are of very low to negligible invertebrate ecology interest. No further mention of these areas is made in this report.

2.2 A few areas of land along the final route were judged likely to have a higher invertebrate ecology value and these were specifically examined either because they appeared likely to be directly affected or because they appear to border the likely construction corridor.

2.3 These areas are now introduced. Any part of the route not mentioned in this section of the report has, in our opinion, such low invertebrate interest that the insertion of the cable will cause no damage to invertebrate ecology and will not necessitate any form of mitigation. In a few places the disturbance of the ground could potentially result in a greater subsequent floral diversity and that might be followed by an enhancement of invertebrate interest over time.

Area A:
From east side of B1113 road to east side of A45 road (from TM 120490 to TM 132490)

Refer to Figure 24.9.1 (sheet 3). This section of the route presents a mosaic of habitats which, whilst perhaps not supporting individual species of conservation importance, may nevertheless be of interest to the wider invertebrate ecology. Apparently flower-rich grasslands are evident in the west (the landowner denied us continued access to quantify this) between the B1113 and the railway line.

A slightly larger area of semi-improved grassland, on the east side of the railway line, straddles the River Gipping and may also be floristically interesting; in general the greater the floral diversity the greater the value of a grassland as an invertebrate habitat. The interest may be two-fold: an intrinsic interest based upon the dependency of various invertebrate species on one or more particular plants and a broader interest in that insects may travel from a wider area to use the forage resource presented by the various flowers at each different season of the year.

The River Gipping may have limited amphibious invertebrate interest associated with its margins at present, but that interest ought to be enhanced rather than weakened as a part of the overall habitat mosaic.

Careful siting through detailed route design means this area would be avoided by the use of HDD. This would avoid the majority of potential impacts and therefore parts of the site are not considered further.

On the east side of Paper Mill Lane, a small area of ruderal herbage in combination with areas of bare ground adds significantly to the diversity, as does adjacent scrub, which includes some dead elm saplings, and a water-filled ditch. The ditch is mostly of minimal interest to invertebrates and its banks are evidently eutrophic, as evidenced by the flora there, but dead timber, especially standing trees/saplings, provides a micro-habitat that is both important and scarce.

These areas are indicated by red cross-hatching in Figure 24.9.1 (sheet 3) and are shown as falling just within the northern edge of the area designated as a construction consolidation area.

Area B:
Lane verge at Lark's Hill (TM 192491)

A partly wooded verge on the west side and an area of dense ruderal herbage on the east.

The invertebrate interest here will be different to that in the more manicured area around, but is not likely to achieve a significantly high level. Disturbance of the ground has scope for improving invertebrate interest rather than depleting it.

Area C:
Road verge east of Tuddenham St Martin and west of Tuddenham Hall (TM 198488)

A line of mature oak trees, however, we do not regard this area as one of especially high value, but trees are of raised value as providers of invertebrate micro-habitats, especially within an overwhelmingly arable landscape. During construction tree removal should be reduced where possible.

Area D:
Apparently semi-improved grassland north-east of Branson's College (TM 212485)

A visual examination was made from a nearby public footpath but no sampling was undertaken.

It is not consider probable that this grassland has an especially raised invertebrate interest but that statement must be caveated with the knowledge that we were not allowed access for sampling at the time of the surveys, however mitigation in the form of habitat re-instatement and natural regeneration from the seed bank would be suitable at this location to minimise potential impacts.

Area E:
Lane verge between Boot Street and Little Bealings (TM 226483

A group of trees was identified on the road verge, however, we do not regard this area as one of especially high value, but trees are of raised value as providers of invertebrate micro-habitats, especially within an overwhelmingly arable landscape. During construction tree removal should be reduced where possible.

Area F:
Acid grassland and heathland west of Seckford Hall from farm land in west to A12 road in east (TM 245483 to TM 253481)

A triangular area of apparently acid grassland located at grid reference TM 2458 4835. This is indicated in yellow on Figure 24.9.1 (sheet 2). Whilst this site is within the Preferred Onshore Cable Corridor it is outside the Onshore Cable Route and is therefore avoided.

No invertebrate species recording was specifically undertaken here, but it is known that acid grassland in Suffolk supports the Lunar Yellow Underwing moth (*Noctua orbona*) – a UK Biodiversity Action Plan Priority Species). The combination of dates and weather conditions prevented us from testing whether this rare moth is present, but in our experience the habitat looks ideal.

Area G
Heathland slope adjacent to and below the golf course (TM 244482)

A heathland slope (identified as a acid grassland mosaic within the botanical survey report) is evident below an arable field and continuing adjacent to a golf course. It is widely recognised that heathland habitats are of extremely high overall conservation value and a significantly raised invertebrate interest is one of the reasons for inclusion of heathland in the UK Habitat Action Plan.

Revised final route plans indicate that the construction corridor will affect this area (due to routing to avoid Seckford Hall CWS), which is shown by purple hatching on Figure 24.9.1 (sheet 2).

The heath habitat is of varying quality and is in part degraded. This is especially the case at the north-western end where extensive stands of Gorse and other scrub now dominate the flora on the slope and with semi-mature oak trees at the top. At least one of these oaks has become hollow and presents a habitat of potentially very high interest for saproxylic invertebrates; this might perhaps include Stag Beetles for which breeding habitat is present.

Between these scrub elements, however, the sandy substrate supports a variable heathland flora, with significant areas dominated by sorrels. In places, the scrub thins and there are larger areas of open heath. Towards the south-east, an oval-shaped exposed area of substrate provides a significantly improved habitat.

Overall, although degraded, small in size and isolated, it is expected that this heathland slope will support a number of heathland associated invertebrates. These would be best surveyed in June and July in a year that has somewhat less rainfall and more sunshine than 2012.

Any loss to any heathland habitat in Britain is likely to be damaging to invertebrate ecology. However, given the degraded nature of much of the habitat and the obvious fact that the recently disturbed area supports the best condition habitat, it is suggested works might actually improve the heathland habitat here if suitable restored.

Area H:
Land south of Seckford Roundabout on the A12 road Woodbridge (TM 254479)

Land to the immediate south of the roundabout is perhaps a section of the old road (see ruderal area on Figure 24.9.1 (sheet 2)); it has developed a ruderal flora and evidently supports a correspondingly interesting invertebrate fauna. As this type of habitat degrades with age its interest is in a state of constant change; although there is interest now that interest will, overall, likely be enhanced by disturbance of the ground surface.

Area I:

Elm hedge and associated field margin south east of Seckford Roundabout on slip road towards Martlesham (TM 255481)

The hedge sits above the road on its east side and makes a margin with a grassland area. It is indicated in Figure 24.9.1 (sheet 2) and will be partially lost due to construction works (circa 35m section).

Hedgerows and the transitional zones that they make with grassland, especially neglected grassland, often form significant reservoirs of intrinsic invertebrate interest. In addition, hedges form physical corridors that permit movement of invertebrates across a landscape that may be otherwise inhospitable.

Mitigation for the loss of this hedge is desirable and should take the form of re-instatement of lost habitat in the post-construction period.

Area J:
Martlesham Creek Crossing (TM 263476)

On the north side of the creek, tall scrubby ruderal habitat gives way to the narrowest of saltmarsh zones above tidal mud.

Horizontal Direction Drilling (HDD) methods will be used to cross major watercourses and on this basis no loss of invertebrate interest is likely. In particular, we do not consider that there is any risk to habitats likely to be occupied by the Whorl Snail, *Vertigo angustior*, which has been reported from this section of the route by another party.

Area K:
River Deben Crossing

The surrounding fields on both banks are arable, but there is an extremely narrow strip of saltmarsh habitat above the tidal mud. Saltmarsh and other tidal or semi-tidal habitats hold the highest invertebrate interest.

HDD will be used to insert the cable beneath major watercourses and on this basis no loss of invertebrate interest is likely at the River Deben crossing. Some disruption to parts of the bank are expected; if this is restricted to dry land habitats there ought to be a rapid recovery from temporary habitat losses.

Area L:
Landfall area (upper beach and landslip area (centred upon TM 350391)

The landfall area presents three invertebrate habitat zones – the shingle beach above the mean high water mark, a narrow strip of landslip and the linear track from the lane to the beach (Figure 24.9.1 (sheet 1)). The first two present the most important invertebrate habitats found along the surveyed corridor.

The shingle beach above mean high water is essentially bare shingle, but there are patches of Sea kale and Yellow-horned Poppy (both of which support a specialist invertebrate interest). These increase in density southwards; at the start of the footpath at TM 351391, there are very few plants at the landfall – but approximately 200 metres to the south of the landfall, the beach is dominated by them. Figure 24.9.1 (sheet 1) indicate the most important areas that ought to be retained and show that the current of landfall is outside of key areas.

Above the beach the land has slumped creating a clay-dominated slope of uneven surface. In the north, near the start of the public footpath the flora here is poor and indicated nitrogen-enrichment; we found very little evidence of invertebrate interest here.

However, just a few metres south the landslip is more open and although it supports scrub in places there are areas of bare ground and very low-growing vegetation, often dominated by Stork's-bill and Sheep's Sorrell. We regard these areas of very high invertebrate interest and this is supported by the species inventory obtained. The important section is indicated in Figure 24.9.1 (sheet 1).

The fields above the landslip are of minimal invertebrate interest – that shown as actually being crossed by the preferred route supported a potato crop in 2012 and is of no special value to invertebrates. However, the public footpath that marks the northern boundary to this field has some good condition transitional habitat and appears to have a raised invertebrate interest.

The current location of the landfall is the least damaging for invertebrates and any movement south would increase losses to invertebrate interest. In addition, the well-vegetated footpath should be retained where possible.

3 INVERTEBRATE SPECIES

3.1 Summary

3.1.1 Invertebrate species recording was undertaken in four areas identified as likely to have a raised interest. For logistical reasons, detailed sampling of invertebrate taxa was not practical in the heathland habitat of Area G; survey of this habitat during June and July in a year with weather nearer to the norm is judged likely to reveal a diverse and important assemblage. The recorded areas are:

- **A**: From east side of B1113 road to east side of A45 road (from TM 120490 to TM 132490)
- **H**: Land south of Seckford Roundabout on the A12 road Woodbridge (TM 254479)
- **I**: Elm hedge and associated field margin south east of Seckford Roundabout on slip road towards Martlesham (TM 255481)
- **L**: Landfall area (upper beach and landslip area (centred upon TM 350391)

3.1.2 Appendix 1 reports the complete list of insect taxa encountered during the survey; the lists from each of the four areas are identified in the Table by the appropriately headed columns. The list is also annotated with formal National Status codes where these are better than "nationally common" and these status codes are explained in Appendix 2.

3.1.3 The numbers of species at each sampled area breaks down as follows:

Area sampled	Number of species
A	129
H	97
I	104
L	253
All	**381**

3.1.4 It is important to note, however, that sampling was intended to be representative of the different habitats at each site so that any direct comparison of lists or numbers of species between sites is meaningless in the context of the present appraisal of ecological interest.

3.2 Species of conservation interest

3.2.1 Several categories of invertebrates are of raised significance in an ecological assessment. These categories are explained in Appendix 2 and the corresponding species are now examined.

Legally Protected Species

3.2.2 No invertebrate species that are afforded direct legal protection under any UK or European legislation were encountered during the survey; none are likely to have been overlooked.

UK Biodiversity Action Plan Priority Species

3.2.3 One UK BAP Priority Species was recorded during the survey.

Wall Butterfly *Lasiommata megera*

We did not see this species ourselves, but an experienced local amateur entomologist, Rob Parker, who is known personally to the report writer, has noted a population of this declining species along the Suffolk coastline including the area of the landfall of the cable (Area L). We are not clear if there are any breeding records from the landfall area, however. Whilst sightings here might, therefore, involve movement between breeding colonies in adjacent areas, this does not diminish the need to maintain permanence of habitat continuity.

3.2.4 The list of UK Biodiversity Action Plan Priority Species *of moths* is divided into two sections. In the first, a total of 81 species are afforded the status of UK BAP Priority Species; none of these is recorded in the surveyed area nor is any likely to be present.

3.2.5 The second section is a list of 69 species that have declined in population strength by a significant amount in the past 25 years. These are not yet rare and are flagged as UK BAP species "**for research only**". They were inadvertently included in the overall BAP list by non-specialists.

3.2.6 This has resulted a confusing situation; these species were not intended to be affected by the requirements of *Planning Policy Statement 9: Biodiversity and Geological Conservation*, published by the Office of the Deputy Prime Minister during 2005, which requires Local Authorities to take measures to protect the habitats of UK BAP species from further decline through policies in local development documents. They were merely flagged for special attention.

3.2.7 During the present survey, two such "Research Only" moth species were recorded; several others are confidently predicted to be present.

The Cinnabar Moth (*Tyria jacobaeae*) has distinctive black and yellow-striped caterpillars which feed in the flower-heads of ragwort plants and are familiar to most people. The species is widespread and abundant across southern Britain where the foodplant is a notifiable weed species.

Recorded in areas A, H and L.

Shaded Broad-bar moth *Scotopteryx chenopodiata*

A widespread species that undergoes large population declines and rises. In years 2011 and 2012 it is exceptionally abundant at most sites where it is found in south-east England. The caterpillars feed on vetches and clovers.

Recorded in the landfall area (area L).

Red Data Book Species

3.2.8 Three species listed in the British Red Data Books (Shirt, 1987; Bratton, 1991) or which has been elevated to the status of Critically Endangered, Endangered, Nationally Vulnerable or Near Threatened (formerly Nationally Rare) by subsequent formal reviews are so far recorded in the present survey.

3.2.9 Of these, one is regarded as "Vulnerable" to becoming Endangered at the national level (category RDB 2).

The bug *Tuponia mixticolor* is a species that has only recently colonised Britain from Europe and is currently rather rare. It is associated with Tamarisk bushes on coastal areas in the south-east.

Several examples on a Tamarisk bush on the coast just a few metres outside the area of the preferred route to the north.

3.2.10 Two of these Nationally Rare species are in RDB category 3 – Nationally Rare.

Myrmica bessarabica is an ant that was first recorded in Britain from Sandwich, East Kent, but which is now known to be more widespread in warm coastal situations in Kent, Essex and Suffolk. It may be increasing in range, but identification of this and related *Myrmica* species is difficult and the ant has probably formerly been overlooked. It favours warm, sparsely vegetated ground in sunny situations, such as dunes, south-facing landslip grassland, south-facing terrace gravel grassland and more rarely on sparsely-vegetated post-industrial habitat that has been established for several years.

A small number of adults together at a single locality on the landslip area above the beach (area L) whilst looking for ground bugs under Storksbill leaves.

The Blue Carpenter Bee (*Ceratina cyanea*) is confined to southern England, with most recent records from West Sussex, parts of Kent and South Essex, where it was rediscovered during 1993 after nearly 100 years absence. Several populations have subsequently been found in the East Thames Corridor on various post-industrial and other ruderal sites and it has spread from this area (or has been looked for and subsequently found) in a wide zone around that region. Adults make nests in dead, broken bramble stems, so the presence of a certain amount of bramble scrub in open situations where dead stems are exposed to the sun is crucial to its survival. It is likely to prefer bramble growing in drought-stressed and mineral deficient situations. The bee collects pollen from a variety of flowers including yellow composites, knapweed and *Lotus*.

Recorded in area H – the ruderal area immediately south of the Seckford Roundabout on the A12 road.

Nationally Scarce Species

3.2.11 One of the species so far recorded feature in the Nationally Scarce (formerly Nationally Notable - Na) category (see Appendix 2).

The blue and red leaf beetle *Podagrica fuscipes* feeds as a grub in the flowers and seeds of mallow (*Malva* species). The plant has become a common feature of verges, hedgerows and other sites and the distinctive beetle has become quite frequent in the past few years. A very similar species, called *Podagrica fuscicornis*, is also frequent and is in the Nationally Notable B category (see below).

We found *fusci**pes*** in areas A, I and L and it is likely to be found elsewhere.

3.2.12 Eight species recorded feature in the Nationally Scarce (formerly Nationally Notable - Nb) category (see Appendix 2).

The Yellow-faced Bee *Hylaeus signatus* is an obligate feeder on the pollen of Weld (*Reseda luteola*). Though formerly restricted to the south-east in approximately Kent and Essex it is currently enjoying a wider distribution and extends north at least to Lincolnshire and inland to the West Midlands. It is expected, in season, wherever the foodplant grows and may no longer warrant its nationally scarce status.

A single female was observed collecting pollen from Weld flowers on the landslip area above the beach (area L – landfall zone).

Lasioglossum malachurum is a solitary bee that occurs in southern England, originally on the coast and inland in Essex and Kent, but currently much more widespread throughout the south-east. It constructs its nest chamber in the ground, apparently preferring substrates with a clay content. Adult pollen requirements are un-recorded in Britain, but flower visits are reported from a variety of species, including various yellow composites (Asteraceae). In recent years it has become a widespread and common species in the south-east of Britain.

We sweep-netted adults from flowers in the grassland areas of the habitat mosaic that is area A.

Megalonotus praetextus is a ground bug that is confined to Storksbill (*Erodium cicutarium*) on sparsely-vegetated sandy spoils. It is almost entirely coastal, but is also found at Breckland and some post-industrial sites where the plants also grow. It is an indicator species of generally good-condition coastal invertebrate habitat.

It was abundant under leaves of Storksbill plants on the landslip above the beach (area L).

Megalonotus sabulicola is another ground bug that is confined to Stork's-bill (*Erodium cicutarium*) and again is restricted to sparsely-vegetated sandy spoils. It is probably even more coastal that *Megalonotus praetextus* and a good deal more rare. Its presence indicates good quality habitat for invertebrates.

M. sabulicola was recorded occasional under leaves of Storksbill plants on the landslip above the beach (area L).

Roesel's Bush-cricket *Metrioptera roeselii* has, in recent years, undergone a very large expansion of range that is almost certainly climate-driven. In most years the insects develop without the ability to fly, but in favourable (hot) summers the females develop winged forms that are able to disperse after mating and establish populations in new areas. In the south-east of England, this cricket is present in considerable abundance in grassland habitats, including set-a-side, field margins, road verges and lightly grazed pastures where there is plenty of vegetation cover. The Nationally Notable status is, perhaps, no longer warranted?

Recorded in the grassland/hedge interface area at Seckford (area I) and on the landslip area above the beach on the coast (area L).

Orthochaetes setiger is a weevil associated with a wide range of plants, within the leaves of which its grubs feed, creating transparent patches (leaf mines) that are distinctive. The reason for its apparent scarcity is unclear but might relate to under-recording in some areas?

We found adults in the landfall area (area L).

The blue and red leaf beetle *Podagrica fuscicornis* feeds as a grub in the flowers and seeds of mallow (*Malva* species). The plant has become a common feature of verges, hedgerows and other sites and the distinctive beetle has become quite frequent in the past few years.

Abundant on mallow plants in area L – the landfall zone.

Trachyphloeas aristatus is a wingless, nocturnal and parthenogenetic species of weevil – only females have ever been recorded in Britain. Plant associations are unclear, but it likes dry, calcareous or sandy soils in the south and very much prefers the coast as the setting for these.

Examples were found under the leaves of Storksbill on the landslip above the beach in area L.

Nationally Local Species

3.2.13 Forty-five species are listed formally as Nationally Local (see Appendix 2). These are:

Species (alphabetical)	**Ecological associations**	**Area found**			
		A	**H**	**I**	**L**
Agallia ribauti	on the ground amongst grasses in dry places – common in the south-east				K
Altica oleracea	widely polyphagous	A	H	I	K
Amara (Zezea) tibialis	open, sandy areas, especially costal dunes				K
Amara bifrons	prefers sparsely-vegetated sandy soils				K
Anthocomus rufus	fens and marshes - a false soldier beetle				K
Aphrodes bicinctus	grasses in dry situations				K
Aphthona euphorbiae	widely polyphagous	A	H	I	K
Arctosa perita	sandy coastal and heathland habitats				K

Species (alphabetical)	Ecological associations	Area found			
		A	H	I	L
Arenocoris falleni	Associated with Storksbill on coastal dunes and in Breckland				L
Aspidapion aeneum	larva feeds inside the stems of Malva sylvestris	A			K
Byrrhus pilula	associated with moss or rabbit-grazed turf, in open situations.	A			
Campiglossa (Paroxyna) misella	Mugwort - mainly on post-industrial sites		H		
Ceratapion carduorum s. str.	Thistles. Was called lacertense in older texts.				L
Chorthippus albomarginatus	grasslands - has spread inland from coastal stations				L
Coccinella undecimpunctata	coastal and heathland habitats, but often wanders from here to other places				L
Cordylepherus viridis	a common grassland species			I	L
Coremacera tristis	dry habitats, especially grasslands			I	L
Corizus hyoscyami	Stork's-bill at coastal sites, mainly south-western				L
Crepidodera plutus	Willows, especially Crack Willow - rarely on poplars	A			
Cryptocephalus fulvus	possibly on sheep's-sorrel, but adults are found on a variety of flowers				L
Cryptocephalus hypochaeridis	Hieracium species in base-rich grasslands and ruderal sites		H		
Cryptocephalus pusillus	birch - probably also other trees				L
Dasytes aeratus	larvae predatory under loose bark; adults usually on flowers in grassland	A			
Eristalinus aeneus	found in coastal situations around most of Britain				L
Formica cunicularia	under stones, dry turf on banks etc on various soil types, but shade-intolerant				L
Hoplitis spinulosa	breeds in empty snail shells				L
Hylaeus confusus	nests in hollow plant stems		H		
Kalama tricornis	Dry ruderal habitats and sand dunes				L
Nacerdes melanura	larvae tunnel into saltwater soaked dead wood				L
Nemotelus uliginosus	reed beds and saltmarshes				L
Oedemera lurida	a common grassland species	A	H	I	L
Orchestes alni	larva mines in leaves of elms			I	
Phyllobius maculicornis	polyphagous on leaves of deciduous trees and shrubs		H		
Pseudovadonia (Anoplodera) livida	larvae feed in dead wood of deciduous and coniferous trees				L
Psylliodes chrysocephala	various Cruciferae				L
Pyrausta despicata	Plantago lanceolata and Plantago major				L
Scymnus haemorrhoidalis	damp habitats				L

Species (alphabetical)	Ecological associations	Area found			
		A	H	I	L
Sicus ferrugineus	parasitic fly on bumble bees				L
Sitona humeralis	various legumes				L
Sunius propinquus	ecology unclear				L
Tephritis cometa	larvae gall the flowers of creeping thistle				L
Tephritis formosa	larvae gall the flowers of sow thistle				L
Thaumatomyia hallandica	larvae are predators of root aphids				L
Thecophora atra	a parasite of solitary bees				L
Xanthogramma pedisequum s.str.	larvae feed in ants nests		H		

3.3 Species identified during the data search

3.3.1 A data search by RSK revealed the presence of a number of potentially interesting invertebrate species within a short distance of the initial corridor of works options. We applied particular effort to looking for these species and their habitats.

3.3.2 <u>BAP Research moths</u>

These have been discussed at paragraphs 3.2.4 to 3.2.6 above and now repeated here:

The list of UK Biodiversity Action Plan Priority Species *of moths* is divided into two sections. In the first, a total of 81 species are afforded the status of UK BAP Priority Species; none of these is recorded in the surveyed area nor is any likely to be present.

The second section is a list of 69 species that have declined in population strength by a significant amount in the past 25 years. These are not yet rare and are flagged as UK BAP species "**for research only**". They were inadvertently included in the overall BAP list by non-specialists.

This has resulted a confusing situation; these species were not intended to be affected by the requirements of *Planning Policy Statement 9: Biodiversity and Geological Conservation*, published by the Office of the Deputy Prime Minister during 2005, which requires Local Authorities to take measures to protect the habitats of UK BAP species from further decline through policies in local development documents. They were merely flagged for special attention.

The following 53 species in the BAP Research only category are listed in the data search. Many of these are likely to be present within the non-arable parts of the survey area and some are already recorded, but we are not of the opinion that any will be adversely affected by the proposed works:

Species	Caterpillar associations
Acronicta psi	deciduous trees and bushes
Acronicta rumicis	polyphagous on deciduous shrubs and herbaceous plants
Agrochola helvola	grasses - feeding on the roots and stem bases
Agrochola litura	deciduous trees and shrubs and herbaceous plants (requires both)
Agrochola lychnidis	deciduous trees and shrubs and herbaceous plants (requires both)
Allophyes oxyacanthae	rosaceous trees and shrubs
Amphipoea oculea	stems and roots of grasses and herbaceous plants
Amphipyra tragopoginis	deciduous trees and bushes
Apamea anceps	grasses, especially Poa annua and Dactylis glomerata
Apamea remissa	grasses
Aporophyla lutulenta	grasses, hawthorn, blackthorn
Arctia caja	herbaceous plants
Asteroscopus sphinx	oaks
Atethmia centrago	ash - buds then flowers
Chesias legatella	Broom
Chesias rufata	Broom
Chiasmia clathrata	Medicago, Trifolium
Cymatophorima diluta	oaks
Diarsia rubi	herbaceous plants
Diloba caeruleocephala	Hawthorn, Blackthorn and apple are listed as caterpillar foodplants
Ecliptopera silaceata	willow herbs, enchanter's nightshade
Ennomos erosaria	oak, lime and birch, probably other trees as well
Ennomos fuscantaria	ash
Eugnorisma glareosa	polyphagous on herbaceous plants and grasses
Euxoa nigricans	herbaceous plants
Graphiphora augur	declining species with a polyphagous larva - feeding on deciduous trees and also on dock leaves
Hemistola chrysoprasaria	Clematis vitalba
Hepialus humuli	roots of grasses and herbaceous plants
Hoplodrina blanda	herbaceous plants
Hydraecia micacea	herbaceous plants, especially docks, feeding in the rootstock
Lycia hirtaria	deciduous trees
Macaria wauaria	
Malacosoma neustria	hawthorn and blackthorn as well as other trees and bushes
Melanchra persicariae	herbaceous plants
Melanchra pisi	widely polyphagous, including on bracken
Melanthia procellata	Clematis vitalba
Mesoligia literosa	grasses, feeding in the stem and roots
Mythimna comma	grasses
Orthonama vittata	Galium species
Orthosia gracilis	shrubs and herbaceous plants
Pelurga comitata	Atriplex and Chenopodium species
Scopula marginepunctata	herbaceous plants
Scotopteryx chenopodiata	vetches and clovers
Spilosoma lubricipeda	herbaceous plants
Spilosoma lutea	herbaceous plants and also trees and shrubs
Tholera cespitis	grasses
Tholera decimalis	grasses
Timandra comae	Polygonaceae
Trichiura crataegi	trees and shrubs, especially hawthorn and blackthorn
Tyria jacobaeae	Ragwort
Watsonalla binaria	oak - occasionally birch
Xanthia gilvago	Wych Elm
Xanthia icteritia	sallow/willow catkins - then on herbaceous plants
Xanthorhoe ferrugata	herbaceous plants
Xestia agathina	herbaceous plants

The confusion over status has had a secondary effect of masking within this list a few species that do perhaps warrant to attention of conservation professionals. From the list above we select the following as either rare of declining in Suffolk:

Species of concern	Caterpillar associations
Arctia caja	herbaceous plants
Diloba caeruleocephala	Hawthorn, Blackthorn and apple are listed as caterpillar foodplants
Graphiphora augur	declining species with a polyphagous larva - feeding on deciduous trees and also on dock leaves
Macaria wauaria	currants
Tholera cespitis	grasses
Trichiura crataegi	trees and shrubs, especially hawthorn and blackthorn

We are not of the opinion that any of these species will be adversely affected by the proposed works.

3.3.3 UK BAP Priority moths

The list includes, within this category,

Species	Associations	likely to be present	Likely to be affected	comment
Cossus cossus	old trees, especially Salix and Quercus	no	no	No affected trees present in the surveyed area
Lampronia capitella	currants	no	no	Foodplant not found
Nemophora fasciella	seeds and lower leaves of Black Horehound	possibly	no	Foodplant not found, but thrives in disturbed areas
Archanara neurica	Reed	no	no	Restricted in Britain to a small coastal reed bed at Walberswick; records away from here may be misidentifications of Archanara dissoluta
Euxoa tritici	herbaceous plants	yes		In the landfall area
Noctua orbona	grasses in acid grassland	yes	no	Refer to this report paragraph 2.3 – discussion on Area F, now avoided.
Polia bombycina	herbaceous plants	no	no	Life history not fully understood, but moth not thought to affect the surveyed area
Rhizedra lutosa	reeds - in the stem bases	yes	no	potentially affected areas will be tunnelled

3.3.4 Other moth species of interest

The following species are included in the data trawl.

Species	Status	Associations	likely to be present	Likely to be affected	comment
Phyllocnistis xenia	RDB 2	mines leaves of White Poplar	?	no	no poplar trees will be felled
Calamotropha paludella	NS(Nb)	reedmace (Typha) - leaves in autumn & dead stems in spring	yes	no	potential areas will be tunnelled
Crambus hamella	NS(Nb)	Dry heathland	no	no	no heathland affected
Ethmia quadrillella	NS(Na)	Comfrey	no	no	potentially suitable habitats not affected
Evergestis extimalis	NS(Nb)	cruciferous plants	yes	no	potentially suitable habitats not affected
Pediasia contaminella	NS(Nb)	grasses, especially Festuca ovina	yes	no	potentially suitable habitats not affected
Schoenobius gigantella	NS(Nb)	Phragmites and Glyceria maxima	yes	no	potential areas will be tunnelled
Synaphe punctalis	NS(Nb)	mosses, especially Hypnum cupressiforme	yes	no	probable in the landfall area

3.3.5 Butterflies

The following species are included in the data trawl.

Species	Associations	likely to be present	Likely to be affected	comment
Silver-studded Blue	heathland	no	no	No habitat evident in the survey area
Small Heath	grassland	yes	no	Likely to be present on neglected verges and other grassy areas
Swallowtail	Norfolk Broads	no	no	If report is correct it will refer to a continental immigrant example
Wall	Coastal area	yes	Marginally	Refer to paragraph 3.2.3 in this report. Impacted at landfall only due to access route. Mitigated through reinstatement.
White-letter Hairstreak		no	no	No habitat evident in the survey area

3.3.6 Stag Beetle and other beetles

The data trawl lists 36 species of beetle that are of conservation interest, though some have been downgraded in status since the formal status codes were originally applied. Amongst these is the Stag Beetle (*Lucanus cervus*), which is a UK Biodiversity Action Plan Priority Species.

Most of these listed beetles are not likely to be present in the affected area, although a small proportion might be and one at least is recorded in the present survey. Those associated with wetland habitats are more likely to be present than those associated with the dry habitats – the latter being

rather poor along the surveyed corridor other than in Area G. The areas that may support such wetland beetles will be crossed by HDD and so there seems to be no particular threat posed to the insects.

On the other hand, Area G supports a small number of semi-mature oak trees on a sandy soil and some of these trees have a raised saproxylic microhabitat component. It is more likely here, than at any other point along the corridor of survey, that Stag Beetles may be breeding. In addition, other saproxylic invertebrates of interest may be present. These oak trees, including their root systems, ought to be retained.

The habitat necessary for Stag Beetle is slightly damp, subterranean dead timber units that are both sufficiently large and sufficiently undisturbed to permit the beetle grubs to complete their (up to) five year development into adults. Typical habitat units might include dead underground tree roots, buried stumps and larger fence post bases and it is an unfortunate truth that such features may not be discovered until they area excavated.

We are not of the opinion that any of the remaining beetle species, which are now listed, will be at all adversely affected by the laying of the cable.

Species of beetle
Agonum nigrum
Bembidion semipunctatum
Calathus ambiguus
Ceutorhynchus pulvinatus
Choragus sheppardi
Clanoptilus marginellus
Corticaria alleni
Crudosilis ruficollis
Cypha discoidea
Cypha pulicaria
Dacrila fallax
Demetrias imperialis
Donacia clavipes
Dorcatoma flavicornis
Elaphropus parvulus
Gracilia minuta
Hypera dauci
Ischnomera cyanea
Leptophloeas clematidis
Longitarsis dorsalis
Longitarsus parvulus
Nicrophorus vestigator
Ophonus schaunbergerianus
Phyllotreta cruciferae
Phyllotreta vittula
Phytobius leucogaster
Phytoecia cylindrica
Platycis minutus
Platyderus depressus
Potaminus substriatus
Prionus coriarius
Pseudaplemonus limonii
Rhagonycha lutea
Saprinus planiusculus
Scaphisoma boleti

3.3.7 Remaining groups

The following species are also included in the data trawl:

Species	English	Potential to be present	Likely to be affected	Comments
Andrena labiata	a bee	no	no	Potential areas will not be damaged
Bombus muscorum	bumble bee	yes	no	Potential areas will not be damaged
Helix pomatia	roman snail	no	no	Habitat not found in survey corridor
Hylaeus signatus	a bee	yes	no	Recorded by us. See this report at paragraph 3.2.12
Lasioglossum malachurum	a bee	yes	no	Recorded by us. See this report at paragraph 3.2.12
Lasioglossum puncticolle	a bee	yes	no	Potential areas will not be damaged
Limonia lucida	a cranefly	no	no	Habitat not found in survey corridor
Mallota cimbiciformis	a hoverfly	no	no	Habitat not found in survey corridor
Neoascia obliqua	a hoverfly	yes	no	Potential areas will be crossed by HDD
Nomada fucata	a bee	no	no	Potential areas will not be damaged
Paroxyna absinthii	a picture-winged fly	yes	no	Potential areas will not be damaged
Smicromyrme rufipes	a velvet ant	no	no	Habitat not found in survey corridor
Solva marginata	a fly	no	no	Habitat not found in survey corridor
Sphecodes crassus	a bee	yes	no	Potential areas will not be damaged
Sphecodes miniatus	a bee	yes	no	Potential areas will not be damaged
Sphecodes reticulatus	a bee	yes	no	Potential areas will not be damaged
Stratiomys longicornis	a soldier fly	yes	no	Potential areas will be crossed by HDD
Stratiomys singularior	a soldier fly	yes	no	Potential areas will be crossed by HDD
Vertigo angustior	Whorl Snail	yes	yes	Small areas where this is known to occur are not likely to be directly affected by the works and no damage to snail populations is predicted.
Volucella inanis	a hoverfly	yes	no	Potential areas will not be damaged
Volucella zonaria	a hoverfly	yes	no	Potential areas will not be damaged

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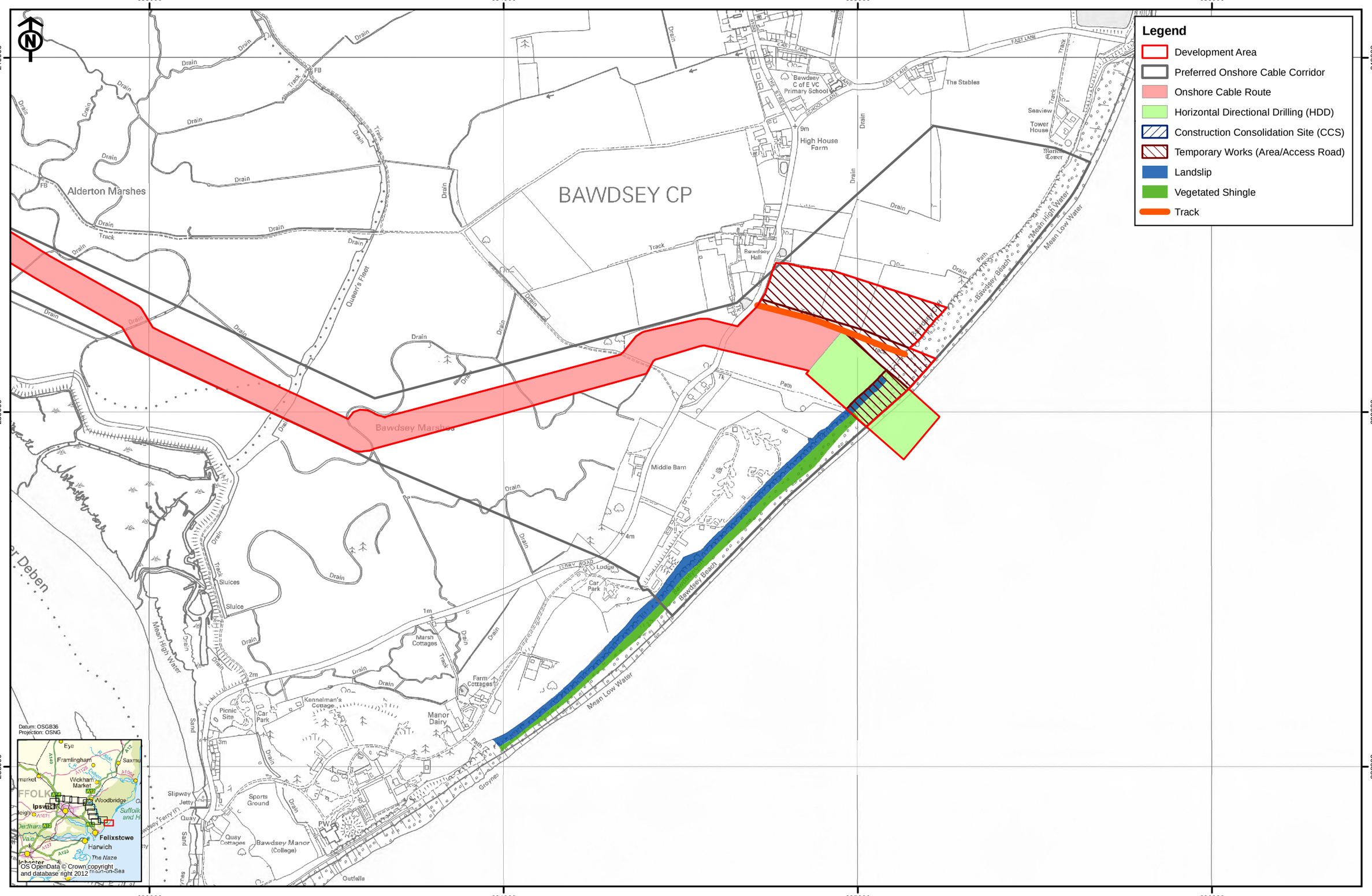
FIGURES
and
APPENDICES

Figures and Appendices

Appendix 24.9 Ecology and Ornithology

Figure 24.9.1	Terrestrial Invertebrates (sheets 1 to 3)
Appendix 1	Terrestrial Invertebrate Species Recorded



Rev	Date	By	Comment
02	08/10/12	DL	Frame updated
01	07/09/12	AJ	Development area updated
00	13/08/12	AJ	First issue

Original A3
Plot Scale
1:10,000

0 200 400 Meters

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Terrestrial Invertebrates

Sheet 1 of 3

Drg No	41388-A24.9-24.9.1(1)	Appendix 24.9
Rev	02	
Date	08/10/12	Figure 24.9.1
Layout	N/A	

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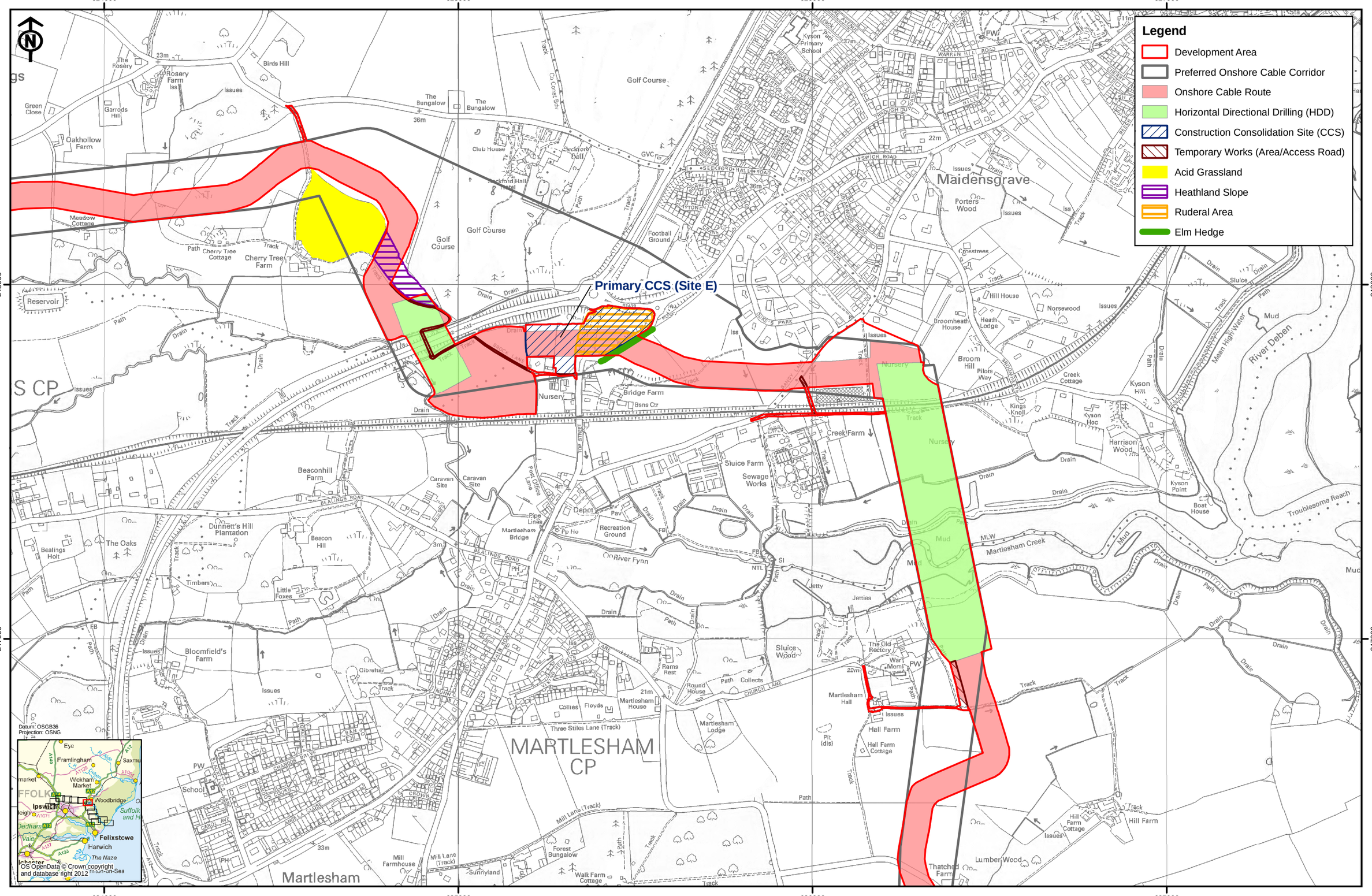

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Terrestrial Invertebrates

Sheet 2 of 3

Drg No	41388-A24.9-24.9.1(2)	Appendix 24.9
Rev	02	
Date	08/10/12	Figure 24.9.1
Layout	N/A	

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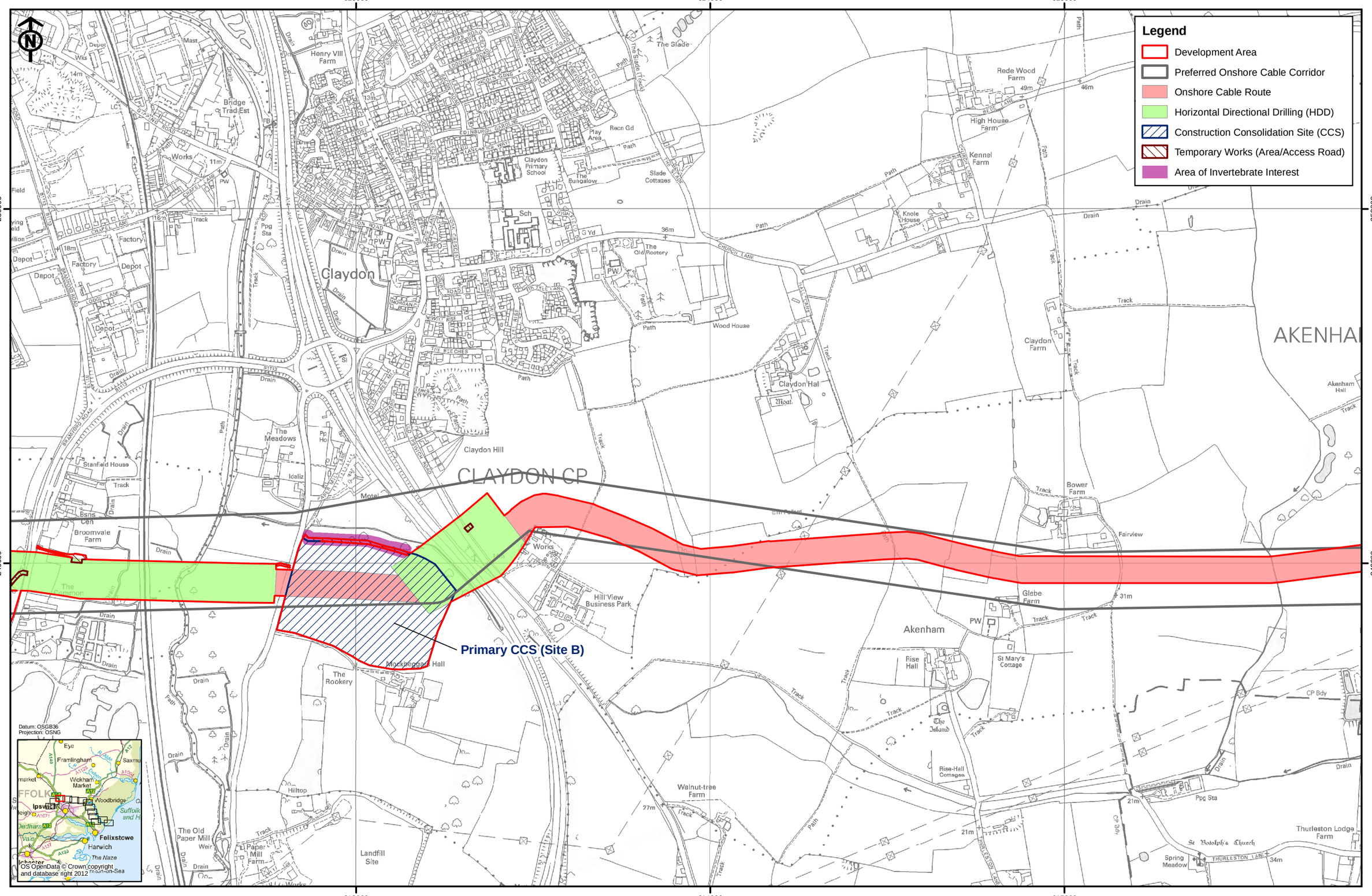

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Terrestrial Invertebrates

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Drg No	41388-A24.9-24.9.1(3)
Rev	02
Date	08/10/12
Layout	N/A

Appendix 24.9

Figure 24.9.1

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APPENDIX 1: TERRESTRIAL INVERTEBRATE SPECIES RECORDED

Recording areas:

- **A**: From west side of B1113 road to east side of A45 road (from TM 120490 to TM 132490)
- **H**: Land south of Seckford Roundabout on the A12 road Woodbridge (TM 254479)
- **I**: Hedge and associated field margin south east of Seckford Roundabout on slip road towards Martlesham (TM 255481)
- **L**: Landfall area (upper beach and landslip area (centred upon TM 350391)

National status codes are explained in Appendix 2.

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
ARACHNIDA: ARANEA	**SPIDERS**						
Araneidae							
Larinioides cornutus			long grasses by water in wetland habitats				L
Lycosidae							
Arctosa perita		Local	sandy coastal and heathland habitats				L
ARACHNIDA: ACARI	**MITES**						
Eriophyidae							
Aceria crataegi			causes galls on leaves of hawthorn	A			
Aceria macrochelus			causes galls on maple leaves	A			
Aceria macrorhynchus			makes galls on Sycamore leaves	A			
Aceria pseudoplatani			causes galls on leaves of sycamore	A			
Eriophyes padi			causes galls on blackthorn leaves	A			
COLEOPTERA	**BEETLES**						
Anobiidae	**wood-borers**						
Anobium punctatum			larvae feed in dead timber			I	
Hemicoelus fulvicornis			larvae feed in dead timber, especially in hedges				L
Apionidae	**seed weevils**						
Apion frumentarium			broad-leaved docks	A			
Apion haematodes			in the rootstock of Rumex acetosella				L
Aspidapion aeneum		Local	larva feeds inside the stems of Malva sylvestris	A			L
Aspidapion radiolus			various species of Malvaceae				L
Ceratapion carduorum s. str.		Local	Thistles. Was called lacertense in older texts.				L
Eutrichapion loti			Lotus corniculatus and L. tenuis in dry grassland and dunes				L
Malvapion malvae			Malvaceae - especially Malva sylvestris	A		I	L
Perapion hydrolapathi			dock plants - in the stems				L
Perapion marchicum			dock plants; widespread but				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
			rather local				
Perapion violaceum			dock plants, the larvae mining the stems; widespread and common	A			L
Protapion fulvipes			various clovers	A			
Protapion nigritarse			feeds on a wide variety of low plants and bushes				L
Protapion trifolii			various clovers; widespread and common	A			
Pseudapion rufirostre			Malva sylvestris and M. neglecta; widespread and common				L
Attelabidae							
Neocoenorrhinus aequatus			rosaceous shrubs - the larvae feeding in the fruits				L
Bruchidae							
Bruchus loti			Larvae on seeds of Lotus, Lathyrus & Vicia; adults at various flowers	A			L
Byrrhidae							
Byrrhus pilula		Local	associated with moss or rabbit-grazed turf, in open situations.	A			
Byturidae							
Byturus tomentosus	the raspberry beetle		Brambles and raspberries	A	H	I	L
Cantharidae	**soldier beetles**						
Cantharis cryptica			tall vegetation, especially at the woodland/grassland interface	A	H	I	L
Cantharis lateralis			damp grasslands and wetlands				L
Cantharis nigra			lowland marsh, rushy pastures, damp hay meadows etc				L
Cantharis rufa			lowland marsh habitats, including saltmarsh				L
Rhagonycha fulva			tall, rank vegetation in lowland areas	A	H	I	L
Rhagonycha limbata			dry grasslands (formerly called Rhagonycha femoralis)			I	
Carabidae	**ground beetles**						
Amara (Zezea) aenea			phytophagous species of dry, sandy ground				L
Amara (Zezea) familiaris			Phytophagous species of gardens and other open, dry and sunny habitats	A			L
Amara (Zezea) tibialis		Local	open, sandy areas, especially costal dunes				L
Amara bifrons		Local	prefers sparsely-vegetated sandy soils				L
Bembidion properans			open ground in sunny situations, amongst litter, in tussocks, etc				L
Calathus melanocephalus			dry grasslands, dry ruderal sites and similar				L
Dromius (Paradromius) linearis			dry tussocky grassland and coastal dunes				L
Iarpalus (Ophonus) rufibarbis			partly shaded clay soils with some humus content				L
Iarpalus affinis (= aeneus)			a species typically of dry				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
			grasslands				
Iarpalus tardus			coastal dunes and other dry sites, including inland sites in the south-east				L
Loricera pilicornis			ubiquitous, but especially near water and in damp grassland; feeds on springtails				L
Syntomus foveatus			prefers sparsely-vegetated sandy soils (heaths & coastal dunes)				L
Cerambycidae	**ARACHNIDA:**						
Clytus arietis			in dead wood - usually birch or willow, adults at flowers	A			
Leptura (Rutpela) maculata	Harlequin beetle		larvae feed in decaying tree stumps; adults wander and are found at flowers			I	
Pseudovadonia (Anoplodera) livida		Local	larvae feed in dead wood of deciduous and coniferous trees				L
Chrysomelidae	**leaf beetles**						
Altica lythri			Associated with various willowherbs (Onagraceae)			I	L
Altica oleracea		Local	widely polyphagous	A	H	I	L
Aphthona euphorbiae		Local	widely polyphagous	A	H	I	L
Cassida rubiginosa			various thistles, burdock and other Asteraceae				L
Crepidodera aurata			willows - rarely on poplars	A			
Crepidodera plutus		Local	Willows, especially Crack Willow - rarely on poplars	A			
Cryptocephalus fulvus		Local	possibly on sheeps-sorrel, but adults are found on a variety of flowers				L
Cryptocephalus hypochaeridis		Local	Hieracium species in base-rich grasslands and ruderal sites		H		
Cryptocephalus pusillus		Local	birch - probably also other trees				L
Lochmaea crataegi			Hawthorn - larvae mine the berries. Occasionally on Blackthorn or Rowan	A		I	
Longitarsus flavicornis			ragworts	A	H	I	L
Longitarsus luridus			widely polyphagous		H	I	L
Longitarsus melanocephalus			feeds on various species of plantain (Plantago species)	A			L
Longitarsus parvulus			feeds on many plant species				L
Neocrepidodera ferruginea			polyphagous				L
Neocrepidodera impressa			usually on Sea Lavender in salt marsh habitats				L
Oulema rufocyanea			feeds on grasses - very common	A		I	
Phaedon tumidulus			Widespread on various Apiaceae (= Umbelliferae)				L
Phyllotreta atra			various Brassicaceae	A	H	I	
Phyllotreta diademata			various Brassicaceae	A			
Phyllotreta nigripes			various Brassicaceae		H		
Phyllotreta nodicornis			various Resedaceae - especially Reseda lutea and R. luteola				L
Phyllotreta ochripes			various Brassicaceae				L
Phyllotreta undulata			various Brassicaceae	A			

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Podagrica fuscicornis		NS(Nb)	mallow (Malva species)		H	I	L
Podagrica fuscipes		NS(Na)	larvae feed on mallows, especially Malva sylvestris	A		I	L
Psylliodes affinis			Solanaceae - especially S. dulcamara (woody nightshade)				L
Psylliodes chrysocephala		Local	various Cruciferae				L
Psylliodes dulcamarae			Woody nightshade (Solanum dulcamara)				L
Sphaeroderma testaceum			mainly on thistles		H	I	L
Coccinellidae							
Adalia bipunctata	2-spot ladybird		predatory on other insects	A	H	I	L
Adalia decempunctata	10-spot ladybird		predatory on other insects				L
Calvia 14-guttata	Cream-spot Ladybird		predatory on other insects	A	H	I	L
Coccinella septempunctata	7-spot ladybird		predatory on other insects	A	H	I	L
Coccinella undecimpunctata	11-spot ladybird	Local	coastal and heathland habitats, but often wanders from here to other places				L
Ialyzia sedecimguttata	Orange ladybird		predatory on other insects	A			
Iarmonia axyridis	Iarlequin ladybird		a recent colonist in Britain	A	H	I	L
Propylea quattuordecimpunctata	14-spot ladybird		predatory on other insects			I	L
Psyllobora vigintidoupunctata	22-spot ladybird		feeds on mildews	A			
Rhyzobius litura	a spotless ladybird		predatory on other insects			I	L
Scymnus frontalis	a spotless ladybird		predatory on other insects in grassland and herbaceous vegetation			I	L
Scymnus haemorrhoidalis	a spotless ladybird	Local	damp habitats				L
Subcoccinella vigintiquattuorpunctata	24-spot ladybird		predatory on other insects				L
Tytthaspis sedecimpunctata	16-spot ladybird		predatory on other insects			I	L
Corylophidae							
Corylophus sublaevipennis			associated with fungi				L
Curculionidae	**weevils**						
Ceutorhynchus obstrictus			various Cruciferae				L
Ceutorhynchus pallidactylus			ecology unclear	A			
Ceutorhynchus quadridens			various Cruciferae	A			
Cionus scrophulariae			Figworts (Scrophularia species)	A			
Gymnetron (Mecinus) pascuorum			feeds on flowers of Plantago lanceolata - Ribwort Plantain				L
Iypera nigrirostris			Trifolium pratense - on the foliage				L
Iypera postica			Medicago, Melilotus and Trifolium - on the foliage				L
Nedyus quadrimaculatus			nettles - feeding on the flowers	A			L
Orchestes alni		Local	larva mines in leaves of elms			I	
Orthochaetes setiger		NS(Nb)	polyphagous - the larva making leaf mines				L
Parethelcus pollinarius			Nettles				L
Phyllobius maculicornis		Local	polyphagous on leaves of deciduous trees and shrubs		H		
Phyllobius pomaceus			Nettles		H		
Phyllobius pyri			Larvae develop in the ground an adults feed on a variety of herbage and tree leaves	A		I	
Rhinoncus castor			Dock plants				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Rhinoncus perpendicularis			Polygonum amphibium, in wet places - but almost certainly on other species				L
Sitona humeralis		Local	various legumes				L
Sitona lineatus			various legumes	A	H	I	L
Sitona sulcifrons			larvae feed in the root nodules of leguminous plants				L
Trachyphloeas aristatus		NS(Nb)	sparsely-vegetated sandy or calcareous sites, especially coastal ones				L
Trachyphloeas scabriusculus							L
Trichosirocalus troglodytes			Plantains, usually in grassy places				L
Tychius picirostris			various Leguminosae				L
Dermestidae							
Anthrenus verbasci	museum beetle		feeds on dead animal and plant matter, including dry carcasses	A			
Elateridae	**click beetles**						
Adrastus pallens			ecology unclear - probably develops in the soil				L
Agriotes acuminatus			larvae feed on grass roots			I	L
Agriotes lineatus			larvae feed on grass roots	A		I	
Denticollis linearis			larvae feed in decaying wood	A		I	
Kibunea (Cidnopus) minuta			a species of dry grasslands	A		I	
Kateretidae							
Brachypterus glaber			Nettles	A			L
Brachypterus urticae			Nettles	A		I	L
Latridiidae							
Cartodere bifasciatus			litter, compost, tussocks etc - more or less ubiquitous	A		I	L
Cartodere nodifer			leaf litter, vegetable detritus - more or less ubiquitous	A	H	I	L
Corticaria impressa			amongst plant litter				L
Corticarina fulvipes			amongst plant litter				L
Cortinicara gibbosa			amongst plant litter			I	L
Malachiidae							
Anthocomus rufus		Local	fens and marshes - a false soldier beetle				L
Cordylepherus viridis		Local	a common grassland species			I	L
Malachius bipustulatus	a malachite beetle		grasslands	A	H	I	L
Melyridae							
Dasytes aeratus		Local	larvae predatory under loose bark; adults usually on flowers in grassland	A			
Mordellidae							
Mordellistena acuticollis			widespread in the south-east, on Artemisia vulgaris		H		
Nitidulidae	**pollen beetles**						
Meligethes aeneus			various flowers	A	H	I	L
Meligethes carinulatus			Lotus corniculatus in many habitat types				L
Meligethes nigrescens			Larvae on White Clover; adults at various flowers	A		I	
Oedemeridae							
Nacerdes melanura	Wharf Borer	Local	larvae tunnel into saltwater soaked dead wood				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Oedemera lurida		Local	a common grassland species	A	H	I	L
Oedemera nobilis			a common grassland species	A	H	I	L
Scarabaeidae							
Serica brunnea			sandy and chalky habitats	A			
Scirtidae							
Cyphon variabilis			breeds in wet mosses in acid mires etc. Adults common on emergent vegetation				L
Scolytidae							
Scolytus scolytus	elm bark beetle		under elm bark			I	
Scraptiidae							
Anaspis fasciata (= humeralis)			larvae in twigs of oak and other trees; adults at hawthorn blossom	A		I	
Anaspis frontalis			larvae in twigs of oak and other trees; adults at hawthorn blossom			I	
Anaspis maculata			larvae in dead branches and twigs	A	H		
Anaspis pulicaria			larvae probably in plant stems or twigs of trees	A			
Silphidae							
Silpha tristis			associated with carrion	A			
Staphylinidae	**rove beetles**						
Aloconota gregaria			plant litter - ubiquitous				L
Amischa decipiens							L
Anotylus inustus			leaf litter, carrion, dung and similar				L
Astenus pulchellus							L
Atheta (Mocyta) fungi			a detritus-feeding rove beetle				L
Atheta (Mocyta) orbata			ecology unknown - probably amongst decaying vegetation				L
Bledius dissimilis			usually on clay-based cliffs or landslips				L
Drusilla canaliculata			litter, moss, under stones etc - a predator of ants				L
Ocypus (Tasgius) ater			carrion, dung, etc				L
Oligota parva			small (0.8 mm long) beetle associated with carrion				L
Philonthus concinnus			associated with decaying plant matter				L
Quedius picipes			leaf litter and other plant debris				L
Sepedophilus nigripennis							L
Sunius propinquus		Local					L
Tachyporus hypnorum			leaf litter, grass tussocks and similar micro-habitats				L
Xantholinus linearis			leaf litter, grass tussocks and similar micro-habitats				L
Tenebrionidae							
Lagria hirta			dry sandy habitats and also in many urban brownfield sites		H		
CRUSTACEA: ISOPODA							
Armadillidiidae							
Armadillidium vulgare	the pill bug		under stones etc	A	H		
Oniscidae							
Oniscus asellus	a woodlouse		damp, but not wet, habitats	A	H		L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
			everywhere				
Philosciidae							
Philoscia muscorum	a woodlouse		under stones etc	A			L
Porcellionidae							
Porcellio scaber	a woodlouse		under stones etc	A			L
DERMAPTERA							
Forficulidae							
Forficula auricularia	common earwig		generalist species	A	H	I	L
DIPTERA	**TRUE FLIES**						
Agromyzidae							
Agromyza alnibetulae			larva mines the leaves of birch trees	A			
Agromyza anthracina			larva makes mines in nettle leaves				L
Agromyza dipsaci			larva mines leaves of teasel		H		L
Agromyza potentillae			mines leaves of Potentilla reptans and other rosaceous plants	A			
Agromyza reptans			larva makes mines in nettle leaves		H		
Agromyza vicifoliae			larva makes mines in leaves of vetches				L
Amauromyza labiatarum			mines leaves of Lamium album and other labiates	A			L
Calycomyza artemisiae			larva mines leaves of Mugwort				L
Chromatomyia horticola			mines the leaves of many plant species	A	H	I	L
Liriomyza amoena			mines leaves of elder	A			L
Melanagromyza symphyti				A			
Phytomyza chaerophylli			Larva mines in leaves of cow parsley	A			
Phytomyza ranunculi			larva mines the leaves of Creeping Buttercup	A			L
Asilidae	**robber flies**						
Dioctria rufipes			predatory -mainly in edge habitats		H	I	
Leptogaster cylindrica			grassland predator		H	I	L
Machimus atricapillus			grassland predator			I	
Bibionidae							
Dilophus femoratus			associated with dung				L
Calliphoridae							
Calliphora vicina			dung or dead bodies		H		
Cecidomyiidae							
Dasineura crataegi			forms galls on hawthorn			I	
Dasineura urticae			forms galls on nettles				L
Chloropidae							
Lipara lucens			forms a cigar-shaped gall on reed stems				L
Oscinella frit			biology unknown - probably feeds inside grass stems				L
Thaumatomyia glabra			larvae are predators of root aphids				L
Thaumatomyia hallandica		Local	larvae are predators of root aphids				L
Conopidae	**parasitic flies**						

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Sicus ferrugineus		Local	parasitic fly on bumble bees				L
Thecophora atra		Local	a parasite of solitary bees				L
Empididae							
Empis (Kritempis) livida			predatory on other flies				L
Empis (Pachymeria) tesselata			predatory on other flies				L
Opomyzidae							
Ieomyza tripunctata			larvae feed inside the stems of grasses		H		
Opomyza florum			larvae feed internally inside grass stems		H		
Opomyza germinationis			larvae feed inside the stems of grasses		H		
Sciomyzidae	**snail-killing flies**						
Coremacera tristis		Local	dry habitats, especially grasslands			I	L
Limnia unguicornis			predatory on water snails				L
Sepsidae	**lesser dung flies**						
Nemopoda nitidula			shade-loving species, larvae in dung and carrion				L
Stratiomyidae							
Beris chalybata			associated with the scrub/grassland interface		H	I	
Chloromyia formosa			ubiquitous		H	I	L
Nemotelus uliginosus		Local	reed beds and saltmarshes				L
Pachygaster atra			woodland edge & scrubland species - larvae under dead bark of trees		H	I	L
Pachygaster leachii			woodland edge & scrubland species - larvae under dead bark of trees		H	I	
Sargus iridatus			larvae feed in rotting vegetation and similar material		H		
Syrphidae	**hoverflies**						
Cheilosia pagana			larvae are thought to feed in the roots of Anthriscus sylvestris			I	
Chrysotoxum bicinctum			grassland species -associated with ants' nests			I	
Epistrophe eligans			mainly at edge habitats	A			
Episyrphus balteatus			ubiquitous species, partly immigrant, and a predator of aphids	A	H	I	L
Eristalinus aeneus		Local	found in coastal situations around most of Britain				L
Eristalis arbustorum			Larvae require damp habitats but adults are more or less ubiquitous				L
Eupeodes corollae			Irassland	A			L
Helophilus pendulus			Larvae require damp habitats but adults are more or less ubiquitous		H		
Melanostoma mellinum			Irassland	A	H	I	L
Melanostoma scalare			Irassland			I	L
Myathropa florea			larvae are semi-aquatic		H		
Neoascia podagrica			edge-habitat species	A	H		L
Paragus haemorrhous			bare or sparsely vegetated, dry sandy ground				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Pipizella viduata			Larvae feed on root aphids on Umbelliferae		H	I	
Platycheirus albimanus			ubiquitous - larvae prey on aphids				L
Platycheirus angustatus			damp habitats				L
Platycheirus clypeatus			Damp habitats	A		I	
Scaeva pyrastri			immigrant from overseas - feeds on aphids				L
Sphaerophoria interrupta			unimproved wet meadows and other wet grassy habitats				L
Sphaerophoria scripta			Irassland - larvae prey on aphids		H	I	L
Syritta pipiens			larvae in decaying vegetation; adults at flowers				L
Syrphus ribesii			larvae are aphid predators on trees and bushes		H		
Syrphus vitripennis			larvae are aphid predators on trees and bushes	A	H	I	
Xanthogramma pedisequum s.str.		Local	larvae feed in ants nests		H		
Tabanidae							
Chrysops relictus			damp habitats - adult females are blood sucking horseflies				L
Haematopota pluvialis			damp habitats - adult females are blood sucking horseflies				L
Tephritidae	**picture-winged flies**						
Campiglossa (Paroxyna) misella		Local	Mugwort - mainly on post-industrial sites		H		
Euleia heraclei			larvae feed in the seed heads of white-flowering Umbelliferae				L
Tephritis cometa		Local	larvae gall the flowers of creeping thistle				L
Tephritis formosa		Local	larvae gall the flowers of sow thistle.				L
Tephritis vespertina			larvae gall the flowers of Iypochaeris species				L
Terellia ruficauda			larvae gall the flowers of thistles		H		
Urophora cardui			larvae gall the flowers of thistles	A	H	I	
Xyphosia miliaria			larvae gall the flowers of thistles - ubiquitous	A			L
Tipulidae							
Tipula oleracea			ubiquitous, larvae feeding on roots of grasses		H		
HETEROPTERA	**PLANT BUGS**						
Acanthosomatidae							
Acanthosoma haemorrhoidale	hawthorn shield bug		hawthorn		H	I	
Anthocoridae							
Anthocoris confusus			trees and shrubs		H		
Anthocoris nemoralis			trees and shrubs	A	H	I	L
Anthocoris nemorum			low vegetation	A	H	I	L
Cimicidae							
Orius laevigatus			predatory species found on a				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
			wide range of vegetation				
Orius laticollis (= minutus)			predatory bug amongst herbage	A		I	
Orius niger			low vegetation on a variety of dry sites	A	H		
Coreidae							
Arenocoris falleni		Local	Associated with Stork's-bill on coastal dunes and in Breckland				L
Coreus marginatus			Develops on a variety of Polygonaceae in open habitats	A			
Cydnidae							
Tritomegas (Sehirus) bicolor			feeds on labiates - often found in ruderal areas				L
Lygaeidae							
Drymus brunneus			amongst litter or moss in damp or shaded places		H		
Heterogaster urticae			Nettles	A	H	I	
Kleidocerys resedae			trees and shrubs generally	A	H	I	
Megalonotus praetextatus		NS(Nb)	sparsely-vegetated sandy sites with storksbill, mainly coastal				L
Megalonotus sabulicola		NS(Nb)	sparsely-vegetated sandy sites with storksbill, especially coastal				L
Nysius ericae			in ruderal habitats		H		
Nysius huttoni			Recent arrival in Britain - mostly known from Suffolk coast				L
Scolopostethus affinis			usually on nettles	A	H	I	
Miridae							
Asciodema obsoleta			feeds on Gorse and Broom with no particular habitat affiliations				L
Calocoris norvegicus			polyphagous			I	L
Capsus ater			Grassland		H	I	
Deraeocoris flavilinea			predatory amongst trees and bushes				L
Deraeocoris ruber			nettles, brambles and similar rough vegetation	A	H		
Dicyphus epilobii			Epilobium hirsutum		H	I	L
Leptoterna dolabrata			found in a wide range of grassland habitats	A		I	
Liocoris tripustulatus			stinging nettle	A	H	I	
Megaloceraea recticornis			grass feeding plant bug of a wide range of habitats				L
Notostira elongata			grasslands		H	I	L
Orthocephalus saltator			dry habitats with areas of open, un-vegetated ground				L
Plagiognathus albipennis			Mugwort - probably wherever this grows				L
Plagiognathus arbustorum			polyphagous, but usually associated with stinging nettles	A	H	I	
Plagiognathus chrysanthemi			polyphagous				L
Stenodema laevigatum			grasslands	A	H	I	
Stenotus binotatus			grasslands	A	H	I	
Tuponia brevirostris			Tamarisk - a recent arrival in Britain				L
Tuponia mixticolor		RDB 2	On Tamarisk in south-east England/East Anglia				L

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Nabidae							
Himacerus (Aptus) myrmicoides			ground dwelling predator of dry, open areas				L
Nabis ferus			dry sites, especially ruderal grassland		H	I	L
Pentatomidae	**shield bugs**						
Aelia acuminata			Thistles	A			
Dolycoris baccarum			polyphagous species of dry habitats		H	I	
Palomena prasina			trees and shrubs	A			
Piesmatidae							
Piesma quadratum			Overseas a pest of Sugar Beet, but not so in IB, where it is confined to the coast				L
Rhopalidae							
Corizus hyoscyami		Local	Stork's-bill at coastal sites, mainly south-western				L
Tingidae	**lace-bugs**						
Kalama tricornis		Local	Dry ruderal habitats and sand dunes				L
Physatocheila dumetorum			hawthorn			I	
Tingis cardui			spear thistle - Cirsium vulgare	A			
HOMOPTERA: AUCHENORRHYNCHA	**PLANT HOPPERS**						
Cercopidae							
Aphrophora alni	a froghopper		larvae feed under froth on a wide range of trees and shrubs			I	
Neophilaenus campestris			dry, open grassland			I	L
Neophilaenus lineatus			grasslands			I	L
Philaenus spumarius	spittle-bug/Cuckoo-spit bug		larvae feed under froth on a wide range of herbaceous plants	A	H		L
Cicadellidae							
Agallia ribauti		Local	on the ground amongst grasses in dry places - common in the south-east				L
Anoscopus serratulae			associated with grasses in grasslands and ruderal habitats				L
Aphrodes bicinctus		Local	grasses in dry situations				L
Aphrodes makarovi			grasslands				L
Arthaldeus pascuellus			grasses				L
Eupteryx urticae	a froghopper		Usually on nettles	A	H		L
Euscelis incisus			grasses		H		L
Megophthalmus scabripennis			sunny, warm grasslands, probably associated with Fabaceae				L
Megophthalmus scanicus			associated with Fabaceae (clovers, trefoils, medics etc) in grassland				L
Mocydia crocea			grasses	A		I	
Psammotettix confinis			grasses		H		L
Delphacidae							
Stenocranus minutus			grasses in a range of habitats			I	
HOMOPTERA: PSYLLOIDEA	**PLANT LICE**						
Psyllidae							

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Cacopsylla hippophaes			associated with Buckthorn plants				L
HYMENOPTERA: ACULEATA	**BEES, WASPS AND ANTS**						
Apidae							
Andrena bicolor			open woodland and grassland - nests in the ground		H		
Apis mellifera	honey bee		flowers in general	A	H	I	L
Bombus hortorum			a bumble bee	A			
Bombus lapidarius	red-tailed bumble bee		ubiquitous	A		I	L
Bombus lucorum	white-tailed bumble bee		ubiquitous		H		
Bombus pascuorum	common carder bee		ubiquitous	A		I	L
Ceratina cyanea		RDB3	nests in dead, dry, broken stems, especially bramble close to the ground		H		
Ioplitis spinulosa		Local	breeds in empty snail shells				L
Iylaeus communis	a yellow-faced bee		nests inside dead stems of bramble, dock etc		H		
Iylaeus confusus	a yellow-faced bee	Local	nests in hollow plant stems		H		
Iylaeus signatus	a yellow-faced bee	NS(Nb)	requires pollen from Reseda - nests in hollow plant stems				L
Lasioglossum malachurum	a mining bee	NS(Nb)	ground nesting species - prefers soils with a clay component	A			
Lasioglossum morio			excavates nest burrows in level ground				L
Nomada flava			nest parasite of Andrena scotica	A			
Formicidae							
Formica cunicularia		Local	under stones, dry turf on banks etc on various soil types, but shade-intolerant				L
Lasius flavus	yellow ant		grassland. A high nest density indicates long term grassland continuity	A			
Lasius niger s. str.	common black ant.		generalist species		H		L
Myrmica bessarabica (= specioides)		R RDB3	nests on dry, coastal sites				L
Myrmica lobicornis			warm, dry sites				L
Myrmica rubra	a red ant		ubiquitous	A			L
Myrmica scabrinodis			grassland - preferring shorter, damp turf	A			
Temnothorax nylanderi			nests in hollow sticks, old beetle tunnels or other cavities				L
Sphecidae							
Trypoxylon attenuatum			preys on spiders. Nests in plant stems, beetle tunnel or other cavities	A			
Vespidae							
Vespula germanica	a common social wasp		ubiquitous	A			
HYMENOPTERA: PARASITICA	**GALL WASPS**						
Cynipidae							
Diplolepis nervosa			forms sputnik galls on leaf of rose		H		

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Diplolepis rosae			forms pin cushion gall on wild rose		H		
HYMENOPTERA: SYMPHYTA	**SAWFLIES**						
Argidae							
Arge cyanocrocea			larvae feed on Rubus (bramble, raspberry etc)				L
Cephidae							
Calameuta filiformis			larvae mine the stems of grasses in damp habitats				L
Cephus cultratus			larvae mine the stems of grasses			I	L
Cephus pygmaeus			larvae mine the stems of grasses				L
Tenthredinidae							
Athalia rosae			phytophagous species				L
Fenusa pumila			Larvae mine the leaves of Elm. Was called Kaliofenusa pusilla			I	
LEPIDOPTERA	**BUTTERFLIES**						
Hesperiidae							
Thymelicus sylvestris	Small skipper		grassland	A	H		L
Lycaenidae							
Polyommatus icarus	Common blue		various legumes, especially Bird's-foot Trefoil	A	H		
Nymphalidae							
Lasiommata megera	Wall Brown	BAP	declining species in southern Britain				L
Maniola jurtina	Meadow brown		grassland species		H		L
Pararge aegeria	Speckled wood		grasses in light woodland or scrub	A	H	I	L
Pyronia tithonus	Gatekeeper		larvae feed on coarse grasses			I	L
Vanessa atalanta	Red admiral		most often recorded as an immigrant from overseas				L
Pieridae							
Anthocharis cardamines	Orange-tip		edge habitats are preferred	A			
Pieris brassicae	Large white		various Cruciferae				L
Pieris rapae	Small white		ubiquitous	A			
LEPIDOPTERA	**MOTHS**						
Arctiidae							
Tyria jacobaeae	Cinnabar	BAP(R)	Ragwort	A	H		L
Drepanidae							
Cilix glaucata	Chinese Character		blackthorn, hawthorn and other rosaceous bushes			I	
Gelechiidae							
Ielcystogramma rufescens			grasses				L
Geometridae							
Scotopteryx chenopodiata	Shaded Broad-bar	BAP(R)	vetches and clovers				L
Gracillariidae							
Leucospilapteryx omisella			mines lower leaves of mugwort turning them purple				L
Lasiocampidae							
Euthrix potatoria	Drinker		grasses, including reeds				L
Nepticulidae							
Stigmella lemniscella			mines leaves of elm			I	
Noctuidae							

Group / species	English name if available	National status	Ecological associations	Area where found by us			
				A	H	I	L
Autographa gamma	Silver Y		nettles and other herbaceous plants - rarely surviving winter.				L
Iypena proboscidalis	Snout		nettles				L
Pyralidae							
Chrysoteuchia culmella			grasses	A		I	
Crambus lathoniellus			grasses	A		I	
Crambus perlella			grasses				L
Ostrinia nubilalis			mugwort				L
Pleuroptya ruralis			nettles	A			
Pyrausta despicata		Local	Plantago lanceolata and Plantago major				L
Tortricidae							
Bactra lancealana			Juncus, Scirpus and Cyperus				L
Celypha lacunana			herbaceous plants.	A			
MECOPTERA	**SCORPION FLIES**						
Panorpidae							
Panorpa germanica			edge habitats		H		
NEUROPTERA	**LACEWINGS**						
Chrysopidae	**green lacewings**						
Chrysopa perla			aphid predator amongst herbage				L
Chrysoperla carnea			aphid predator of trees and bushes	A			L
Cunctochrysa albolineata			predatory on aphids in tree foliage	A			L
Hemerobiidae	**brown lacewings**						
Hemerobius lutescens			trees and bushes, hedges, etc	A			
ODONATA							
Coenagriidae	**damselflies**						
Coenagrion puella	Azure Damselfly		well-vegetated water bodies, the adults flying from May to August				L
Enallagma cyathigerum	Common blue damselfly		static, open water bodies with emergent vegetation, flying mid May to early October	A			L
Ischnura elegans	Blue-tailed damselfly		found in most permanent water bodies, the adults flying from May to August				L
ORTHOPTERA							
Acrididae	**grasshoppers**						
Chorthippus albomarginatus	Lesser marsh Grasshopper	Local	grasslands - has spread inland from coastal stations				L
Chorthippus brunneus	Field grasshopper		grassland			I	L
Chorthippus parallelus	Meadow grasshopper		grassland	A			
Tetrigidae	**ground hoppers**						
Tetrix undulata	Common Ground-hopper		bare ground habitats, including dunes				L
Tettigoniidae	bush-crickets						
Leptophyes punctatissima	Speckled Bush-cricket		rough herbage and scrub				L
Metrioptera roeselii	Roesel's Bush-cricket	NS(Nb)	long grassland			I	L

APPENDIX 2: INVERTEBRATE STATUS CODES

Earlier published reviews of scarce and threatened invertebrates employed the Red Data Book criteria used in the British Insect Red Data Book (Shirt 1987) with the addition of the category RDBK (Insufficiently Known) after in 1983. In addition, the status category Nationally Notable (now termed Nationally Scarce) was used from 1991. The original criteria of the International Union for the Conservation of Nature (IUCN – now called the World Conservation Union) for assigning threat status used in these publications had the categories *Endangered*, *Vulnerable*, and *Rare*, which were defined rather loosely and without quantitative parameters. The application of these categories was largely a matter of subjective judgment, and it was not easy to apply them consistently within a taxonomic group or to make comparisons between groups of different organisms. The deficiencies of the old system were recognised internationally, and in the mid-1980s proposals were made to replace it with a new approach which could be more objectively and consistently applied. In 1989, the lUCN's Species Survival Commission Steering Committee requested that a new set of criteria be developed to provide an objective framework for the classification of species according to their extinction risk. The first, provisional, outline of the new system was published in 1991. This was followed by a series of revisions, and the final version adopted as the global standard by the IUCN Council in December 1994. The guidelines were recommended for use also at the national level. In 1995, the Joint Nature Conservation Committee (JNCC) endorsed their use as the new national standard for Great Britain, and subsequent British Red Data Books have used these revised IUCN criteria. These criteria are used in this present report and are as follows:

EXTINCT (EX) A species is *Extinct* when there is no reasonable doubt that the last individual has died.

EXTINCT IN THE WILD A species is *Extinct* in the wild when it is known to survive only in cultivation, in captivity or as a naturalised population (or populations) well outside the past range.

CRITICALLY ENDANGERED
A species is *Critically Endangered* when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the following criteria:

A. Population reduction in the form of either of the following:

1. An observed, estimated, inferred or suspected reduction of at least 80% over the last 10 years or three generations, whichever is the longer, based on direct observation, an index of abundance appropriate for the species, a decline in area of occupancy, extent of occurrence and/or quality of habitat, actual or potential levels of exploitation or the effects of introduced species, hybridisation, pathogens, pollutants, competitors or parasites.
2. A reduction of at least 80%, projected or suspected to be met within the 10 years or three generations, whichever is the longer, based any of these parameters.

B. Extent of occurrence estimated to be less than 100 Km^2 or areas of occupancy estimated to be less than 10 Km^2 and estimates indicating any <u>two</u> of the following:

1. Severely fragmented or known to exist at only a single location.
2. Continuing decline, observed, inferred or projected, in any of the following: a. extent of occurrence b. area of occupancy c. area, extent and/or quality of habitat d. number of locations or sub-populations e. number of mature individuals
3. Extreme fluctuations in extent of occurrence, area of occupancy, number of locations or sub-populations or number of mature individuals.

C. Population estimated to number less than 250 mature individuals and either:

1. An estimated continuing decline of at least 25% within 3 years or one generation, whichever is longer or
2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either severely fragmented *(i.e.* no sub-population estimated to contain more than 50 mature individuals) or all individuals are in a single sub-population

D. British population estimated to number less than 50 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild of at least 50% within 10 years or 3 generations, whichever is the longer.

ENDANGERED (Formerly RDB category 1)

A species is Endangered when it is not *Critically Endangered* but is facing a very high risk of extinction in the wild in the near future, as defined by any of the following criteria:

A. Population reduction in the form of either of the following:

1. An observed, estimated, inferred or suspected reduction of at least 50% over the last 10 years or three generations, whichever is the longer, based on direct observation, an index of abundance appropriate for the species, a decline in area of occupancy, extent of occurrence and/or quality of habitat, actual or potential levels of exploitation or the effects of introduced species, hybridisation, pathogens, pollutants, competitors or parasites.
2. A reduction of at least 50%, projected or suspected to be met within the 10 years or three generations, whichever is the longer, based any of these parameters.

B. Extent of occurrence estimated to be less than 5,000 Km^2 or areas of occupancy estimated to be less than 10 Km^2 and estimates indicating any <u>two</u> of the following:

1. Severely fragmented or known to exist at no more than five locations.
2. Continuing decline, observed, inferred or projected, in extent of occurrence, area of occupancy, area, extent and/or quality of habitat, number of locations or sub-populations or the number of mature individuals.

C. Population estimated to number less than 2500 mature individuals and either:

1. An estimated continuing decline of at least 20% within 5 years or 2 generations, whichever is longer or
2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either severely fragmented *(i.e.* no sub-population estimated to contain more than 250 mature individuals) or all individuals are in a single sub-population

D. British population estimated to number less than 250 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild of at least 20% within 20 years or 5 generations, whichever is the longer..

VULNERABLE (Formerly RDB category 2)

A species is *Vulnerable* when it is not *Critically Endangered or Endangered but* is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the following criteria (A to E):

A. Population reduction in the form of either of the following:

1. An observed, estimated, inferred or suspected reduction of at least 20% over the last 10 years or three generations, whichever is the longer, based on direct observation, an index of abundance appropriate for the species, a decline in area of occupancy, extent of occurrence and/or quality of habitat, actual or potential levels of exploitation or the effects of introduced species, hybridisation, pathogens, pollutants, competitors or parasites.
2. A reduction of at least 20%, projected or suspected to be met within the 10 years or three generations, whichever is the longer, based any of these parameters.

B. Extent of occurrence estimated to be less than 20,000 Km^2 or areas of occupancy estimated to be less than 20,000 Km^2 and estimates indicating any <u>two</u> of the following:

1. Severely fragmented or known to exist at no more than ten locations. Continuing decline, observed, inferred or projected, in extent of occurrence, area of occupancy, area, extent and/or quality of habitat, number of locations or sub-populations or the number of mature individuals.
2. Extreme fluctuations in extent of occurrence, area of occupancy, number of locations or sub-populations or number of mature individuals.

C. Population estimated to number less than 10,000 mature individuals and either:

1. An estimated continuing decline of at least 10% within 10 years or 3 generations, whichever is longer or
2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either severely fragmented *(i.e.* no sub-population estimated to contain more than 1000 mature individuals) or all individuals are in a single sub-population

D. Population very small or restricted in the form of either of the following:

1. Population estimated to number less than 1,000 mature individuals.
2. Population is characterised by an acute restriction in its area of occupancy (typically less than 100 km) or in the number of locations (typically less than 5). Such a species would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming *Critically Endangered* or even *Extinct* in a very short period.

E. Quantitative analysis showing the probability of extinction in the wild of at least 10% within 100 years.

LOWER RISK (Formerly RDB category 3)
A species is Lower Risk when it has been evaluated but does not satisfy the criteria for any of the categories *Critically Endangered, Endangered* or *Vulnerable.* Species included in the Lower Risk category can be separated into three sub-categories:

• **Conservation Dependent** species which are the focus of a continuing species -specific or habitat-specific conservation program targeted towards the species in question, the cessation of which would result in the species qualifying for one of the threatened categories above within a period of five years.

• **Near Threatened** Species which do not qualify for *Lower Risk (Conservation Dependent),* but which are close to qualifying for *Vulnerable.*

• **Least Concern**
Species which do not qualify for *Lower Risk (Conservation Dependent)* or *Lower Risk (Near Threatened).*

DATA DEFICIENT A species is *Data Deficient* when there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status. A species in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. *Data Deficient* is therefore not a category of threat or Lower Risk.

LOWER RISK (NATIONALLY SCARCE – FORMERLY NATIONALLY NOTABLE)
Species which are not included within the IUCN threat categories and are estimated to occur less than 100 hectads of the Ordnance Survey national grid in Great Britain. It should be noted that Lower Risk (Nationally Scarce) is not a threat category, but rather an estimate of the extent of distribution of these species. Lower Risk species are subdivided as follows:

Na species estimated to occur within the range of 16 to 30 10-kilometre squares of the National Grid System.

Nb species estimated to occur within the range 31 to 100 10-kilometre squares of the National Grid System.

N Diptera (flies) not separated, falling into either category Na or Nb.

NATIONALLY LOCAL (L)
Species which, whilst fairly common, are evidently less widespread than truly common species, but also not qualifying as Nationally Notable having been recorded from over one hundred, but less than three hundred, ten-kilometre squares of the UK National Grid.

ASSOCIATED DEFINITIONS

Extent of occurrence
Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a species, excluding cases of vagrancy. This measure may exclude discontinuities or disjunctions within the overall distributions of species (e.g. large areas of obviously unsuitable habitat) (but see 'area of occupancy'). Extent of occurrence can often be measured by a minimum convex polygon (the smallest polygon in which no internal angle exceeds 180 degrees and which contains all the sites of occurrence).

Area of occupancy
Area of occupancy is defined as the area within its 'extent of occurrence' (see definition) which is occupied by a species, excluding cases of vagrancy. The measure reflects the fact that a species will not usually occur throughout the area of its extent of occurrence, which may, for example, contain unsuitable habitats. The area of occupancy is the smallest area essential at any stage to the survival of existing populations of a species *(e.g.* colonial nesting sites, feeding sites for migratory species). The size of the area of occupancy will be a function of the scale at which it is measured, and should be at a scale appropriate to relevant biological aspects of the species. The criteria include values in km^2, and thus to avoid errors in classification, the area of occupancy should be measured on grid squares (or equivalents) which are sufficiently small.

East Anglia Offshore Wind

Aquatic Invertebrate Surveys Report

Appendix 24.10

Aquatic Invertebrate Survey Report

East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.10 - Aquatic Invertebrate Survey Report

854188

AUGUST 2012

RSK GENERAL NOTES

Project No.: 854188

Title: Appendix 24.10 - Aquatic Invertebrate Survey Report

Client: East Anglia Offshore Wind Limited

Date: 24th August 2012

Office: Helsby

Status: Final

Author	Will Holden	**Technical reviewer**	Sarah Harmer
Signature		Signature	
Date:	24th August 2012	Date:	24th August 2012

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

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1 INTRODUCTION

1.1 Purpose of the Report

This report presents the findings of aquatic invertebrate surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. This report forms Appendix 24.10 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement. The Onshore Cable Route runs from a landfall south-east of Ipswich, east of the River Deben near Bawdsey. The route then runs north-west towards Bramford to the west of Ipswich, a distance of approximately 37km. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.10.1*.

The surveys involved sampling of a selection of ditches and watercourses crossed by the Preferred Onshore Cable Corridor. The surveys were carried out on the 11th and 12th June 2012 and provided an assessment of water quality and the aquatic invertebrate assemblages present, as well as a brief evaluation of the conservation status of each species.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. Much of the land crossed is arable farmland, but the Onshore Cable Route crosses hedgerows, field drains and ditches, as well as streams, coastal habitats and small areas of woodland. The Preferred Onshore Cable Corridor also crosses previously-developed land and the River Deben.

1.3 Structure of the Report

The remainder of the report is set out as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the results of the surveys;
- *Section 4* provides the evaluation and conclusions; and
- *Section 5* is the reference section.

2 METHODS

2.1 Objectives of the Survey

Aquatic Invertebrate surveys sampled a total of sixteen sites including ditches and watercourses crossed by the Preferred Onshore Cable Corridor. Surveys were conducted on the 11th and 12th of June 2012 by Will Holden and Joel Walley of RSK Environment Ltd. The locations sampled are shown on *Figure 24.10.2*

The method used to sample invertebrates in the ditches and watercourses included a combination of the standard four-minute combined kick sampling technique, adhering to Environment Agency (EA) guidelines (Environment Agency 1999) and Pond Conservation Predictive System of Multi-metrics (PSYM) methodology (Pond Conservation, 2002). This divided sampling time between the different micro-habitats at each site allowing for representative sampling. The surveys were undertaken by two people at all times for safety reasons. Briefly, the sampling methodology, divided between each habitat type, comprised:

- 30 seconds of netting of any surface-active insects, such as pond skaters (Hemiptera: Gerridae) and whirligig beetles (Coleoptera: Gyrinidae);
- 3 minutes of active kicking and disturbing substrates and sediment with additional sweeping of vegetation where present; and
- 30 seconds of hand searching for invertebrates, such as those adhering to submerged logs, stones or other debris, for example leeches (*Hirudinea*) and caddisfly (*Trichoptera*).

Care was taken to ensure that all habitats and micro-habitats, both typical and atypical, were proportionally represented in the sample, and that surface-active insects and species adhered to submerged logs and stones were included.

Samples were preserved in methylated spirits and stored within the RSK laboratory. They were then sorted and, as far as possible, invertebrates identified to species level, with the relative abundance of each identified taxa recorded.

2.2 Interpretation

2.2.1 General

The following interpretive tools will be used to examine the invertebrate datasets. Collectively, these are referred to as the biotic scores of a sample and are explained below. Although the BMWP (Biological Monitoring Working Party) and ASPT (Average Score per Taxon) scores were developed for use in rivers and streams, they can also be an interpretive tool to analyse the quality of standing waters, including ditches.

2.2.2 Biological Monitoring Working Party Score (BMWP)

The BMWP score relates to the pollution tolerance of an invertebrate assemblage and, therefore, the biological water quality of the relevant water body. This ascribes a numerical score (from 1 to 10) to a range of invertebrate families, depending on their tolerance/intolerance to organic (and other) pollution, which can be related to water quality. Pollution sensitive families score more highly than pollution tolerant ones. Therefore, the cumulative score of these assigned values gives a good indication of biological water quality, with higher values indicating better water quality.

Table 1 allows general comparisons to be drawn regarding BMWP scores and actual water quality categories, as used by the Environment Agency.

Table 1 Biological Water Quality Categories (Environment Agency, 1999)

Category	BMWP
Very Good	>150
Good	101 – 150
Fair	51 – 100
Poor	16 – 50
Very Poor	0 - 15

2.2.3 Average Score per Taxon (ASPT)

The ASPT is a derived index, which is obtained simply by dividing the BMWP score by the number of scoring families. The product is, therefore, somewhat independent of the taxon richness. Using ASPT together with BMWP allows easier comparisons across samples and sites. Both measures are routinely used by the EA in assessing the biological water quality of rivers.

As a guide, a BMWP score of over 80 and an ASPT score of 5.0 or above indicates ‘good to very good‘ biological water quality. A BMWP score of 50 to 80 and ASPT score of 4.0 to 5.0 indicates ‘moderate to good’ water quality. BMWP scores less than 50 and ASPT scores of less than 4.0 suggest ‘reduced to poor’ water quality.

2.2.4 Taxon Richness

This is the number of invertebrate taxa recorded, and is the most widely used measure of biodiversity. A taxon is a group of related animals, such as a species, genus or family.

2.3 Conservation Status

Species distribution and conservation status was checked using the Recorder 6 software package. Rare and protected invertebrate species are of particular importance and will be identified, and recorded as such.

3 RESULTS

3.1 Habitat assessments

Habitat assessments of all ditches were conducted during the site visits on the 11th and 12th of June, 2012. The results are presented below.

Site 1

Site 1 is a slow-flowing stream which runs from west to east, eventually draining into the River Gipping. The stream is approximately 2m wide and 0.1m deep. The stream bed is soft and composed of a mixture of sand, stones and mud, along with a variety of man-made debris. No aquatic vegetation is present within the stream. The stream has tall, steep banks, with a large amount of exposed soil. Bank side vegetation consists of rough grassland with agricultural arable land beyond.

Site 2

Site 2 is a stagnant, heavily-shaded drainage ditch, located between a poultry farm and an area of improved grassland. The ditch is approximately 3m wide and 0.3m deep. The bed is composed of deep silt and leaf litter. Aquatic vegetation present includes *Lycopus europaeus* (Gypsywort), *Mentha aquatica* (Water Mint) and *Myosotis scorpioides* (Water Forget-me-not). The surrounding banks are low and heavily vegetated with trees, rough grassland and semi-ruderal vegetation.

Site 3

A slow-flowing section of the River Gipping which runs from north to south through the surrounding rough grassland. The surveyed area is approximately 10m wide and 1m deep. The riverbed is composed of a mixture of silt and gravel. Aquatic vegetation includes *Iris pseudacorus* (Yellow Flag Iris), *Ranunculus fluitans* (Water Crowfoot) and *Schoenoplectus lacustris* (Common Club-rush). Tall steep banks are covered with vegetation consisting of rough grassland and semi-ruderal species.

Site 4

Site 4 is a small drainage ditch, running directly perpendicular to the to the section of the River Gipping surveyed for Site 3. At the time of the survey, Site 4 is a still ditch approximately 1m wide and 0.5m deep. The ditch bed is composed of a deep layer of silt, with no aquatic vegetation present. Bank sides are steep and sparsely vegetated with semi-ruderal vegetation and rough grassland.

Site 5

Site 5 is a slow-flowing, partially-shaded stream approximately 2m wide and 0.3m deep. The stream at Site 5 flows from north to south, and is surrounded by rough grassland and a small area of woodland. The stream bed is composed of a mixture of silt, gravel and some detritus. Aquatic vegetation is restricted to small amounts of *Phragmites australis* (Common Reed). The banks are steep (approximately 1m tall) and vegetated

with rough grassland and semi-ruderal vegetation with patches of *Crataegus monogyna* (Hawthorn).

Site 6

Site 6 is a slow-flowing, shallow stream running north to south approximately 1m wide and 5cm deep. The stream bed is composed of clay, sand and detritus with no aquatic vegetation. The banks are wooded with *Crataegus monogyna* (Hawthorn) and dominated by *Equisetum arvense* (Horse tail) and semi-ruderal vegetation. Site 6 drains the adjacent arable fields, which slope steeply down towards it.

Site 7

Site 7 is a slow-flowing section of the river Lark, approximately 4m wide and 0.5m deep, flowing north to south. The riverbed is comprised of a mixture of gravel and silt. No aquatic vegetation is present. The river has steep banks that are heavily vegetated with *Alnus glutinosa* (Common Alder) and *Epilobium hirsutum* (Great Willowherb). The surrounding land is a mixture of arable and rough grassland.

Site 8

Site 8 is a shallow drainage ditch, approximately 1m wide and 5cm deep, which slowly flows from north to south eventually entering the river Lark around 500m downstream of Site 7. The ditch contains a high density of aquatic vegetation and is dominated by *Apium nodiflorum* (Fools Water Cress) and *Epilobium hirsutum* (Great Willowherb). Bank vegetation consists of a mixture of semi-ruderal species and rough grassland.

Site 9

Site 9 is a stagnant ditch approximately 50m north of Martlesham Creek. The surrounding land is agricultural, with livestock grazing directly to the south, and a nursery directly to the north. The surface of the ditch is covered with *Lemna* species (Duckweed) with no other aquatic vegetation present. The ditch is approximately 3m wide and 0.5m deep, with a bed composed of detritus. The ditch is shaded by *Quercus robur* (Pedunculate Oak) with *Epilobium hirsutum* (Great Willowherb) present on the more open areas of the bank.

Site 10

Site 10 is a slow-flowing shallow drainage ditch, approximately 1m wide and 5cm deep. The ditch contains a high density of aquatic vegetation and is dominated by *Apium nodiflorum* (Fools Water Cress) and *Epilobium hirsutum* (Great Willowherb). Vegetation growing along the bank consists of a mixture of semi-ruderal species and rough grassland.

Site 11

Site 11 is a large drainage dyke that runs adjacent to the River Deben. The dyke is approximately 15m wide and 2m deep and is surrounded by arable agricultural land and rough grassland. A mat of algae covers a large proportion of the dyke, and the only aquatic vegetation present is *Phragmites australis* (Common Reed), which occurs along both banks. The bed is composed of detritus.

Site 12

Site 12 is a small drainage ditch leading into Kirton Creek, within a large area of rough grassland. Site 12 is approximately 2m wide and 1m deep with steep sided banks. The bed is composed of a mixture of clay and detritus, with no aquatic vegetation present. The bank vegetation consists solely of *Phragmites australis* (Common Reed).

Site 13

Site 13 is Kirton Creek, a large river that flows from west to east eventually entering the River Deben. The creek is approximately 15m wide and 1m deep. The bed of the creek is composed of clay, and there is a dense growth of *Phragmites australis* (Common Reed) throughout. With the exception of this, no aquatic vegetation is present. Site 13 is located almost immediately next to site 12, and therefore shares the same surrounding land use of rough grassland.

Site 14

Site 14 is a still, steep-sided ditch, approximately 2m wide and 0.3m deep. The bed of the ditch is composed of detritus, and the only aquatic vegetation present is a small amount of *Phragmites australis* (Common Reed). The surrounding vegetation on the banks is arable crop.

Site 15

Site 15 is a still ditch, approximately 2m wide and 0.5m deep, with dense growth of *Phragmites australis* (Common Reed) throughout. The ditch is part of a larger network of ditches draining the surrounding arable land. The bed of the ditch is composed of detritus.

Site 16

Site 16 is a steep-sided ditch, which runs through the centre of a large arable field, approximately 4m wide and 1m deep. No aquatic vegetation is present within the ditch, but *Phragmites australis* (Common Reed) is present along both banks. The bed of the ditch is composed of detritus.

3.2 Aquatic Invertebrate Assemblages

General

A full list of the invertebrate assemblages recorded at each site is presented in Appendix A.

The biotic scores (see Appendix A) indicate that the sample sites have water quality ranging between poor (Sites 1 and 9) to good (Sites 5, 8, 15 and 16) with the remaining sites having moderate water quality. Whilst overall diversity is not particularly high, some of the better sites show relatively diverse beetle and mollusc assemblages, as would be expected for still and slow moving aquatic habitats.

The majority of species found are common and widespread either through the South East or through the UK as a whole. Four species classed as having a Local distribution have been recorded in fours sites. No rare, notable or protected species have been recorded.

Constraints

It is important to note that whilst the surveys are designed to sample ditches and other slow flowing to still habitats, the interpretation tools (BMWP and ASPT) are designed for use within river systems. Whilst their results are relevant, any conclusions for biological water quality must be treated with caution.

The results presented within this report are based on sampling conducted in early summer on a single site visit. It is therefore likely that the invertebrate assemblages are more diverse than current results suggest. Repeated surveys throughout the year would produce a more comprehensive list of invertebrate species, and reduce the impact of seasonality on the results. However, given the results and that the survey was undertaken in the optimum period, no further surveys are deemed to be required.

4 EVALUATION AND MITIGATION

4.1 Habitat Assessment

Rivers and Streams and Standing Open Water (including ponds) are listed as Broad Habitats and Reed beds are listed as Priority Habitats on the UKBAP and LBAP and so all rivers, reed beds and ditches must be considered to have both national and local importance. Current proposals show that the majority of crossings will be by open cut methods with some crossings using non-open cut methods (as shown in *Figure 24.10.2*). Direct impacts on the rivers and ditches from open cut methods will require work under a method statement with impacts fully mitigated. This will include the installation of fencing to protect the ditch banks and silt netting to protect the ditches from construction runoff during site works.

4.2 Aquatic Invertebrate Assemblages

Whilst some of the invertebrate assemblages present (the four Local species) may have a restricted distribution within the UK, the majority of species present are considered common within suitable habitats. The presence of Local species adds to the conservation value of the waterbodies however no Notable or Rare species were recorded. At many sites, the lack of a diverse aquatic vegetation assemblage has resulted in a restricted invertebrate diversity.

It is important to note, however, that these results are based on a single summer survey and invertebrate diversity is likely to be higher than has been recorded in these samples. However, given the results and that the survey was undertaken in the optimum period, no further surveys are deemed to be required.

5 REFERENCES

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Pond Action (1998). A guide to the methods of the National Pond Survey. Pond Action, Oxford.

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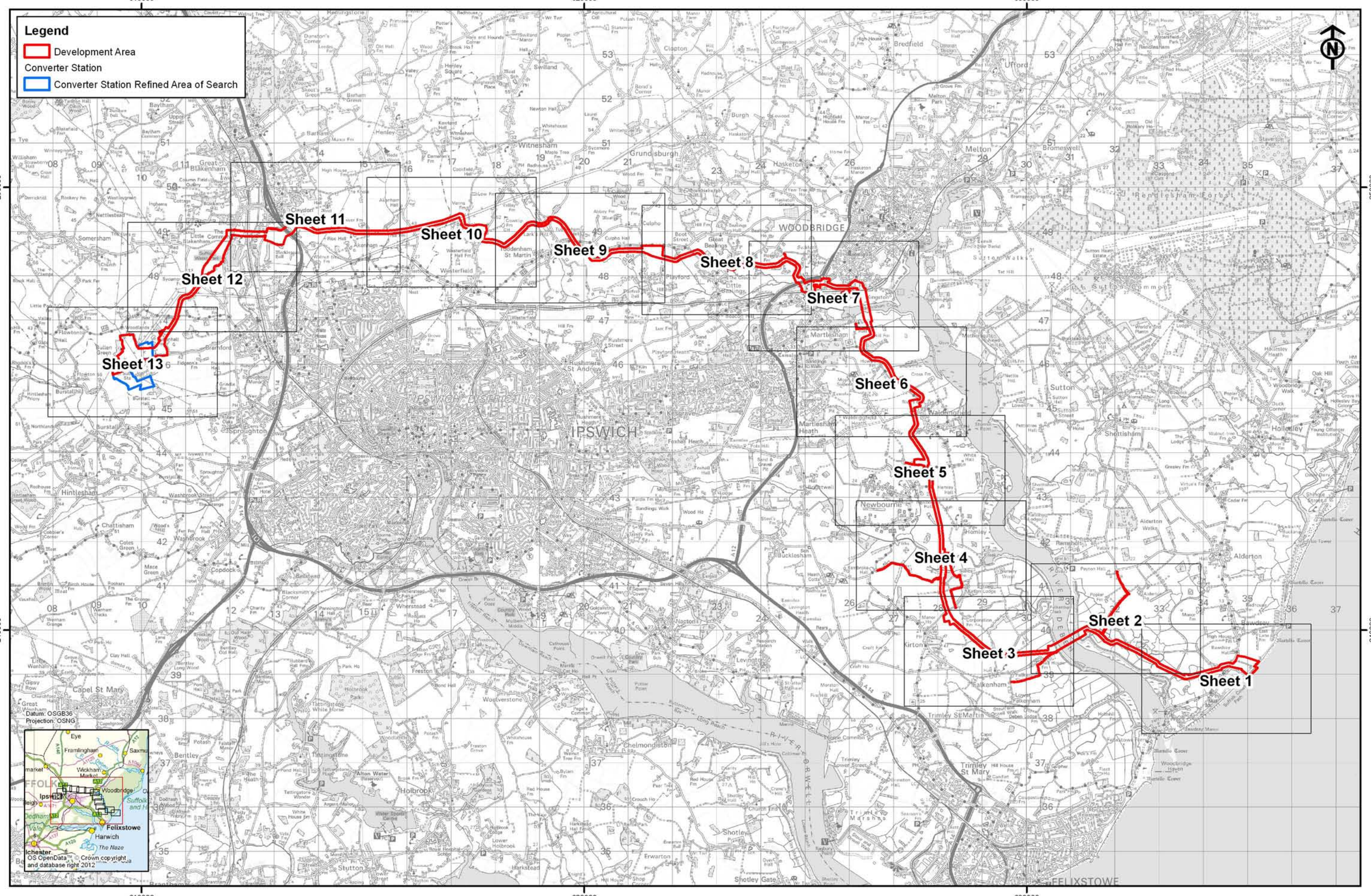
UK Biodiversity Action Plan http://www.ukbap.org.uk/

FIGURES

Figure 24.10.1 – Route Overview
Figure 24.10.2 – Sampling Locations



Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:80,000

0 1 2 4 km

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Aquatic Invertebrate Survey
Onshore Cable Route - Overview

Drg No	41388-A24-24.10.1(1)
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Date	01/10/12
Layout	N/A

Appendix 24.10

Figure 24.10.1

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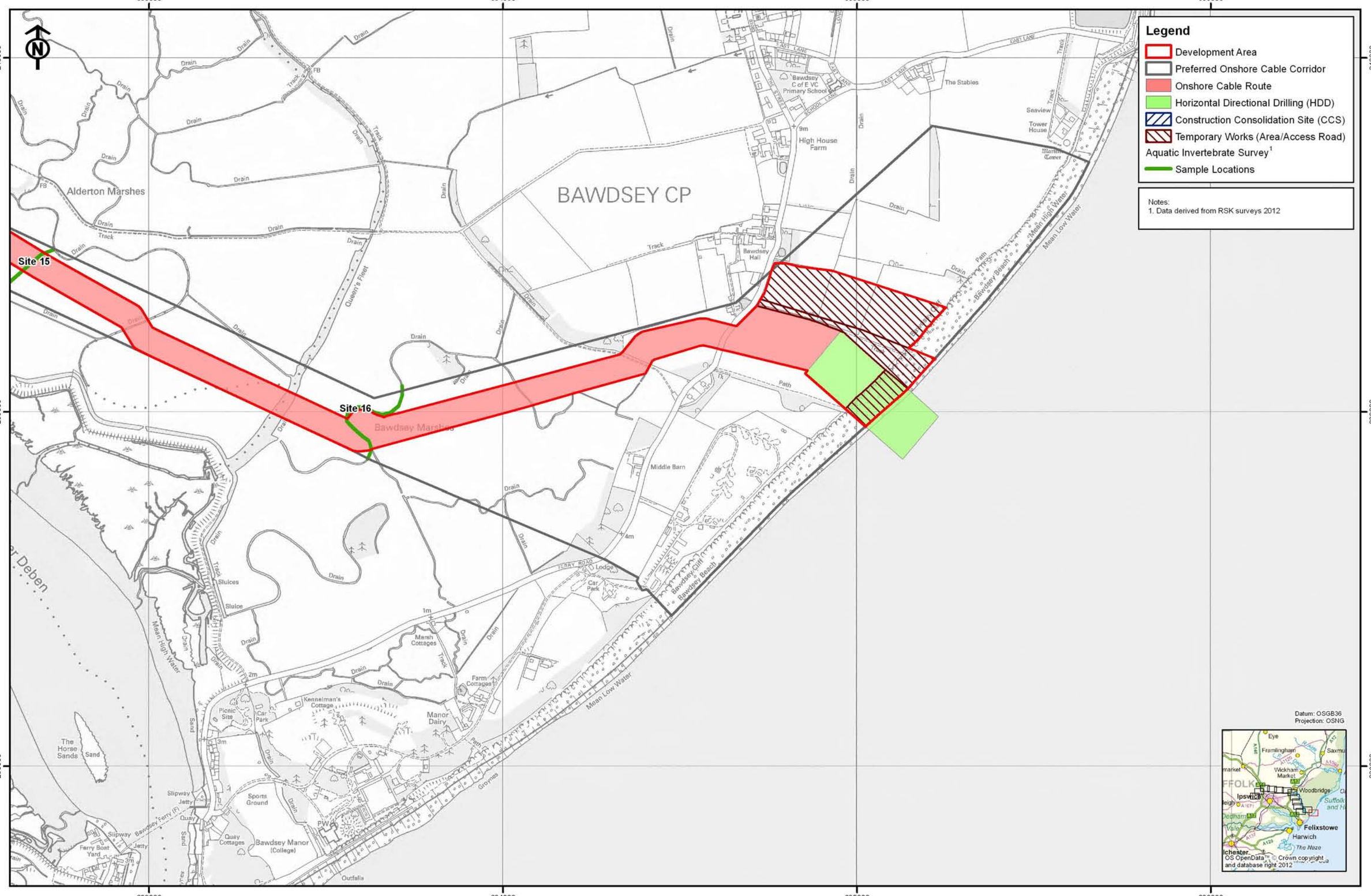

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Aquatic Invertebrate Sample Locations
Sheet 1 of 13

Drg No	41388-A24-24.10.2(1)
Rev	02
Date	01/10/12
Layout	N/A

Appendix 24.10

Figure 24.10.2

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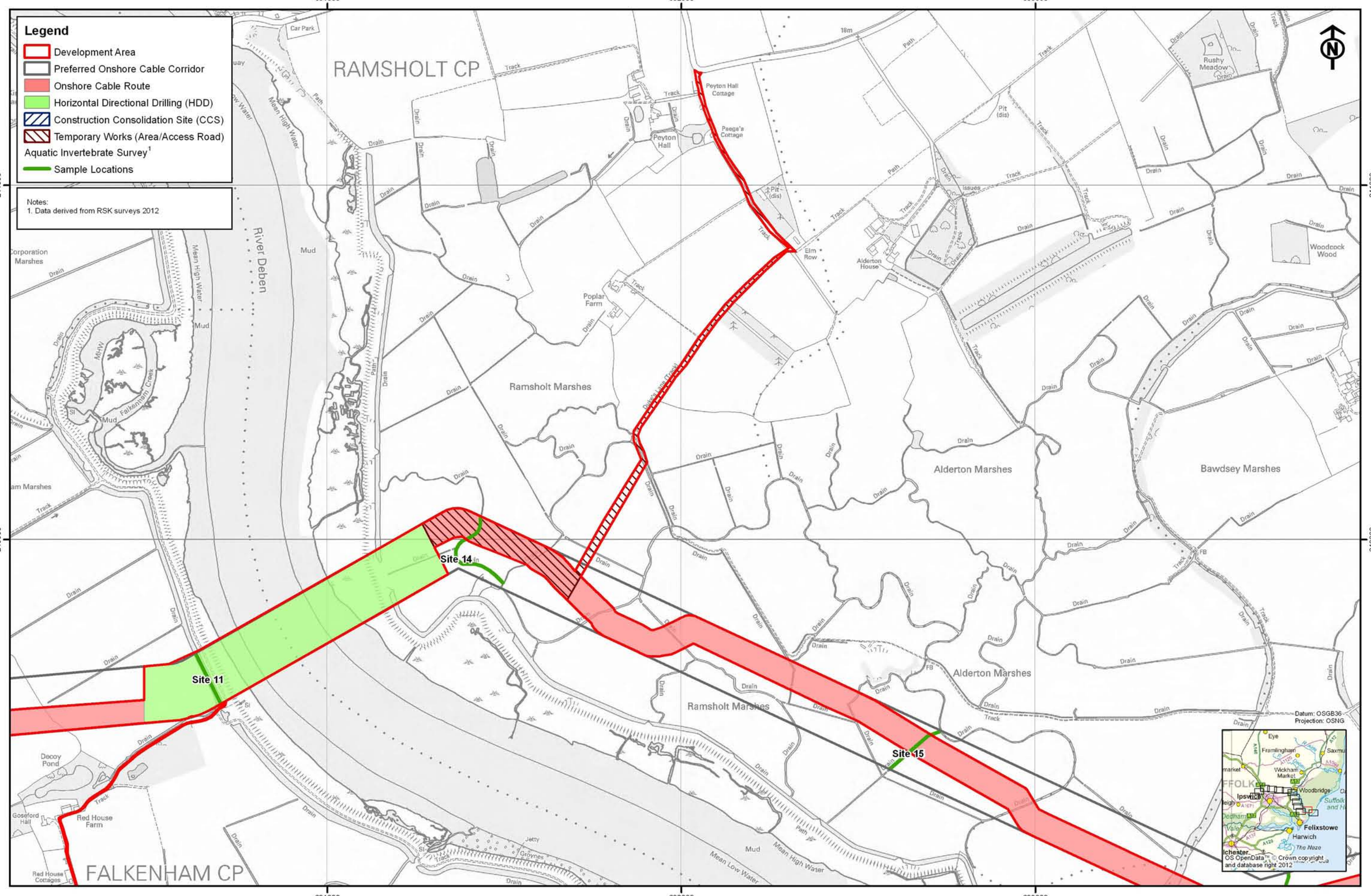

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

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Aquatic Invertebrate Sample Locations
Sheet 2 of 13

Drg No	41388-A24-24.10.2(2)
Rev	02
Date	01/10/12
Layout	N/A

Appendix 24.10

Figure 24.10.2

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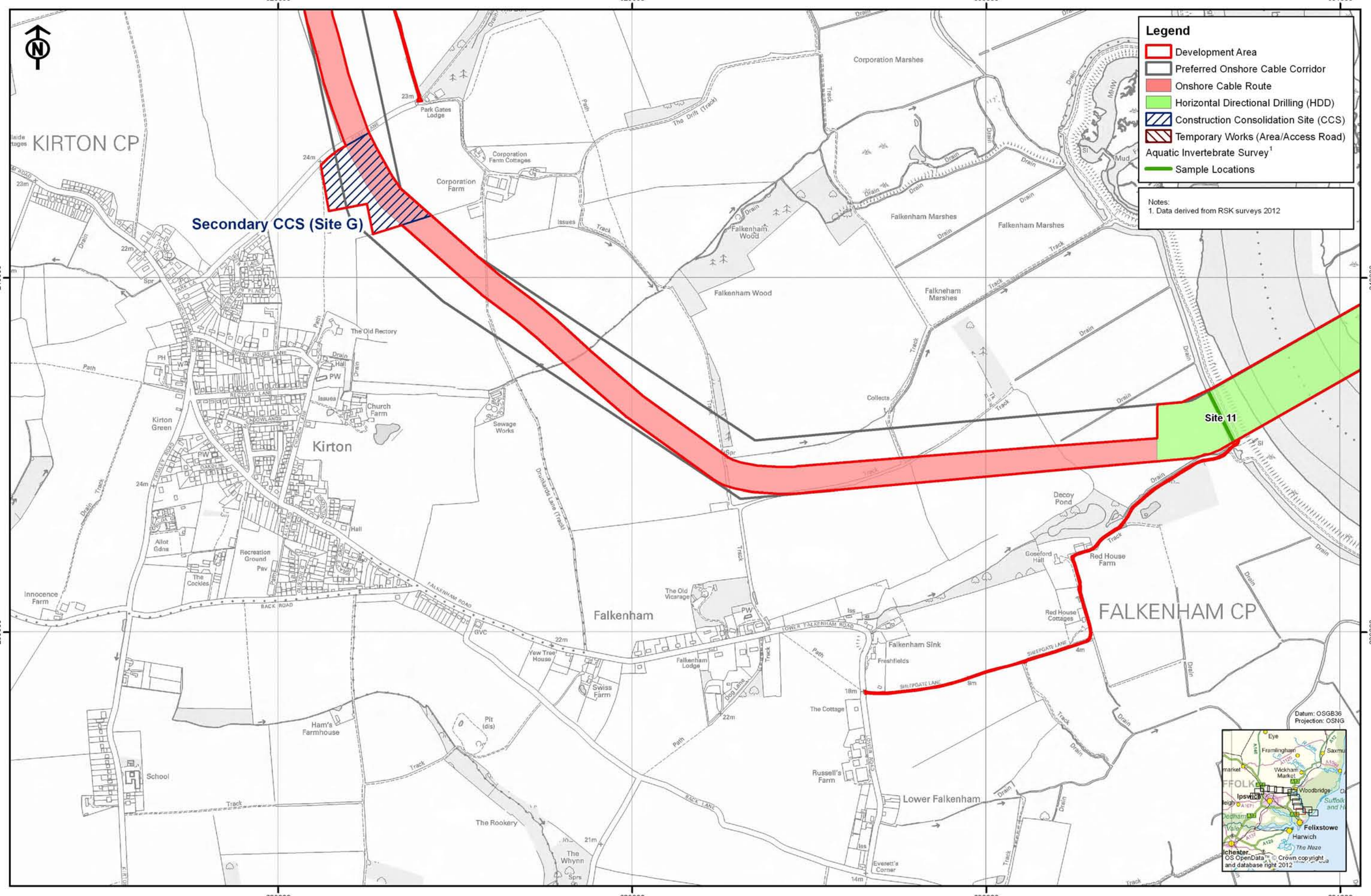

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Drg No	41388-A24-24.10.2(3)
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Date	01/10/12
Layout	N/A

Appendix 24.10

Figure 24.10.2

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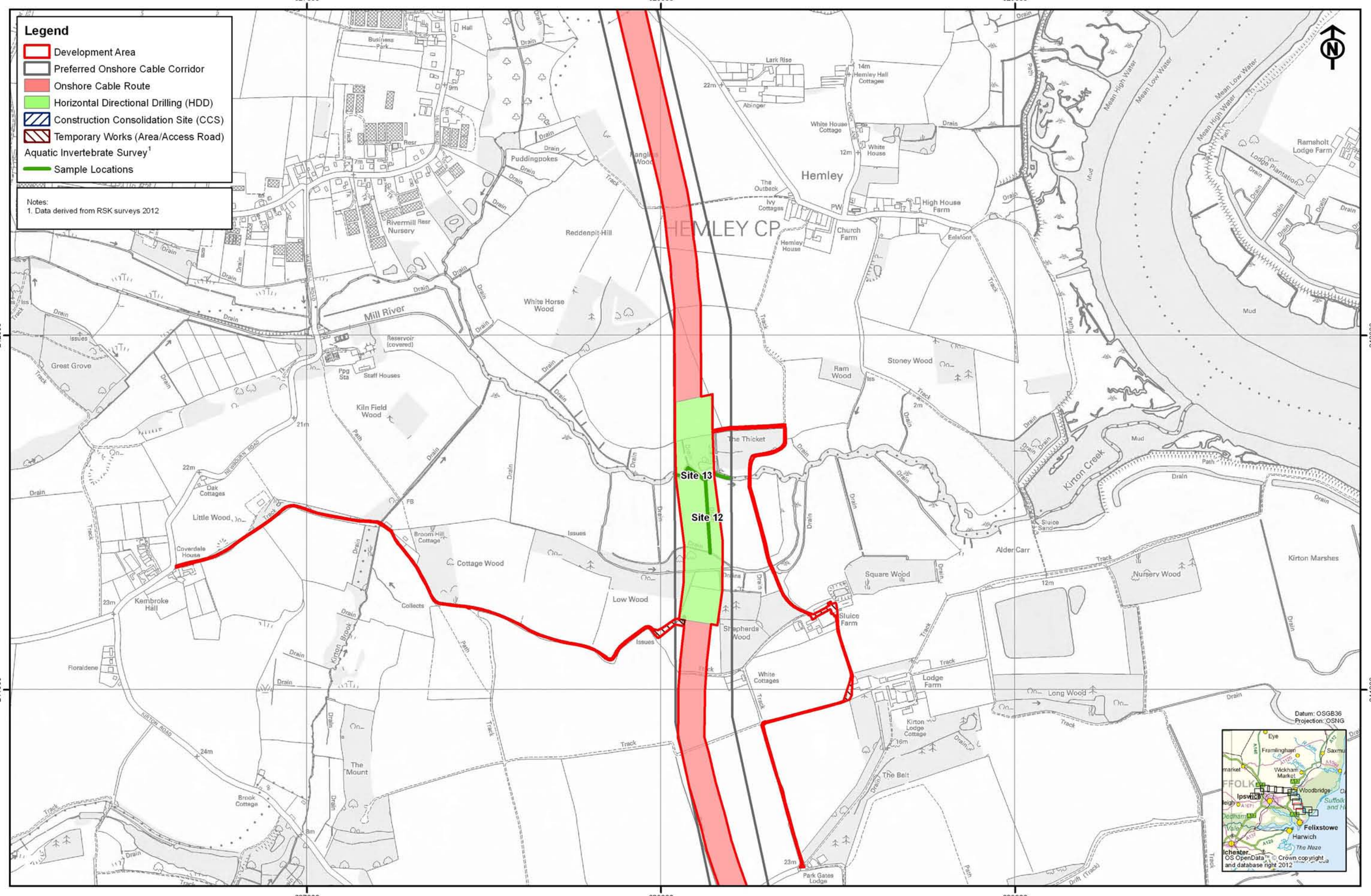

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

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Aquatic Invertebrate Sample Locations
Sheet 4 of 13

Drg No	41388-A24-24.10.2(4)
Rev	02
Date	01/10/12
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Appendix 24.10

Figure 24.10.2

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Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3 Plot Scale 1:10,000

0 200 400 Meters

SCOTTISHPOWER RENEWABLES

VATTENFALL

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Layout	N/A

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Figure 24.10.2

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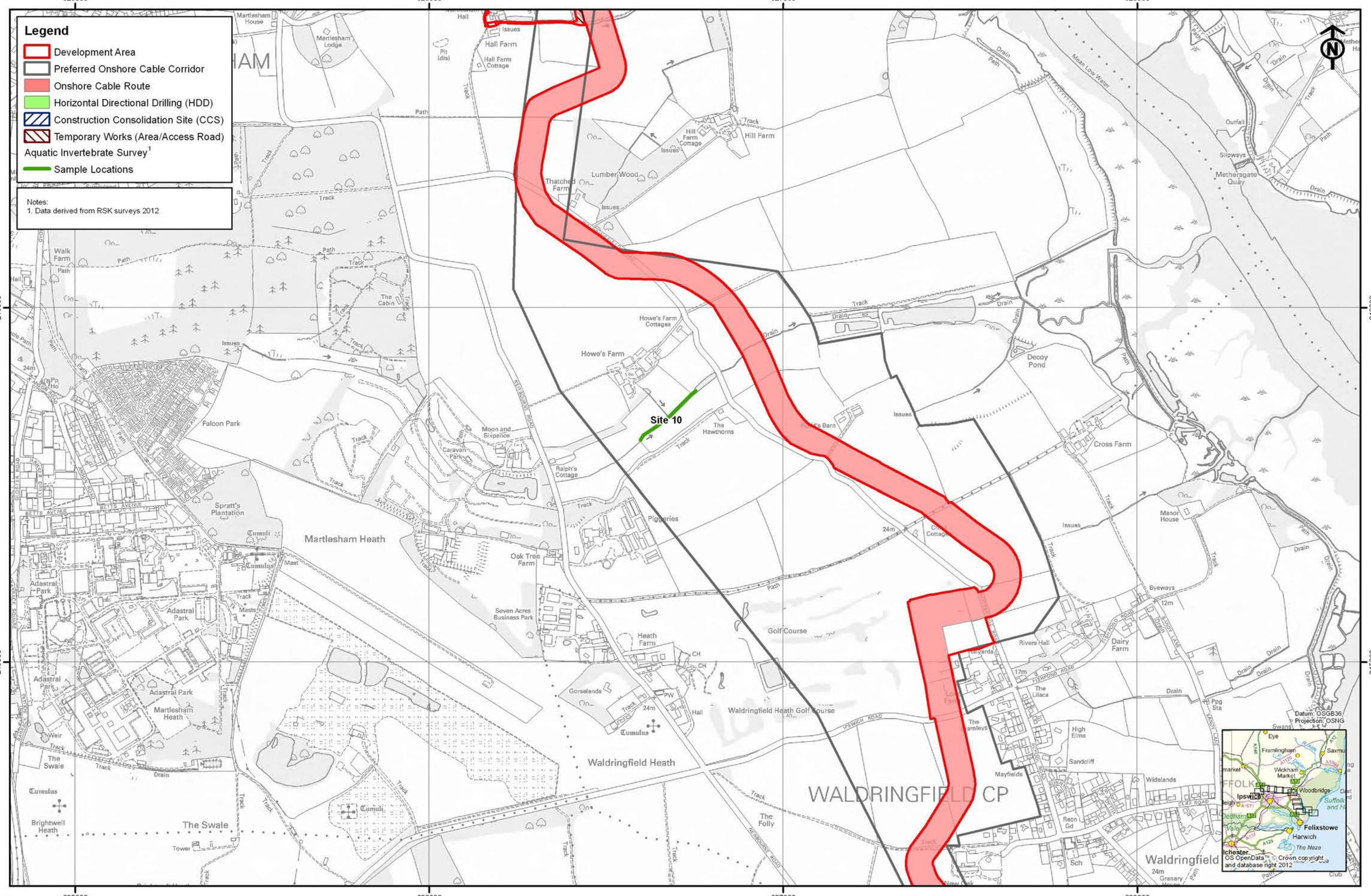

Rev	Date	By	Comment
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Figure 24.10.2

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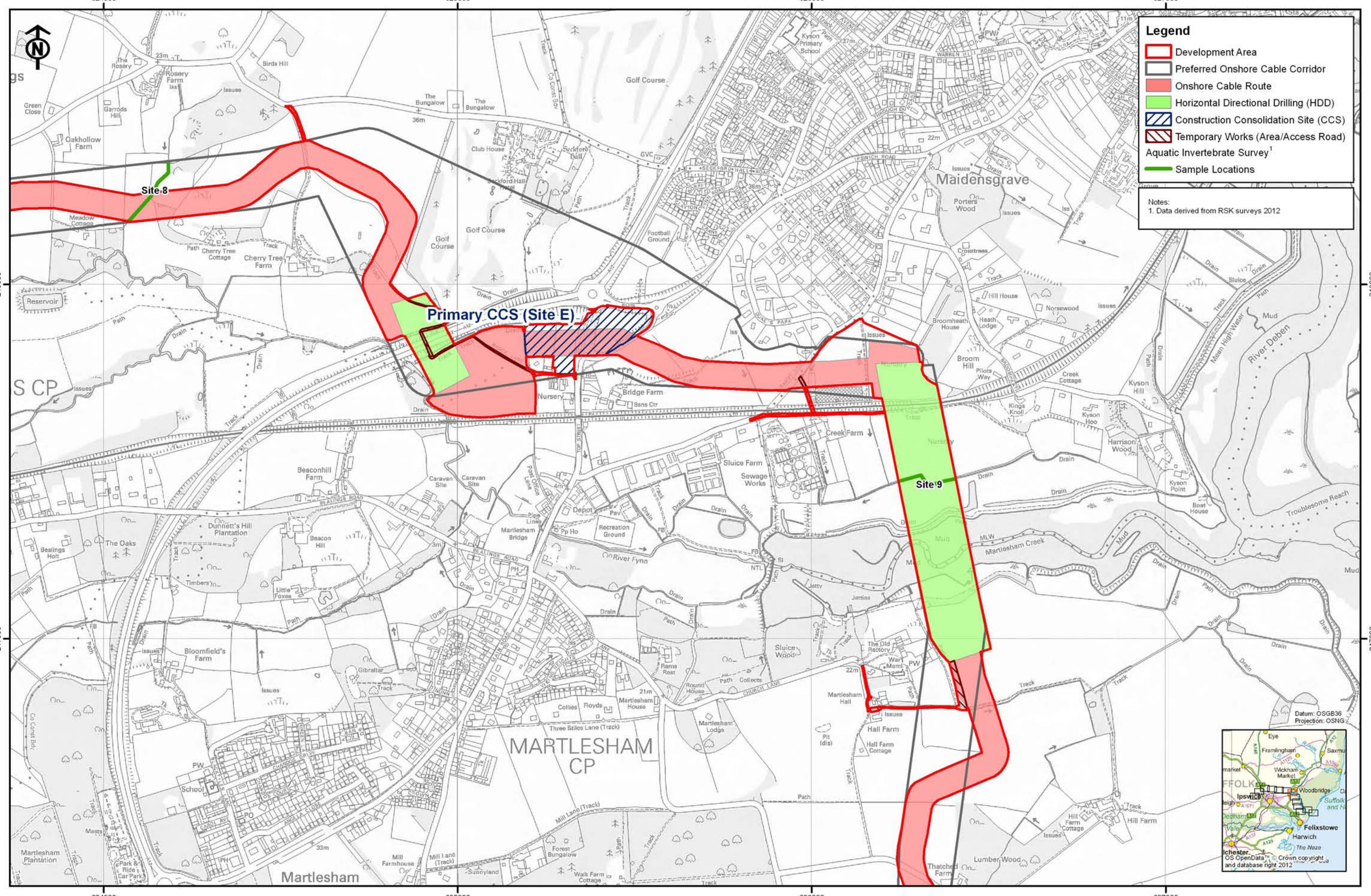

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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Figure 24.10.2

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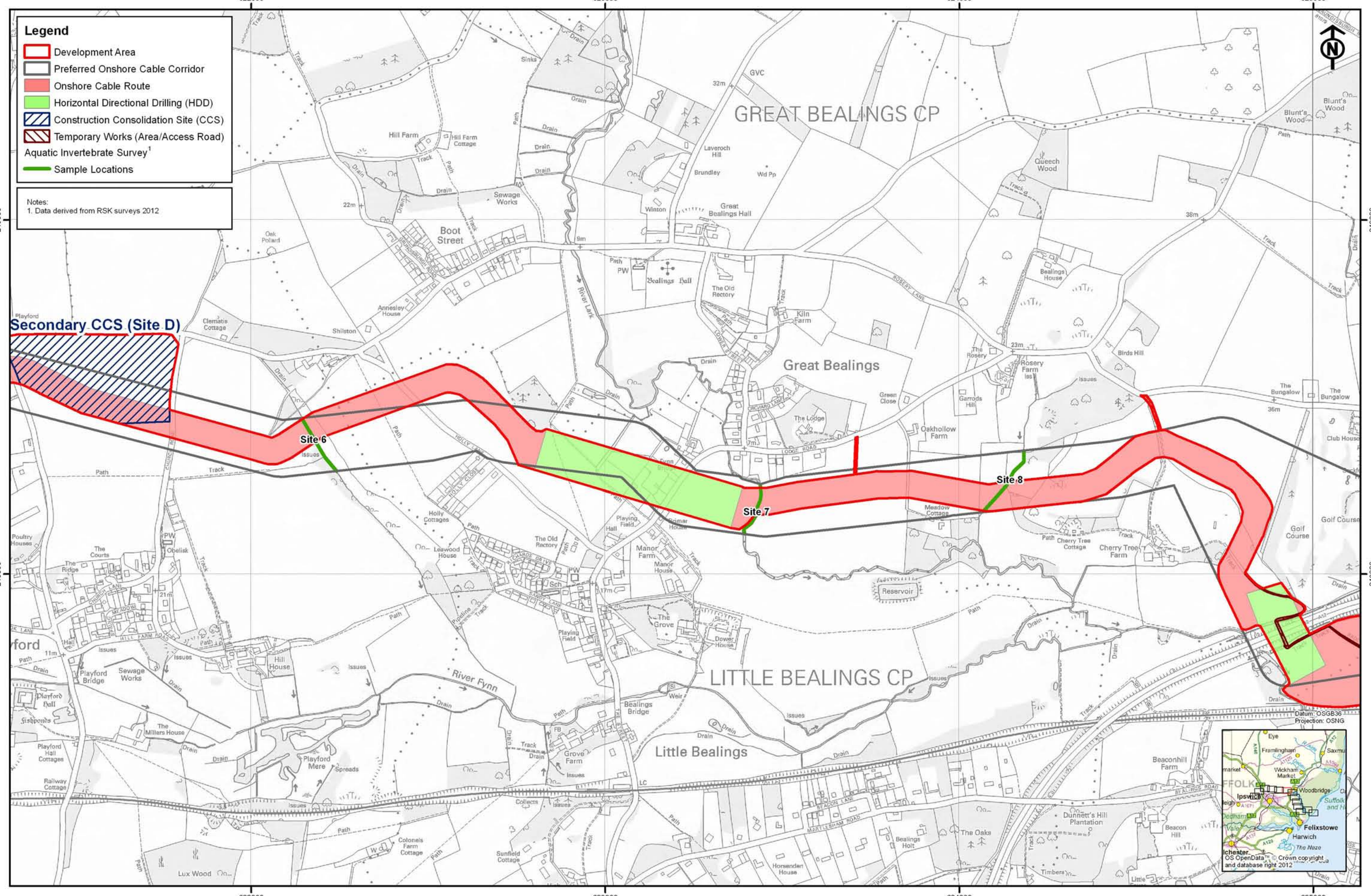

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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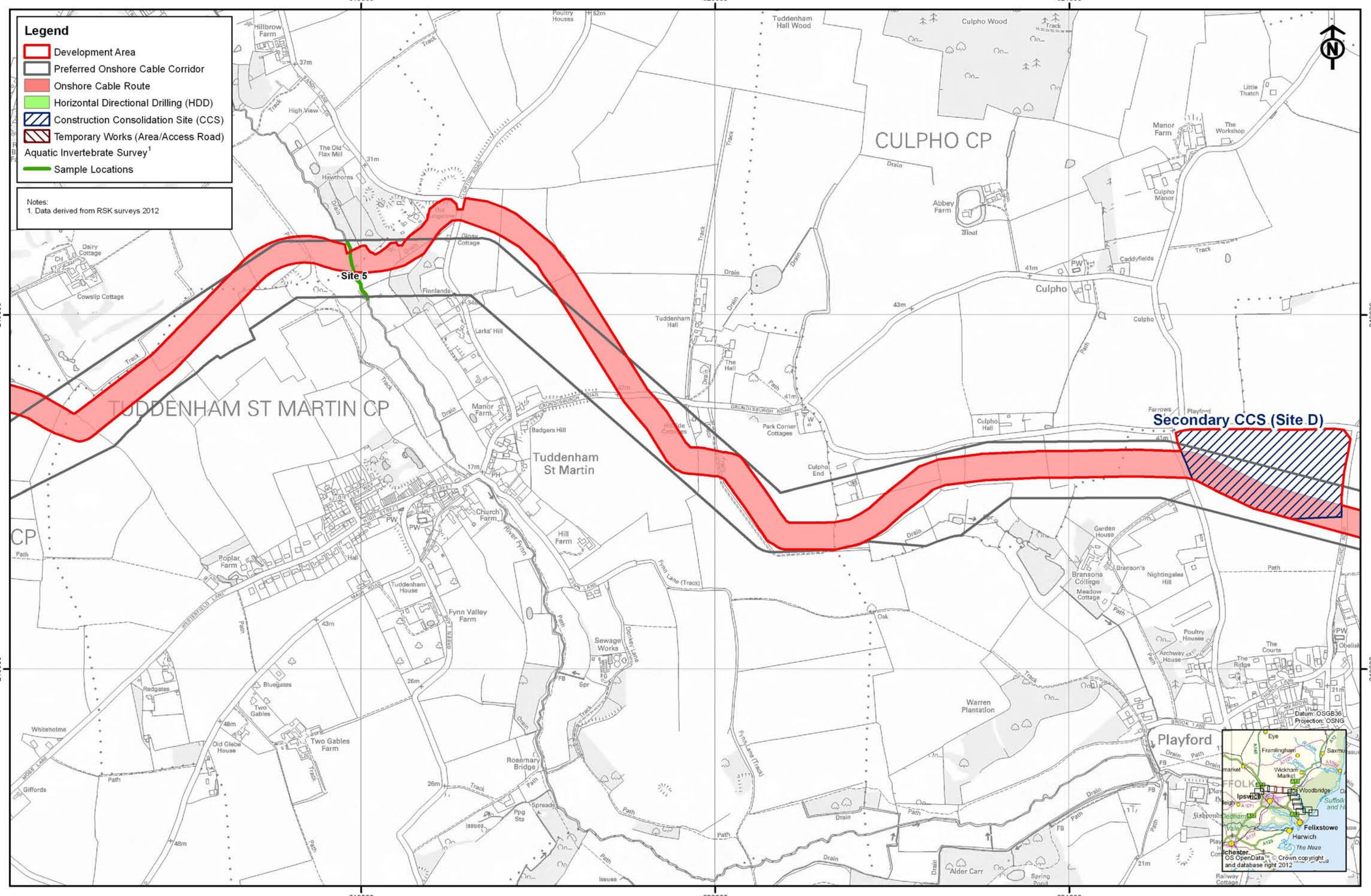

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

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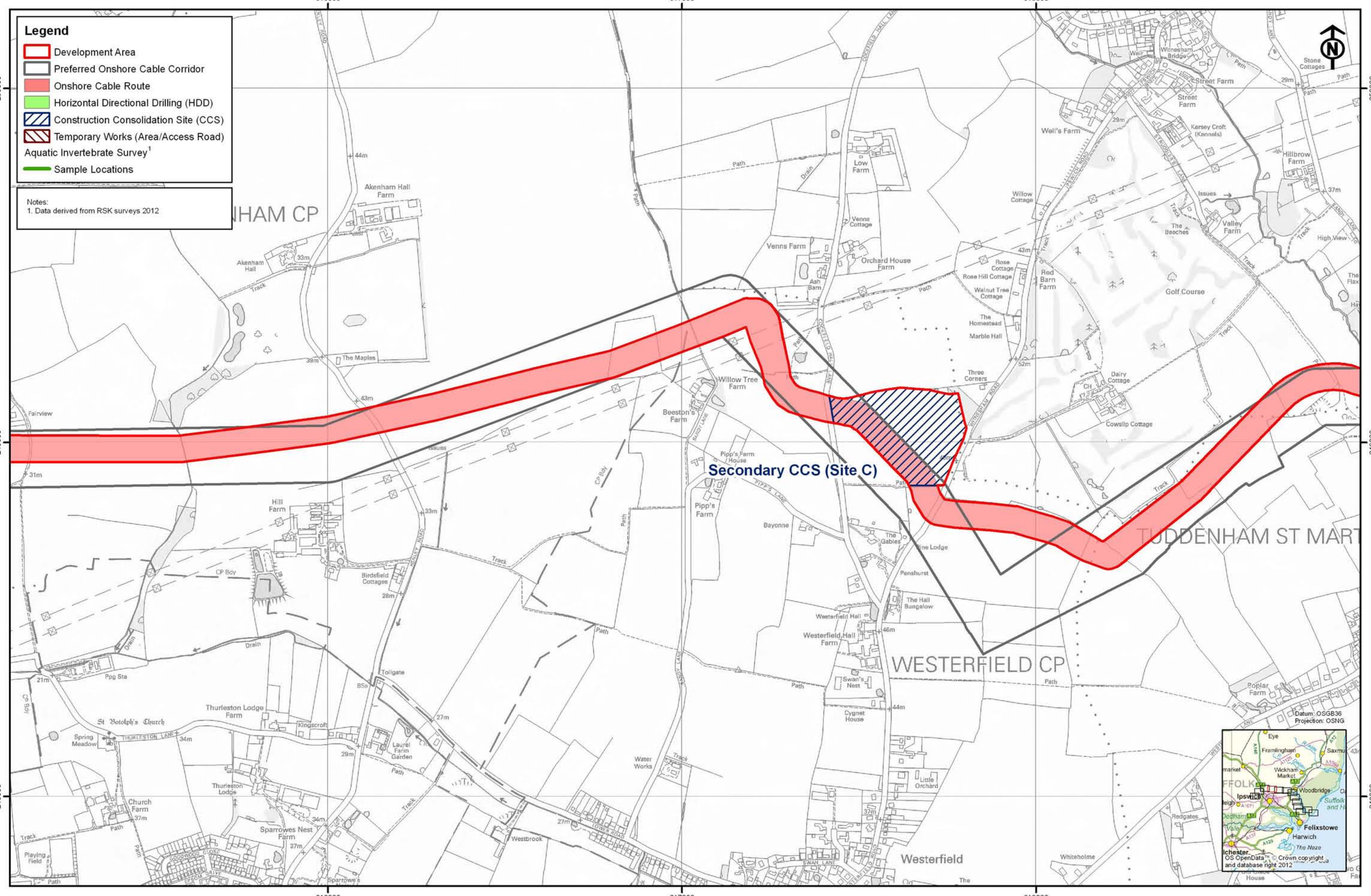

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
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Figure 24.10.2

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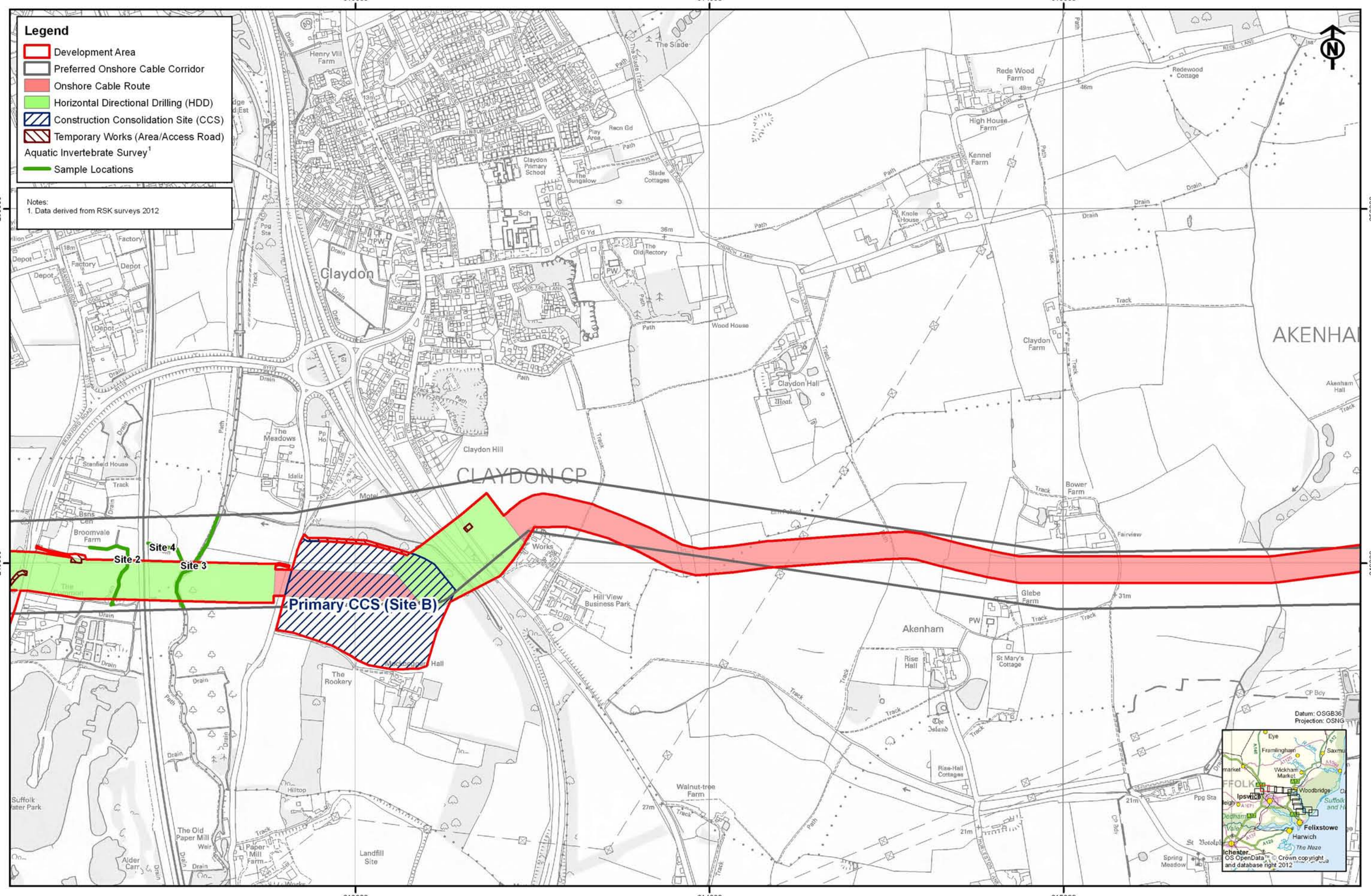

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
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Figure 24.10.2

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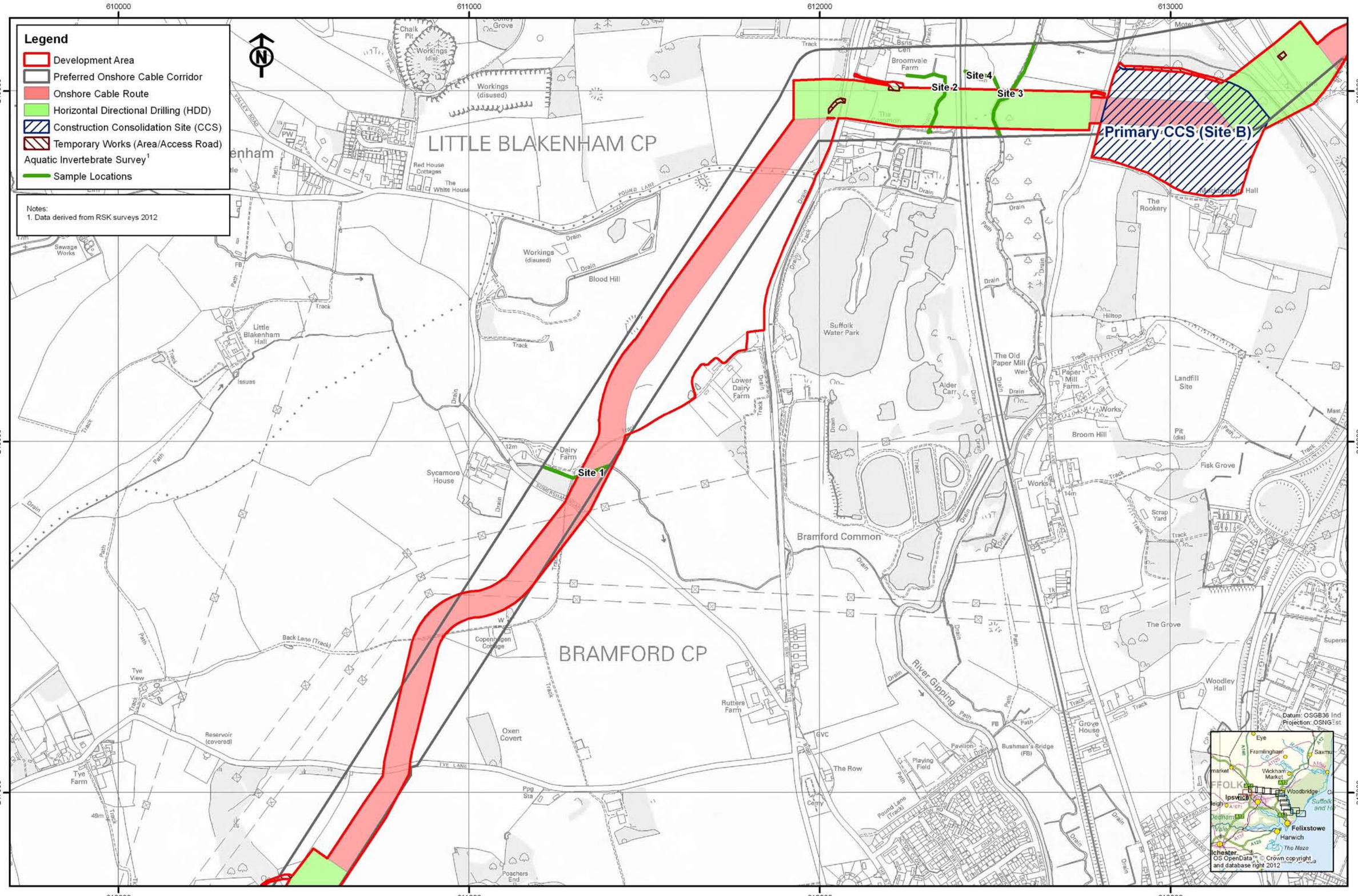

Rev	Date	By	Comment
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01	30/08/12	SP	Updated cable route
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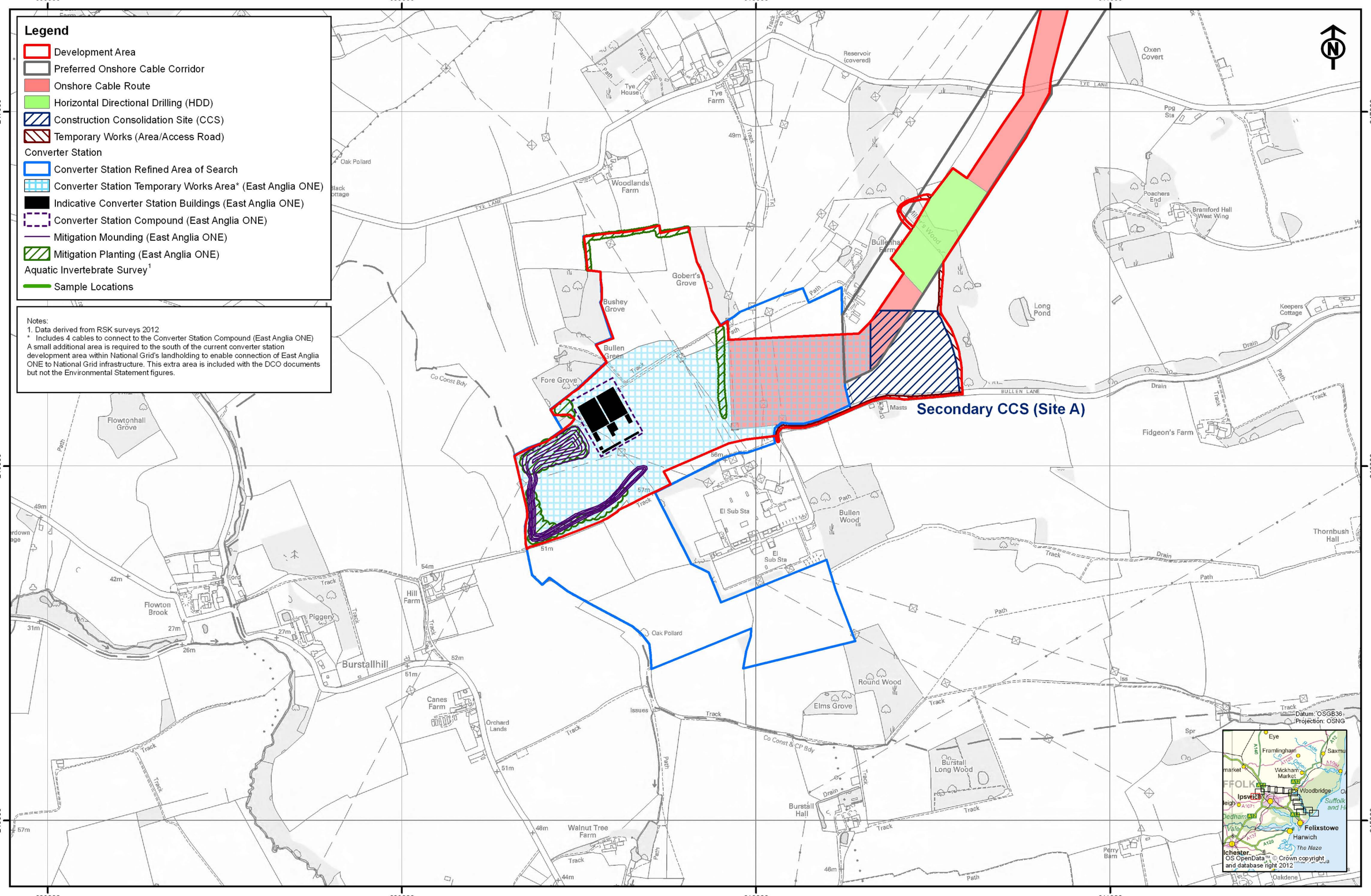

SCOTTISHPOWER RENEWABLES
VATTENFALL

Rev	Date	By	Comment
02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue

Original A3
Plot Scale
1:10,000

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APPENDIX A – INVERTEBRATE ASSEMBLAGES

Species	Description	Habitat	Conservation Status	BMWP Score	Sample Site															
					Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16
COLEOPTERA																				
Gyrinidae				**5**																
Unidentified larvae	A whirlygig beetle																		1	5
Elmidae				**5**																
Elmis aenea	A riffle beetle	Under stones in moving water	Common								1									1
Limnius volckmari	A riffle beetle	Under stones in gravel bottomed streams	Common						5		15									
Dytiscidae				**5**																
Agabus guttatus	A diving beetle	Found in all types of running water	Common														1			
Dytiscus marginalis	Great diving beetle	Common in most habitats	Common														1			1
Hydaticus seminiger	A diving beetle	Common in the south east	Common						1											
Hygrotus inaequalis	A water beetle	Lowland ponds	Common												1			5		
Hyphydrus ovatus	A water beetle	Small, well established lowland ponds. Common in the south	Common												1					
Ilybius quadriguttatus	A diving beetle	Found in ponds and ditches. Mainly southern distribution.	Common																1	
Noterus clavicornis	A diving beetle	Lowland grassy ponds in southern britain	Local																1	
Potamonectes depressus elegans	A diving beetle	Stony rivers and lakes	Common						5		1									
Unidentified larvae						5						5	1		10*	1				
Haliplidae				**5**																
Haliplus lineatocollis	A water beetle	A common water beetle of many habitats	Common						2		1									
Helodidae				**5**																
Unidentified larvae										25		100		5						
Hydrophilidae				**5**																
Anacaena globulus	A water beetle	Found in decaying vegetation at the edge of ponds	Common															1		

Species	Description	Habitat	Conservation Status	BMWP Score	Sample Site															
					Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16
Coelostoma orbiculare	A water beetle	Living in moss or wet plant debris at the side of ponds	Common																1	
Enochrus ochropterus	A water beetle	Standing water	Local																	1
Helophorus arvernicus	A water beetle	Slow flowing rivers	Local					1												
Hydrobius fuscipes	A water beetle	Stagnant water	Common					1												
Unidentified larvae															5			10*		
HEMIPTERA																				
Corixidae				**5**																
Corixidae nymph	A lesser water beetle					5		1							5					
Notonectidae				**5**																
Notnecta nymph	A backswimmer							1												
Velidae				**5**																
Velia nymph	A water cricket	Still and slow flowing waters	Common						1											
EPHEMEROPTERA																				
Baetidae				**4**																
Baetis rhodani	A mayfly	Swift running waters	Common		1				50		5	1								
Cloeon dipterum	A mayfly	Shallow standing and slow flowing waters	Common				5	1												
Caenidae				**7**																
Caenis luctuosa	A mayfly	Rivers, lakes and ponds in silt	Common					10	50		25	10								
Ephemeridae				**10**																
Ephemera danica	A burrowing mayfly	Lakes, streams and rivers with a sandy bed	Common									5								
TRICHOPTERA																				
Limnephilidae				**7**																
Limnephilus lunatus	A cased caddisfly	Associated with vegetation in streams, ponds, rivers, lakes and canals	Common			5	15	5	25		50	10			25	50	200		5	
Micropterna lateralis	A cased caddisfly	Ditches and small streams	Common							10				5						
Leptoceridae				**10**																
Anthripsodes aterrimus	A cased caddisfly	Silty ponds, lakes and rivers	Common						10											

Species	Description	Habitat	Conservation Status	BMWP Score	Sample Site															
					Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16
Polycentropidae				**7**																
Plectrocnemia conspersa	A caseless caddisfly	Small streams and flowing marshes	Common											5						
Hydropsychiidae				**5**																
Hydropsyche siltalai	A caseless caddisfly	Streams and rivers	Common						10											
CRUSTACEA																				
Crangonyctidae				**6**																
Crangonyx pseudogracilis	Introduced freshwater shrimp	Ponds, lakes and canals	Common			10									10	10				
Gammaridae				**6**																
Gammarus pulex	Freshwater shrimp	Abundant in running water	Common				50	50	100	250	50	50	50	25	25		50	100	50	25
Asellidae				**3**																
Asellus aquaticus	Water hog louse	Tollerant of low oxygen levels	Common		5	500	50	50	50		50		10		10		1			
ODONATA																				
Coenagriidae				**6**																
Enallagma cyathigerum	Common Blue Damselfly	All types of still and slow flowing water with marginal vegetation	Common				1													
Ischnura elegans	Blue-tailed Damselfly	Still and slow moving water	Common																10	2
Aeshnidae				**8**																
Brachytron pratense	Hairy Dragonfly	Unpolluted lakes, ponds and ditches with tall emergent vegetation.	Common																	2
NEUROPTERA																				
Sialidae				**4**																
Sialis lutaria	Alderfly	Ponds and sluggish streams with an abundance of silt	Common																	1
DIPTERA																				
Chironomidae				**2**																
Chironomidae	Non biting midge				2000	500		10	5	5	50	10	25	1	25		10	10		
Ceratopogonidae				**NS**																
Unidentified larvae	Biting midge														5					

Species	Description	Habitat	Conservation Status	BMWP Score	Sample Site															
					Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16
Simuliidae				**5**																
Unidentified larvae	Blackfly											50								
Tipulidae				**5**																
Dicranota sp	Cranefly								1											
Pedicia sp	Cranefly				10														1	
Tipula sp	Cranefly				10			1												
Tabanidae				**NS**																
Unidentified larvae	Horsefly									25		5								
HIRUNDINEA																				
Erpobdellidae				**3**																
Erpobdella octoculata	A leech		Common		10			5	5		5					5	1			
Glossiphonidae				**3**																
Glossiphonia complanata	A leech		Common				5													
MOLLUSCA																				
Sphaeriidae				**3**																
Sphaerium corneum	Orb mussel	Widespread in a variety of habitats	Common				10	1												
Pisididae				**3**																
Pisidium sp	A pea mussel		Common											5						
Planorbiidae				**3**																
Anisus leucostoma	A ramshorn snail	Seasonal pools and lakes	Common			1														
Anisus vortex	Whirlpool ramshorn	Amongst vegetation in streams, ponds, dicthes and rivers	Common				1	1	1						5					
Bathyomphalus contortus	A ramshorn snail	Found in a variety of fresh water	Common								1		1							
Planorbis carinatus	Keeled ramshorn	Base rich waters in lowland England	Common				5									1				
Hydrobiidae				**3**																
Bithynia leachii	An operculate snail	Hard waters in lowland England	Local				50													
Bithynia tentaculata	An operculate snail	Lakes, gravel pits, slow rivers and canals	Common				50	10							5	5	1			
Potamopyrgus antipodarum	Jenkins' spire snail	Fresh and weakly brackish waters	Common							25	1		5	5	10			500	1	5

Species	Description	Habitat	Conservation Status	BMWP Score	Sample Site															
					Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16
Lymnaeidae				**3**																
Lymnaea stagnalis	Great pond snail	Still and slow flowing waters	Common			5	5								1	5				1
Radix balthica	Wandering pond snail	Found in most lowland waterbodies	Common		5	5	10	10				100	25	25	5	10			50	25
Physiidae				**3**																
Physa fontinalis	Bladder snail	Static and flowing clean weedy fresh water	Common			15									5	5				
Taxon Richness					7	10	13	16	16	6	13	11	7	8	16	9	8	5	10	11
BMWP Score					20	37	41	64	75	23	53	54	25	36	48	33	29	21	45	50
Number of Scoring Families					6	9	10	15	15	5	12	10	7	8	12	8	7	5	9	10
ASPT					3.33	4.11	4.10	4.27	5.00	4.60	4.42	5.40	3.57	4.50	4.00	4.13	4.14	4.20	5.00	5.00

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