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SIEMENS MOBILITY LIMITED

ABERDEEN TO CENTRAL BELT

EIA SCREENING - ECOLOGY AND BIODIVERSITY

18776-REP-001

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1. INTRODUCTION

1.1 Brief

IKM Consulting Ltd. (IKM) has been requested to undertake EIA screening of biological and ecological receptors on behalf of Siemens Mobility Ltd. (Siemens) for the Aberdeen to Central Belt Route project (A2CB). The scope of the project is the installation of route wide electrification pylons as part of Scotland's Rolling Decarbonisation Programme.

1.2 Aims and Objectives

The aim of this document is to consider whether ecological receptors and designated sites could be significantly affected by the A2CB Project. Should the receptors be considered to be adversely affected by the end result of the project then an Environmental Impact Assessment (EIA) may be required to be undertaken in advance of the project commencing.

1.3 EIA Regulations

Under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the Regulations') development projects are required to be screened to determine whether they require an EIA. Projects falling within Schedule 1 of the Regulations are mandatory EIA developments, and projects falling in Schedule 2 of the Regulations may require EIA depending on their scale, nature, or the sensitivity of the baseline environment.

In determining whether the proposed project is 'EIA development', the proposals have been appraised against the descriptions of development contained in Schedules 1 and 2 of the EIA Regulations. The proposed project falls under paragraph 13 of Schedule 2 of the Regulations as "any change to or extension of development of a description mentioned in paragraphs 1 to 12" of Column 1 of this table where that development is "already authorised, executed or in the process of being executed". The proposed Project is considered a change to a rail corridor and is therefore an existing development falling under the description set out in paragraph 10d. Schedule 2, paragraph 13 therefore applies to the proposed Project.

The legislative context presented below is restricted to the scope of considered likely receptors that will be encountered within the zone of influence of the development.



1.4 Disclaimer

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2. SITE LOCATION

The project consists of eight sections of active railway line, totalling 117 miles along the east coast of Scotland between Dunblane and Aberdeen:

- SCM3 Dunblane to Gleneagles 123.0418 -123.0880
- SCM4 Gleneagles to Hilton 123.0880 - 150.1320
- SCM5 Perth Platforms 1/2 to Dundee 21.0506 - 0.0792
- HGL1 Hilton to Perth 150.1320 - 151.0550
- ECN2 Dundee to Arbroath 59.1694 - 58.1010
- ECN3 Dundee to Montrose 0.0000 -17.0340
- ECN4 Arbroath to Montrose & Montrose to Stonehaven 17.1210 - 33.0572
- ECN5 Montrose to Stonehaven & Stonehaven to Aberdeen 203.0242 - 241.0176

These sections of line traverse six local authority regions; Stirling Council, Perth and Kinross Council, Dundee City Council, Angus Council, Aberdeenshire Council and Aberdeen City Council.

A route plans are included as Figures 1 -16 (Sections 1-8).



3. ECOLOGICAL AND BIOLOGICAL RECEPTORS

3.1 Introduction

The following sites, receptors or species have been considered in terms of the potential impact as a result of the project. In order to inform the scope of likely receptors a data consultation has been undertaken with relevant biological record centres and statutory organisations (NatureScot) and also a review of available information on nationally and internationally designated sites.

In addition, a Preliminary Ecological Appraisal (PEA) has been undertaken (in production at the time of writing) in order to ascertain the presence or potential presence of species or groups within the vicinity of the Project. The following sections provide background to the various designations in terms of ecological and biological receptors. Sections 4 and 5 of this report go on to provide an interim summary of the PEA findings.

3.2 Designated Sites

3.2.1 Special Protection Areas

Special Protection Areas (SPA) are selected to protect one or more rare, threatened or vulnerable bird species listed in Annex I of the Birds Directive 2009/147/EC, or certain regularly occurring migratory species.

3.2.2 Special Conservation Areas

A Special Areas of Conservation (SAC) protect one or more special habitats and/or species, terrestrial or marine, listed in the Habitats Directive 92/43/EEC. In Scotland, the Habitats Directive is translated into specific legal obligations by the Conservation (Natural Habitats, &c.) Regulations 1994.

3.2.3 Ramsar Sites

Ramsar sites are important wetland sites classified under the Convention on Wetlands of International Importance and are co-designated as SSSI sites to afford legal protection.



3.2.4 Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSI) is a statutory designation made by NatureScot under the Nature Conservation (Scotland) Act 2004. These sites are areas notified for their special interest for their flora or fauna, geology, or geomorphology.

3.2.5 Ancient Woodland Inventory

There is no legislation specifically protecting ancient woodland, Scottish Planning Policy on Ancient Woodland considers that: Ancient semi-natural woodland is an irreplaceable resource and, along with other woodlands, hedgerows and individual trees, especially veteran trees of high nature conservation and landscape value, should be protected from adverse impacts resulting from development.

3.2.6 Locally Designated Sites

Locally designated sites signal to planners and developers where there are natural features of some merit. There is no statutory background for these sites but may be included within local planning policy under a variety of names such as Local Nature Conservation Site (LNCS), Listed Wildlife Site (LWS) or Site of Importance for Nature Conservation (SINC).

3.3 Protected Species

3.3.1 Badger

Both badgers and their setts are protected under the **Protection of Badgers Act 1992** as amended by the **Wildlife and Natural Environment (Scotland) Act 2011**.

Setts are networks of underground tunnels in which badgers live. Most social groups of badgers have a number of setts within the territory that they use.

Under the legislation it is an offence to:

- wilfully taking, injuring or killing a badger
- cruelty to a badger



- intentional or reckless interference with a badger sett (including damaging / destroying any part of a sett, obstructing access, disturbing a badger whilst in the sett, causing or allowing a dog to enter a badger sett)
- sale or possession of a badger
- marking or ringing of a badger

3.3.2 Bats

All bat species found in Scotland are classed as European protected species. They receive full protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

Under the legislation for any wild bat species, it is an offence to deliberately or recklessly:

- capture, injure or kill a bat
- harass a bat or group of bats
- disturb a bat in a roost (any structure or place it uses for shelter or protection)
- disturb a bat while it is rearing or otherwise caring for its young
- obstruct access to a bat roost or otherwise deny an animal use of a roost
- disturb a bat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species
- disturb a bat in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
- disturb a bat while it is migrating or hibernating



3.3.3 Beaver

Beavers are protected by law as a European Protected Species (Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)). This protection came into force on 1st May 2019 with the view from the Scottish Government that the species should be allowed to expand its range naturally.

As European protected species, it is an offence to deliberately or recklessly:

- capture, injure or kill a beaver
- harass a beaver animal or group of beaver
- disturb a beaver while it is occupying a structure or place used for shelter or protection
- disturb a beaver while it is rearing or otherwise caring for its young
- obstruct access to a breeding site or resting place, or otherwise deny a beaver use of a breeding site or resting place
- disturb a beaver in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species
- disturb a beaver in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
- disturb a beaver while it is migrating or hibernating

3.3.4 Birds

All wild birds in Great Britain are protected under the Wildlife and Countryside Act 1981 (as amended). This includes even common species like pigeons and blackbirds.

Further protection is given to some rarer species and to species vulnerable to disturbance and/or persecution.



For any wild bird species, it is an offence to intentionally or recklessly:

- kill, injure or take a bird
- take, damage, destroy or interfere with a nest of any bird while it is in use or being built
- obstruct or prevent any bird from using its nest
- take or destroy an egg of any bird

For any wild bird species listed on Schedule 1, it's an offence to disturb:

- any bird while it is building a nest
- any bird while is in, on, or near a nest containing eggs or young
- any bird while lekking
- the dependent young of any bird

For any wild bird species listed on Schedule 1A, it's an offence to intentionally or recklessly harass any bird.

For any wild bird species listed on Schedule A1, it's an offence to intentionally or recklessly take, damage, destroy or interfere at any time with a nest habitually used by any bird.

It should be noted that there is no licencing mechanism to allow disturbance or destruction of an active bird's nest for the purposes of development, out with general licences (i.e. pest).

It is also an offence to:

- possess or control a living or dead wild bird
- possess or control an egg of a wild bird (or any such derivatives)



- knowingly cause or permit any of the above acts to be carried out

3.3.5 Otter

Otters are classed as European protected species. They receive full protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)

Under the legislation, it is an offence to deliberately or recklessly:

- capture, injure or kill an otter
- harass an otter or group of otters
- disturb an otter in a holt or any other structure or place it uses for shelter or protection
- disturb an otter while it is rearing or otherwise caring for its young
- obstruct access to a holt or other structure or place otters use for shelter or protection, or otherwise deny the animal use of that place
- disturb an otter in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species
- disturb an otter in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young

It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly)
- keep, transport, sell or exchange, or offer for sale or exchange any wild otter (or any part or derivative of one) obtained after 10 June 1994
- Otter shelters are legally protected whether or not an otter is present.



3.3.6 Red Squirrel

Red squirrels and their dreys (resting places) receive full protection under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended).

Grey squirrels don't receive any formal protection (other than through animal welfare legislation). But the Wildlife and Countryside Act also covers their release into the wild. This is because of the grey squirrel's alien status and its impacts on our red squirrel populations.

Under the legislation it is an offence to intentionally or recklessly:

- kill, injure or take a red squirrel
- damage, destroy or obstruct access to a drey or any other structure or place which a red squirrel uses for shelter or protection
- disturb a red squirrel when it is occupying a structure or place for shelter or protection

This protection does not apply to areas where red squirrels only feed.

It is also an offence to possess or control, sell or offer for sale, or possess or transport for the purpose of sale any living or dead red squirrel or any derivative of such an animal.

It is an offence to release a grey squirrel into the wild.

Knowingly causing or permitting any of the above acts to be carried out is also an offence.

3.3.7 Reptiles

Reptile species found naturally in Scotland are given limited protection under the Wildlife and Countryside Act 1981 (as amended).



These are the:

- adder
- common lizard
- slow worm

Under the Wildlife and Countryside Act 1981 (as amended), these species are protected against:

- intentional or reckless killing and injury
- trade – i.e., sale, barter, exchange, transport for sale, or advertise for sale or to buy

It's not an offence to possess these species.

3.3.8 Water Vole

The water vole receives partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

In Scotland, this legal protection is currently restricted to the water vole's places of shelter or protection and doesn't extend to the animal itself.

As such, under the legislation it is an offence to intentionally or recklessly:

- damage, destroy or obstruct access to any structure or place that water voles use for shelter or protection
- disturb a water vole while it is using any such place of shelter or protection

3.3.9 Wildcat

The wildcat is a European protected species and is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).



Under the legislation it is an offence to deliberately or recklessly:

- capture, injure, kill or harass a wildcat
- disturb a wildcat in a den or any other structure or place it uses for shelter or protection
- disturb a wildcat while it is rearing or otherwise caring for its young
- obstruct access to a den or other structure or place wildcats use for shelter or protection or otherwise deny the animal use of that place
- disturb a wildcat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species
- disturb a wildcat in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young

It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly)
- keep, transport, sell or exchange, or offer for sale or exchange any wildcat (or any part or derivative of one) obtained after 10 June 1994

3.3.10 Invasive Non-Native Species

The law on non-native species is covered by the Wildlife and Countryside Act 1981 (as amended by the Wildlife and Natural Environment (Scotland) Act 2012.)

In Scotland, it's an offence to:

- release an animal to a location outside its native range
- allow an animal to escape from captivity to a location outside its native range



- otherwise cause an animal not in the control of any person to be at a location outside its native range
- plant, or otherwise cause to grow, a plant in the wild at a location outside its native range

Definitions

'Native range' is defined in the 1981 Act as:

"The locality to which the animal or plant of that type is indigenous and does not refer to any locality to which that type of animal or plant has been imported (whether intentionally or otherwise) by any person."

'In the wild' is deemed to be almost everywhere with the exception of:

- arable and horticultural land
- improved pasture
- settlements
- private and public gardens

'Release' of a non-native animal is defined in the Code of Practice as when an animal is released so that it is no longer under human control.



4. DESK STUDY AND EXISTING DATA

4.1 Data Search Results

Records of species present were limited to within 20 years and within 1km distance from the project. It should be noted that due to recording effort, lack of records for a certain species in particular regions do not indicate absence. No records were available for Perth and Kinross, and Dundee City as no records centre provide coverage for these regions.

Table 1: Biological Records

Local Authority	Records Available	Record Centre	Appendix
Stirlingshire	Yes	The Wildlife Information Centre (TWIC)	Appendix A
Perth and Kinross	No	N/A	N/A
Dundee City	No	N/A	N/A
Angus	Partially	North East Scotland Biological Records Centre (NESBReC)	Appendix B
Aberdeenshire	Yes	North East Scotland Biological Records Centre (NESBReC)	Appendix B
Aberdeen City	Yes	North East Scotland Biological Records Centre (NESBReC)	Appendix B

4.2 Designated and Statutory Designated Sites

Designated sites have been considered to have potential to be impacted and a search has been implemented to highlight designations within the following buffer distances:

- International Sites: SPA, SAC, RAMSAR etc – 5km
- National Sites: SSSI, NNR etc – 2km
- Other: ancient woodland, LNR, local wildlife sites – 1km

Data on statutory designated sites within the respective buffer distance of the proposed work sites was acquired from Scottish Government SpatialData.gov.uk.



The following sections summarise the findings of the desk-based review, with the data presented according to the relevant Local Authority district.



4.2.1 Stirling

Table 2: Stirlingshire Statutory Designations

Site	Location	Designation	Summary of Site	Distance and Direction
Kippenrait Glen	NS791997	SAC	This gorge woodland represents Tilio-Acerion Forest in central Scotland. It consists mainly of base-rich mixed valley woodland of ancient/long-established origin. The wood is relatively undisturbed and has an extremely high diversity of woodland plant species. There are extensive stands dominated by ash (<i>Fraxinus excelsior</i>) and elm (<i>Ulmus</i> spp.), and the rich, characteristic ground flora includes dog's mercury (<i>Mercurialis perennis</i>), sanicle (<i>Sanicula europaea</i>), enchanter's nightshade (<i>Circaea lutetiana</i>) and the locally rare herb-Paris (<i>Paris quadrifolia</i>)	1.6km SE
Kippenrait Glen	NS791994	SSSI	Comprised of the wooded banks of the Wharry burn, the Cock's Burn and the Allan Water. This SSSI consists mainly of base-rich, mixed valley woodland of ancient/long-established origin and the woodland canopy is dominated by ash, with birch, oak and elm, and an understorey of hazel and frequent bird cherry (<i>Prunus padus</i>) on moist soils. The area supports a significant assemblage of insects, in particular beetles and craneflies	1.55km SE



4.2.2 Perth and Kinross

Table 3: Perth and Kinross Statutory Designations

Site	Location	Designation	Reason for Designation	Distance and Direction
Bog Wood and Meadow	NN921092	SSSI	It is notified for its species-rich fen meadow and wet willow scrub woodland. Notable species – brown sedge (<i>Carex disticha</i>), greater tussock sedge (<i>Carex paniculata</i>), meadow sweet (<i>Filipendula ulmaria</i>), northern marsh orchid (<i>Dactylorhiza purpurella</i>), marsh-marigold (<i>Caltha palustris</i>) and greater bird's-foot trefoil (<i>Lotus Uliginosus</i>). Composed of 2 parts.	6.83m NW (north) 11.6m SE (south)
Carsebreck and Rhynd Lochs	NN861097	SSSI	Part of Carsebreck and Rhynd Lochs SSSI is designated as Shelforkie Moss SAC and the South Tayside Goose Roosts SPA. Notified features - Hydromorphological mire range fens, Raised bog, Greylag goose and Pink-footed goose	79.8m NW
Craig Rossie	NN980125	SSSI	Important site for the exposures of Old Red Sandstone igneous rocks. Most notable example is the well-exposed rhyodacite at the site	444m SE
Firth of Tay and Eden Estuary	NO420294	RAMSAR	The site includes extensive invertebrate-rich intertidal mudflats and sandflats created by the massive sediment load deposited by the River Tay. The site supports Marsh harrier (<i>Circus aeruginosus</i>), Little tern (<i>Sternula albifrons</i>) and an internationally important population and assemblage of wintering waterfowl including common Redshank (<i>Tringa tetanus</i>), Graylag geese (<i>Anser anser</i>), Pink-footed geese (<i>Anser brachyrhynchus</i>) and Goosander (<i>Mergus merganser</i>). The site also supports the following waterbird species at a critical stage during their life cycles: Velvet scoter (<i>Melanitta fusca</i>), Cormorant (<i>Phalacrocorax carbo</i>), Shelduck (<i>Tadorna tadorna</i>), Eider (<i>Somateria mollissima</i>), Common scoter (<i>Melanitta nigra</i>), Black-tailed godwit (<i>Limosa limosa</i>), Goldeneye (<i>Bucephala clangula</i>), Red-breasted merganser (<i>Mergus serrator</i>), Oystercatcher (<i>Haematopus ostralegus</i>), Grey plover (<i>Pluvialis squatarola</i>), Sanderling (<i>Calidris alba</i>), Dunlin (<i>Calidris alpina alpina</i>), Long-tailed duck (<i>Clangula hyemalis</i>). Abertay Sands are also important as a major haul-out site for both grey seals (<i>Halichoerus grypus</i>) and breeding common seals (<i>Phoca vitulina</i>).	5.5m SE



Site	Location	Designation	Reason for Designation	Distance and Direction
Firth of Tay and Eden Estuary (cont.)	NO420294	SAC	The two estuaries are proposed within a single site because they are integral components of a large, geomorphologically complex area that incorporates a mosaic of estuarine and coastal habitats. The Firth of Tay & Eden Estuary supports a nationally important breeding colony of common seal.	1.1m SE
	NO295247	SPA	In the breeding season the area regularly supports Marsh harrier and little tern. Over winter the area regularly supports: Bar-tailed godwit (<i>Limosa lapponica</i>) in addition to above bird species. An internationally important assemblage of birds in the non-breeding season as the area regularly supports waterbirds mentioned above.	1.2m SE
Gleneagles Mire	NN914107	SSSI	Largest known example of a basin fen consisting of poor-fen in the lowlands in west Perth & Kinross. The basin fen has an extensive area of bog moss (<i>Sphagnum</i>)	1.43km NW
Inchcoonans Claypit	NO242233	SSSI	Key site for interpreting relative sea level and environmental conditions during the early part of the Lateglacial period. Inchcoonans is the type locality for the Errol Beds. Typical species present include the bivalves <i>Portlandia arctica</i> , <i>Palliolium groenlandicum</i> and the ostracod <i>Rabilimia mirabilis</i> .	568.2m SE
Inner Tay Estuary	NO304252 (north shore)	SSSI	The site is important for its wintering populations of roosting grey geese, its breeding birds, including several nationally important populations, its saltmarsh habitats, and habitats demonstrating the transition from saltmarsh to freshwater fens and dry land. Notified features: non-breeding populations of Greylag goose, Pink-footed goose, Cormorant, Goldeneye, and breeding populations of Bearded tit (<i>Panurus biarmicus</i>), Marsh harrier and Water rail (<i>Rallus aquaticus</i>). Also important for saltmarsh coastlands and transition saltmarsh fens	5.4m SE



Site	Location	Designation	Reason for Designation	Distance and Direction
Kincardine Castle Wood	NN949121 (TR) NN942119 (TL) NN950113 (B)	SSSI	Consists of 3 sections separated by the railway from Perth to Dunblane. It is one of the most extensive areas of ancient lowland mixed broadleaved woodland remaining in Perth and Kinross. There is a rich list of bryophytes associated with the woods, but no national or regional rarities. There are several lichen species which are nationally scarce.	7.16m NW (TR) 8.98m NW (TL) 5.91m SE (B)
Kinnoull Hill	NO134229	SSSI	The site is important for its oak and birch woodland, the botanical interest of the cliffs on the south side, and for its geological interest in the former quarry at Corsiehill. The exposures on this site represents the most accessible and representative example of the dyke swarm which intruded very late in the Carboniferous Period.	160.2m NE
Pitkeathly Mires	NO107143	SAC	Consists of a group of upland mires which form an undisturbed area of flushes, with poor- and intermediate fen. The site contains a small but healthy population of slender green feather-moss (<i>Drepanocladus vernicosus</i>) and is the most northerly Scottish representative	4.8km S
Pitlowie	NO204228	SSSI	Important site for a sequence of Flandrian peat and estuarine deposits which occur in part of a system of gullies formed during the Late Devensian	347.8m NW
Quoigs Meadow	NN831053	SSSI	An area of spring fen habitat which is now a rare habitat in lowland Perth and Kinross. These habitats contain a relatively large number of plant species, several of which are uncommon in the area; these include butterfly orchid (<i>Platanthera chlorantha</i>), fragrant orchid (<i>Gymnadenia conopsea</i>), common twayblade (<i>Listera ovata</i>) and globeflower (<i>Trollius europaea</i>).	1.54km SE



Site	Location	Designation	Reason for Designation	Distance and Direction
River Tay	NN818481	SAC	The River Tay supports a high-quality Atlantic salmon population. There is considerable ecological variety in the Tay catchment, resulting in the Tay supporting the full range of salmon life-history types found in Scotland, with adult salmon entering the River Tay throughout the year to spawn in different parts of the catchment. Also spans into Highland district.	Overlaps with site boundary
Shelforkie Moss	NN859098	SAC	Shelforkie represents an area in which raised bogs have never been widespread, but which is an important link in the range of the habitat. The bog-moss <i>Sphagnum magellanicum</i> is frequent, and occasionally abundant, over much of the site	81.5m NW
South Tayside Goose Roosts	NN862096	RAMSAR	The site comprises seven lochs (including Carsebreck and Rhynd Lochs, Drummond Lochs, Dupplin Loch and Pitcarrie Loch), a number of smaller waterbodies and other wetland habitats. The site is internationally important as a roost for greylag geese and pink-footed geese. It also supports Wigeon at a critical stage in its life cycle	83.4m NW
	NN862096	SPA	Underpins the features of the RAMSAR site. In the breeding season the area regularly supports Wigeon and over winter, and non-breeding season, the area regularly supports pink-footed goose and Greylag goose.	87.3m NW 2.45km NW



4.2.3 Dundee City

Table 4: Dundee City Statutory Designated Sites

Site	Location	Designation	Reason for Designation	Distance and Direction
Firth of Tay and Eden Estuary	NO42029 4	RAMSAR	The site includes extensive invertebrate-rich intertidal mudflats and sandflats created by the massive sediment load deposited by the River Tay. The site supports Marsh harrier (<i>Circus aeruginosus</i>), Little tern (<i>Sternula albifrons</i>) and an internationally important population and assemblage of wintering waterfowl including common Redshank (<i>Tringa tetanus</i>), Graylag geese (<i>Anser anser</i>), Pink-footed geese (<i>Anser brachyrhynchus</i>) and Goosander (<i>Mergus merganser</i>). The site also supports the following waterbird species at a critical stage during their life cycles: Velvet scoter (<i>Melanitta fusca</i>), Cormorant (<i>Phalacrocorax carbo</i>), Shelduck (<i>Tadorna tadorna</i>), Eider (<i>Somateria mollissima</i>), Common scoter (<i>Melanitta nigra</i>), Black-tailed godwit (<i>Limosa limosa</i>), Goldeneye (<i>Bucephala clangula</i>), Red-breasted merganser (<i>Mergus serrator</i>), Oystercatcher (<i>Haematopus ostralegus</i>), Grey plover (<i>Pluvialis squatarola</i>), Sanderling (<i>Calidris alba</i>), Dunlin (<i>Calidris alpina alpina</i>), Long-tailed duck (<i>Clangula hyemalis</i>). Abertay Sands are also important as a major haul-out site for both grey seals (<i>Halichoerus grypus</i>) and breeding common seals (<i>Phoca vitulina</i>).	5.5m SE (Perth and Kinross district)
	NO42029 4	SAC	The two estuaries are proposed within a single site because they are integral components of a large, geomorphologically complex area that incorporates a mosaic of estuarine and coastal habitats. The Firth of Tay & Eden Estuary supports a nationally important breeding colony of common seal.	1.1m SE (Perth and Kinross district)
	NO29524 7	SPA	In the breeding season the area regularly supports Marsh harrier and little tern. Over winter the area regularly supports: Bar-tailed godwit (<i>Limosa lapponica</i>) in addition to above bird species. An internationally important assemblage of birds in the non-breeding season as the area regularly supports waterbirds mentioned above.	1.2m SE (Perth and Kinross district)



Site	Location	Designation	Reason for Designation	Distance and Direction
Inner Tay Estuary	NO30425 2 (north shore)	SSSI	The site is important for its wintering populations of roosting grey geese, its breeding birds, including several nationally important populations, its saltmarsh habitats, and habitats demonstrating the transition from saltmarsh to freshwater fens and dry land. Notified features: non-breeding populations of Greylag goose, Pink-footed goose, Cormorant, Goldeneye, and breeding populations of Bearded tit (<i>Panurus biarmicus</i>), Marsh harrier and Water rail (<i>Rallus aquaticus</i>). Also important for saltmarsh coastlands and transition saltmarsh fens. South shore section in Fife district.	5.4m SE (Perth and Kinross district)
Monifieth Bay	NO48531 3	SSSI	The site is important as the extensive mud flats with its rich invertebrate population provide a feeding ground for wintering waders, specifically important numbers of non-breeding Sanderling	15m SE (Angus district)
Outer Firth of Forth and St Andrews Bay Complex	NT539939	SPA	This area supports important populations of 21 species of marine birds including over 35% of the eider and over 23% of the velvet scoter British (GB) wintering population, along with the largest Scottish concentration of Red-throated divers (<i>Gavia stellata</i>) and Little gull (<i>Larus minutus</i>) spending winter here. In summer, thousands of Gannets (<i>Morus bassanus</i>), Kittiwakes, Atlantic puffins (<i>Fratercula arctica</i>) and the largest Scottish concentration of common terns (<i>Sterna hirundo</i>) use these waters as feeding grounds. More than 1% of the GB populations for each of the other 12 species make up this assemblage: Slavonian grebe (<i>Podiceps auratus</i>), Arctic tern (<i>Sterna paradisaea</i>), Long-tailed duck, Common scoter, Goldeneye, Red-breasted merganser, Manx shearwater (<i>Puffinus puffinus</i>), European shag (<i>Phalacrocorax aristotelis</i>), Guillemot, Black-headed gull (<i>Chroicocephalus ridibundus</i>), Common gull (<i>Larus canus</i>), and Herring gull	36.2m S



4.2.4 Angus

Table 5: Angus Statutory Designated Sites

Site	Location	Designation	Reason for Designation	Distance and Direction
Barry Links	NO538321	SAC	Virtually intact dune system, composed predominantly of base-poor sand on the east coast of Scotland. relatively extensive area of Atlantic decalcified fixed dunes (Calluno-Ulicetea). The dunes are part of a full successional transition from embryonic foredune to heath on fixed dune	10.6m SE
	NO540319	SSSI	Part of Barry Links SSSI forms the Barry Links SAC and the Firth of Tay and Eden Estuary SAC and SPA. Considered an SSSI for its coastal geomorphology and spider populations	5.19m SE
Dryleys Brick Pit	NO709604	SSSI	Important site for studies of relative sea-level change in eastern Scotland during the Devensian Lateglacia. The sediments are fossil-bearing and in the past yielded a range of animal remains including shells, seal and duck bones	54.8m SW
Easthaven	NO588356	SSSI	The site is the only recorded location in Scotland of the vascular plant greater yellow-rattle (<i>Rhinanthus angustifolius</i> (formerly known as <i>R. serotinus</i>))	139.8m SE
Elliot Links	NO619389	SSSI	The sand dunes and the fen vegetation in the old meanders support species rich plant and invertebrate communities which are very local in Angus. Uncommon plants occur such as small scabious (<i>Scabiosa columbaria</i>), as well as ringlet and the small blue butterfly (<i>Cupido minimus</i>)	0.73m SE



Site	Location	Designation	Reason for Designation	Distance and Direction
Firth of Tay and Eden Estuary	NO420294	RAMSAR	The site includes extensive invertebrate-rich intertidal mudflats and sandflats created by the massive sediment load deposited by the River Tay. The site supports Marsh harrier (<i>Circus aeruginosus</i>), Little tern (<i>Sternula albifrons</i>) and an internationally important population and assemblage of wintering waterfowl including common Redshank (<i>Tringa tetanus</i>), Graylag geese (<i>Anser anser</i>), Pink-footed geese (<i>Anser brachyrhynchus</i>) and Goosander (<i>Mergus merganser</i>). The site also supports the following waterbird species at a critical stage during their life cycles: Velvet scoter (<i>Melanitta fusca</i>), Cormorant (<i>Phalacrocorax carbo</i>), Shelduck (<i>Tadorna tadorna</i>), Eider (<i>Somateria mollissima</i>), Common scoter (<i>Melanitta nigra</i>), Black-tailed godwit (<i>Limosa limosa</i>), Goldeneye (<i>Bucephala clangula</i>), Red-breasted merganser (<i>Mergus serrator</i>), Oystercatcher (<i>Haematopus ostralegus</i>), Grey plover (<i>Pluvialis squatarola</i>), Sanderling (<i>Calidris alba</i>), Dunlin (<i>Calidris alpina alpina</i>), Long-tailed duck (<i>Clangula hyemalis</i>). Abertay Sands are also important as a major haul-out site for both grey seals (<i>Halichoerus grypus</i>) and breeding common seals (<i>Phoca vitulina</i>). Also spans into Fife district.	5.5m SE (Perth and Kinross district)
	NO420294	SAC	The two estuaries are proposed within a single site because they are integral components of a large, geomorphologically complex area that incorporates a mosaic of estuarine and coastal habitats. The Firth of Tay & Eden Estuary supports a nationally important breeding colony of common seal. Also spans into Fife district.	1.1m SE (Perth and Kinross district)



Site	Location	Designation	Reason for Designation	Distance and Direction
	NO295247	SPA	In the breeding season the area regularly supports Marsh harrier and little tern. Over winter the area regularly supports: Bar-tailed godwit (<i>Limosa lapponica</i>) in addition to above bird species. An internationally important assemblage of birds in the non-breeding season as the area regularly supports waterbirds mentioned above. Also spans into Fife district.	1.2m SE (Perth and Kinross district)
Monifieth Bay	NO485313	SSSI	The site is important as the extensive mud flats with its rich invertebrate population provide a feeding ground for wintering waders, specifically important numbers of non-breeding Sanderling	15m SE
Montrose Basin	NO693578	RAMSAR	The site supports an internationally important assemblage of wintering waterfowl and internationally important populations of Redshank, Graylag geese, and Pink-footed geese	Overlaps with site boundary
	NO693578	SPA	Over winter the area regularly supports: Pink-footed goose, Graylag goose, and Redshank. An internationally important assemblage of birds in the non-breeding season the area regularly supports Oystercatcher, Wigeon, Eider, Redshank, Red knot (<i>Calidris canutus</i>), Graylag goose and Pink-footed goose. In the non-breeding season, the area regularly supports Dunlin and Shelduck.	Overlaps with site boundary
Montrose Basin	NO685580	SSSI	Consists of a mosaic of saltmarsh, mudflat and transition fen habitat together with arable and pasture-land, which is used annually by thousands of migrating and over-wintering birds for feeding and roosting. These include breeding and non-breeding populations of Eider and non-breeding populations of Graylag geese, Knot (<i>Calidris canutus</i>), Mute swans (<i>Cygnus olor</i>), Oystercatchers, Pink-footed geese, Redshank, and Wigeon.	Overlaps with site boundary



Site	Location	Designation	Reason for Designation	Distance and Direction
Outer Firth of Forth and St Andrews Bay Complex	NT539939	SPA	This area supports important populations of 21 species of marine birds including over 35% of the eider and over 23% of the velvet scoter British (GB) wintering population, along with the largest Scottish concentration of Red-throated divers (<i>Gavia stellata</i>) and Little gull (<i>Larus minutus</i>) spending winter here. In summer, thousands of Gannets (<i>Morus bassanus</i>), Kittiwakes, Atlantic puffins (<i>Fratercula arctica</i>) and the largest Scottish concentration of common terns (<i>Sterna hirundo</i>) use these waters as feeding grounds. More than 1% of the GB populations for each of the other 12 species make up this assemblage: Slavonian grebe (<i>Podiceps auratus</i>), Arctic tern (<i>Sterna paradisaea</i>), Long-tailed duck, Common scoter, Goldeneye, Red-breasted merganser, Manx shearwater (<i>Puffinus puffinus</i>), European shag (<i>Phalacrocorax aristotelis</i>), Guillemot, Black-headed gull (<i>Chroicocephalus ridibundus</i>), Common gull (<i>Larus canus</i>), and Herring gull. Also spans into Fife district.	36.2m S
Rickle Craig - Scurdie Ness	NO730550	SSSI	This rocky stretch of coastline is of particular importance for the range of saltmarsh communities present and for the examples of unimproved and species-rich maritime cliff grassland vegetation which support a wide range of uncommon plants. It also supports a diverse mollusc fauna. The site also contains important examples of exposures of igneous rocks of Devonian age, which includes an area where the mineralogy of agates can be studied.	1m SE



Site	Location	Designation	Reason for Designation	Distance and Direction
River South Esk	NO450567	SAC	Freshwater pearl mussels are abundant in the River South Esk, representing the south-eastern range of the species in Scotland. The pearl mussel population is most abundant in the middle reaches of the river. Juveniles which comprise approximately 20% of the population. The South Esk supports a large, high-quality salmon population. It has a strong nutrient gradient along its length, rising in the nutrient-poor Grampians and flowing for half of its length through the rich agricultural lands of Strathmore. The high proportion of the South Esk which is accessible to salmon and the range of ecological conditions in the river allows it to support the full range of life-history types found in Scotland, with sub-populations of spring, summer salmon and grilse all being present.	4.4km NW
River Tay	NN818481	SAC	The River Tay supports a high-quality Atlantic salmon population. There is considerable ecological variety in the Tay catchment, resulting in the Tay supporting the full range of salmon life-history types found in Scotland, with adult salmon entering the River Tay throughout the year to spawn in different parts of the catchment. Also spans into highland district	Overlaps with site boundary (Perth and Kinross district)
St Cyrus and Kinnaber Links	NO745630 NO728627	SSSI	The varied site consists of sand dunes, shingle, foreshore, river estuary, saltmarsh and cliffs composed of basalts and sites of Old Red Sandstone age. Important site for ~ 60 regular breeding species including: fulmar, shelduck, eider, curlew (<i>Numenius arquata</i>), redshank, ringed plover (<i>Charadrius hiaticula</i>), oystercatcher, sedge warbler, grasshopper warbler (<i>Locustella naevia</i>), wheatear (<i>Oenanthe Oenanthe</i>), stonechat (<i>Saxicola rubicola</i>), whinchat (<i>Saxicola rubetra</i>), kestrel (<i>Falco tinnunculus</i>), buzzard (<i>Buteo buteo</i>), sparrowhawk (<i>Accipiter nisus</i>) and peregrine (<i>Falco peregrinus</i>). The site possesses the most diverse moth	1.68km SE 1.39km SE (Aberdeenshire district)



Site	Location	Designation	Reason for Designation	Distance and Direction
			and butterfly fauna of any site in Eastern Scotland, with the Small blue butterfly being of particular interest.	
Whiting Ness - Ethie Haven	NO 670428 (lower)	SSSI	The site is geologically important for its exposures of Upper Old Red Sandstone and Ethie Lavas. It is also the longest continuous stretch of sea cliffs and rocky shore in Angus and supports nationally important numbers of nesting seabirds (Fulmar, Kittiwake, Puffin, and Shag) and over-wintering waders (Purple sandpiper (<i>Calidris maritima</i>) and Turnstone (<i>Arenaria</i> sp.)), a wide range of coastal grassland and coastal cliff communities and the small blue butterfly.	2km E

4.2.5 Aberdeenshire

Table 6: Aberdeenshire Statutory Designated Sites

Site	Location	Designation	Summary of Site	Distance and Direction
Findon Moor	NO941974	SSSI	One of the largest remaining coastal heathland areas. Notified features – Lowland wet and dry heath	956.2m SE
Fowlsheugh	NO890806	SPA	During the breeding season the area regularly supports 1.2% of the Eastern Atlantic breeding population of Kittiwake (<i>Rissa tridactyla</i>), and 1.7 % of the Eastern Atlantic breeding population of Guillemot (<i>Uria aalge</i>). It also supports Razorbill (<i>Alca torda</i>), Fulmar (<i>Fulmarus glacialis</i>) and Herring gull (<i>Larus argentatus</i>)	3.1km SE



Site	Location	Designation	Summary of Site	Distance and Direction
Garron Point	NO890885	SAC	Occurrence of Narrow-mouthed whorl snail (<i>Vertigo angustior</i>) as primary reason for designation	12.7m E
	NO887874	SSSI	This site is of national and international importance for elucidating the structural relationship between the Dalradian, Highland Border Complex and Old Red Sandstone subdivisions. The section between Garron Point and Slug Head provides one of the most extensive outcrops of igneous rocks in the Highland Border Complex. The site is internationally important for fossil freshwater fish, but also for fossil arthropods and fossil terrestrial millipedes, including a new air-breathing species - <i>Pneumodesmus newmani</i> . The area has one of the richest coastal floras in Aberdeenshire, and the cliff grasslands are the habitat of an important population of a rare narrow-mouthed whorl snail (<i>Vertigo angustior</i>) and a rare species of butterfly, the northern brown argus butterfly (<i>Aricia Artaxerxes</i>)	12.7m E
Red Moss of Netherley	NO860940	SAC	One of the best remaining examples of bogs in the Aberdeen area, and one of the largest remaining raised bogs in north-east Scotland. The hydrological function of the site is largely intact and active mire regeneration is taking place adjacent to the central area. Major peat-building bog-mosses are present in these areas, including <i>Sphagnum papillosum</i> and <i>S. magellanicum</i> . A number of pools occur across the site, supporting species such as <i>S. cuspidatum</i> , bottle sedge (<i>Carex rostrata</i>) and marsh cinquefoil (<i>Potentilla palustris</i>).	4km NW



Site	Location	Designation	Summary of Site	Distance and Direction
River Dee	NO493981	SAC	Major east coast Scottish river that supports a functional population of freshwater pearl mussel (<i>Margaritifera margaritifera</i>) and a high-quality Atlantic salmon (<i>Salmo salar</i>) population. There is a weak nutrient gradient along its length, but it is essentially a nutrient-poor river. The high proportion of the river accessible to salmon has resulted in it supporting the full range of life-history types found in Scotland, with sub-populations of spring, summer salmon and grilse all being present. The headwaters which drain the southern Cairngorm and northern Grampian mountains are particularly important for multi sea-winter spring salmon. Otter (<i>Lutra lutra</i>) is found throughout Dee catchment, from its mouth at Aberdeen to many of the high-altitude lochs. The river system contains extensive areas of suitable habitat for otter feeding, resting and breeding, including watercourses with a high fish biomass and islands and marshy areas for resting. This is a strong, high-quality population, representative of north-east Scotland	Overlaps with site boundary (in Aberdeen city district)
St Cyrus	NO745636	NNR	Important for its coastal habitats, and especially for several wildflower and moth species. Part of the wider St Cyrus and Kinnaber Links SSSI	1.8 km SW
St Cyrus and Kinnaber Links	NO745630 NO728627	SSSI	The varied site consists of sand dunes, shingle, foreshore, river estuary, saltmarsh and cliffs composed of basalts and sites of Old Red Sandstone age. Important site for ~ 60 regular breeding species including: fulmar, shelduck, eider, curlew (<i>Numenius arquata</i>), redshank, ringed plover (<i>Charadrius hiaticula</i>), oystercatcher, sedge warbler, grasshopper warbler (<i>Locustella naevia</i>), wheatear (<i>Oenanthe Oenanthe</i>), stonechat (<i>Saxicola rubicola</i>), whinchat (<i>Saxicola rubetra</i>), kestrel (<i>Falco tinnunculus</i>), buzzard (<i>Buteo buteo</i>), sparrowhawk (<i>Accipiter nisus</i>) and peregrine (<i>Falco peregrinus</i>). The site possesses the most diverse moth and butterfly fauna of any site in Eastern Scotland, with the Small blue butterfly being of particular interest.	1.68km SE (Angus district) 1.39km SE



Site	Location	Designation	Summary of Site	Distance and Direction
Ythan Estuary Sands of Forvie and Meikle Loch	NK032259	SPA	The foraging area supports 7% (1125 pairs) of the breeding British (GB) population of Sandwich tern (<i>Thalasseus sandvicensis</i>) which is the largest breeding colony in Scotland. It is also an important foraging area for 2% (41 pairs) of the GB breeding population of little tern, one of the largest breeding colonies in Scotland.	1.6km NE (Aberdeen City district)

4.2.6 Aberdeen City

Table 7: Aberdeen City Statutory Designated Sites

Site	Location	Designation	Summary of Site	Distance and Direction
Cove	NJ953004; NJ957007	SSSI	Comprised of a section of maritime cliff and adjacent slopes with coastal grassland, wet flushes and coastal heath. Cliff edges support the rare plant Dickie's bladder-fern (<i>Cystopteris dickieana</i>)	3.88m SE; 239.3m SE
Nigg Bay	NJ966045	SSSI	Nigg Bay is a classic locality for Quaternary stratigraphy and this section has been recognised as a key reference site for interpreting the glacial history and ice movement patterns in north-east Scotland	33.8m NE



Site	Location	Designation	Summary of Site	Distance and Direction
River Dee	NO493981	SAC	Major east coast Scottish river that supports a functional population of freshwater pearl mussel (<i>Margaritifera margaritifera</i>) and a high-quality Atlantic salmon (<i>Salmo salar</i>) population. There is a weak nutrient gradient along its length, but it is essentially a nutrient-poor river. The high proportion of the river accessible to salmon has resulted in it supporting the full range of life-history types found in Scotland, with sub-populations of spring, summer salmon and grilse all being present. The headwaters which drain the southern Cairngorm and northern Grampian mountains are particularly important for multi sea-winter spring salmon. Otter (<i>Lutra lutra</i>) is found throughout Dee catchment, from its mouth at Aberdeen to many of the high-altitude lochs. The river system contains extensive areas of suitable habitat for otter feeding, resting and breeding, including watercourses with a high fish biomass and islands and marshy areas for resting. This is a strong, high-quality population, representative of north-east Scotland	Overlaps with site boundary
Ythan Estuary Sands of Forvie and Meikle Loch	NK032259	SPA	The foraging area supports 7% (1125 pairs) of the breeding British (GB) population of Sandwich tern (<i>Thalasseus sandvicensis</i>) which is the largest breeding colony in Scotland. It is also an important foraging area for 2% (41 pairs) of the GB breeding population of little tern, one of the largest breeding colonies in Scotland.	1.6km NE



4.3 Locally Designated Sites

4.3.1 Stirling

Shapefiles of locally designated sites within the Stirling Council region were requested from The Wildlife Information Centre (TWIC) and data presented in the table below.

Table 8: Stirlingshire Locally Designated Sites

Site	Location	Designation	Summary of Site	Distance and Direction
Ashfield to Laigh Hill	NN783025	LNCS	Site supports Grey wagtail (<i>Motacilla cinerea</i>) breeding populations and Ashfield meadows is of importance for wintering birds, such as Redwing (<i>Turdus iliacus</i>) and Fieldfare (<i>Turdus pilaris</i>), which rely on the shrubs with berries. Habitat supports many other notable species such as Daubenton's Bat (<i>Myotis daubentonii</i>) and Eurasian Red Squirrel (<i>Sciurus vulgaris</i>)	Overlaps with site boundary



4.3.2 Perth and Kinross

No information regarding locally designated sites could be identified within Perth and Kinross Council district.

4.3.3 Dundee City

No information regarding locally designated sites could be identified within Dundee City Council district.

4.3.4 Angus

No information regarding locally designated sites could be identified within Angus Council district.

4.3.5 Aberdeenshire

Shapefiles of locally designated sites within Aberdeenshire Council region were requested from North East Scotland Biological Records Centre (NESBReC) and presented in the table below.



Table 9: Aberdeenshire Locally Designated Sites

Site	Location	Designation	Summary of Site	Distance and Direction
Den of Morpie	NO713629	LNCS	Woodland along lower reaches of the North Esk. Supports a number of plants at the northern edge of their range. The site is also important for the locally rare butterbur moth (<i>Hydraecia petasitis</i>)	340m NE
Elfhill	NO806848	LNCS	This small site forms a fairly steep sided river valley, with semi-natural broadleaved woodland, gorse scrub and acid grassland. Good diversity of plant species and particularly important for the native bluebell	Overlaps with site boundary
Fetteresso	NO844852	LNCS	This site contains broadleaved woodland on the slopes of the railway line, down to the Carron Water. Neutral grassland and gorse scrub are also present. The site has a good woodland flora including the locally uncommon wood stitchwort (<i>Stellaria Nemorum</i>)	Overlaps with site boundary
Findon	NO953978	LNCS	Coastal heathland with adjacent maritime cliff and slope makes up this site. Good diversity of plants. The sea cliffs are important for breeding seabirds	485m SE
Muchalls to Stonehaven Bay	NO902886	LNCS	Rocky cliffs and shore with a rich coastal flora. Species associated with base-rich soils are present. Key site for invertebrates of base rich habitats. Rare whorl snail at Garron Point. Outcrop of the Highland Boundary Fault	5.43m SE
Portlethen Moss	NO911962	LNCS	Lowland raised bog which is remnant of much larger area with rush pasture, gorse scrub and planted woodland. Good diversity of heathland and wetland species	698m NW
Portlethen Village to Muchalls Coast	NO932940	LNCS	This coastal site is made up of cliffs, coastal grassland, heathland and gorse scrub. These habitats support a good diversity of coastal and heathland plant species, and the cliffs are important for nesting birds	13.5m SE



4.3.6 Aberdeen City

Shapefiles of locally designated sites within Aberdeen City Council region were requested from North East Scotland Biological Records Centre (NESBReC).

Table 10: Aberdeen City Locally Designated Sites

Site	Location	Designation	Summary of Site	Distance and Direction
Aberdeen - Inverness - Kittybrewster Railway Line	NJ898110	LNCS	Mostly neutral grassland, tall ruderal, scrub and pockets of woodland. Provides a green corridor through the city	349m NW
Balnagask to Cove	NJ961023	LNCS	The site supports habitat and species listed under the UK and Local BAP such as Artic skua, European and coastal dry heath, Maritime cliff and slopes, and Scrub woodland (gorse). It supports rare species in Scotland such as Bloody Crane's bill and False fox-sedge and species listed under Scottish BAP - Manx shearwater and Heather. Small blue butterfly has been recorded from Cove Bay in the past. Other habitat types of improved and neutral grasslands, Coastal grasslands, Littorial rock, other intertidal gullies and caves and shingle above high tide mark are recorded on the site	3.54m SE
Deeside Old Railway	NJ881022	LNCS	The banks of this former railway line are a mixture of grassland, tall ruderal, small pockets of woodland, scattered trees and shrubs. A valuable green corridor in the west of the city	273.5m W
River Dee Corridor	NJ894021	LNCS	One of more natural river systems. Series of glacial and fluvio-glacial landforms and sediments. Oak, birch and wet woodland, shingle banks and species rich grasslands. Rich in invertebrates. Good assemblage of birds	Overlaps with site boundary
Rubislaw	NJ908059	LNCS	Burn passes through tall grassland, broadleaved woodland and amenity grassland as well as residential and built-up areas, disappearing underground in places	919.3m NW



Site	Location	Designation	Summary of Site	Distance and Direction
Tullos Hill	NJ956037	LNCS	The site supports a variety of habitat and species listed under the UK and Local BAP such as Scrub and low land birch woodland, bracken and neutral grassland, species of Bullfinch, Red-backed shrike, and Eurasian tree sparrow. Also supports species listed under the Scottish Biodiversity List such as Woodcock, Kestrel, Wild pansy, Wych elm, and nationally rare species of Snow Bunting and Locally important species such as the Heath spotted-orchid	23m S



4.4 Ancient Woodland

Data on Ancient Woodland Inventory sites within one kilometre of the proposed work sites was acquired from Scottish Government SpatialData.gov.uk. The data is summarized below and within **Appendix D**.

4.4.1 Stirling

10 areas of Ancient Woodland were identified as lying within 1km of the route listed on the Ancient Woodland Inventory within the Stirling Council region. These range from ~200m to ~800m from the project.

4.4.2 Perth and Kinross

36 areas of Ancient Woodland were identified as lying within 1km of the route listed on the Ancient Woodland Inventory within the Perth and Kinross Council region. One of these designated areas are adjacent to the railway boundary. With seven others within 100m of the project.

4.4.3 Dundee City

Three areas of Ancient Woodland were identified as lying within 1km of the route listed on the Ancient Woodland Inventory within the Dundee City Council region. These range from ~300m to ~900m from the project.

4.4.4 Angus

17 areas of Ancient Woodland were identified as lying within 1km of the route listed on the Ancient Woodland Inventory within the Angus Council region. Three of these designated areas are adjacent to the railway boundary. With two others within 100m of the project.

4.4.5 Aberdeenshire

57 areas of Ancient Woodland were identified as lying within 1km of the route listed on the Ancient Woodland Inventory within the Aberdeenshire Council region. Four of these designated areas are adjacent to the railway boundary. With seven others within 100m of the project.



4.4.6 Aberdeen City

18 areas of Ancient Woodland were identified as lying within 1km of the route listed on the Ancient Woodland Inventory within the Aberdeen City Council region. Two of these designated areas are adjacent to the railway boundary. With one other within 100m of the project.

Only trees within the zone of works or root protection zone are likely to be directly impacted and considered up to 100m from the project for high vibration works.



5. BASELINE ECOLOGICAL RECEPTORS

There is the potential for adverse impacts (direct impacts or disturbance) on protected/notable species including bats, badger, beaver, otter, red squirrel, reptiles, water vole during construction.

The Preliminary Ecological Appraisal is ongoing and it is anticipated that some protected species surveys will be required to inform the design in terms of ecologically sensitive areas.

Constraints identified as part of the PEA works undertaken to date are illustrated in Figures 17 to 31.



6. MITIGATION MEASURES

6.1 Mitigation and EIA

Under regulation 8(3) of the EIA Regulations 2017, screening requests may be accompanied by proposed measures envisaged to avoid or prevent significant adverse effects on the environment. These mitigation measures may be a combination of designing-out impacts (avoidance) or by actions which will reduce the impact when it occurs (reduction) and can be employed at the design phase, construction phase and/or operational phase.

Table 11 provides a summary of in-built mitigation measures that will be considered at the different phases of the project to minimise the projects impacts.

Table 11: In-Built Mitigation Summary

Potential Impact	Mitigation Phasing	Mitigation Measures
Indirect impacts on nature conservation designations	Design phase	Habitat Regulations Screen Appraisal to be carried out and Appropriate Assessment where necessary to inform mitigation / buildability of the project to ensure no significant adverse effects on statutory designated sites Minimisation of engineering works within the designated sites where possible).
Direct impacts on nature conservation designations	Design phase	Habitat Regulations Screen Appraisal to be carried out for Natura 2000 sites, operations consents and Appropriate Assessment where necessary to inform mitigation / buildability of the scheme to ensure no significant adverse effects on statutory designated sites.
Impacts (direct impacts or disturbance) on aquatic species.	Design phase	Fish habitat surveys will be undertaken where the preliminary ecological appraisal deems appropriate. Appropriate mitigation measures designed for all affected areas prior to construction.
Impacts (direct impacts or disturbance) on protected/notable species including otter, bat, nesting birds and invertebrates	Design phase	Preliminary Ecological Appraisal and specific protected species surveys will be completed to inform the design and required mitigation in terms of ecologically sensitive areas.



Potential Impact	Mitigation Phasing	Mitigation Measures
Woodland land-take including area of Ancient Woodland	Design phase	Preliminary Ecological Appraisal will be completed to identify the extent of key habitats and designated sites, and this will feed into the design in order to minimise woodland loss.
Encroachment onto Protected Open Space	Design phase	Design will minimise land-take from Protected Open Space
Noise and vibration impacts –fauna	Construction phase	CEMP will contain measures to minimise noise and vibration impacts. Construction compounds will be located at distance from sensitive receptors.
Nuisance from lighting	Construction phase	Directional lighting to be used to avoid disturbance to sensitive receptors.
Biosecurity impacts relating to non-native invasive species	Construction phase	Preliminary Ecological Appraisal to identify presence of non-native invasive species. Where avoidance is not possible, management plans will be put in place to ensure the treatment or prevention of spread as deemed appropriate.
Impacts (direct impacts or disturbance) on protected/notable species including otter, bat, nesting birds and invertebrates	Construction phase	Protected species surveys and checks to be carried out in advance of works. Suitable buffer zones will be put in place and where unavoidable disturbance occurs, necessary licences to be sought from NatureScot for disturbance/ mitigation.
Biodiversity loss through land take and displacement	Construction phase	Biodiversity loss will be off set through the implementation of biodiversity net gain proposals. Including replanting proposals.



6.2 Mitigation Hierarchy

Cognisance should be given to the mitigation hierarchy, which is intended to underpin all decisions made through the project planning process. The hierarchy considers avoidance in the first instance, followed by mitigation, compensation and enhancement.

6.3 Designated Sites

Avoiding work within designated sites will be the preliminary approach to avoiding impacts.

Where Natura 2000 designated sites are within proximity to the project a Habitat Regulations Appraisal may be required. If required, further surveys will be undertaken to examine the notified features, their location and susceptibility to impacts from the project's construction phase and outcome. For example, where a site is designated primarily for birds, the detailed use of the site by birds will be ascertained through further survey and determine whether the project phases will have significant effects on the population.

If work is required within a SSSI, consent would be necessary if the designation citation list it as being an operation requiring consent.

Where work is required to occur within a locally designated site consultation with the relevant planning authority will take place.

6.4 Route-Wide Approach to Mitigation

The main impacts of this project on ecological receptors and biodiversity are likely to occur during the construction phase of the project. The following table details mitigation that should be in place to ensure that the works will have a reduced impact on potential or confirmed ecological receptors. This follows the basic mitigation hierarchy of Avoidance-Minimise-Restore-Offset and established best practice guidance.

Table 12 below summarised the avoidance/disturbance buffers from ecological constraints to minimise the requirement for further mitigation measures.



Table 12: General Buffer Distances

Receptor Group	Species	Exclusion Zone	High Impact Activities Exclusion Zone
Badger	Badger	30m minimum from closest sett entrance.	Up to 200m depending on activity and environment.
Bats	All Species	30m minimum from potential or confirmed roost site.	30m minimum, but potentially increased depending on works.
Birds	General Nesting Birds	Generally, 5 – 10m, but determined based on species and environment.	Generally, 5 – 10m, but determined based on species and environment.
Birds	Schedule 1 – Barn Owl	30-150m depending on topography and cover and type of work to be undertaken.	
Birds	Schedule 1 – other species	To be determined by species and environment.	To be determined by species and environment.
Otter	Otter	30m from place of shelter, and up to 200m from natal holt sites	100m from place of shelter, and minimum 200m from natal holt sites
Pine Marten	Pine Marten	200m from potential or confirmed den site	200m from potential or confirmed den site
Red Squirrel	Red Squirrel	50m during breeding season (February to September inclusive), 5m or adjacent tree outwith breeding season.	
Reptiles	All species	Removal of animals from works area	Removal or animals from works area
Water vole	Water Vole	10m from confirmed habitat	10m from confirmed habitat
Wildcat	Wildcat	200m from potential or confirmed den site	Potentially up to 500m from potential or confirmed den sites.
Invasive Non-native Plant Species	Giant Hogweed, Japanese Knotweed, Himalayan Balsam.	7m of suspected plant growth.	



7. CONCLUSIONS

PEA works are ongoing at the time of writing. Constraints identified as part of the PEA works undertaken to date are illustrated in Figures 17 to 31.

It is anticipated that some protected species surveys will be required to inform the design in terms of ecologically sensitive areas.

From the design stage, cognisance should be given to the mitigation hierarchy, which considers avoidance in the first instance, followed by mitigation, compensation and enhancement.

The design will aim to minimise disturbance to and loss of ecologically sensitive areas wherever feasible. Loss of sensitive habitat is considered to be minimal and within the boundary of the Network Rail infrastructure. Therefore, avoiding work within designated sites will be the preliminary approach to avoiding impacts.

Consideration can then be given to options for route-wide mitigation, with a focus on the construction phase of the project.

Where further mitigation is required and appropriate, biodiversity loss could be off-set through the implementation of biodiversity net gain proposals.

