Appendix D.4:
Technical Report National Vegetation Classification Survey – HVDC Route

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TECHNICAL REPORT

NORTH CONNECT ECOLOGICAL SURVEYS HVDC ROUTE

NATIONAL VEGETATION CLASSIFICATION SURVEY

REPORT REF: 17/048A/AFF/R01

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CONTENTS

1 INTRODUCTION

1.1 TERMS OF REFERENCE

Tracks Ecology was commissioned by Affric Limited to undertake habitat surveys following the National Vegetation Classification (NVC) methodology at the site of the North Connect scheme; a joint venture project involving the construction of a high voltage direct current (HVDC) power interconnector between Norway and the United Kingdom. The 'Site' consists of the locations of the converter station at Fourfields and the HVDC consenting boundary extended to include a section of the Scottish Wildlife Trust Longhaven Cliffs Nature Reserve. The Site boundary is detailed in Figure 1.

The survey is required to support a planning application and Environmental Impact Assessment (EIA) of the onshore works and was identified as necessary following an initial extended Phase 1 survey and subsequent consultations following the scoping report.

1.2 OBJECTIVES OF STUDY

This ecological survey and report aims to establish the baseline distribution of habitats of the Site by undertaking a National Vegetation Classification survey, identifying habitats to community level and producing a detailed annotated vegetation map using the Phase 1 classification to identify and map the habitats. This is supported by NVC data for communities present within each Phase 1 habitat polygon, habitat descriptions and target notes. An evaluation of the community conservation value as well as any potential dependence on groundwater (Scottish Environment Protection Agency 2014) was also undertaken. The presence of invasive non-native species was also to be evaluated.

1.3 SITE DESCRIPTION

The Site is located approximately 2km south of Peterhead, Aberdeenshire with the HVDC cable route running from the Converter Station at Fourfields (NK 120414) to beneath the coastline south of Long Haven Bay.

The Site includes four arable fields to the north of Longhaven mains farm which is the location of the consented site for the converter building, and a corridor of agricultural land (arable and pasture), which runs south-eastwards to the coast, identified as a possible route for the grid connection cable. It is understood that the proposed grid connection cable will be drilled deep underground, resurfacing offshore from Longhaven Bay.

The Site includes a section of the SWT Longhaven Cliffs Nature Reserve which has been subject to separate surveys as part of the NorthConnect project (Tracks Ecology 2017). Also present within parts of the Site are the following sites which are designated for nature conservation (Figure 1).

Buchan Ness to Collieston Coast SPA

The SPA qualifies under Article 4.2 of the Council Directive 79/409/EEC on the conservation of wild birds for supporting an internationally important assemblage of birds during the breeding season. Species include herring gull, fulmar, guillemot, kittiwake and Eurasian shag.

Buchan Ness to Collieston SAC

The SAC supports the Annex 1 habitat Vegetated sea cliffs of the Atlantic and Baltic Coast. The sea cliffs support a wide range of semi-natural plant communities including maritime heath, acid peatland and brackish flushes which are now rare on the coast of north-east Scotland, and this section of coastline has some of the best remaining examples.

Bullers of Buchan Coast SSSI

This SSSI comprises of sea cliffs and inshore stacks which are of special geological and biological interest. The breeding seabird colony is the largest in north-east Scotland. The sea cliffs also support a wide range of maritime plant communities with good examples of coastal dwarf-shrub heath and brackish flushes.

2 METHODOLOGY

Semi-natural habitats across the site were mapped using the National Vegetation Classification (NVC) (Rodwell, 1991a; b, 1992, 1995, 2000), and the Phase I Habitat Classification (Joint Nature Conservation Committee 2010). Habitat polygons were delineated based on the composition of NVC communities and sub-communities. Where areas were considered to comprise mosaics or complexes of different habitat communities, the proportion of each was estimated in percentage terms. Where communities do not constitute a community as described in the NVC, dominant species codes have been attributed as per Phase I Habitat Classification, to indicate the makeup of the vegetation community.

Polygons were latterly assigned a Phase I Habitat Classification, according to the relationships described in Phase I Habitat Classification. For the purposes of creating a visual representation of habitat types, the dominant Phase I Habitat Classification for each polygon is reflected.

Also, identifying the habitat community allows the habitat to be given a score appropriate to its potential dependency on groundwater as listed in the Scottish Environment Protection Agency (SEPA) document Land Use Planning System (LUPS) Guidance Note 31 (Scottish Environment Protection Agency 2014).

More widely, target notes were also collected to provide an overview of the habitat types present, features of interest and to place the proposed development in the context of the Site.

Nomenclature for vascular plants follows Stace (2010), bryophytes and liverworts follow Atherton *et al* (2010) and for lichens Dobson (2011). Additional reference material in relation to species identification and habitat composition was also used (Averis *et al.* 2004; Cheffings *et al.* 2005; Hodgetts 2011; Prescott 2016). Phase 1 habitat maps were digitised using both Quantum GIS 2.16.1-Nødebo and ArcView 10.1 GIS package.

Fieldwork was carried out on the 19th-20th September 2017 by Adam Fraser (MCIEEM) an experienced habitat surveyor, familiar with the habitats of the Site.

2.1 LIMITATIONS

The surveys were undertaken within the latter part of the field survey season and as such it is possible that a number of early flowering species could be overlooked. However, taking into account the experience and skill of the surveyor this is not considered a limitation.

Much of the Site is located along the high steep cliffs. All survey work adjacent to the cliff edges was taken with due care and attention to health and safety with no lone working. Small areas were not safely accessible, but these could be viewed using binoculars from suitable vantage points and combined with the use of detailed aerial imaging this did not result in any significant limitation.

3 RESULTS

Habitat types and NVC communities identified within the survey area have been mapped and are presented in Figures 2a-g: NVC Survey results. Table 1 lists the NVC communities identified within the Site, with the relevant NVC code also provided. Table 2 lists a summary of areas based on Phase I habitat communities.

Table 1: NVC Communities present within the Site.

Code	Community/sub-community name
Woodlands and scrub	
W23a	*Ulex europaeus-Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community
Mires and heaths	
H7c	*Calluna vulgaris-Scilla verna* heath, *Erica tetralix* sub-community
H7d	*Calluna vulgaris-Scilla verna* heath, *Empetrum nigrum* ssp. *nigrum* sub-community
M27a	*Filipendula ulmaria-Angelica sylvestris* mire, *Valeriana officinalis-Rumex acetosa* sub-community
M27c	*Filipendula ulmaria-Angelica sylvestris* mire, *Holcus lanatus-Juncus effusus* sub-community
M35x	*Ranunculus omiophyllus-Montia fontana* rill, variant community
Grassland and montane communities	
MG1a	*Arrhenatherum elatius* grassland, *Festuca rubra* sub-community
MG1b	*Arrhenatherum elatius* grassland, *Urtica dioica* sub-community
MG5a	*Cynosurus cristatus-Centaurea nigra* grassland, *Lathyrus pratensis* sub-community
MG6a	*Lolium perenne-Cynosurus cristatus* grassland, typical sub-community
MG7	*Lolium perenne* leys and related grasslands
MG10a	*Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community
MG11	*Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland
U5d	*Nardus stricta-Galium saxatile* grassland, *Calluna vulgaris-Danthonia decumbens* sub-community
U17x	*Luzula sylvatica-Geum rivale* tall-herb community, variant sub-community
Maritime communities	
MC8a	*Festuca rubra-Armeria maritima* maritime grassland, typical sub-community
MC8c	*Festuca rubra-Armeria maritima* maritime grassland, *Ligusticum scoticum* sub-community
MC8d	*Festuca rubra-Armeria maritima* maritime grassland, *Holcus lanatus* sub-community
MC9e	*Festuca rubra-Holcus lanatus* maritime grassland, *Anthoxanthum odoratum* sub-community
Vegetation of open habitats	
OV25	*Urtica dioica-Cirsium arvense* community
OV25b	*Urtica dioica-Cirsium arvense* community, *Rumex obtusifolius-Artemisia vulgaris* sub-community

Table 2: Phase I habitat community areas.

Habitat	Area (ha)	Area % of Total
Arable	26.63	36.49
Neutral grassland - semi-improved	15.92	21.81
Marsh/marshy grassland	9.27	12.69
Coastal grassland	5.34	7.32
Maritime cliff	4.49	6.16
Neutral grassland - unimproved	3.97	5.44

Coastal heathland	2.21	3.03
Scrub - continuous	1.40	1.92
Other tall herb and fern - non-ruderal	1.35	1.85
Crevice/ledge vegetation	0.93	1.28
Bare ground	0.51	0.70
Access track	0.33	0.46
Acid grassland - unimproved	0.22	0.30
Shingle/gravel above high-tide mark	0.15	0.20
Other tall herb and fern - tall ruderal	0.10	0.14
Open water	0.09	0.12
Bracken - continuous	0.04	0.06
Quarry	0.03	0.04
Scree	0.02	0.02
Buildings and gardens	<0.01	<0.01
Grand Total	**72.98**	**100.00**

3.1 COMMUNITY DESCRIPTIONS

3.1.1 WOODLANDS AND SCRUB

W23a *Ulex europaeus-Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community

Scrub communities dominated by European gorse, *Ulex europeaus* are scattered throughout coastal areas along field margins. The majority of these scrub areas are homogenous stands of gorse, with a scattering of bramble *Rubus fruticosus* and grasses sweet-vernal grass *Anthoxanthum odoratum,* crested dog's-tail *Cynosurus cristatus*, Yorkshire fog *Holcus lanatus* and red fescue *Festuca rubra* at the fringes. Often stands of gorse are occupied by common rabbit *Orctyolagus cuniculus* with numerous burrows. As a result, grasses are often heavily grazed in the vicinity.

3.1.2 MIRES AND HEATHS

H7 *Calluna vulgaris-Scilla verna* heath

This is the dominant heath community throughout the site, and two sub-communities are represented. The vegetation is typically short, being wind-clipped, and form rather open stands often transitional to other communities – particularly grasslands. In most cases throughout the survey area bell heather *Erica cinerea* and heather *Calluna vulgaris* were constant with crowberry *Empetrum nigrum* often co-dominant or abundant. Sheep's fescue *Festuca ovina*, heath grass *Danthonia decumbens*, sweet vernal grass and Yorkshire fog are commonly present. Herb species typically include ribwort plantain *Plantago lanceolata*, tormentil *Potentilla erecta*, cat's-ear *Hypochaeris radicata* with less frequent coverage of thrift, *Armeria maritima* and sea plantain *Plantago maritima*.

The H7c *Erica tetralix* sub-community is found in wetter areas of heathland across the site, typically slightly inland on deeper soils and has higher coverage of the cross-leaved heath *Erica tetralix,* common bent *Agrostis capillaris* and mat-grass *Nardus stricta*.

The H7d *Empetrum nigrum* ssp. *nigrum* sub-community is the most common across the site, found on cliff tops and edges, often in exposed conditions or on dry soils. In this sub-community crowberry can be dominant or co-dominant and typical grasses frequent.

M27 *Filipendula ulmaria-Angelica sylvestris* mire, *Valeriana officinalis-Rumex acetosa* sub-community

The dominant mire community present within the survey area and is dominated by meadowsweet *Filipendula ulmaria* forming the M27a *Filipendula ulmaria–Angelica sylvestris* mire, *Valeriana officinalis-Rumex acetosa* sub-community. This community is most frequent where natural drainage flows over cliffs from vegetation communities above. Typically this vegetation is quite rich across the site, and whilst meadowsweet and wild angelica, *Angelica sylvestris* are abundant, soft rush *Juncus effusus,* marsh thistle *Cirsium palustre,* hawk's beard *Crepis paludosa,* marsh woundwort *Stachys palustris,* common nettle *Urtica dioica*, and curled dock *Rumex crispus* form a dense canopy of herbs. Marsh marigold *Caltha palustris,* marsh pennywort *Hydrocotyle vulgaris*, lesser spearwort *Ranunculus flammula*, water mint *Mentha aquatica* and cuckooflower *Cardamine pratensis* are all present within this community at varying levels of coverage. A second sub-community is present in Longhaven Bay and is grassier with higher cover of soft rush. This reflects the M27c *Holcus lanatus-Juncus effusus* sub-community.

3.1.3 OTHER HEATH AND MIRE COMMUNITIES

A small area of M6a *Carex echinata-Sphagnum fallax/denticulatum* mire is present within a wider mosaic of marshy grassland. This is not considered to be a discrete community and is in mosaic with rush-pasture vegetation, noticeable only by an increased coverage of star sedge *Carex echinata* and some *Sphagna*. A small area of mire vegetation was recorded at a gated entrance to a field north of the A90 public road. Here ivy-leaved crowfoot *Ranunculus hederaceus* was present, in mosaic with bulbous rush *Juncus bulbosus,* blinks *Montia fontana* and lesser spearwort. This community is not reflected in the NVC, and the principal constant species for M35 communities (round leaved crowfoot *Ranunculus omiophyllus*) is not present here, however the community has been coded M35x to reflect the presence of crowfoot species and a similar assemblage of co-dominants.

3.1.4 GRASSLAND AND MONTANE COMMUNITIES

MG1 *Arrhenatherum elatius* grassland

This grassland community is generally present in mosaic with other grassland and tall-ruderal communities and is present throughout the survey area, typically at field edges, roadside verges and in some open areas co-dominant or transitional with other communities. False oat-grass *Arrhenatherum elatius* and cock's foot *Dactylis glomerata* are the dominant graminoids and the community is present as both grassy form, with other grass species-co-dominant, and a weedy form, with common nettle and hogweed *Heracleum sphondylium* frequent in the sward. These communities tend to be ungrazed but occasionally MG1 grasslands are transitional to semi-improved MG6 *Lolium perenne-Cynosurus cristatus* grassland at the fringes of some arable fields.

MG5a *Cynosurus cristatus-Centaurea nigra* grassland *Lathyrus pratensis* sub-community

This community is frequent in the zone between agricultural field systems and coastal grassland or heathland communities. It frequently forms transitional or co-dominant communities with other grasslands. However, commonly the community is reflected by high abundance of red fescue, crested dog's-tail, common bent, sweet-vernal grass and cock's foot. Ribwort plantain is generally frequent along with red clover *Trifolium pretense,* knapweed *Centaurea nigra*, meadow buttercup *Ranunculus acris* and yarrow *Achillea millefolium*. In the sub-community reflected across the site, patchy coverage of meadow vetchling *Lathyrus pratensis* and bird's-foot trefoil *Lotus corniculatus* is common. Meadowsweet is also present at low coverage and often the grassland community transitions to M27 mire communities where there is a higher water table.

MG6 *Lolium perenne-Cynosurus cristatus* grassland and MG7 *Lolio-Plantaginion* leys and grasslands

These two communities are present as the result of agricultural improvement of grassland communities, reflected by the higher coverage of crested dog's-tail and perennial rye-grass *Lolium perenne* as a result of re-seeding. In the 'Fourfields' area these ryegrass dominated leys comprise silage crop. Elsewhere cut silage crops were recorded, and likely reflect one of these two grassland communities. In the two large fields to the east of Longhaven mains, semi-improved grasslands with abundant crested dog's tail, creeping buttercup *Ranunculus repens* and Yorkshire fog. Occasionally stands of creeping thistle *Cirsium arvense* are present as weeds within this community, and it forms mosaics with rush-pasture vegetation on wetter substrates.

MG10 *Holcus lanatus-Juncus effusus* rush-pasture

MG10 rush-pastures are frequent in damper ungrazed fields and around areas of open water. Here soft rush is co-dominant with Yorkshire-fog, with varying abundance of meadow buttercup, common sorrel *Rumex acetosa*, creeping buttercup, white clover *Trifolium repens*, ribwort plantain and field thistle *Cirsium arvense*.

U17x *Luzula sylvatica-Geum rivale* tall-herb community, variant sub-community

On cliffs along the coast, particularly to the north of the survey area and Longhaven Cliffs Nature Reserve, stands of greater woodrush *Luzula sylvatica* are frequent, often punctuated by abundant lady fern *Athyrium filix-femina,* male fern *Dryopteris filix-mas* and scaly male-fern *Dryopteris affinis* agg. Wild angelica is occasional through the sward and primrose *Primula vulgaris* and roseroot *Sedum rosea* are notable, but scarce, within a scattered sward on steeper slopes.

3.1.5 OTHER GRASSLAND COMMUNITIES

Other grassland communities are infrequent within the survey area but small areas dominated by certain species mat-grass (U5 *Nardus stricta-Galium saxatile* grassland, *Calluna vulgaris-Danthonia decumbens* sub-community), and silverweed (MG11 F*estuca rubra-Agrostis stolonifera-Potentilla anserina* grassland), reflect transitions to other grassland communities which are not fully reflected as discrete communities.

3.1.6 MARITIME COMMUNITIES

MC8 *Festuca rubra-Armeria maritima* maritime grassland

This grassland community is present along the very edge of cliffs, forming a low, closed sward with a thick mat of red fescue, thrift, sea plantain, and creeping bent *Agrostis stolonifera*. Generally, these grasslands are species poor and reflect the typical sub-community. On steeper cliffs and ledges increased cover of thrift along with Scot's lovage *Ligusticum scoticum* and Yorkshire fog reflects a transition to the M8c *Ligusticum scoticum* sub-community. In NVC mapping areas with higher coverage of bare rock and the MC8c sub-community have been mapped as crevice/ledge vegetation to reflect the increased fragmentation of the community on steeper cliffs and ledges. A third sub-community is present in small amounts in Longhaven Bay, with higher coverage of Yorkshire fog in the sward and reflects the M8d *Holcus lanatus* sub-community.

MC9 *Festuca rubra-Holcus lanatus* maritime grassland

This coastal grassland community is frequent in the zone between the neutral grasslands and coastal heaths that typically occupy higher cliff tops and ledges and the species-poor MC8 maritime grasslands. All MC9 maritime grasslands present within the survey area have

been classified as being of the *Anthoxanthum odoratum* sub-community but the sub-community itself is very variable. Thrift is present at low coverage, if at all and grasses tend to dominate with common sorrel, tormentil, bird's-foot trefoil, meadow buttercup frequent in the sward at varying coverage. Occasionally there is cover of crowberry and the community often forms mosaics with coastal heathland H7 communities. Additionally, the community is found within field boundaries and is often transitional to either semi-improved grasslands or to poorly drained rush-pastures.

3.1.7 VEGETATION OF OPEN HABITATS

OV25 *Urtica dioica-Cirsium arvense* community

This is the most common community within the survey area, present at woodland and field boundaries, along drainage channels, verges and occasionally as larger stands in open areas. The community is dominated by the two constants – common nettle and field thistle – and the most frequent *Rumex obtusifolius-Artemesia vulgaris* sub-community throughout the survey area has higher cover of cock's foot, broad-leaved dock *Rumex obtusifolius* and hogweed. This second sub-community frequently transitions to MG1 neutral grassland communities where common nettle and field thistle become less dominant than constituent grasses.

OV27 *Chamerion angustifolium* community

Open habitat communities dominated by rosebay willowherb *Chamerion angustifolium* are frequent throughout the survey area and are typically dominated by the community constant in mosaic with common nettle, field thistle, cock's foot, Yorkshire-fog and tufted hair-grass.

3.1.8 OTHER COMMUNITIES

A number of communities recorded do not fit with those described in NVC. Typically these communities are fragmented woodlands where only one or two tree species may be present, or where trees have been planted and species composition does not reflect semi-natural vegetation. In all cases the dominant vegetation type or species code has been annotated within NVC data (Appendix A). Arable fields which have been cut for silage are not recorded to NVC level.

4 CONSERVATION EVALUATION

Conservation interest within the site is defined as:

- A habitat or species listed on the EU Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (92/32/EEC), the EU Habitats Directive;
- A habitat forming a qualifying feature of a site designated for habitat and/or fauna and flora interests under the EU Habitats Directive;
- A habitat and/or species forming a qualifying feature of national or local designations (eg. Sites of Special Scientific Interest);
- A habitat and/or species listed on the UK Biodiversity Action Plan and Scottish Biodiversity List; and
- A species listed on its relevant UK red data list as being vulnerable to or under threat.

The following vegetation communities recorded within the site are identified as of conservation interest:

- MC8 *Festuca rubra-Armeria maritima* maritime grassland TN13 Figure 2c and Figure 4
- MC9 *Festuca rubra-Holcus lanatus* maritime grassland Figure 4

- H7 *Calluna vulgaris-Scilla verna* heath Figure 4

All three communities are listed under Annex 1 habitat type H1230: Vegetated sea cliffs of the Atlantic and Baltic coasts. All three communities also form component parts of maritime cliff and slope vegetation, listed under UK BAP and Scottish Biodiversity List priority habitats.

No individual flowering or lower plant species of conservation concern were recorded i.e., rare, threatened, or nationally scarce conservation status.

4.1 NON-NATIVE AND INVASIVE SPECIES

Only a single non-native species were recorded within the Site:

- Monbretia, *Crocosmia* x crocosmiiflora TN18 Figure 2c and Figure 5

No species were recorded that are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (where relevant to Scotland), which makes it an offence to release or spread any plant or animal that is identified as a potential threat to native biodiversity. Species listed on Schedule 9 may not be released or introduced without a license, allowed to escape into the wild, or caused to be spread in the wild. No species were recorded within the survey area identified as invasive 'alien' species on the Water Framework Directive alien species list or on the Scottish Natural Heritage Species Action Framework as being target species for management to limit their spread. As a result, based on the survey findings no specific action in relation non-native species is likely to be required, although the spread of non-natives, not identified on Schedule 9 of the Wildlife and Countryside Act should also be avoided.

4.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS

Habitat classifications in line with current guidance (Scottish Environment Protection Agency 2014) are detailed in Figures 3a-f. Only a single habitat which is recognized as being potentially highly dependent on groundwater (Scottish Environment Protection Agency 2014) is U17 *Luzula sylvatica-Geum rivale* tall-herb community. This community is located along the cliffs and is not located further inland (Figure 3c). The community tends to develop where there is protection from grazing and burning with more base-rich and mesotrophic soils and a degree of dampness which results in the community being identified as potentially dependent on groundwater. These communities are likely to have some influence from base-rich water present where soils become thin on the cliff tops but significant influence from groundwater at these locations is assessed as unlikely.

Two patches of MG10 *Holcus lanatus-Juncus effusus* rush-pasture marshy grassland are also present within the Site. The small area located near TN9 also supports an M35x *Ranunculus omiophyllus-Montia fontana* variant community and signifies a small localised upwelling of groundwater. A larger area of MG10a is unlikely to be significantly dependent on groundwater although some influence may be present.

4.3 ASSESSMENT OF IMPACTS

It is considered that the proposed development will not directly impact on sensitive habitats or habitats dependent on the integrity of hydrological systems, with above ground infrastructure being installed in arable fields north of Longhaven mains and cabling works being routed from north of the A90 public road by directional drilling deep underground. As a result, habitats of conservation interest as defined above will be avoided. However potential impacts on habitats from the proposed development include the following:

- Permanent direct habitat loss and fragmentation of habitat as a result of installation of permanent above ground infrastructure;
- Temporary direct habitat loss and fragmentation of habitat as a result of installation of temporary access and use of laydown/working areas;
- Construction-related effects: pollution from materials used or generated from the construction phase have potential to enter hydrological features (inclusive of artificial drainage);
- Alteration to site hydrology through installation of permanent structures and temporary infrastructure; and
- Potential for impacts on groundwater due to horizontally directional drilling.

Proposed mitigation should include the following:

- Vehicular access to be restricted, avoiding streams, mires, flushes and soaks where possible;
- Where possible, temporary access shall be 'floated' over sensitive habitats (streams, mires, flushes and soaks) to minimise disruption to hydrology, soil structure and vegetative material;
- Access and working areas adjacent to watercourses should be set back from banks by a minimum distance of 10 m where possible with additional measures put in place if works are required closer (Scottish Environment Protection Agency 2007, 2012);
- Appropriate protective measures (fencing and signage) should be installed to ensure the banks and inundation zone of watercourses are kept free from litter, dust and debris;
- Excavated materials should be stored according to best practice taking care to separate, as far as is reasonable, turves, topsoils, soil and peat layers and boulders. Reinstatement would ensure that turves are replaced on the surface, to recreate the former habitat as far as is possible;
- The extent of all excavations should be kept to a minimum and during construction activities, surface water flows should be captured through a series of cut off drains to prevent water entering excavations or eroding exposed surfaces. If dewatering of excavations is required, pumped discharges should be passed through silt/sediment control measures and directed towards least sensitive habitats; and
- Pipes/culverts should be specified where required to manage and control all watercourses across the site, employed according to SEPA guidelines, with care taken to minimise disturbance to bed and banks of watercourses.
- Although impacts on the GWDTEs is assessed to be unlikely due to the distance of highly or moderately/highly dependent ecosystems from the proposed surface works, it is recommended that appropriate hydrological assessments are undertaken with respect to impacts on groundwater if it is thought the horizontally directional drilling could affect it.

The potential impacts from the installation of the converter station and cable are considered permanent in nature but highly restricted in extent when the full areas of habitat impacted upon are taken into account. Associated access requirements are likely temporary in nature and impacts would be restricted to habitats of low sensitivity, with no works to be undertaken east of the A90 public road. There is scope to reinstate small areas of any adversely affected ground, which is likely to be restricted to agricultural fields. Based on the information supplied at this stage, the effect on habitats of value is therefore assessed as being of negligible magnitude.

5 REFERENCES

Atherton, I., Bosanquet, S. & Lawley, M. (2010) *Mosses and Liverworts of Britain and Ireland a Field Guide*. British Bryological Society.

Averis, A., Averis, B., Birks, J., Horsefield, D., Thompson, D. & Yeo, M. (2004) *An Illustrated Guide to British Upland Vegetation.* Joint Nature Conservation Committee., Peterborough.

Cheffings, C.M., Farrell, L. (Eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J. & Taylor, I. (2005) The Vascular Plant Red Data List for Great Britain. Species Status. *Species Status*, **7**, 1–116.

Dobson, F.S. (2011) *Lichens: An Illustrated Guide to the British and Irish Species*. Richmond Publishing.

Hodgetts, N.G. (2011) A revised Red List of bryophytes in Britain. *Field Bryology*, **103**.

Joint Nature Conservation Committee. (2010) *Handbook for Phase I Habitat Survey - a Technique for Environmental Audit*. JNCC.

Prescott, O. (2016) Revised lists of nationally rare and scare bryophytes for Britain. *Field Bryology*, **115**, 22–30.

Rodwell, J.S. *National Vegetation Classification: User's Handbook*. JNCC, Peterborough.

Rodwell, J.S. (1991a) *British Plant Communities. Volume 1: Woodlands and Scrub.* Cambridge University Press., Cambridge.

Rodwell, J.S. (1991b) *British Plant Communities. Volume 2: Mires and Heaths.* Cambridge University Press., Cambridge.

Rodwell, J.S. (1992) *British Plant Communities. Volume 3: Grasslands and Montane Communities.* Cambridge University Press., Cambridge.

Rodwell, J.S. (1995) *British Plant Communities Volume 4: Aquatic Communities, Swamps and Tall-Herb Fens.* Cambridge University Press., Cambridge.

Rodwell, J.S. (2000) *British Plant Communities Volume 5: Maritime Communities and Vegetation of Open Habitats.* Cambridge University Press., Cambridge.

Scottish Environment Protection Agency. (2007) *Pollution Prevention Guidelines - Works and Maintenance in or near Water: PPG5*.

Scottish Environment Protection Agency. (2012) *Pollution Prevention Guidelines - Working at Construction and Demolition Sites: PPG6*.

Scottish Environment Protection Agency. (2014) *Land Use Planning System SEPA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems*.

Stace, C.A. (2010) *New Flora of the British Isles*. Cambridge University Press.

Tracks Ecology. (2017) *North Connect Ecological Surveys Longhaven Cliffs SWT Nature Reserve - National Vegetation Classification Survey Report Ref: 17/048B/AFF/R01*.

APPENDIX A: NVC POLYGON DATA

ID	NVC Community and %	Phase 1 Community	GWDTE	Comment
1	MG6a 65: MG10a 35	Neutral grassland - semi-improved	Low-moderate	Grazed neutral grassland
2	W23a 100	Scrub - continuous	Low	Ue
3	J1.1	Arable	Low	Silage crop
4	MG10a 90: MG6a 10	Marsh/marshy grassland	Moderate	Je dominant
5	MG1a 40: MG1b 30: OV25 30	Neutral grassland - unimproved	Low	Grassland with stands of Car
6	MG10a 70: MG6a 25: OV25	Neutral grassland - semi-improved	Low-moderate	Grazed neutral grassland, stands of Ca
7	MG6a 80: MG10a 20	Neutral grassland - semi-improved	Low-moderate	Ungrazed neutral grassland
8	W23a 65: MG1b 20: MG1a 15	Scrub - continuous	Low	Field boundary with Ue scrub
9	MG6a 65: MG10a 35	Neutral grassland - semi-improved	Low-moderate	Grazed neutral grassland
10	MG10a 90: MG6a 10	Marsh/marshy grassland	Moderate	Je dominant
11	MG10a 85: MG6a 15	Marsh/marshy grassland	Moderate	Je dominant
12	OV25b 100	Other tall herb and fern - tall ruderal	Low	Ud dominant
13	J1.1 100	Arable	Low	Cut silage crop
14	MG10a 65: MG1a 35	Marsh/marshy grassland	Moderate	Old railway track and drainage ditch
15	MG10a 75: MG6a 25	Neutral grassland - semi-improved	Low-moderate	Grazed neutral grassland
16	MG1a 100	Neutral grassland - unimproved	Low	
17	MG10a 90: MG6a 10	Marsh/marshy grassland	Moderate	Je dominant
18	MG10a 65: MG6a 25: OV25 10	Neutral grassland - semi-improved	Low-moderate	Grazed neutral grassland, stands of Ca
19	W23a 100	Scrub - continuous	Low	Ue
20	J1.1	Arable	Low	Silage crop
21	J1.1 100	Arable	Low	Cut silage crop
22	MG1a 100	Neutral grassland - unimproved	Low	Roadside verge
23	J4 100	Bare ground	Low	Public road
24	J1.1 100	Arable	Low	Silage crop
25	J4 80: MG6a 20	Bare ground	Low	Access track
26	W23a 95: MG10a 5	Scrub - continuous	Low	Ue
27	W23a 80: MG10a 20	Scrub - continuous	Low	Ue
28	J1.1 100	Arable	Low	Cut silage crop
29	MG10a 100	Marsh/marshy grassland	Moderate	Je dominant
30	MG1b 85: MG10a 10: MG1a 5	Neutral grassland - unimproved	Low	
31	MG1a 100	Neutral grassland - unimproved	Low	Roadside verge
32	MG10a 100	Marsh/marshy grassland	Moderate	
33	MG6a 80: MG10a 20	Neutral grassland - semi-improved	Low-moderate	Ungrazed neutral grassland

34	W23a 100	Scrub - continuous	Low	Ue
35	W23a 100	Scrub - continuous	Low	Ue
36	MG1a 100	Neutral grassland - unimproved	Low	
37	W23a 100	Scrub - continuous	Low	Ue
38	OV25b 70: J3.6 30	Other tall herb and fern - tall ruderal	Low	Ruin covered in Ud dominated vegetation
39	W23a 100	Scrub - continuous	Low	Ue
40	MG5a 80: M27a 20	Neutral grassland - unimproved	Low-moderate	
41	W23a 100	Scrub - continuous	Low	
42	MG1a 75: MG10a 20: Lpc 5	Neutral grassland - unimproved	Low	Scattered Lpc at field boundary
43	MC8a 75: MG5a 15: M27b 10	Neutral grassland - unimproved	Low	
44	W23a 100	Scrub - continuous	Low	Ue
45	W23a 100	Scrub - continuous	Low	Ue
46	W23a 100	Scrub - continuous	Low	
47	J4 100	Bare ground	Low	Access track
48	MG5a 90: MC8a 10	Neutral grassland - unimproved	Low	
49	W23a 100	Scrub - continuous	Low	Ue
50	MG10a 75: MG6a 25	Neutral grassland - semi-improved	Low-moderate	Grazed neutral grassland
51	W23a 100	Scrub - continuous	Low	Ue
52	MG10a 100	Neutral grassland - semi-improved	Moderate	Grazed by rabbits
53	MG10a 80: M35x 20	Marsh/marshy grassland	Moderate-high	*Ranunculus hederaceus* spring
54	MG10a 65: M23b 35	Marsh/marshy grassland	Moderate-high	
55	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
56	MG1a 60: MG5a 30: OV25a 10	Neutral grassland - unimproved	Low	Old railway track
57	W23a 100	Scrub - continuous	Low	
58	MC8a 100	Coastal grassland	Low	
59	W23a 100	Scrub - continuous	Low	Ue
60	MC8a 90: MG5a 10	Coastal grassland	Low	
61	W23a 100	Scrub - continuous	Low	Ue
62	MG5a 70: MG11 30	Neutral grassland - unimproved	Low	High cover Pans
63	MG5a 100	Neutral grassland - unimproved	Low	
64	J4 100	Access track	Low	
65	W23a 100	Scrub - continuous	Low	Ue
66	U17x 70: M27a 15: MG5a 8: MC8a 7	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
67	MG5a 100	Neutral grassland - unimproved	Low	
68	MG1c 65: MG1b 35	Neutral grassland - unimproved	Low	

69	U17x 60: MC8a 20: MG5a 18: M27b 2	Other tall herb and fern - non-ruderal	High	Dominated by Ls
70	W23a 100	Scrub - continuous	Low	Ue
71	W23a 100	Scrub - continuous	Low	Ue
72	W23a 100	Scrub - continuous	Low	
73	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
74	M27a 65: M27c 35	Marsh/marshy grassland	Moderate	
75	MC8a 100	Coastal grassland	Low	
76	MG1a 100	Neutral grassland - unimproved	Low	
77	MG5a 90: M9e 10	Neutral grassland - unimproved	Low	
78	MC8a 85: Dr 15	Coastal grassland	Low	Stand of *Dryopteris affinis*
79	MG1c 65: MG1a 20: M27b 15	Neutral grassland - unimproved	Low-moderate	
80	W23a 100	Scrub - continuous	Low	Ue
81	M27a 65: U17x 20: Bare rock 15	Marsh/marshy grassland	Moderate	
82	H7c 77: U5d 15: MG5a 5: U16c 3	Coastal heathland	Low	
83	W23a 100	Scrub - continuous	Low	
84	Bare rock 50: W23a 30: MC8a 10: U17x 10	Quarry	Low	Wall of quarry
85	MC8a 78: Bare rock 22	Coastal grassland	Low	
86	J1.1 100	Arable	Low	Cut silage crop
87	M27a 100	Marsh/marshy grassland	Moderate	
88	MG5a 65: MC9e 35	Neutral grassland - unimproved	Low	
89	W23a 100	Scrub - continuous	Low	
90	MC8a 92: U17x 8	Coastal grassland	Low	
91	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
92	M27a 100	Marsh/marshy grassland	Moderate	Dominated by *Caltha palustris, Hydrocotyle vulgaris*
93	W23a 100	Scrub - continuous	Low	Ue
94	W23a 100	Scrub - continuous	Low	
95	G1	Open water	n/a	
96	J1.1 100	Arable	Low	Silage crop
97	M27a 100	Marsh/marshy grassland	Moderate	
98	M27a 100	Marsh/marshy grassland	Moderate	Dominated by *Crepis paludosa, Stachys palustris*
99	J1.1 100	Arable	Low	Silage crop
100	MG10a-A16	Marsh/marshy grassland	Moderate	Wet ditch with slow moving water - *Montia fontana*, *Callitriche* and *Glyceria fluitans* are occasional
101	MC8d 100	Coastal grassland	Low	High % cover Hl
102	OV27b 100	Other tall herb and fern - tall ruderal	Low	

103	MG5a 80: MC9e 20	Neutral grassland - unimproved	Low	
104	MG10a 100	Marsh/marshy grassland	Moderate	Je dominant
105	OV25b 100	Other tall herb and fern - tall ruderal	Low	Dominated by Ud
106	Mc8a 60: MC9e 30: MC8d 10	Coastal grassland	Low	
107	I1.2.1 100	Scree	Low	Artificial scree from quarrying
108	MC8a 100	Coastal grassland	Low	
109	MC8a 65: H7d 20: Bare rock 15	Coastal grassland	Low	
110	U17x 80: MC8a 20	Other tall herb and fern - non-ruderal	High	Domianted by Ls
111	MG5a 60: W23a 15: H7c 15: U17x 10	Neutral grassland - unimproved	Low	Mosaic of grassland and other heath/scrub habitats
112	H7d 70: U17x 20: M27a 10	Coastal heathland	Low	
113	Bare rock 100	Shingle/gravel above high-tide mark	Low	
114	U5d 60: H7c 20: MG5a 20	Acid grassland - unimproved	Low	
115	W23a 85: MG5a 15	Scrub - continuous	Low	
116	MC9e 90: MC8a 10	Coastal grassland	Low	
117	OV25b 100	Other tall herb and fern - tall ruderal	Low	Ud
118	MG1a 75: W23a 20: A3.1 5	Neutral grassland - unimproved	Low	
119	MG5a 100	Neutral grassland - unimproved	Low	
120	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
121	U17x 75: M27a 15: MC9e 10	Other tall herb and fern - non-ruderal	Low	Dominated by Ls/Aff
122	MC8a	Coastal grassland	Low	
123	M27a 100	Marsh/marshy grassland	Moderate	
124	H7d 100	Coastal heathland	Low	
125	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
126	MG5a 65: MC9e 35	Neutral grassland - unimproved	Low	
127	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
128	W23a 100	Scrub - continuous	Low	Ue
129	H7d 100	Coastal heathland	Low	
130	W23a 100	Scrub - continuous	Low	Ue
131	MC8a	Coastal grassland	Low	
132	MC8a 100	Coastal grassland	Low	
133	MG5a 80: U20a 20	Neutral grassland - unimproved	Low	Scattered Pt
134	MC8a 40: Bare rock 40: H7e 20	Coastal grassland	Low	
135	J3.6 100	Buildings and gardens	n/a	Ruin

136	MG5a 100	Neutral grassland - unimproved	Low	
137	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
138	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
139	MC9e 90: MG5a 10	Coastal grassland	Low	
140	MC8a 100	Coastal grassland	Low	
141	W23a 100	Scrub - continuous	Low	
142	U17x 80: M27a 20	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
143	MC9e 90: SMx 10	Coastal grassland	Low	Area dominated by coastal grassland with brackish slacks dominated by *Puccinellia maritima*
144	H7 90: Puc 10	Coastal heathland	Low	Vegetation domianted by *Puccinellia maritima* and *Carex flacca*
145	Bare rock 100	Maritime cliff	Low	
146	MG5a 100	Neutral grassland - unimproved	Low	
147	Cxn 75: MG5a 25	Coastal grassland	Moderate	Flushed grassland dominated by Cxn
148	MC9e 65: MC8a 20: H7d 10: MG5a 5	Coastal grassland	Low	
149	H7d 65: MC9e 20: Ros 15	Coastal heathland	Low	Scattered *Rosa canina*
150	Bare rock 80: MC8a/c 10 U17x 10	Maritime cliff	Low	Some crevice/ledge vegetation
151	H7d 90: MG5a 10	Coastal heathland	Low	
152	MC8a 80: U17x 10: H7d 8: Bare rock 2	Coastal grassland	Low	
153	M27a 80: MG5a 20	Marsh/marshy grassland	Moderate	
154	U17x 75: MC9e 20: MC8a 5	Other tall herb and fern - non-ruderal	High	
155	MC8a 78: Bare rock 22	Coastal grassland	Low	
156	MC8a 60: MC8c 20: Bare rock 20	Coastal grassland	Low	
157	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
158	MC8a 75: MC9e 25	Coastal grassland	Low	
159	Mc9e 100	Coastal grassland	Low	
160	U17x 88: H7d 12	Other tall herb and fern - non-ruderal	High	Dominated by Ls
161	MG10a 65: MG6a 35	Neutral grassland - semi-improved	Low-moderate	Ungrazed neutral grassland
162	MC8a 88: Bare rock 12	Coastal grassland	Low	
163	H7d 100	Coastal heathland	Low	
164	MC9e 85: MC9a 12	Coastal grassland	Low	
165	MC8a 75: H7d 15: Bare rock 10	Coastal grassland	Low	
166	MC8a 60: Bare rock 40	Coastal grassland	Low	

167	MC8a 90: MC8c 10	Coastal grassland	Low	
168	W23a 80: MC8a 20	Scrub - continuous	Low	
169	Bare rock 100	Maritime cliff	Low	
170	W23a 100	Scrub - continuous	Low	Ue
171	MG5a 80: MC8a 20	Neutral grassland - unimproved	Low	Bank of MC8a runs through grassland area
172	MC9e 90: MC8a 10	Coastal grassland	Low	
173	MC9e 100	Coastal grassland	Low	
174	MC9e 100	Coastal grassland	Low	
175	Bare rock 100	Maritime cliff	Low	
176	MC8a 100	Coastal grassland	Low	
177	MC8a 75: Bare rock 25	Coastal grassland	Low	
178	MC8a 66: Bare rock 24: MC8c 10	Crevice/ledge vegetation	Low	
179	MC8e 80: MC9e 20	Coastal grassland	Low	
180	U20c 100	Bracken - continuous	Low	
181	MC9e 90: MC8a 10	Coastal grassland	Low	
182	U20c 100	Bracken - continuous	Low	
183	MC8a 88: Bare rock 12	Coastal grassland	Low	
184	MC9e 86: MC8a 14	Coastal grassland	Low	
185	MC8a 85: Bare rock 15	Coastal grassland	Low	
186	Bare rock 100	Maritime cliff	Low	
187	Bare rock 100	Maritime cliff	Low	
188	MC8c 65: Bare rock 25: MC8a 10	Crevice/ledge vegetation	Low	
189	H7d 100	Coastal heathland	Low	
190	MC8a 95: Bare rock 5	Coastal grassland	Low	
191	MC8a 55: Bare rock 20: MC9e 20: MC8c 5	Coastal grassland	Low	
192	MC9e 90: MC8a 10	Coastal grassland	Low	
193	Bare rock 100	Maritime cliff	Low	
194	MC8a 70: H7d 25: U17x 5	Coastal grassland	Low	
195	MC8a 70: MC8c 15: Bare rock 15	Crevice/ledge vegetation	Low	
196	MC9e 70: MC8a 15: H7d 10: MG5a 5	Coastal grassland	Low	
197	MC8c 40: MC8a 30: Bare rock 30	Crevice/ledge vegetation	Low	
198	MC9e 100	Coastal grassland	Low	
199	MC8a 70: MC8c 15: Bare rock 15	Crevice/ledge vegetation	Low	
199	Bare rock 100	Maritime cliff	Low	
200	Bare rock 90: MC8c 10	Maritime cliff	Low	

Abbreviation	Species	Common name
Aff	*Athyrium filix-femina*	Lady fern
Ag	*Alnus glutinosa*	Alder
Ao	*Anthoxanthum odoratum*	Sweet-vernal grass
As	*Angelica sylvestris*	Wild angelica
Car	*Cirsium arvense*	Field thistle
Cha	*Chamerion angustifolium*	Rosebay willowherb
Cm	*Crataegus monogyna*	Hawthorn
Crc	*Crepis capillaris*	Smooth hawk's-beard
Cv	*Calluna vulgaris*	Heather
Cxn	*Carex nigra*	Common sedge
En	*Empetrum nigrum*	Crowberry
Je	*Juncus effusus*	Soft rush
Ju	*Juncus sp(p)*	Rush species
Lpc	*Lonicera periclymenum*	Honeysuckle
Ls	*Luzula sylvatica*	Greater woodrush
Pans	*Potentilla anserina*	Silverweed
Pt	*Pteridium aquilinum*	Bracken
Sxc	*Salix caprea*	Goat willow
Sxci	*Salix cinerea*	Grey willow
Tff	*Tussilago farfara*	Colt's foot
Ud	*Urtica dioica*	Common nettle
Ue	*Ulex europaeus*	European gorse

APPENDIX B: TARGET NOTES

Target Note	Zone	Easting	Northing
1	NK	11707	40257
2	NK	11731	40083
3	NK	11992	39863
4	NK	11914	39842
5	NK	12051	39732
6	NK	12115	39786
7	NK	11757	40192
8	NK	11785	40634
9	NK	11910	40607
10	NK	11900	40384
11	NK	12019	40368
12	NK	12023	40340
13	NK	12013	40382
14	NK	12069	40301
15	NK	12079	40128
16	NK	12021	40132
17	NK	12111	39691
18	NK	11875	40371

Target Note 1: Field margin along abandoned railway cutting dominated by rush-pasture and neutral grassland communities. In the wetter 'dip' MG10 *Holcus lanatus-Juncus effusus* rush pasture communities dominate with the community constant species dominant alongside common sorrel *Rumex acetosa,* meadow buttercup *Ranunculus acris* and creeping buttercup *Ranunculus repens*.

Target Note 2: Field systems that are less intensively managed revert to mosaics of rush pasture and neutral grassland, here dominated by MG10a *Holcus lanatus-Juncus effusus* rush-pasture with stands of soft rush *Juncus effusus* interspersed amongst grasslands dominated by Yorkshire fog *Holcus lanatus* and creeping buttercup *Ranunculus repens*. In more open swards evidence of historic improvement can be seen with scattered crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne.*

Target Note 3: Expanse of grassy heath within field likely used for rough grazing. Here H7 *Calluna vulgaris-Scilla verna* heath communities dominate with high cover of cross-leaved heath *Erica tetralix* and *Cladonia* lichens. Crowberry *Empetrum nigrum,* heath rush *Juncus squarrosus* and mat –grass *Nardus stricta* are locally frequent but the sward is generally species-poor.

Target Note 4: Area of marshy grassland dominated by Soft rush *Juncus effusus*. In the wetter channel the marshy grassland transitions to M23b *Juncus effusus/acutiflorus-Galium palustre* rush-pasture *Juncus effusus* sub-community, a species-poor, marsh community with abundant marsh thistle *Cirsium palustre*, common sorrel and marsh willowherb *Epilobium palustre*.

Target Note 5: Area of heathy grassland dominated by mat-grass *Nardus stricta* as communities transition from heath to grassland. Here mat-grass dominates but heath species are present at low coverage beneath the grassy sward, reflecting the U5e *Calluna vulgaris-Danthonia decumbens* sub-community.

Target Note 6: Flushed area at field boundary dominated by Common sedge *Carex nigra* and grasses Yorkshire fog *Holcus lanatus,* sweet-vernal grass *Anthoxanthum odoratum,* with some forbs and herbs present more typical of neutral grassland including common sorrel *Rumex acetosa,* wild angelica *Angelica sylvestris* and marsh thistle *Cirsium palustre*. This community does not reflect any described in NVC.

Target Note 7: Field boundaries occasionally have scrub species within – here honeysuckle *Lonicera periclymenum* is present within a sward of MG1 *Arrhenatherum elatius* grassland typical of unmanaged margins.

Target Note 8: Fields at Longhaven mains are dominated by a mosaic of rush-pasture, MG10a *Holcus lanatus-Juncus effusus* rush-pasture and semi-improved neutral grassland, MG6a *Lolium perenne-Cynosurus-cristatus* grassland. Both communities are relatively species-poor with creeping buttercup *Ranunculus repens* and white clover *Trifolium repens* dominant in the ground-layer. Occasionally these communities are punctuated by stands of weedy species, typically field thistle *Cirsium arvense*.

Target Note 9: Wetter area at field gate dominated by ivy-leaved crowfoot *Ranunculus hederaceus,* bulbous rush *uncus bulbosus* and blinks *Montia fontana*. The community is not reflected in the NVC but has been accorded an M35x *Ranunculus omiophyllus-Montia fontana* variant community coding to reflect the similarity in species composition and habitat type – an upwelling of groundwater or spring.

Target Note 10: Large expanse of M27 *Fillipendula ulmaria-Angelica sylvestris* tall-herb fen running downslope to Longhaven Bay. In upper areas the sward is dominated by a thick cover of meadowsweet *Filipendula ulmaria,* soft rush *Juncus effusus,* wild angelica *Angelica sylvestris* and grassy species including Yorkshire fog *Holcus lanatus.* Further downslope the sward becomes less grassy and more herb-rich with marsh-marigold *Caltha palustris*, marsh hawksbeard *Crepis paludosa,* marsh woundwort *Stachys palustris* and marsh thistle *Cirsium palustre*.

Target Note 11: As ground flattens above Longhaven Bay wetter areas dominated by wild angelica *Angelica sylvestris* and meadowsweet *Fililpendula ulmaria* have a more open sward with abundant marsh hawksbeard *Crepis paludosa,* marshy pennywort *Hydrocotlye vulgaris* and water mint *Mentha aquatica.*

Target Note 12: Steep, wet cliffs in Longhaven Bay have scattered roseroot *Sedum rosea* amongst stands of greater woodrush *Luzula sylvatica,* lady-fern *Athyrium filix-femina* and red fescue *Festuca rubra.*

Target Note 13: View across to north slopes of Longhaven Bay displaying dominance of MC8 *Festuca rubra-Armeria maritima* maritime grassland on steep cliff slopes. Stands of M27 *Filipendula ulmaria-Angelica sylvestris* mire and U17x *Luzula sylvatica-Geum rivale* community – typically dominated by greater woodrush *Luzula sylvatica* and/or *Athyrium filix-femina* are present on lower slopes, likely where there is movement of water through the slope. On upper slope heathier maritime communities and gorse *Ulex europaeus* dominated scrub are more prevalent.

Target Note 14: Communities on cliff-tops around Longhaven Bay are frequently dominated by a thick carpet of greater woodrush *Luzula sylvatica* with little else in the sward. These communities have been coded as U17x *Luzula sylvatica-Geum rivale* community variant sub-community and are typically concentrated around Longhaven Bay.

Target Note 15: Areas of coastal heathland are frequent throughout the Longhaven Cliffs nature reserve, typically dominated by bell heath *Erica cinerea,* heather *Calluna vulgaris* and crowberry *Empetrum nigrum*. The sward also contains a high cover of grasses, typically sheep's fescue *Festuca ovina*, heath grass *Danthonia decumbens* and sweet-vernal grass *Anthoxanthum odoratum.* Heath communities occupy cliff edges and ledges, flatter areas on shallow soils on cliff tops and are also found inland on peatier substrate. The dominant heath community across the site is H7d *Calluna vulgaris-Scilla verna* heath *Empetrum nigrum* ssp. *nigrum* sub-community where crowberry is co-dominant with dwarf shrubs.

Target Note 16: Areas of quarrying (now abandoned) are present throughout the Longhaven Cliffs nature reserve, and there are several areas of open water within quarries. Vegetation communities around quarry cliffs is typically diverse – here reflecting a mosaic of mire, scrub, maritime grassland and tall herb and fern communities (M27, U17x, W23a, OV27b).

Target Note 17: Area of glaucous sedge *Carex flacca* in wetter depression within grassy coastal heath community. This reflects a variation of H7 *Calluna vulgaris-Scilla verna* heath and is described in the NVC where such sedges favour free-draining and more base-rich soils.

Target Note 18: Monbretia Crocosmia x crocosmiiflora – single plant located by old ruin

APPENDIX C: FLORAL SPECIES LISTS

Scientific name	Common name	Family	Origin
Achillea millefolium	Yarrow	Asteraceae	N
Achillea ptarmica	Sneezewort	Asteraceae	N
Agrostis canina	Velvet Bent	Poaceae	N
Agrostis capillaris	Common Bent	Poaceae	N
Agrostis stolonifera	Creeping Bent	Poaceae	N
Aira praecox	Early Hair-grass	Poaceae	N
Ajuga reptans	Bugle	Lamiaceae	N
Anemone nemorosa	Wood Anemone	Ranunculaceae	N
Angelica sylvestris	Wild Angelica	Apiaceae	N
Anthoxanthum odoratum	Sweet Vernal-grass	Poaceae	N
Anthriscus sylvestris	Cow Parsley	Apiaceae	N
Arctium minus	Lesser Burdock	Asteraceae	N
Armeria maritima ssp. maritima	Thrift	Plumbaginaceae	N
Arrhenatherum elatius	False Oat-grass	Poaceae	N
Athyrium filix-femina	Lady-fern	Woodsiaceae	N
Bellis perennis	Daisy	Asteraceae	N
Callitriche stagnalis	Common Water-starwort	Callitrichaceae	N
Calluna vulgaris	Heather	Ericaceae	N
Caltha palustris	Marsh-marigold	Ranunculaceae	N
Campanula rotundifolia	Harebell	Campanulaceae	N
Cardamine pratensis	Cuckooflower	Brassicaceae	N
Carex binervis	Green-ribbed Sedge	Cyperaceae	N
Carex demissa	Common Yellow-sedge	Cyperaceae	N
Carex echinata	Star Sedge	Cyperaceae	N
Carex flacca	Glaucous Sedge	Cyperaceae	N
Carex leporina	Oval Sedge	Cyperaceae	N
Carex panicea	Carnation Sedge	Cyperaceae	N
Centaurea nigra	Common Knapweed	Asteraceae	N
Cerastium glomeratum	Sticky Mouse-ear	Caryophyllaceae	N
Chamerion angustifolium	Rosebay Willowherb	Onagraceae	N
Cirsium arvense	Creeping Thistle	Asteraceae	N
Cirsium palustre	Marsh Thistle	Asteraceae	N
Cirsium vulgare	Spear Thistle	Asteraceae	N
Cochlearia officinalis	Common Scurvygrass	Brassicaceae	N
Conopodium majus	Pignut	Apiaceae	N
Cortaderia selloana	Pampas grass	Poaceae	IN
Cotoneaster sp.	Cotoneaster sp.	Rosaceae	IN
Crataegus monogyna	Hawthorn	Rosaceae	N
Crepis capillaris	Smooth Hawk's-beard	Asteraceae	N
Crepis paludosa	Marsh Hawk's-beard	Asteraceae	N
Crocosmia x crocosmiiflora	Monbretia	Ixioidaea	IN

Scientific name	Common name	Family	Origin
Cynosurus cristatus	Crested Dog's-tail	Poaceae	N
Cytisus scoparius ssp. scoparius	Broom	Fabaceae	N
Dactylis glomerata	Cock's-foot	Poaceae	N
Dactylorhiza purpurella	Northern Marsh-orchid	Orchidaceae	N
Danthonia decumbens	Heath-grass	Poaceae	N
Deschampsia cespitosa ssp. cespitosa	Tufted Hair-grass	Poaceae	N
Deschampsia flexuosa	Wavy Hair-grass	Poaceae	N
Digitalis purpurea	Foxglove	Veronicaceae	N
Dryopteris affinis	Golden-scaled Male-fern	Dryopteridaceae	N
Dryopteris filix-mas	Male-fern	Dryopteridaceae	N
Eleocharis palustris	Common Spike-rush	Cyperaceae	N
Empetrum nigrum ssp. nigrum	Crowberry	Ericaceae	N
Epilobium montanum	Broad-leaved Willowherb	Onagraceae	N
Epilobium palustre	Marsh Willowherb	Onagraceae	N
Equisetum arvense	Field Horsetail	Equisetaceae	N
Equisetum palustre	Marsh Horsetail	Equisetaceae	N
Equisetum sylvaticum	Wood Horsetail	Equisetaceae	N
Erica cinerea	Bell Heather	Ericaceae	N
Erica tetralix	Cross-leaved Heath	Ericaceae	N
Eriophorum angustifolium	Common Cottongrass	Cyperaceae	N
Euphrasia sp.	Eyebright	Orobanchaceae	N
Festuca ovina	Sheep's-fescue	Poaceae	N
Festuca rubra	Red Fescue	Poaceae	N
Filipendula ulmaria	Meadowsweet	Rosaceae	N
Galium aparine	Cleavers	Rubiaceae	N
Galium saxatile	Heath Bedstraw	Rubiaceae	N
Galium verum	Lady's Bedstraw	Rubiaceae	N
Glyceria fluitans	Floating sweet-grass	Poaceae	N
Heracleum sphondylium	Hogweed	Apiaceae	N
Hieracium agg.	Hawkweed	Asteraceae	N
Holcus lanatus	Yorkshire-fog	Poaceae	N
Holcus mollis	Creeping Soft-grass	Poaceae	N
Hydrocotyle vulgaris	Marsh Pennywort	Apiaceae	N
Hypericum pulchrum	Slender St John's-wort	Hypericaceae	N
Hypochaeris radicata	Cat's-ear	Asteraceae	N
Juncus articulatus	Jointed Rush	Juncaceae	N
Juncus bufonius	Toad Rush	Juncaceae	N
Juncus bulbosus	Bulbous Rush	Juncaceae	N
Juncus conglomeratus	Compact Rush	Juncaceae	N
Juncus effusus	Soft-rush	Juncaceae	N
Juncus gerardii	Saltmarsh Rush	Juncaceae	N
Juncus squarrosus	Heath Rush	Juncaceae	N
Lathyrus pratensis	Meadow Vetchling	Fabaceae	N

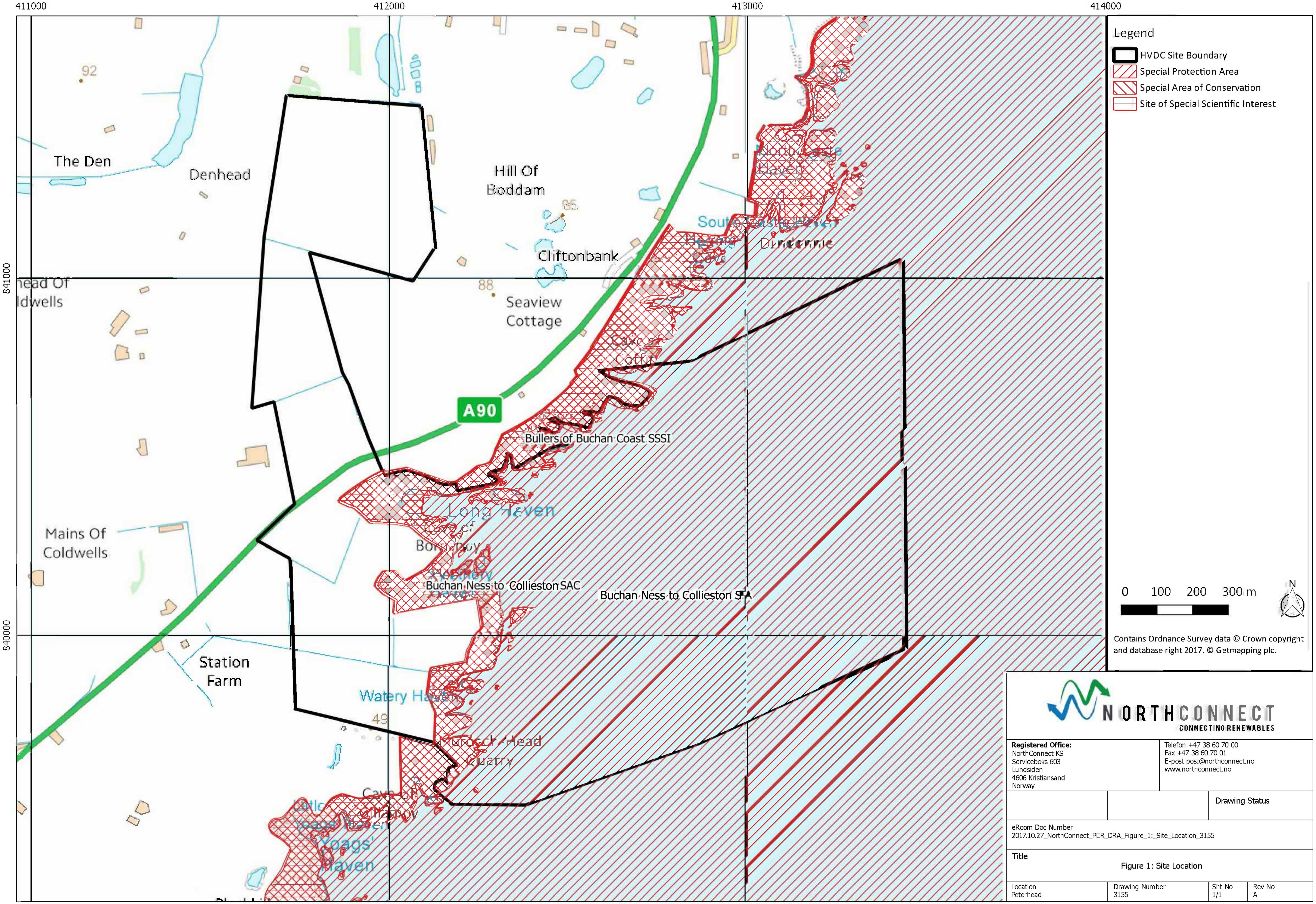
Scientific name	Common name	Family	Origin
Leucanthemum vulgare	Oxeye Daisy	Asteraceae	N
Ligusticum scoticum	Scot's Lovage	Apiaceae	N
Litorella uniflora	Shoreweed	Plantaginaceae	N
Lolium perenne	Perennial Rye-grass	Poaceae	N
Lonicera periclymenum	Honeysuckle	Caprifoliaceae	N
Lotus corniculatus	Common Bird's-foot-trefoil	Fabaceae	N
Luzula multiflora ssp. congesta	Heath Wood-rush	Juncaceae	N
Luzula multiflora ssp. multiflora	Heath Wood-rush	Juncaceae	N
Luzula sylvatica	Great Wood-rush	Juncaceae	N
Matricaria discoidea	Pineappleweed	Asteraceae	IN
Montia fontana	Blinks	Montiaceae	N
Nardus stricta	Mat-grass	Poaceae	N
Parnassus palustris	Grass-of-Parnassus	Parnassiaceae	N
Pedicularis sylvatica	Lousewort	Orobanchaceae	N
Plantago lanceolata	Ribwort Plantain	Plantaginaceae	N
Plantago major	Greater Plantain	Plantaginaceae	N
Plantago maritima	Sea Plantain	Plantaginaceae	N
Poa humilis	Spreading Meadow-grass	Poaceae	N
Poa pratensis	Smooth Meadow-grass	Poaceae	N
Polygala serpyllifolia	Heath Milkwort	Polygalaceae	N
Polypodium vulgare	Polypody	Polypoiaceae	N
Potamogeton polygonifolius	Bog Pondweed	Potamogetonaeae	N
Potentilla anserina	Silverweed	Rosaceae	N
Potentilla erecta	Tormentil	Rosaceae	N
Primula vulgaris	Primrose	Primulaceae	N
Prunus spinosa	Blackthorn	Rosaceae	N
Pteridium aquilinum ssp. aquilinum	Bracken	Dennstaedtiaceae	N
Puccinellia maritima	Common Saltmarsh-grass	Poaceae	N
Quercus sp.	Oak sp.	Fagaceae	N
Ranunculus acris	Meadow Buttercup	Ranunculaceae	N
Ranunculus flammula ssp. flammula	Lesser Spearwort	Ranunculaceae	N
Ranunculus hederaceus	Ivy-leaved Crowfoot	Ranunculaceae	N
Ranunculus repens	Creeping Buttercup	Ranunculaceae	N
Rhinanthus minor	Yellow-rattle	Orobanchaceae	N
Rosa canina	Dog-rose	Rosaceae	N
Rubus fruticosus agg.	Bramble	Rosaceae	N
Rumex acetosa	Common Sorrel	Polygonaceae	N
Rumex acetosella	Sheep's Sorrel	Polygonaceae	N
Rumex crispus ssp. crispus	Curled Dock	Polygonaceae	N
Rumex obtusifolius	Broad-leaved Dock	Polygonaceae	N
Salix aurita	Eared Willow	Salicaceae	N
Salix caprea	Goat Willow	Salicaceae	N
Salix cinerea	Grey Willow	Salicaceae	N

Scientific name	Common name	Family	Origin
Salix repens	Creeping Willow	Salicaceae	N
Scorzoneroides autumnalis	Autumn Hawkbit	Asteraceae	N
Sedum rosea	Roseroot	Crassulaceae	N
Senecio jacobaea	Common Ragwort	Asteraceae	N
Senecio sylvaticus	Heath Groundsel	Asteraceae	N
Senecio vulgaris	Groundsel	Asteraceae	N
Silene dioica	Red Campion	Caryophyllaceae	N
Silene uniflora	Sea Campion	Caryophyllaceae	N
Solidago virgaurea	Goldenrod	Asteraceae	N
Sonchus asper	Prickly Sowthistle	Asteraceae	N
Stachys palustris	Marsh Woundwort	Lamiaceae	N
Stellaria alsine	Bog Stitchwort	Caryophyllaceae	N
Succisa pratensis	Devil's-bit Scabious	Dipsacaeae	N
Trifolium medium	Zigzag Clover	Fabaceae	N
Trifolium pratense	Red Clover	Fabaceae	N
Trifolium repens	White Clover	Fabaceae	N
Triglochin maritima	Sea Arrowgrass	Juncaginaceae	N
Tripleurospermum maritimum	Sea Mayweed	Asteraceae	N
Tussilago farfara	Colt's-foot	Asteraceae	N
Ulex europaeus	Gorse	Fabaceae	N
Urtica dioica ssp. dioica	Common Nettle	Urticaceae	N
Vicia cracca	Tufted Vetch	Fabaceae	N
Vicia sepium	Bush Vetch	Fabaceae	N
Viola palustris	Marsh Violet	Violaceae	N
Viola riviniana	Common Dog-violet	Violaceae	N

'N' – Native, 'IN' – Introduced

NB. No species of conservation concern were identified.

APPENDIX D: FIGURES


411000
412000
413000
414000
841000
840000
Legend
HVDC Site Boundary
Special Protection Area
Special Area of Conservation
Site of Special Scientific Interest
The Den
Denhead
Hill Of Boddam
Cliftonbank
Seaview Cottage
Mains Of Coldwells
Station Farm
A90
Long Haven
Watery Haven
Bullers of Buchan Coast SSSI
Buchan Ness to Collieston SAC
Buchan Ness to Collieston SPA
0 100 200 300 m
N
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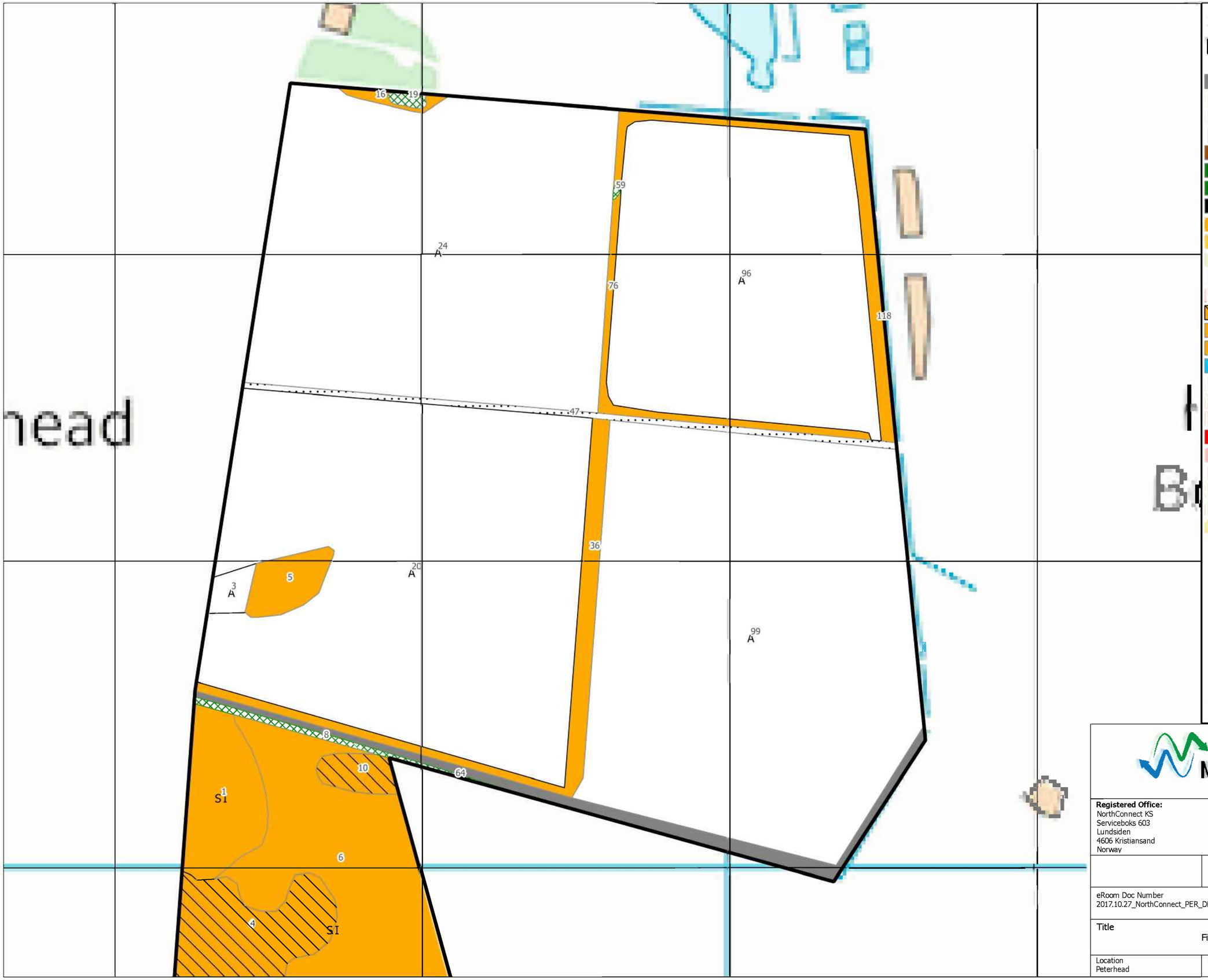
Drawing Status
eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_1:_Site_Location_3155
Title
Figure 1: Site Location
Location
Peterhead
Drawing Number
3155
Sht No
1/1
Rev No
A

411600 411800 412000 412200

841400 841200 841000



Legend

- HVDC Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2a:_NVC_Survey_Results_3156

Title
Figure 2a: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3156	1/1	A

411600 411800 412000 412200

841000 840800 840600 840400

Legend

- HVDC Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2b:_NVC_Survey_Result)_3157

Title
Figure 2b: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3157	1/1	A

411800 412000 412200

840400 840200 840000

Long Ha
ave of
hoy
eathery

Legend

- HVDC Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2c:_NVC_Survey_Results_3158

Title
Figure 2c: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3158	1/1	A

411800 412000 412200 412400

840000 839800 839600

Legend

- HVDC Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2d:_NVC_Survey_Results_3159

Title
Figure 2d: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3159	1/1	A

412200 412400 412600 412800

840800 840600 840400

Cottage

Cave of

Coffi

A90

Long Haven

ave of

Legend

- HVDC Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2e:_NVC_Survey_Results_3160

Title
Figure 2e: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3160	1/1	A

411000 412000 413000

841000 840000

The Den
Denhead
Hill Of Boddam
Hillhead Of Coldwells
Cliftonbank
Seaview Cottage
North Castle Haven
South Castle Haven
Herring Cove
Dundonnie
Cave of Coffin
A90
Long Haven
Mains Of Coldwells
Station Farm
Quarry
Cave of Gillarmow
Little

Legend

- HVDC Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 100 200 300 m

N

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Drawing Status

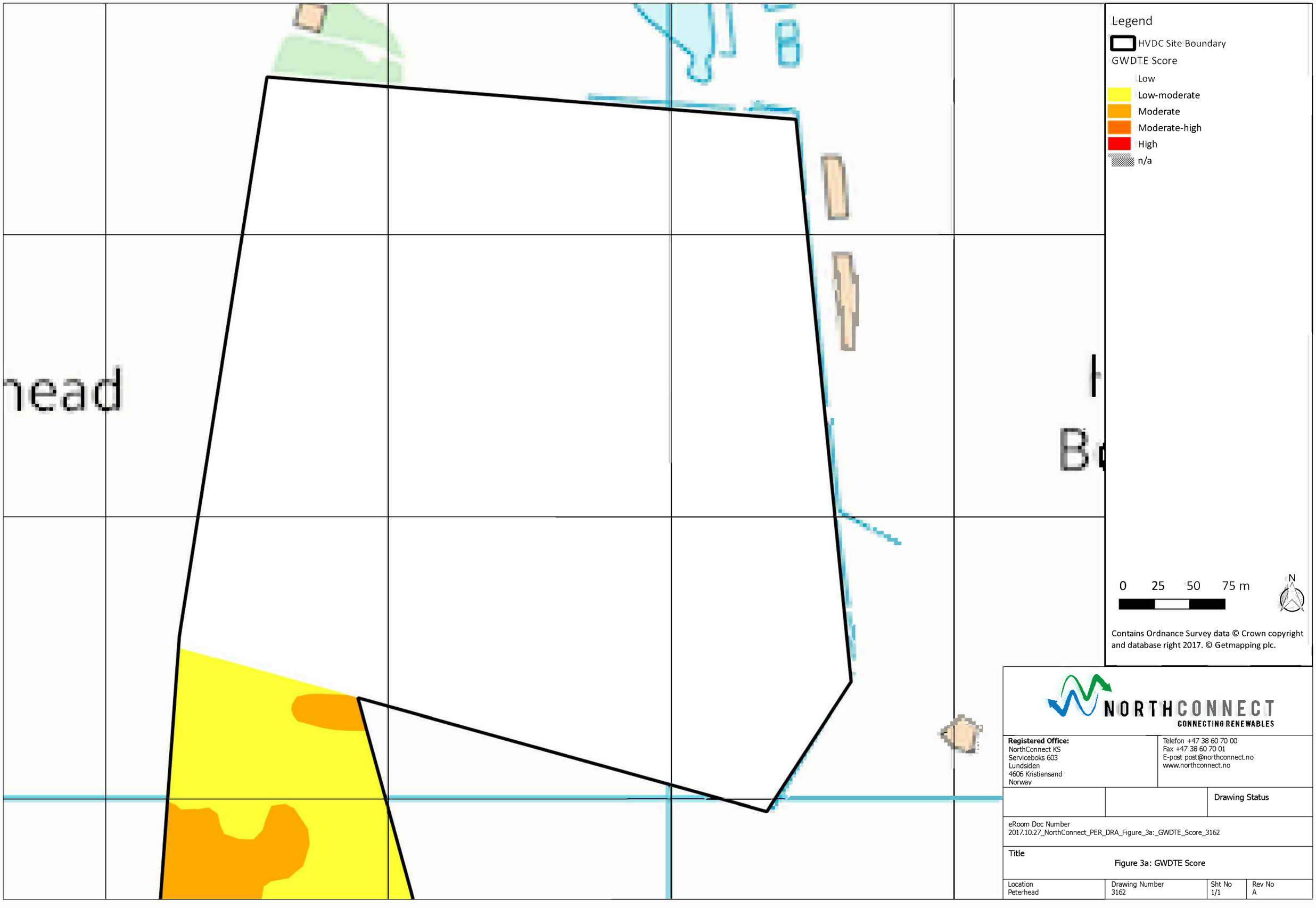
eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2f:_NVC_Survey_Results_(Overview)_3161

Title
Figure 2f: NVC Survey Results (Overview)

Location	Drawing Number	Sht No	Rev No
Peterhead	3161	1/1	A

411600 411800 412000 412200

841400 841200 841000



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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3a:_GWDTE_Score_3162

Title
Figure 3a: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3162	1/1	A

411600 411800 412000 412200

841000 840800 840600 840400

Legend

HVDC Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 25 50 75 m

N

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3b:_GWDTE_Score_3163

Title
Figure 3b: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3163	1/1	A

411800 412000 412200

840400

840200

840000

Long Ha
ave of
hoy
1eathery

Legend

HVDC Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3c:_GWDTE_Score_3164

Title
Figure 3c: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3164	1/1	A

411800 412000 412200 412400

840000

839800

839600

doch-Head

Quarry

Cave of

Gillamoy

Little

Yeags' Haven

Yeags'

Legend

HVDC Site Boundary

GWDTE Score

Low

Low-moderate

Moderate

Moderate-high

High

n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3d:_GWDTE_Score_3165

Title
Figure 3d: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3165	1/1	A

412200 412400 412600 412800

840800 840600 840400

Cottage

Cave of

Cliff

A90

Long Haven

ave of

Legend

HVDC Site Boundary

GWDTE Score

Low

Low-moderate

Moderate

Moderate-high

High

n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3e:_GWDTE_Score_3166

Title
Figure 3e: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3166	1/1	A

411000 412000 413000

841000

840000

The Den
Denhead
Hill Of Boddam
Hillhead Of Coldwells
Cliftonbank
Seaview Cottage
Cave of Coff
North Castle Haven
South Castle Haven
Herring Cove
Dundonnie
A90
Long Haven
Mains Of Coldwells
Station Farm
doch-Head Quarry
Cave of Gillamoy
Little

92 85 88 24

Legend

HVDC Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 100 200 300 m

N

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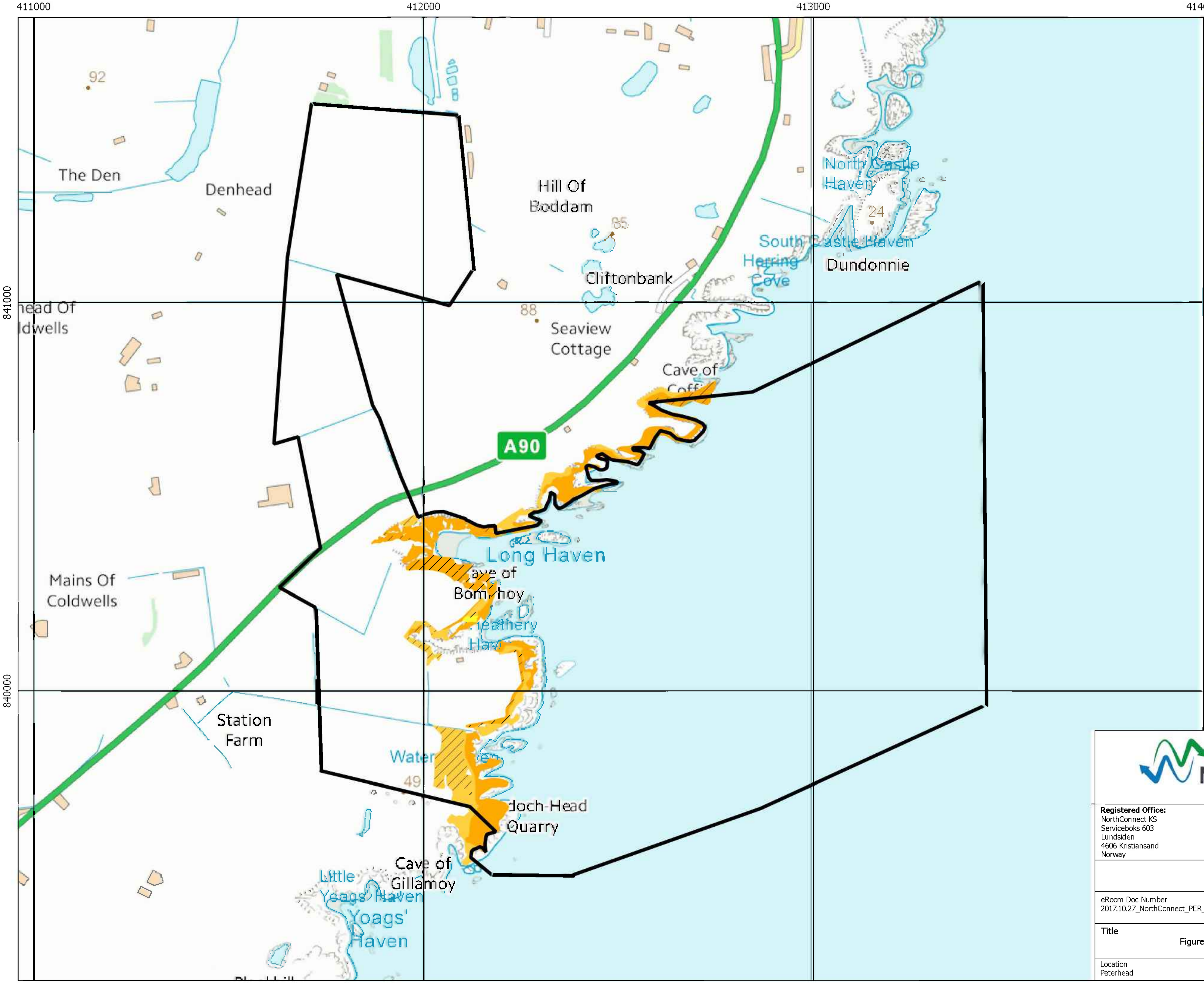
Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3f: _GWDTE_Score_(Overview)_3167

Title
Figure 3f: GWDTE Score (Overview)

Location	Drawing Number	Sht No	Rev No
Peterhead	3167	1/1	A



Legend

HVDC Site Boundary

Habitats of Conservation Concern

- MC8 (dominant)
- MC8 (sub-dominant)
- MC9 (dominant)
- MC9 (sub-dominant)
- H7 (dominant)

0 100 200 300 m

N

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Drawing Status	
eRoom Doc Number	2017.10.27_NorthConnect_PER_DRA_Figure_4:_Habitats_of_Conservation_Concern_3168
Title	Figure 4: Habitats of Conservation Concern
Location	Peterhead
Drawing Number	3168
Sht No	1/1
Rev No	A

411000 412000 413000 414000

841000

840000

The Den
Denhead
Hill Of Boddam
North Castle Haven
South Castle Haven
Herring Cove
Dundonnie
Cliftonbank
Seaview Cottage
Cave of Coffin
A90
Montbretia
Long Haven
Cave of Bomahoy
Heathery Haven
Mains Of Coldwells
Station Farm
Watery Haven
Murdoch Head Quarry
Cave of Gillamoy
Little Yoags Haven
Yoags Haven

92 85 88 24 49

Legend

HVDC Site Boundary

Non-native Flora

0 100 200 300 m

N

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Title
Figure 4: Habitats of Conservation Concern

Location	Drawing Number	Sht No	Rev No
Peterhead	3168	1/1	A