Dune Slack Scrapping

Background

The sand dunes at Penhale are both nationally and internationally important for their diverse range of coastal habitats. They are one of the largest sand dune systems in south west England. The area is designated nationally as a Site of Special Scientific Interest (SSSI) and internationally as a Special Area of Conservation (SAC). Penhale Dunes SSSI and SAC covers 620ha in total. Qualifying features include the following;

H2120. Shifting dunes along the shoreline with Ammophila arenaria ("white dunes"); Shifting dunes with marram
H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland *
H2170. Dunes with Salix repens ssp. argentea (Salicion arenariae); Dunes with creeping willow
H2190. Humid dune slacks
S1395. Petalophyllum ralfsii; Petalwort
S1441. Rumex rupestris; Shore dock
S1654. Gentianella anglica; Early gentian
See appendices 3 – 6 for designations across Penhale Dunes.

The Dynamic Dunescapes Project is a national partnership project aimed at improving the condition of the UK's sand dunes and increasing the level of engagement with land managers and the public. Sand dune habitats in England and Wales have been highlighted as one of the most at-risk habitats. The project includes the following objectives;

- conservation work to re-establish natural processes
- a program of removal of native and non-native invasive species
- restoration and creation of dune slacks and dune wetlands
- turf stripping and sand scraping to create bare sand patches
- on site interpretation and a national promotion program
- community education activity, including a schools program
- a program of adult and youth volunteering

The work outlined in this proposal forms part of a scheme of works aimed at addressing some of the issues raised in SSSI condition assessment.
(https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1004143&ReportTitle=Penhale%20Dunes%20SSSI.)

Project Outline

This method statement covers the scraping of twenty dune slacks across Penhale dunes SSSI / SAC. The aim of scraping is to remove the buildup of organic material from the slacks. This will include the removal of tree stumps (willow, blackthorn and sycamore generally) and roots. This will let light into the slacks with the aim of rejuvenating early successional species within the slacks. It will also reduce water uptake via tree roots. In several of the slacks it is hoped the disturbance caused to the soil structure will enable shore dock seeds within the seedbank to germinate, reinvigorating populations. Shore dock populations have been proven to react well to disturbance.

Where appropriate woody scrub has already been cleared from the slacks in readiness for this project.

The work will be carried out in September or October. This is traditionally when water levels are at their lowest and impacts on fauna minimal.

Location

The proposed works will take place within the military training area part of Penhale Dunes and on Gear Sands, the publicly accessible part of Penhale dunes. The work areas are outlined in red below. A total of twenty separate areas will be scraped, fourteen within the MOD training area and six on Gear Sands.

Complete work area – Penhale Dunes

Penhale MOD training area slack locations – 14

Gear Sands slack locations - 6

Slack Name	Location	Grid reference / Lat and Long	Area to scrape (m2)
Horse tail	MOD area	SW 77190 57904 50.378724 , -5.1351924	1064
		SW 77115 57955 50.379156 , -5.1362814	808
Blackthorn	MOD area	SW 77016 57767 50.377429 , -5.1375662	836
		SW 76923 57854 50.378173 , -5.1389100	640
Grey and creeping willow	MOD area	SW 77421 57554 50.375669 , -5.1317424	1204
Mallard Pond	MOD area	SW 77980 57072 50.371555 , -5.1236106	2049
		SW 77933 57143 50.372170 , -5.1243161	1922
Mallard pond west	MOD area	SW 77794 57188 50.372526 , -5.1262902	857
Bull Rush Lake	MOD area	SW 77092,56877. 50.369469 , -5.1359676	2404
		SW 77046 56766 50.368456 , -5.1365456	1091
		SW 77016 56772 50.368496 , -5.1369627	495
Wet flush	MOD area	SW 76923 57059 50.371036 , -5.1384392	1585
		SW 76859 56937 50.369914 , -5.1392707	756
		SW 76916 56854 50.369192 , -5.1384285	400
Shore dock north	Gear Sands	SW 76962 56120 50.362622 , -5.1373409	1090
		SW 76964 56181 50.363169 , -5.1373449	616
Shore dock south	Gear sands	SW 76928 56007 50.361592 , -5.1377526	1062
		SW 76987 55996 50.361513 , -5.1369104	1047
		SW 76923 55960 50.361164 , -5.1377955	431
Scrub area	Gear sands	SW 77076 56095 50.362434 , -5.1357248	1376
Total Area	MOD		16111 (1.6 ha)
	Gear		5622 (0.56ha)
Overall Total			21733 (2.2ha)

Dune Slack Scraping - methodology for contractors

An excavator will be used to scrap the areas outlined on the map. Material removed from the scraped area will be buried or piled near to each work area and covered with clean sand excavated from the dunes. The excavator will scrap to a maximum depth of 200mm. The aim is to remove the vegetation and dark humus layer from the slack following the contours of the slack. The aim is not to significantly change the depth of the slack or profile. A grab can be used to pull up tree stumps. Some digging may be required to remove all root material, but the level will be reprofiled as close to original once root material is removed. A land rake or riddling (sieve) style bucket can be used to help separate vegetation and woody material from clean sand as necessary. If required a dumper can be used to transport scrapped material to dump area.

Each work area will be marked out by the Ranger. A route into and out from each work area will be marked by the ranger. The dump site for excavated material at each work area will be marked by the ranger. All of which are shown over leaf.

Where the extent of the work area is not obvious it will be marked out by the Ranger. It should be noted that the area being worked in is a Site of Special Scientific Interest and Special Area of Conservation. The work is being carried out under license from Natural England. Any deviation from the work area or routes in and out and subsequent damage to habitat may result in Natural England issuing a fine or seeking prosecution for damage.

It should be noted that all work areas have had an element of scrub clearance in advance of scraping. This will significantly reduce the volume of waste material (this work has been completed).

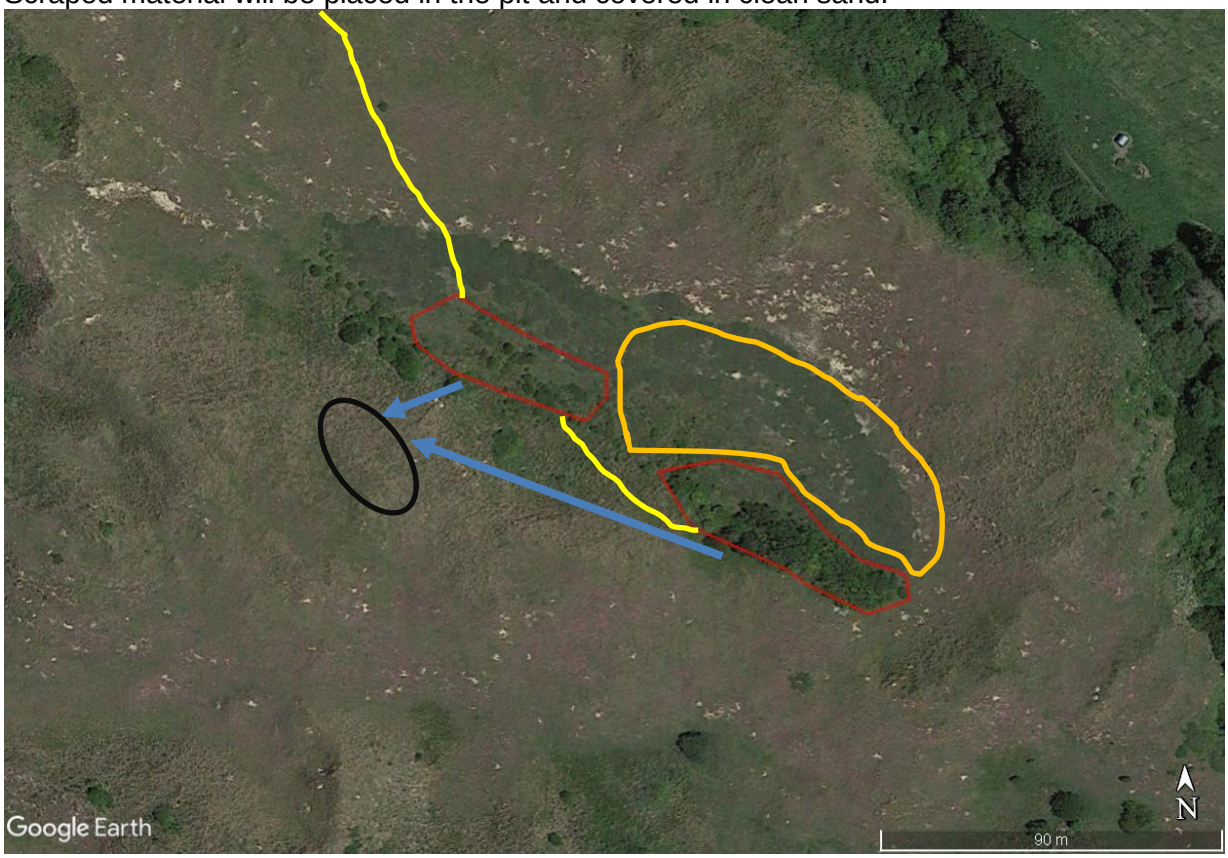
Contractors will be asked to produce their own method statement for the works using the above for guidance. Alternative methods will be considered if they appear more efficient and with no adverse environmental risk.

MOD Training Area

The public are excluded from this area. However, some level of trespass still occurs. This should be considered during the work. No deep excavations to be left unattended or unfenced over night or through weekends.

Horse Tail Slack – 1872m2 to scrape

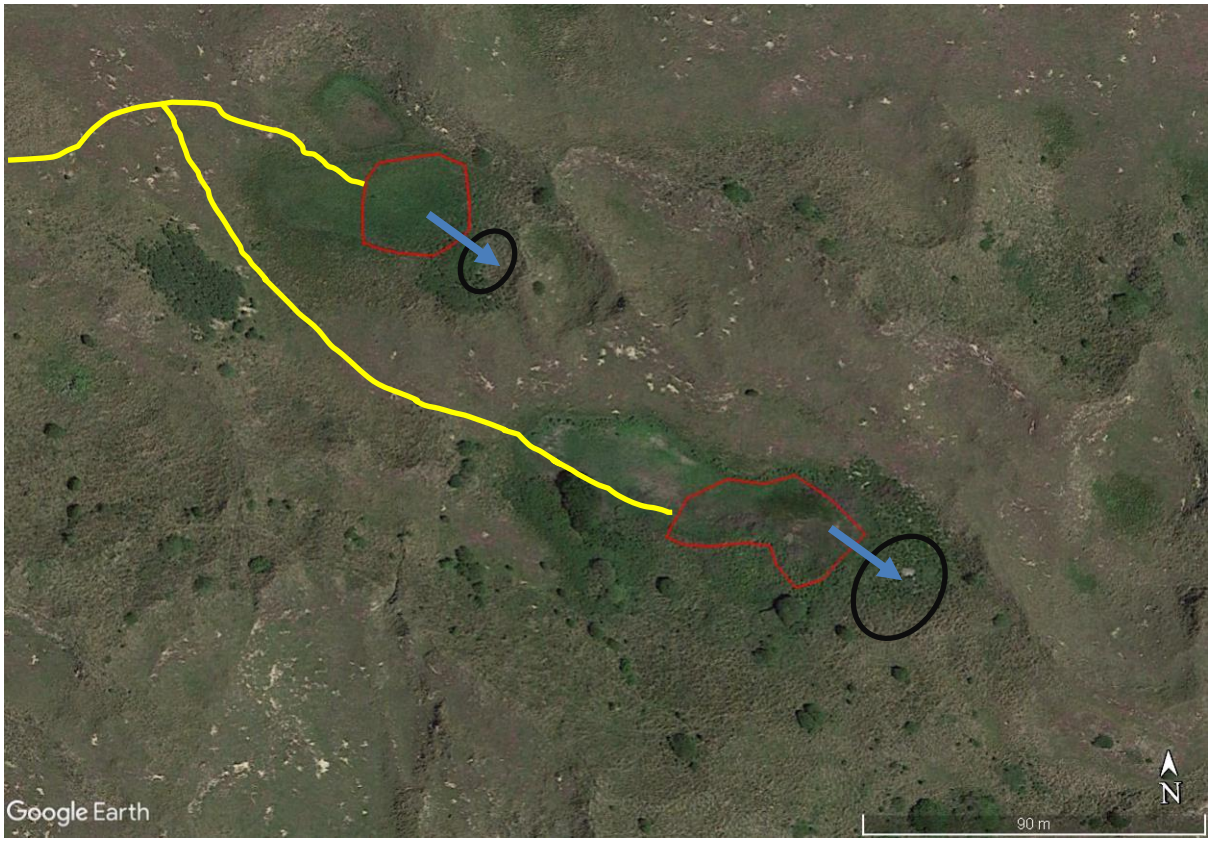
Characterised by low vegetation, large areas of creeping willow and the presence of a prostrate form of variegated horse tail, *Equisetum variegatum.* Grey willow is also present. The areas dominated by grey willow adjacent to creeping willow and variegated horse tail have been selected for scraping. These areas are outlined in red below. Contractor access is indicated by a yellow line and follows a route currently used for livestock checks. The blue arrow indicates where scraped material will be moved to. The orange line outlines a complete exclusion zone where variegated horse tail is found. Vehicle movements will be limited to the work areas, access route and manoeuvres between work site and dump site on the south side of the slack. The dump site is an elevated area of dune dominated by marram grass. A pit will be excavated, the base of which will stay well above the water table. Scraped material will be placed in the pit and covered in clean sand.



Horse Tail Slack

Blackthorn Slack – 1476m2

Two areas outlined for scraping. The NW area outlined red is dominated by low vegetaion, sliver weed, marsh pennywort. This area will be scraped back to clean sand. A hole will be excavated in the rising dune to the SE. the hole site is currently dominated by blackthorn. Waste material will be buried in the hole under clean sand. The base of the hole will be above the water table. The second area is being significantly encroached by blackthorn. The blackthorn has been cut in the past but needs a more robust approach. The area will be scraped, and all woody material removed. A hole will be excavated in the rising dune to the SE of the scraped area. The hole site is currently dominated by blackthorn. Woody material will be placed in the hole and buried with clean sand. The hole will remain above the water table. The contractor access route follows an existing track used for livestock checks.

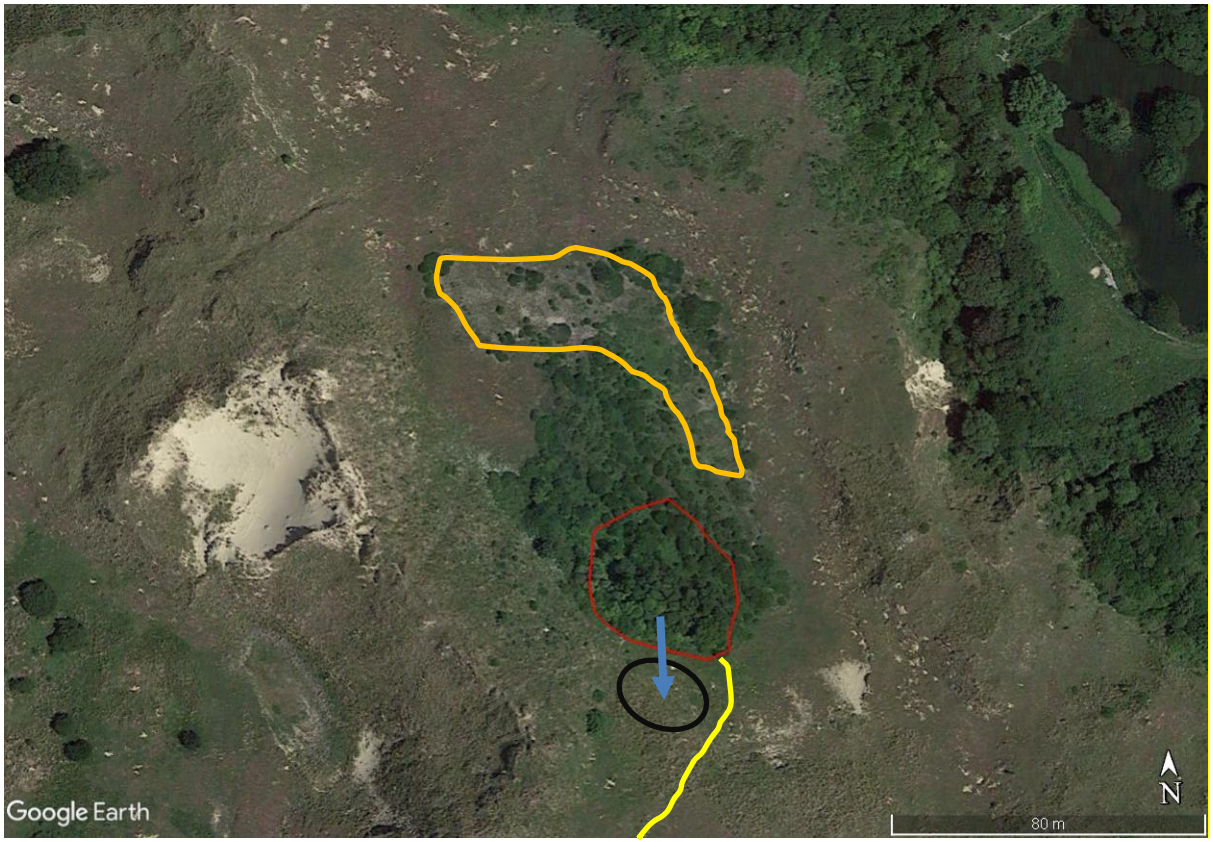


Blackthorn slack

Grey Willow and creeping Willow Slack – 1240m2

This slack is heavily vegetated. Both creeping willow and grey willow are present. Grey willow is starting to dominate. The area has been subject to herbicide treatment with a tractor mounted weed wiper in the past. This hasn't happened for a number of years as the dunes are registered organic. The area being scraped is dominated by grey willow and the occasional sycamore sapling. The area will be scraped, all woody material including stumps will be removed. The area circled in orange will be avoided as it has good a good population of creeping willow.

A large hole will be excavated in the rising dune south west of the work area. All scraped material will be buried and covered in clean sand. Access is via the route indicated in yellow. The slack is 240m from the tarmac training area access road, so minimal disturbance through contractor access will take place.

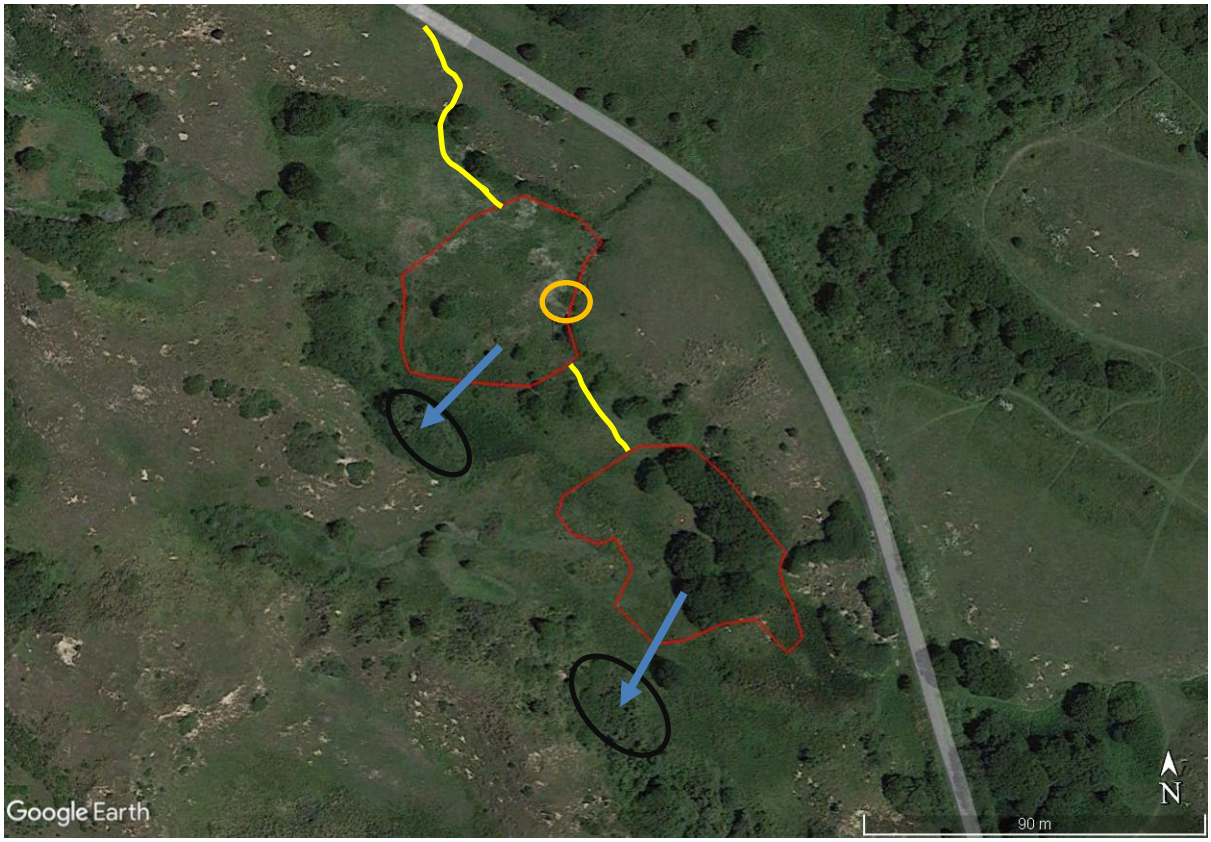


Grey and Creeping willow slack

Mallard Pond – 3971m2

Scraping in Mallard Pond comprises of two areas. The first to the NW is populated by short vegetation and includes water mint, silver weed, marsh penny wort and purple loosestrife with occasional grey willow. The area circled in orange has an historic 'shore dock enclosure' but no record for shore dock, *Rumex rupestris* can be found on either of the Cornwall records systems. If shore dock was present in the area it is hoped that disturbance to the area could rejuvenate a population as it needs disturbance as part of its life cycle. A hole will be dug in the rising dune to the SW and all scraped material buried and covered in clean sand.

The second area to the SE has been dominated by grey willow. The is area has had the grey willow cut. The area will be scraped to remove the grey willow stumps. Woody material will be burnt, and ash buried in the rising dune to the south east of the scraped area, in an area currently dominated by coarse grasses and bramble scrub.
The work area is a very short distance from the tarmac training area access road so access will be straight forward.



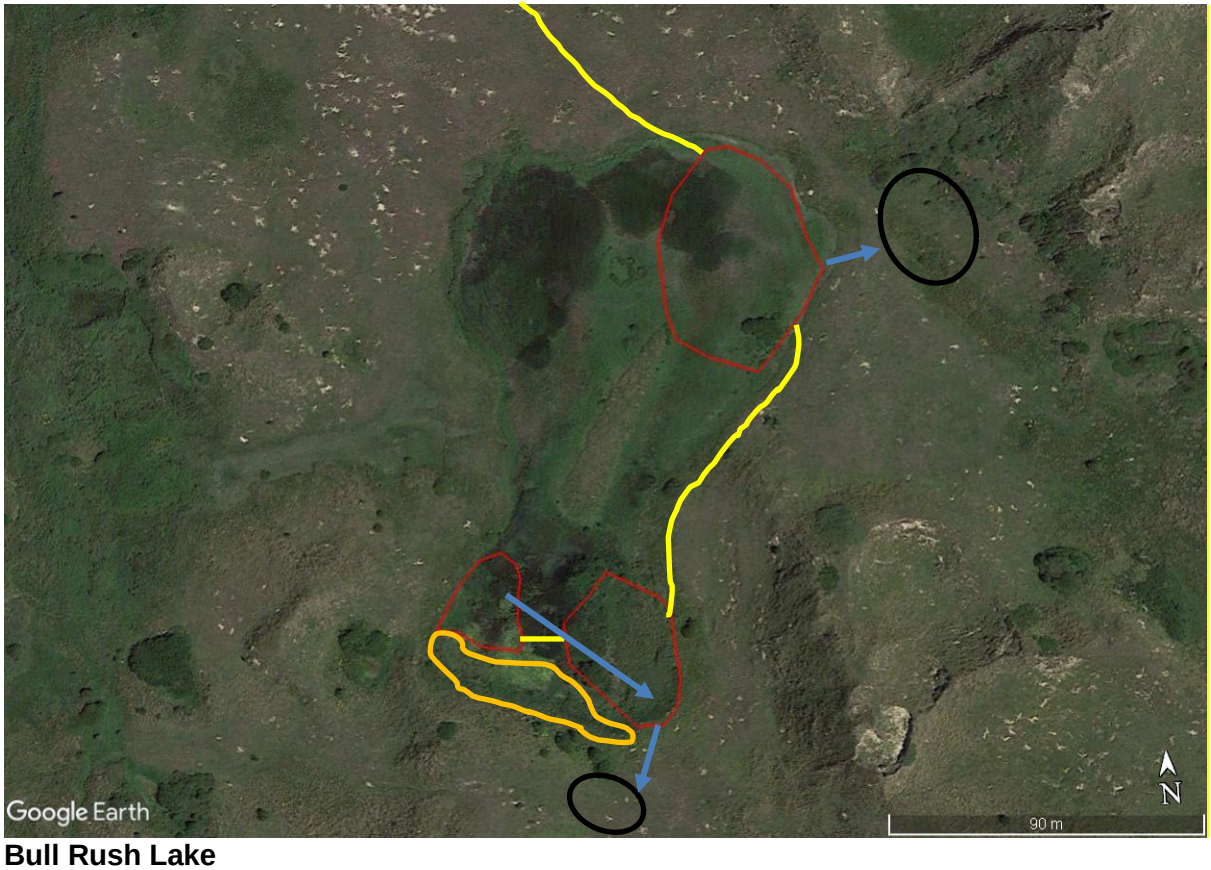
Mallard pond

Bullrush Lake – 3990m2

The scraping in bull rush lake comprises three areas, two in the south and one in the north. The north area is dominated bull rushes, silver weed, marsh pennywort and a small stand of willow. The area will require only shallow scraping to remove organic layer. A pit will be dug in the rising dune to the northeast and spoil buried and covered in clean excavated sand.

The two areas in the south are adjacent to populations of shore dock. The area also has Stone wort, water cress, willow, silver weed, marsh penny wort and curled dock. The aim of scraping in this area is to reinvigorate shore dock populations by exposing viable seed in the seed bank. Work in this area will be monitored **extremely closely** by the Penhale Dunes Ranger to ensure clumps of standing shore dock plants are avoided and scraping doesn't go too deep. The orange marked area will be avoided as this area currently has shore dock plants numbering in the 10's.

Access to the work area is shown in yellow. The route will be closely monitored as the surrounding habitat is flower rich short turf fixed dune and dune slack. The deposition hole will be dug first with sand piled next to the hole. The westward area will be scrapped working back towards the eastern side to minimise compaction and distance travelled. Where extra vehicle movements are required, they will be restricted to the margins of the work area.



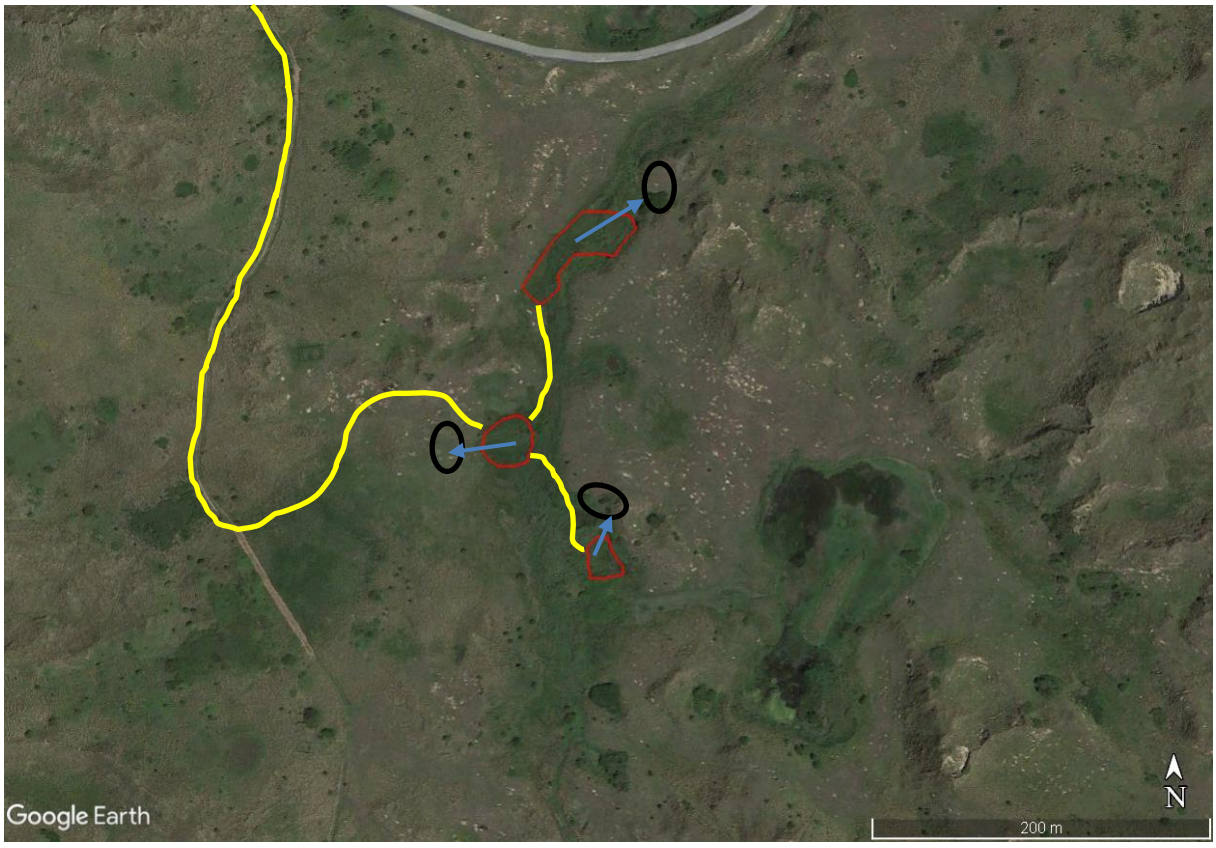
Bull Rush Lake

Wet Flush – 2741m2

The scraping in this area comprises a north area, middle area and south area. Access is via yellow line. The route is partially on a route used for livestock checks with a slight deviation for the final 200m. The north area will be scrapped first then the south working back to the middle area.

Each area will be lightly scrapped back to clean sand. Holes will be dug in the elevated positions indicated in black and the material buried at a suitable depth as described previously.

There have been historic records for shore dock in these areas. The middle area had a population within the last 20 years although it has since disappeared. The north and south areas have had populations of shore dock and populations of possible hybrid shore docks. The Penhale dunes ranger will survey the area immediately before the work takes place. The results will dictate the final areas scrapped. Genuine standing shore dock plants will be marked avoided.



Wet Flush

Gear Sands (publicly accessible area)

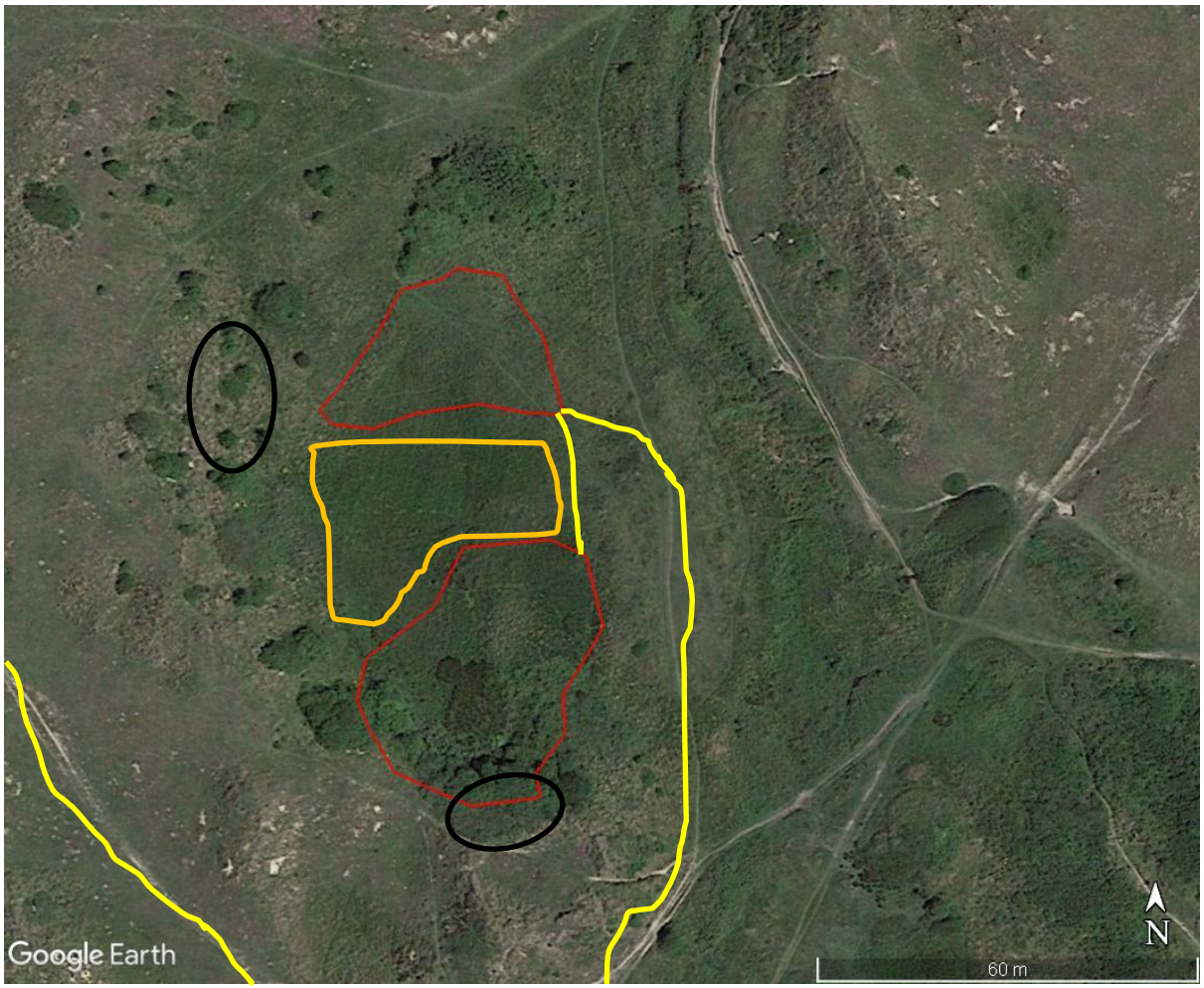
The public have access to this area. Work areas will be taped off and a banks man required to ensure the public remain a safe distance from machinery. The shallow hollows used to bury scrapped material will be a limited depth to ensure public safety. All work sites will be left in a safe condition when night supervised (overnight and throughout weekends).

Shore dock North – 1706m2

This slack has a north and a south area for scrapping. Shore dock is present in this slack. The shore dock population is concentrated in the area outlined in orange. Shore dock populations fall to the north and south of the slack hence targeting for scrapping. The ranger will survey the slack immediately before the work takes place to ensure no standing shore dock plants are affected by the work. Plant locations will be marked to ensure avoidance.

The vehicle access route is via an existing track to the north of the work area, it then follows a well-worn track for around 300m before deviating off and into the slack for the last 30m. The route avoids significant species in the area. The ranger will survey the route before contractors use it to ensure the minimum amount of disturbance to dune habitat.

The slack is low lying with high dunes around the north, west and south sides. Holes will be dug in the banks well above the water table and scrapped material deposited. Each hole will be covered in excavated clean sand.



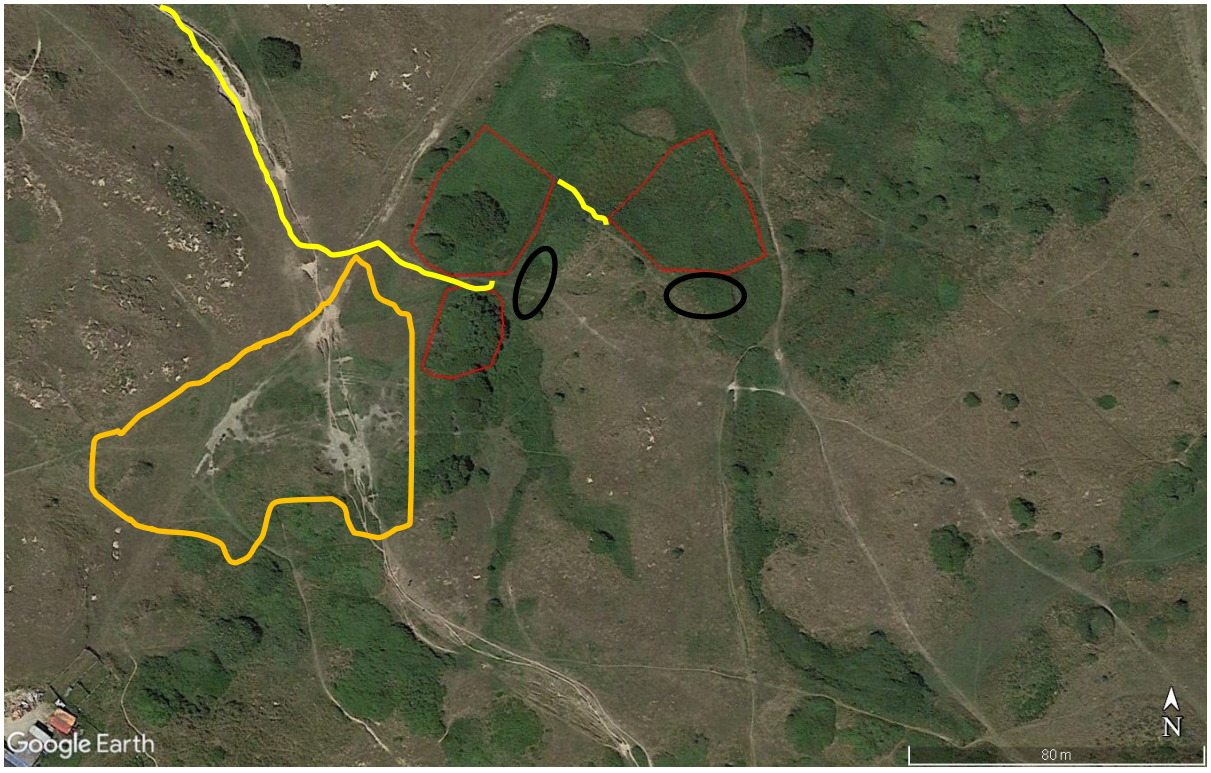
Shore dock North

Shore dock South – 2540m2

This area comprises of three areas to be scrapped left, right and southern. The left and southern areas have historic records for shore dock, with one or two plants appearing within the last decade. These plants were heavily shaded and out competed by spreading grey willow and dropping in number. It is hoped that scrapping in this area will reinvigorate the population. Southern marsh orchids, marsh pennywort, silver weed, and horse tail are all present. The area to the right was formally dense black thorn. The area has been cut and stump treated in the past. However, the blackthorn has returned. Scrapping in this area will seek to remove blackthorn root material and remove the population, leaving clean sand.

Access is from the northwest via an existing rack and then a well walked path. This route avoids the area marked orange. The area marked orange contains Petal wort and Early gentian. The area will be marked, and a thorough briefing given to contractors to ensure now damage. The right-hand area will be scrapped first then the left and then lower.

Scrapped material in this area will be piled in sacrificial areas. A shallow pit will be dug, material put in and covered in clean sand from the scrapped area. No deep excavations will be dug as the area is low lying and any disruption of the water table will need to be avoided.

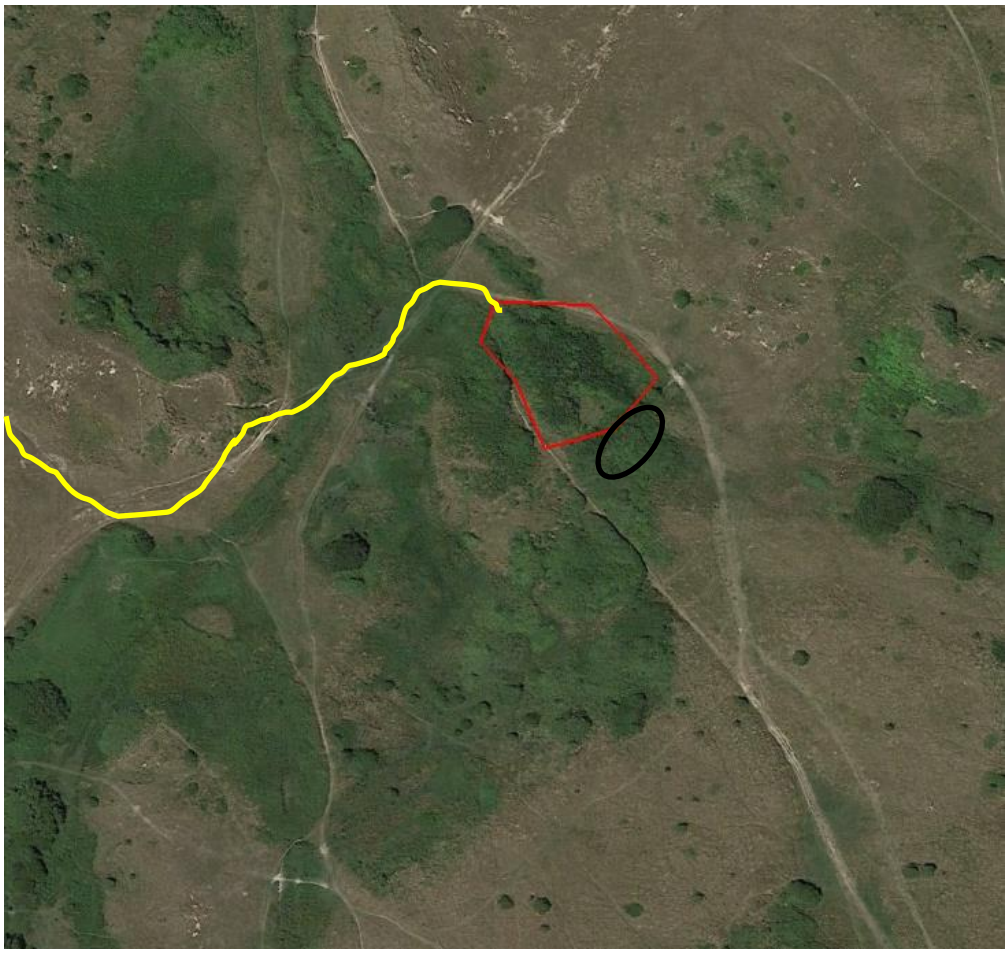


Shore dock south

Scrub Area – 1376m2

This area is on the edge of a slack, it comprises of dense blackthorn scrub. The area is adjacent to slacks so it is hoped that the clearance of blackthorn will extend the slack and ensure its long term viability. The work area has no key species in it.

The access route follows the same line as access to the previous work areas, via a track then worn path to the work area. The ground in this area is generally low lying. As such the scrapped material will be buried in a shallow hollow and covered in clean sand to avoid disturbance to the water table. Work will happen in a southerly direction working towards the hollow where the scrapped material will be deposited.



Scrub area

BILL OF QUANTITIES

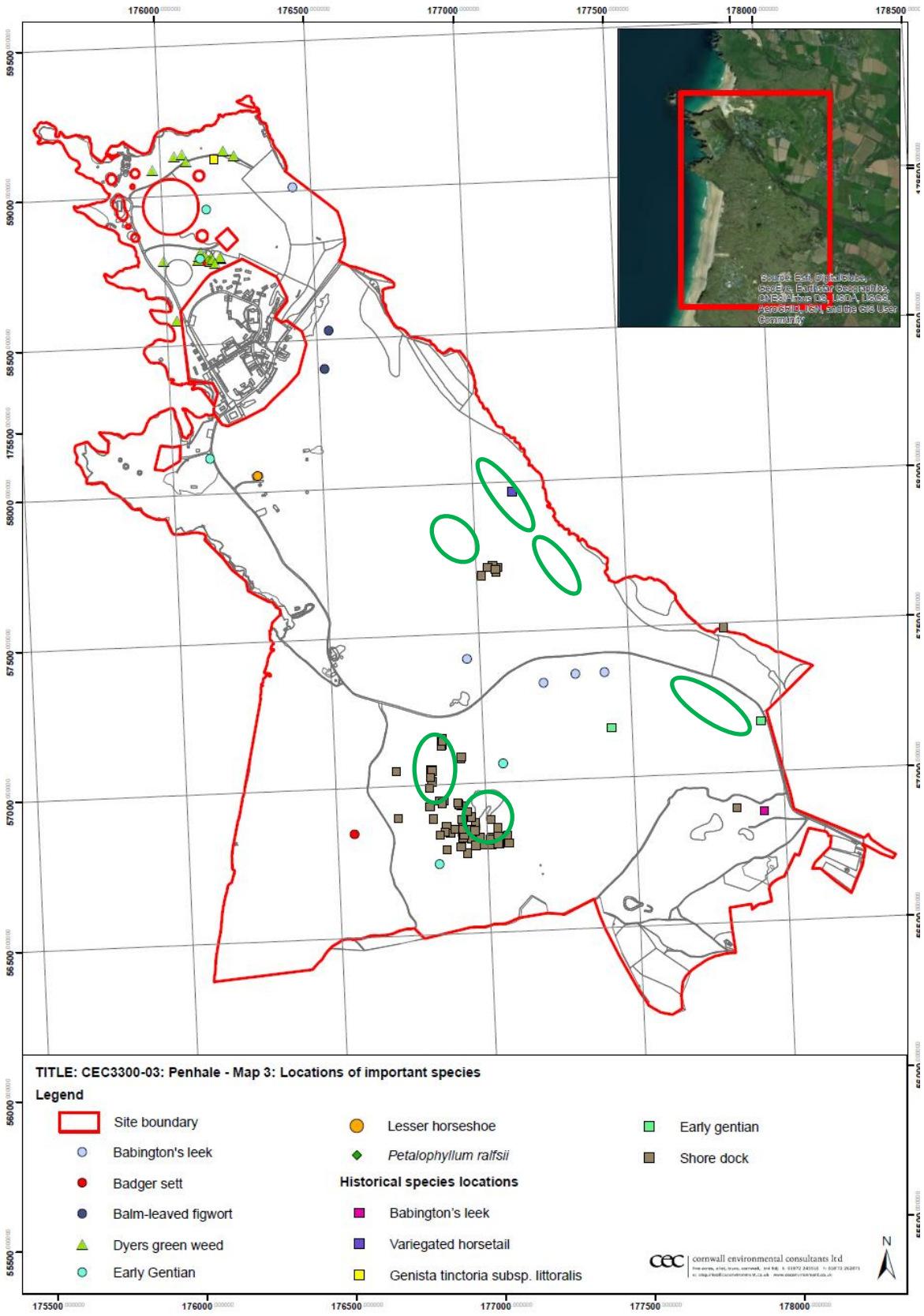
Dune slack scraping – firm fixed price

WORK (Row ID 147)	DAYS	PRICE
Penhale MOD Training area		
Gear Sands publicly accessible area		
8 hr / Day Rate for 1x excavator, 1x dumper and 2x operators		
		£.+ VAT **……** **£ ……**
TOTAL COST		**£……**

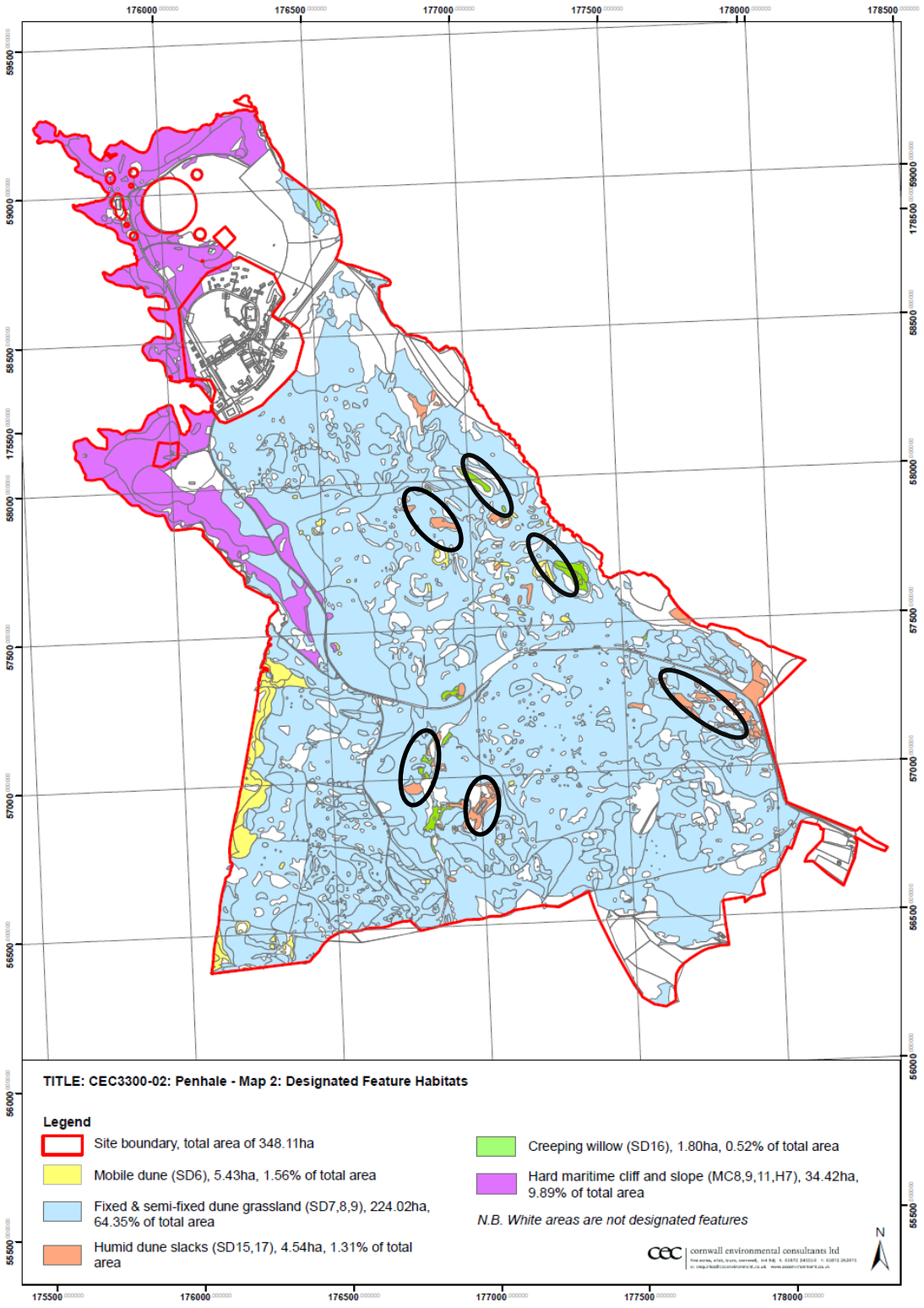
Further Information

Appendix 1 – Penhale SAC Designation (same as SSSI boundary)

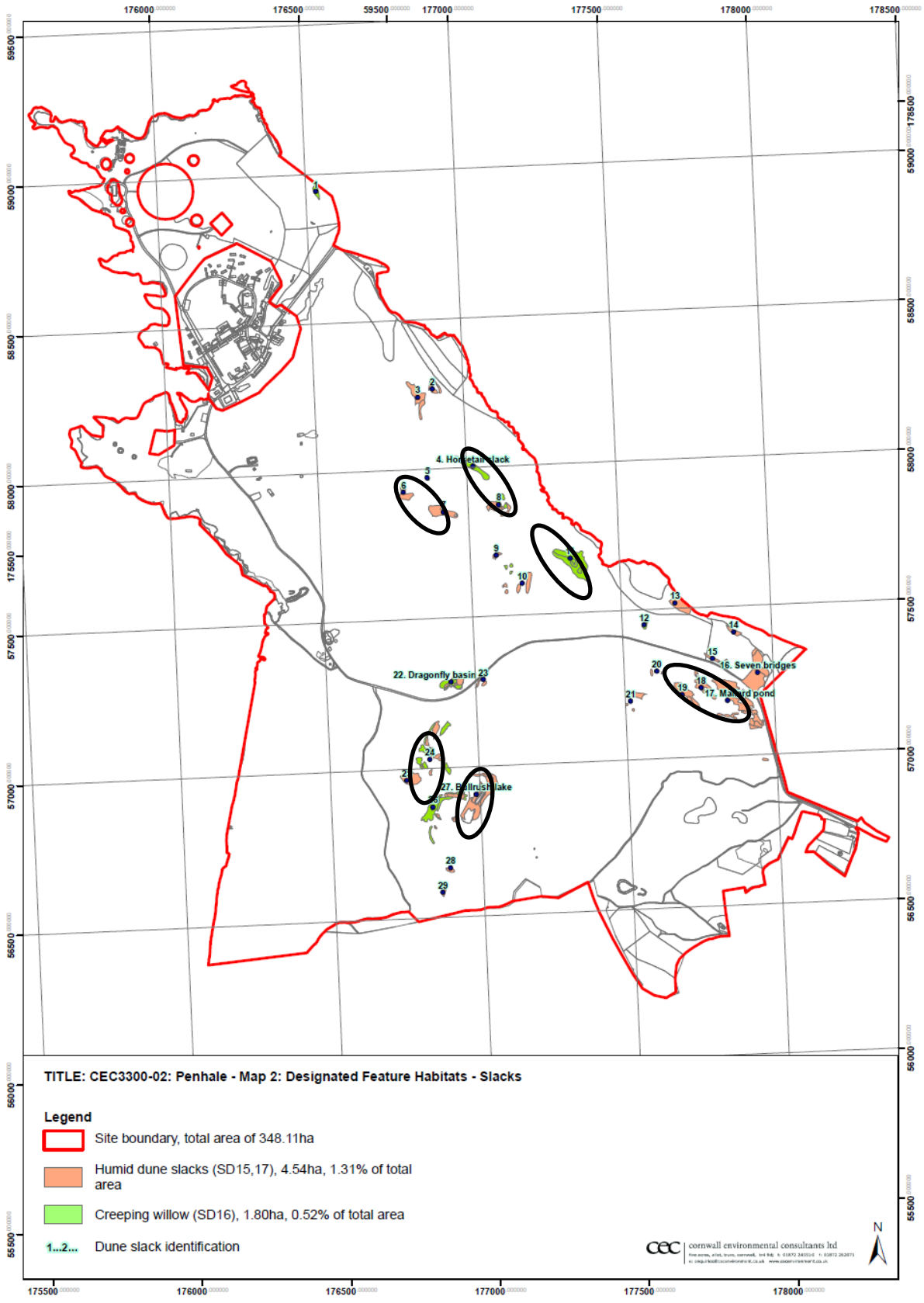
Appendix 2– Important Species locations across Penhale (work areas marked in green)



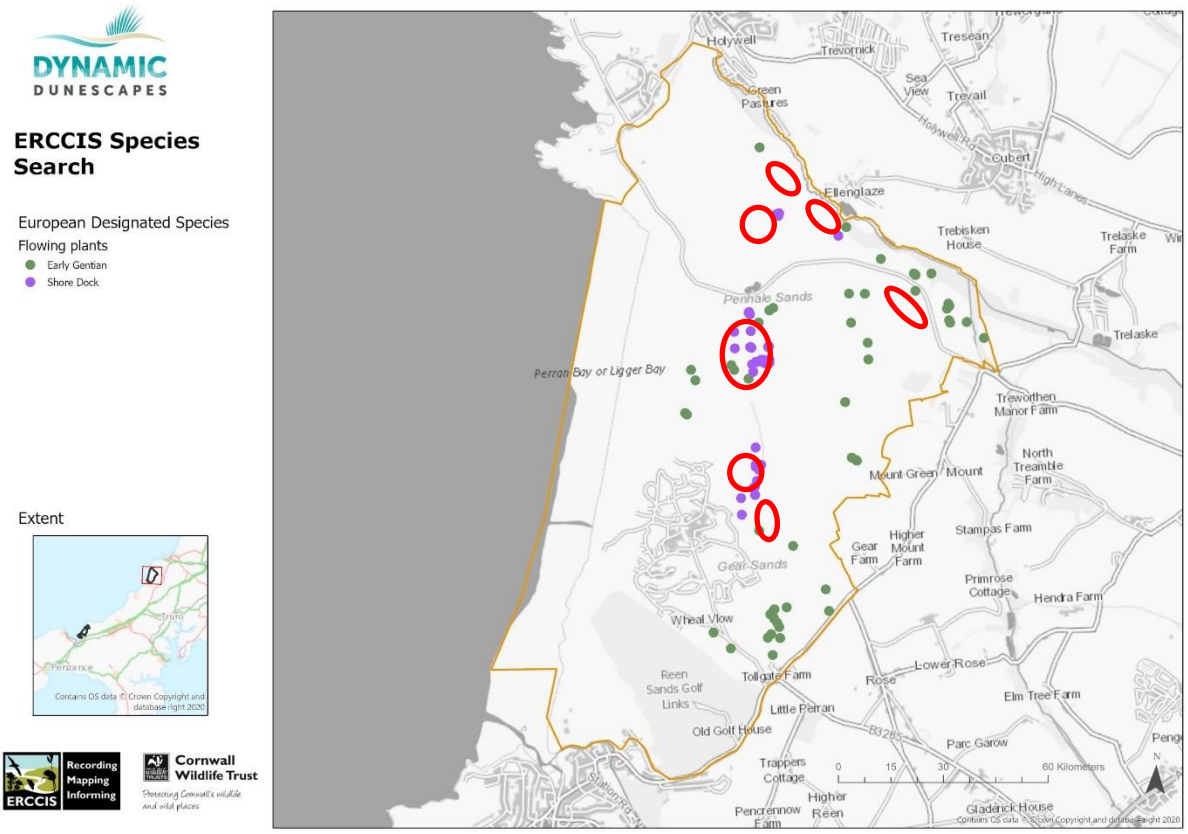
Appendix 3 - Designated Feature Habitats (work areas marked in black)



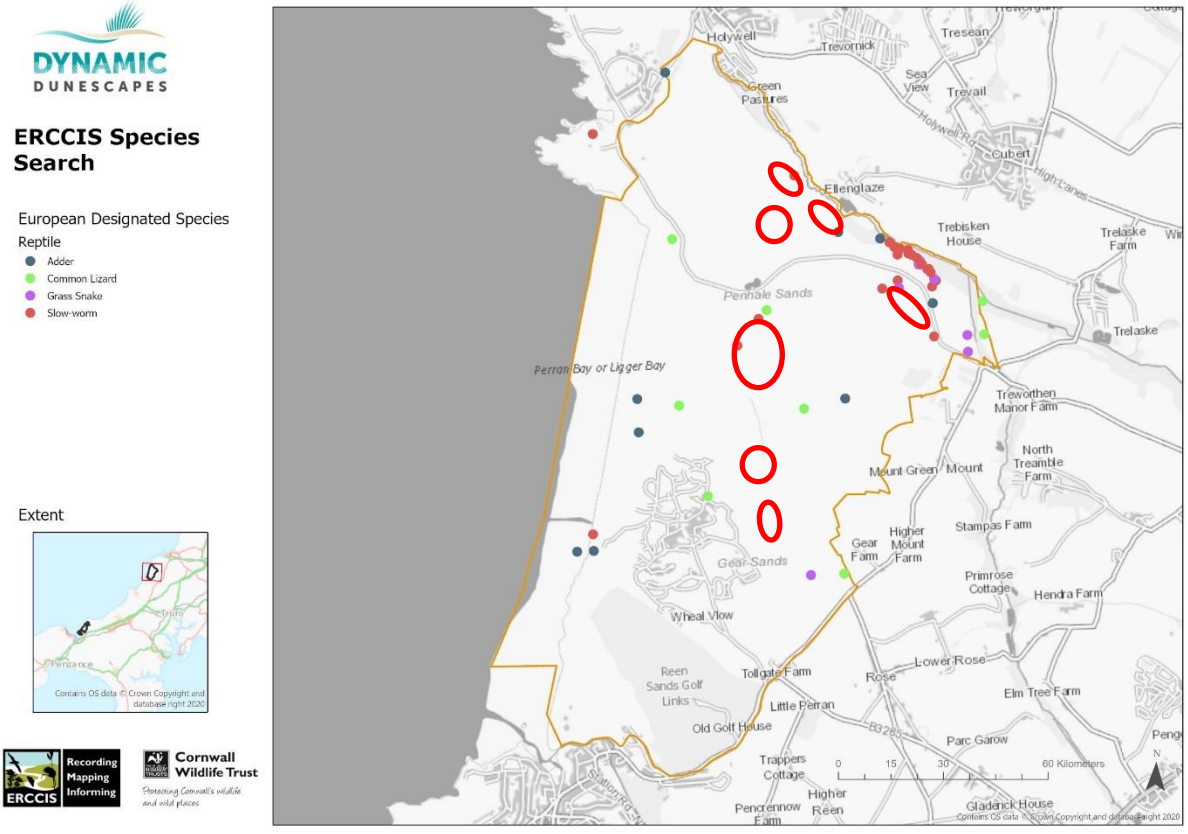
Appendix 4 - Designated Feature Habitats – Slacks (work areas marked in black)



Appendix 5 - European designated species flowering plants (work areas marked in red)



Appendix 6 - European designated species Reptiles (work areas marked in red)



Appendix 7 – European designated species terrestrial mammals (work areas marked in red)