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Ecological Impact Assessment

Survey site:

Shaft 699m From Meadow Rose 631m From Unnamed Road, Trevellas Airfield, Perranporth, Cornwall TR5 0XS

Client:

Professor Daniel Conley

Survey date:

1st March 2024

Project:

This report is prepared to inform a planning application with Cornwall Council. The proposal is described as:

Upgrade a shore-based high-frequency (HF) ocean Wellen radar (WERA) system

Survey methodology and legislation can be found in the Arbtech Supplement: PEA Methodology and Legislation - 2024.

The site survey was undertaken by Merry Anderson BA(Hons) Consultant Ecologist Bat Level 3/4 Survey Class Licence CL19 &CL20 GCN CL08					
Date of survey	Temperature (°C)	Humidity (%)	Cloud Cover (%)	Wind (km/h)	Rain
01/03/2024	6	93	100	12	light

Ecological Survey Factor Conclusion, Impact or Recommendations	Detailed using desk study and site survey (carried out under cold and blustery weather conditions). Any specific limitations noted within relevant section. The report has been informed by ERCCIS records within the last 10 years. This table may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.
Locality and Designated Sites	
Summary of Survey Findings	The site is located at Trevellas Airfield in Perranporth, Cornwall at National Grid Reference SW74095319 and currently comprises a network of 16 receiver and 4 transmitter antenna, with cabling and conduit linking to a signal box. The proposed development will be a temporary installation which will be removed once the research has ended in approximately 6 months. A search of ERCCIS has returned the following statutory designations within 2km, as shown in the table below.

Cornwall National Landscape	Within designation	Cornwall AONB is unique, it is the only AONB that has 12 separate sections totalling almost a third of Cornwall, 958 sq. km (370 square miles). Cornwall is a beautiful part of the world, with a world-renowned coastline, a UNESCO World Heritage Site designation, and a host of natural and heritage features.

Cligga Head Site of Special Scientific Interest (SSSI)	Within designation	Most of the site is covered in maritime heath, with occasional patches of maritime grassland. Bracken and scrub occur only in small clumps. Much of the area around Cligga Head has been disturbed by mining in the past but this is being recolonised by Ling Calluna vulgaris. Western Gorse, Ulex gallii, and Bell Heather Erica cinerea occur elsewhere, forming extensive areas of maritime heathland on the less disturbed southern area
Bristol Channel Approaches Special Area of Conservation (SAC)	400m west	Marine areas, Sea inlets Annex 2 species 1351 Harbour porpoise
Trevellas Coombe (CK2.3) County Wildlife Site (CWS)	Within 2km of the site	The site consists of a small section of cliff and intertidal zone at Trevellas Porth. There is a mosaic of habitats, generally maritime heath and grassland grading into bracken and mixed scrub inland. The maritime heath extends to the cliff edge, wind clipped where exposed, and is co-dominated by heather and western gorse with locally frequent bell heather. Patches of maritime grassland, mainly bristle bent and red fescue, and areas of scrub dominated by European gorse, bracken and blackthorn occur in and around the heath.

			BAP Priority Habitats: Lowland Heathland BAP Priority Species: Lepidoptera recorded include silver-studded blue, small heath, rosy rustic and small square-spot; also records of adder, common lizard and otter. Other notable species: Nationally Rare moss; Nationally Scarce balm-leaved figwort and Near Threatened hairy greenweed. Amber Listed willow warbler, meadow pipit and kestrel and badger.
Foreseen Impacts	The proposed development to extend the line of receiver antenna northeast from the signal box will encroach into the Cligga Head SSSI. The current location of the existing receivers is currently not within the SSSI. The new proposed location for the transmitter antenna will encroach into the SSSI. No impacts to the Bristol Channel Approaches SAC are anticipated from the development		
Recommendations	Consultation with Natural England and the Cornwall AONB is required regarding the proposed installation within the Cligga Head SSSI and Cornwall National Landscape.		
Habitats and plants (see habitat map in appendix 1, location plan in appendix 2 and proposal plan in appendix 3). Botanical species are described with reference to the DAFOR scale (D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare).			

Summary of Survey Findings	u1b developed land sealed surface, g1a 10 lowland acid grassland, scattered scrub The survey has been conducted in winter which has limited the identification of some vegetative species, including notable or priority plant species. The seasonality of the survey has not impeded the identification of priority habitat types. The site extends over approximately 0.5km. The main signal box is located in an area of hardstanding on the edge of the Cligga Head SSSI. The signal box is a shipping container where the conduit and cables terminate.

Fig 1 Shipping container signal box

Fig 2 original conduit and cables with vegetation growth

h3d bramble scrub, g1c bracken

In small patches around the signal box is acid grassland extending to dense bramble scrub, a tarmac road and an area of bracken and mixed scrub comprising patches of gorse (O), blackthorn (O), goat willow (O) and holly (O) that are on the periphery of the heathland habitat. Grassland fringes along the roads and paths comprises fescue (D), cocks foot (R), Molinia (O), common bent (A), sedum (A), ribwort plantain (A), ivy (O) and various hawkbit rosettes.

The bramble scrub is dense and impenetrable between the signal box and tarmac road to the north. Beyond the road is an area of dense bracken with rare stands of daffodil and montbretia. The bracken gives way to mixed gorse, blackthorn

and bramble scrub before meeting with another tarmac road. The proposal is to extend the line of receiver antenna 320m northeast. A new line of conduit and cables will be laid overground between the new receiver antenna and the signal box.

Fig 3 dense bramble between the container and road

Fig 4 tarmac road within the cable run

Fig 5 dense bracken within the Cligga Head SSSI land

Fig 6 exising line of receiver antenna on the edge of SSSI

h1a lowland heathland

To the southwest of the signal box a new set of transmitter antenna is proposed, in close proximity to the existing (as shown by the position of the client in fig 8.

A second new set of transmitter antenna is proposed further southwest. These will be connected with an overground conduit and cables. The proposed location of the new transmitters is within dwarf shrub heathland dominated with ling and bell heathers and dwarf western gorse. Lowland heath is recognised as a Habitat of Principal Importance.

Fig 7 dwarf shrub coastal lowland heath

Fig 8 position of first set of new transmitter antenna

	 Fig 9 Existing post with antenna	 Fig 9 cable and conduit feeding off antenna
Foreseen Impacts	The proposal to extend the line of receiver antenna will require the installation of new timber posts and wire stays. The new antenna will continue along from the line of existing antenna, currently installed in the fringe of grassland, into heathland habitat comprising mainly bracken and gorse. The antenna installation is not considered to have a significant impact on the heathland habitat, given the small size of the posts and stay pegs, however a small amount of damage will occur to the ground beneath each post. The proposed new antenna are taller at 9m and may require larger posts and an additional set of guide stays.	

	The clearance of vegetation to lay the connecting 16 cable conduit, however, will result in the removal of habitat at or near to ground level in order to achieve a direct run of conduit between the individual antenna and between the signal box. Clearance activities may cause disturbance, injury or death to protected species, specifically reptiles, that may be present sheltering or hibernating within this habitat. Original proposals to bury the cable under the road will necessitate the use of high-powered digging equipment to remove the tarmac road surface. The location of the proposed transmitter antenna is within lowland heath dwarf shrub vegetation. Damage to this habitat resulting from the installation of antenna masts is anticipated to be low impact. Vegetation clearance should not be required to lay the over ground feed between the sets of transmitter antennas as the 4 cable conduit is smaller. Full regeneration of the site is expected once the installation is removed.
Recommendations	The original application in 2010 (PA10/05731) received the following recommendations from Natural England regarding the installation of the antenna and cabling: 1. No heavy machinery to be used for installation or decommissioning of equipment within the SSSI without prior agreement in writing from Natural England. 2. Disturbance of the ground to be kept to a minimum, by the re-use of existing posts for installation of TX antenna where possible. 3. Prior to any excavations being carried out within the SSSI mineral rich topsoil/ heathland/grassland turves should first be removed, carefully stored, and then restored to their former locations once the work/antenna installation is complete. 4. No imported materials, including concrete, to be used for infilling trenches or excavations for fence posts, within the SSSI, without prior agreement in writing from Natural England. 5. All antenna, cabling and associated infrastructure to be removed from site at the end of the project. In addition to the above the following recommendations must be implemented.

	6. Installation will take place outside of the main hibernation season for reptiles (November -March) to reduce the risk of injury or killing protected species. 7. Posts will be installed by hand using a hand-held post driver to remove the requirement for heavy machinery on SSSI land. 8. The proposal to create a trench within the tarmac road should be reconsidered. An alternative is to use a temporary road cable ramp which will allow the conduit and cables to remain above ground whilst protected from vehicles passing over. 9. Methodical and precautionary measures to vegetation clearance. This is detailed in the species-specific recommendations for reptiles. 10. To avoid unnecessary trampling over protected habitat, designated routes in and out of the development site will be established, making use of existing footpaths where possible. 11. Whenever possible, conduit will be laid between the stands of lowland heath shrub without the requirement for vegetation clearance. Where the habitat is tall and dense, such as bramble scrub, the minimum width of clearance will be removed. Clearance will be carried out using powered hand tools only.
Invasive / Non-native species	
Summary of Survey Findings	Montbretia was identified growing on the verge of the bracken. This was not in flower at the time of the survey however records from ERCCIS show this species growing frequently within the heathland with 55 records returned.
Foreseen Impacts	Plant material removed may result in the spread of this invasive species into other areas of protected habitat.
Recommendations	Should it be required to clear this vegetation, best practice measures should be adopted for the safe disposal of plant material. This will include bagging any cut vegetation to be taken from site and either incinerating or disposing of according to local policy.
Invertebrates	

<table>
<tr><td>Summary of Survey Findings</td><td>As the site walkover was conducted during wintery conditions, no invertebrate species were observed during the survey, however a review of the ERICCIS data returned the following records:
Butterflies -small heath, wall, silver studded blue, grayling
Moths -rustic, Cornish midget, broom moth, ear moth, garden tiger, lackey, long legged tabby
Bumblebees -heath bumblebee, brown banded carder bee, moss carder bee, buff banded mining bee, hawksbeard mining bee, silvery leaf-cutter bee.
Heathland heather and gorse provide year-round habitat for invertebrate populations. Tussocky grassland will provide habitat for breeding butterflies and moths.</td></tr>
<tr><td>Foreseen Impacts</td><td>The small scale and temporary installation of the antenna and cables is not anticipated to affect populations of local invertebrate species.</td></tr>
<tr><td>Recommendations</td><td>Given the minimal impact on habitats used by invertebrate species, no further survey is considered necessary.</td></tr>
<tr><td colspan="2">Bats</td></tr>
<tr><td>Summary of Survey Findings</td><td>The heathland and maritime slope vegetation has abundant inspect and invertebrate foraging resources which will provide prey for bats emerging from local roosts.
A review of the Magic database returned the following European Protected Species License (EPSL) for bats
<table>
<tr><td>2019-40958-EPS-MIT</td><td>Common pipistrelle, greater horseshoe, lesser horseshoe</td><td>Damage and destruction of a resting place 1.9km northeast</td></tr>
</table>
A review of the ERCCIS data returned the following bat species within 2km.
<table>
<tr><td>Greater horseshoe bat</td><td>4 records 2013-2020</td><td>2 roost records with the nearest being 440m northwest</td></tr>
<tr><td>Lesser horseshoe bat</td><td>2 records 2013-2020</td><td>1 roost record 1.7km south</td></tr>
<tr><td>Brown-long-eared bat</td><td>3 records 2019-2020</td><td>Field observation</td></tr>
</table></td></tr>
</table>

	Common pipistrelle	31 records 2012-2020	17 roost records with the nearest 1.2km southeast
	Natterer's	2 records 2013-2019	1 roost record 1.8km south
	Soprano pipistrelle	4 records 2012-2020	Field observation
	Western barbastelle	3 records 2020	Field observation
	Noctule bat	7 records 2019-2020	Field observation
Foreseen Impacts	The proposed development is not considered to have a negative impact on bats using the habitats surrounding the site. There is no artificial light used during the installation or use of the site post development. There will be no impact to surrounding structures that may be used by bats.		
Recommendations	None.		
Birds			
Summary of Survey Findings	Due to the inclement weather during the survey there were few birds foraging the heathland during the survey. Observed using the existing antenna as a perch was a stonechat which was frequently seen throughout the survey. The lowland heath habitat of blackthorn scrub, gorse and heather will provide nesting opportunity for a diversity of heathland specialists. The surrounding grassland will be used by ground nesting birds such as skylark and lapwing. A review of the ERCCIS data found the most abundant species around the development to be skylark however, historical records for lapwing are present. Peregrine falcon, kestrel, barn owl, linnet and meadow pipit were returned in close proximity to the site.		
Foreseen Impacts	The proposed installation and vegetation clearance may result in the disturbance and destruction of ground-nesting birds nests and the disturbance and subsequent abandonment of other nests within the surrounding shrub habitat.		
Recommendations	Works to install the antenna is scheduled for April which is within the main breeding bird season.		

	Immediately prior to any works commencing, an inspection on the vegetation within and surrounding the proposed installation must be conducted to check for evidence of nesting birds. Should active nests be found the installation must provide a 7m buffer from the nest or be delayed until the young have fledged. Caution must be adopted when walking into heathland habitat as nests may be obscured by vegetation. Ground nests and their eggs are usually hidden to avoid predation. It is therefore essential the same route in and out of heathland habitat is used and checked daily for the presence of nests during works.
Reptiles	
Summary of Survey Findings	The site contains very high value habitat for common reptiles species, comprising heathland shrub, bracken, bramble and acid grassland. Tarmac road verges and short grass fringes provide optimal basking and ecotone habitat. The site has abundant foraging opportunity and will support sheltering, breeding and hibernating reptiles within the dense tussocky shrubs and grassland. Given the density of the vegetation, numbers of reptiles are likely to be vastly under-recorded. A review of the Magic database did not return any EPSLs for fully protected reptiles. A review of the ERCCIS data returned the following records Adder -1 record Common Lizard -4 records Grass snake -2 records Slow worm -7 records The most common reptile recorded nearest to the development is common lizard.
Foreseen Impacts	Despite the small scale of the proposed installation, there is a risk that reptiles could be present in the vicinity of the works. These could be injured or killed without mitigation.

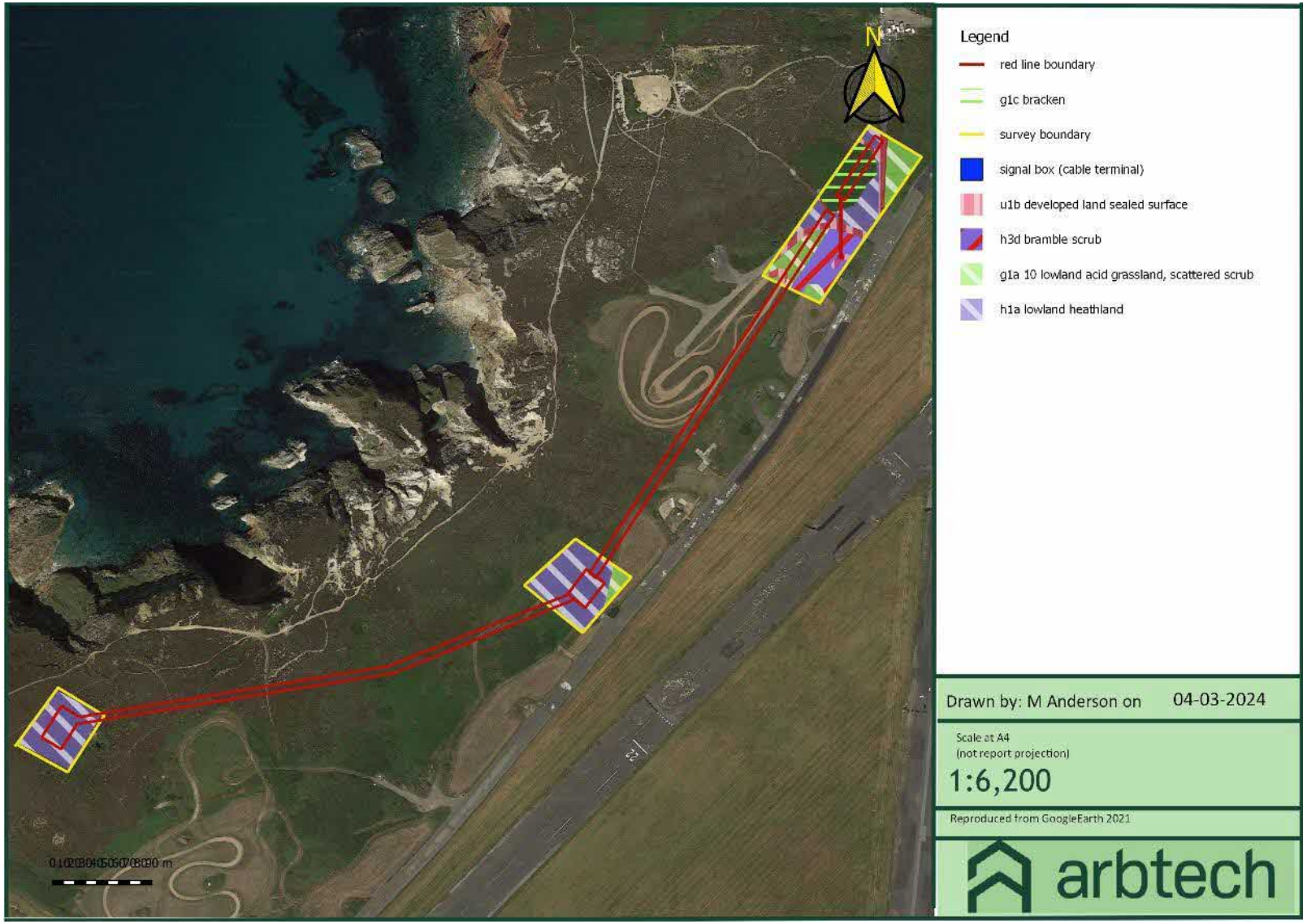
Recommendations	A precautionary working method will be implemented for widespread reptiles during construction, including the following measures: Vegetation clearance should be undertaken outside of the reptile hibernation period (Nov-Mar). Any tall scrub should be double cut with a first cut to 15cm above ground level. This will allow any reptiles to move from the work area into surrounding refuge habitat. Cut vegetation should be removed from the work area to prevent recolonisation. The work area should be left overnight to allow any remaining reptiles to disperse. The vegetation can then be cut further to allow for the installation of the conduit. Where posts are to be installed, the area should be intentionally disturbed using a stick to encourage the movement of reptiles from the work area. This should be followed by a finger tip search with gloved hands to check for the presence of any torpid reptiles within the intended post location. Torpid reptiles cannot move quickly so may still be present after the area has been disturbed. If a reptile is discovered, this should be left to move freely away from disturbance. Adders must not be moved by hand. Once the area has been confirmed clear, the antenna post will be driven into the ground by hand using a post knocker. Conduit should be fed over or between the shrub vegetation wherever possible without the need to remove vegetation.
Amphibians	
Summary of Survey Findings	A review of the ERCCIS data returned no records for amphibians. A review of the OS aerial map found no ponds within 500m of the proposed site. As such, there is considered a lack of amphibian breeding habitat in the locality and populations of common amphibians are anticipated to be low. Some highly mobile species such as common toad will use ephemeral waterbodies for breeding and may disperse into the heathland during their terrestrial phase. This site is

	not within the natural distribution range for great crested newt and as such, this species is considered absent for the locality.
Foreseen Impacts	Despite the small scale of the proposed installation, there is a very small risk that common amphibians could be present in the vicinity of the works. These could be injured or killed without mitigation.
Recommendations	As above for reptiles.
Badger	
Summary of Survey Findings	The site contains no suitable woodland to support colonies of badgers however opportunistic foraging badgers may feed within the maritime grassland and peripheral heathland vegetation. A review of ERCCIS data returned 5 records for badger with two road fatalities indicating badgers are present in surrounding woodland and using roads to navigate the landscape. The nearest record is 1.5km east of the site.
Foreseen Impacts	The proposed development will not impact a badger sett and is not anticipated to impact foraging or commuting badgers.
Recommendations	None.
Riparian animals	
Summary of Survey Findings	The site contains no habitat to support riparian mammals. The site is elevated above coastal waters and not within close proximity to a watercourse or inlet. A review of the ERCCIS data retuned no records for otter or water vole. A review of Magic returned no EPSLs for otter.
Foreseen Impacts	None.
Recommendations	None.
Hazel dormouse	
Summary of Survey Findings	A review of the Magic database returned no dormouse EPSLs within 2km of the site. A review of the ERCCIS data returned one historical record from 2010. The site is isolated from woodland habitat where dormouse populations may

	be present. The heathland lacks sufficient arboreal vegetation and although bramble and shrub trees are present, these are fragmented throughout the landscape. Dormice are known to use heathland and coastal scrub habitats; however, the open expanse of the airfield and the presence of roads and runways severs connectivity to woodland where populations of breeding dormice may be present. It is therefore considered highly unlikely dormice are present within the scrub and dwarf shrub vegetation within the proposed development.
Foreseen Impacts	None.
Recommendations	None.
Other e.g. hedgehog	
Summary of Survey Findings	Similarly to badgers, hedgehogs are likely to use the site for forage however, being small and opportunistic, this species may be found sheltering within dense vegetation and scrub habitats. A review of the ERCCIS data returned 13 records for hedgehog, mainly within built up areas. Being urban tolerant, hedgehogs can survive exclusively in developed landscapes where food and shelter is present. As such, recorded sightings will be higher in urban areas. However, it is anticipated unrecorded numbers of hedgehog will use the heathland and surrounding habitats for forage and shelter. As such, their presence within the site cannot be discounted.
Foreseen Impacts	Given the small scale of the proposed installation, no impacts to hedgehog populations is anticipated from the proposed development, however dense vegetation clearance may injure or kill sheltering hedgehogs if present.
Recommendations	A precautionary working method will be adopted including the following measure: An inspection within dense vegetation will be conducted to check of the presence of sheltering hedgehogs. Where a line of sight cannot be established through dense vegetation, such as bramble scrub, the vegetation will be deliberately disturbed to encourage any hedgehogs to move away from the work area.

	Cutting of dense vegetation will be conducted incrementally to establish a line of sight. Vegetation will be cut to 30cm above ground level and inspected for the presence of hedgehogs before being cut to 15cm. Should a hedgehog be discovered, this should be left to freely move out of the work area. If a torpid hedgehog is found, this should be carefully moved away from the work area using gloved hands.

Appendix 1: Survey/Habitat map




N
Legend
red line boundary
g1c bracken
survey boundary
signal box (cable terminal)
u1b developed land sealed surface
h3d bramble scrub
g1a 10 lowland acid grassland, scattered scrub
h1a lowland heathland
Drawn by: M Anderson on 01-03-2024
Scale at A4
(not report projection)
1:1,300
Reproduced from GoogleEarth 2021
arbtech
0 10 20 30 40 50 60 70 80 90 m


N
Legend
red line boundary
survey boundary
g1a 10 lowland acid grassland, scattered scrub
h1a lowland heathland
0 10 20 30 40 50 60 70 80 90 m
Drawn by: M Anderson on 04-03-2024
Scale at A4
(not report projection)
1:1,000
Reproduced from GoogleEarth 2021
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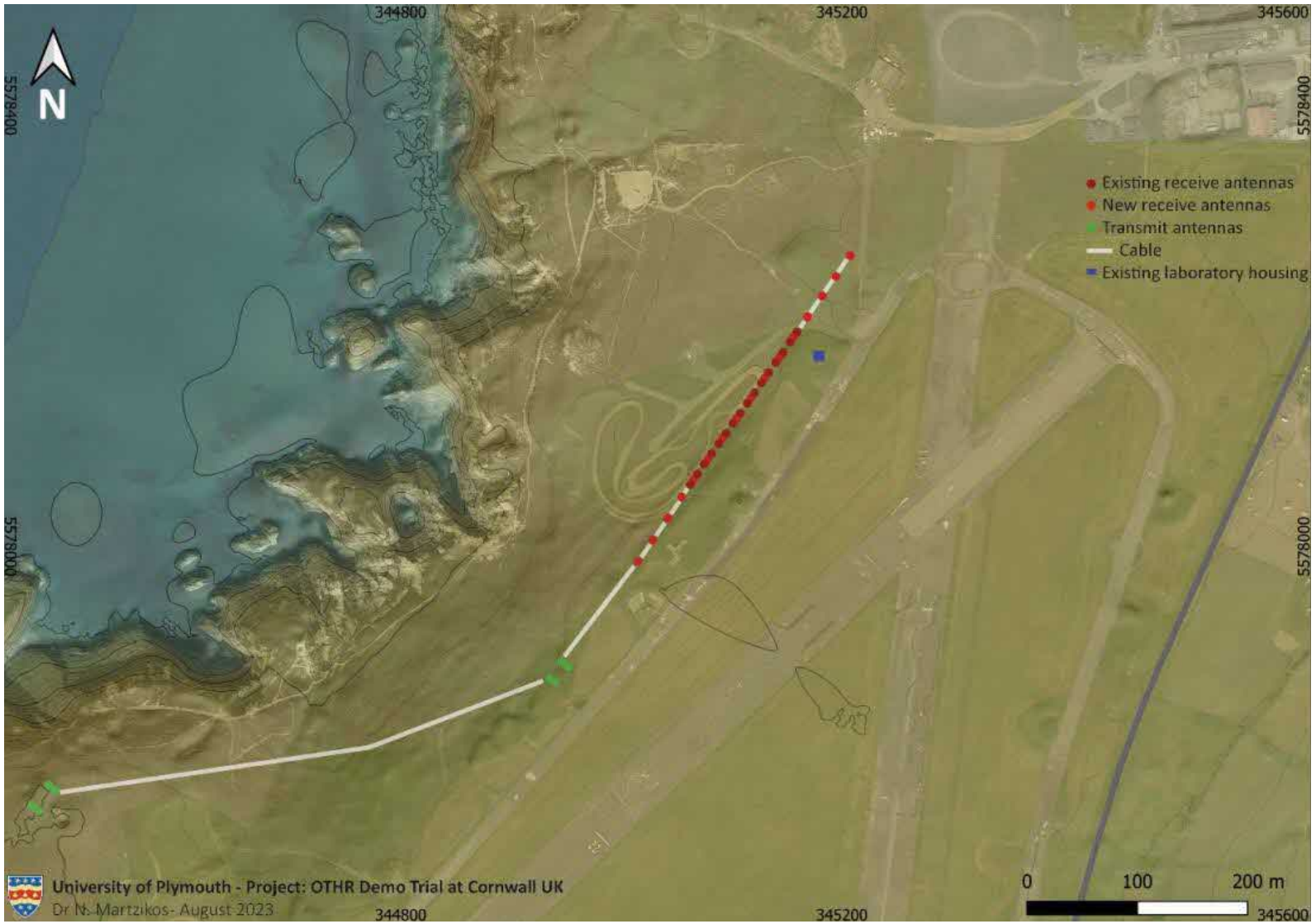
N
Legend
red line boundary
survey boundary
h1a lowland heathland
0 10 20 30 40 50 60 70 80 90 m
Drawn by: M Anderson on 04-03-2024
Scale at A4
(not report projection)
1:1,000
Reproduced from GoogleEarth 2021
arbtech

Appendix 2: Location map

Appendix 3: Proposed plan



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