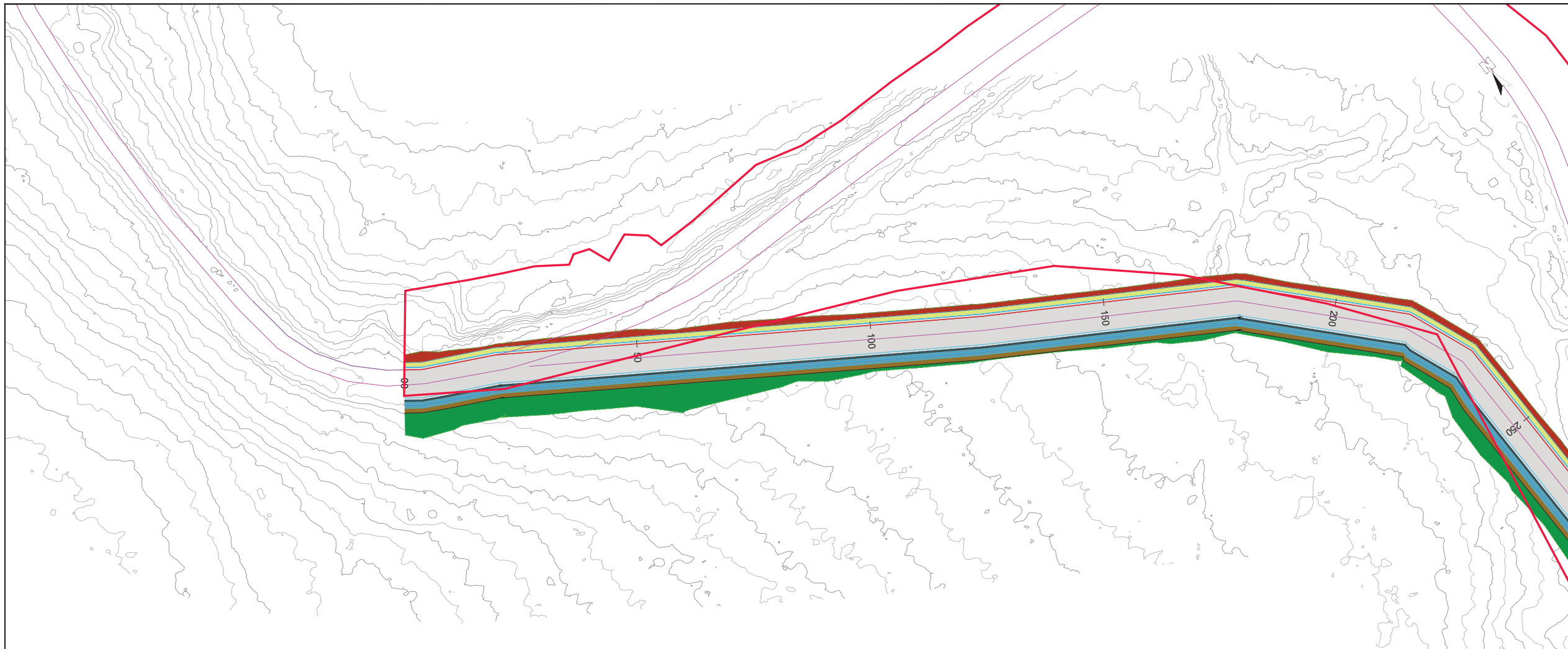
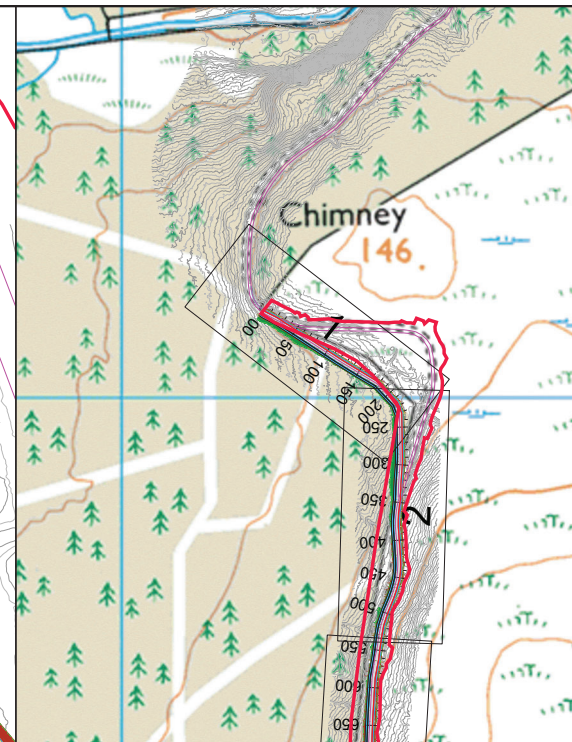


Appendix 4

Assessment of the Construction Footprint of the Common Access (Segment 2) Within the Caithness and Sutherland SAC

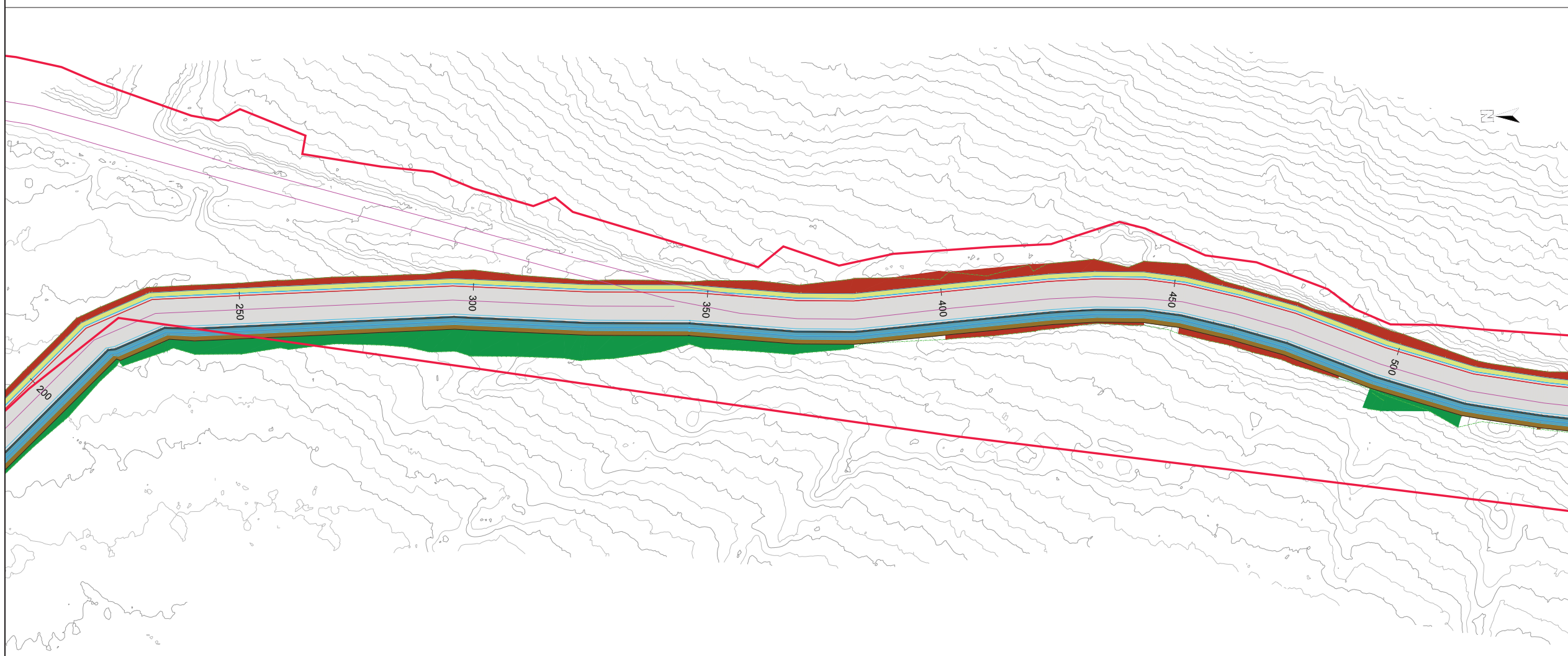


PLAN 1

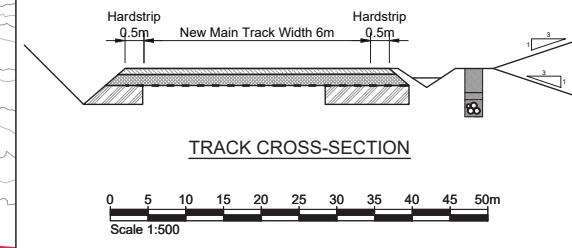


KEY PLAN

- LEGEND**
- EDGE OF HABITAT
 - EXISTING TRACK
- PROPOSED**
- TRACK
 - EARTHWORKS CUT
 - EARTHWORKS FILL
 - VERGE
 - DITCH
 - DITCH RE-FORMED



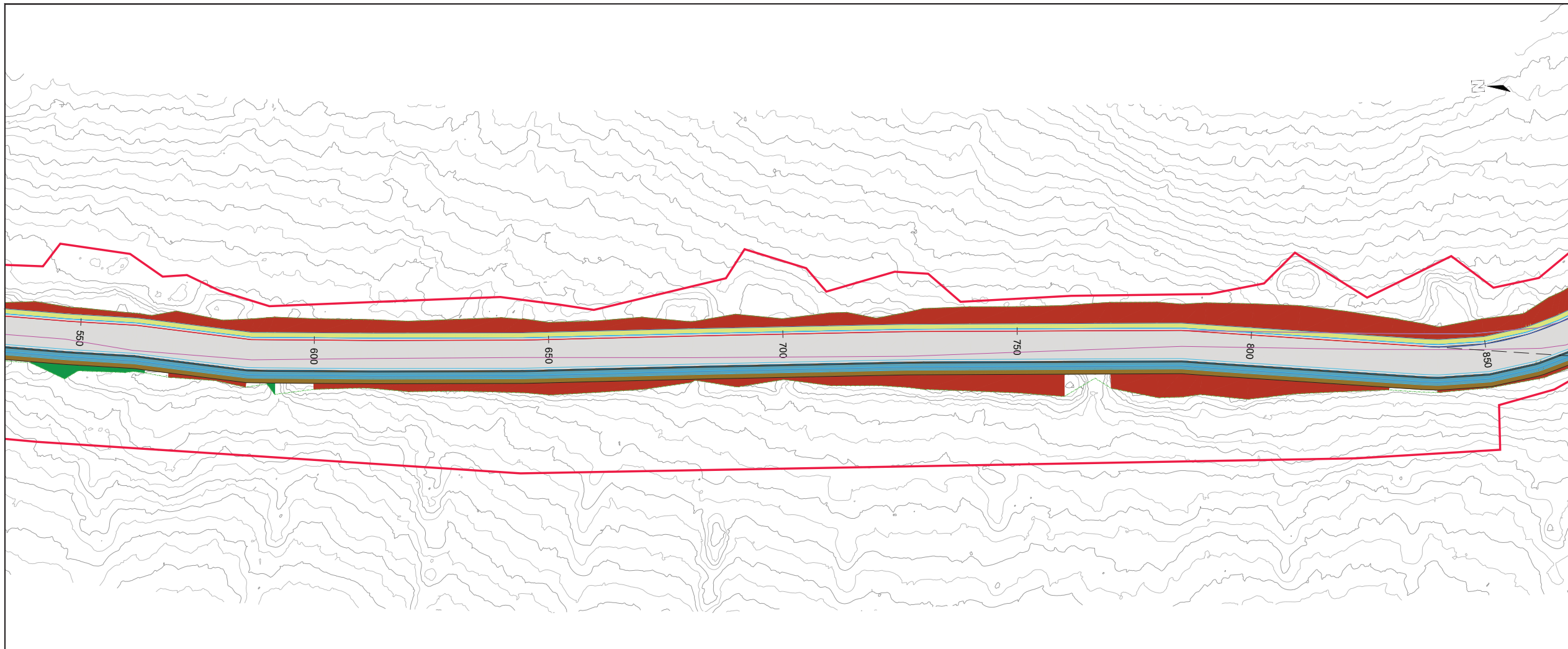
PLAN 2



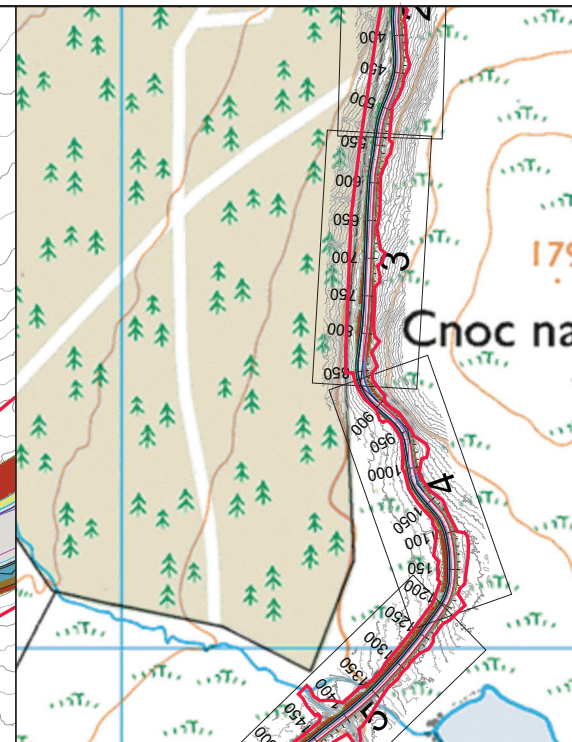
Rev	Rev. Date	Purpose of revision	DL	GS	LW
R0	30/06/20	FIRST ISSUE.			



Project		STRATHY SOUTH WIND FARM	
Title		COMMON ACCESS TRACK - PROPOSED	
Drawing status		FOR INFORMATION	
Scale	1:500 @ A1	Lower Left Coord	-
		Upper Right Coord	-
Drawing number	LN000019-CVL-SK-0057-01	Revision	R0

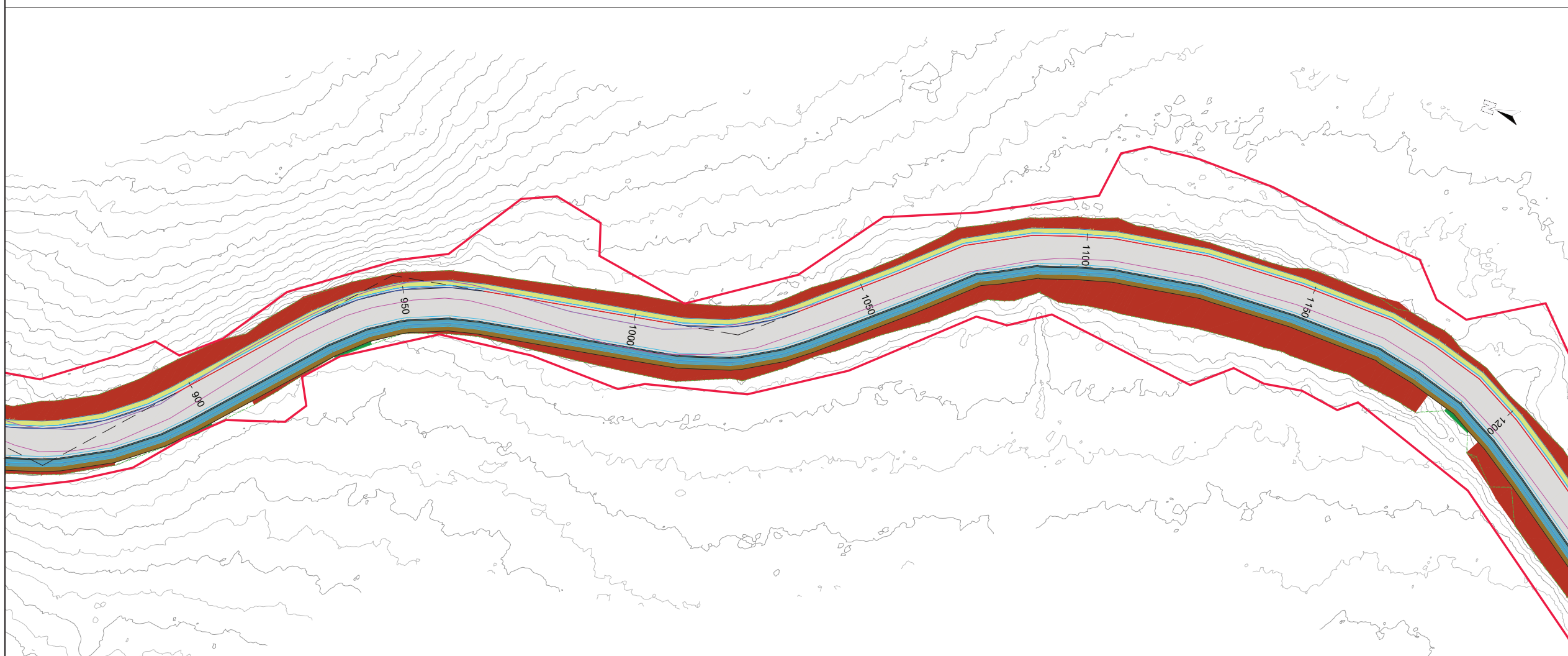


PLAN 3

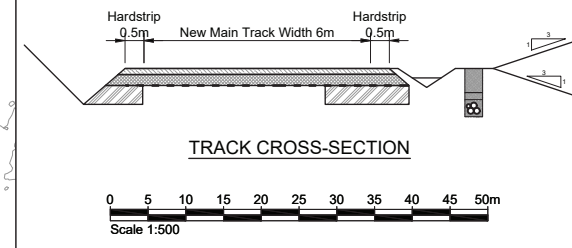


KEY PLAN


- LEGEND**
- EDGE OF HABITAT
 - EXISTING TRACK
- PROPOSED**
- TRACK
 - EARTHWORKS CUT
 - EARTHWORKS FILL
 - VERGE
 - DITCH
 - DITCH RE-FORMED



PLAN 4



Rev	Rev. Date	Purpose of revision	DL	GS	LW
R0	30/06/20	FIRST ISSUE.			

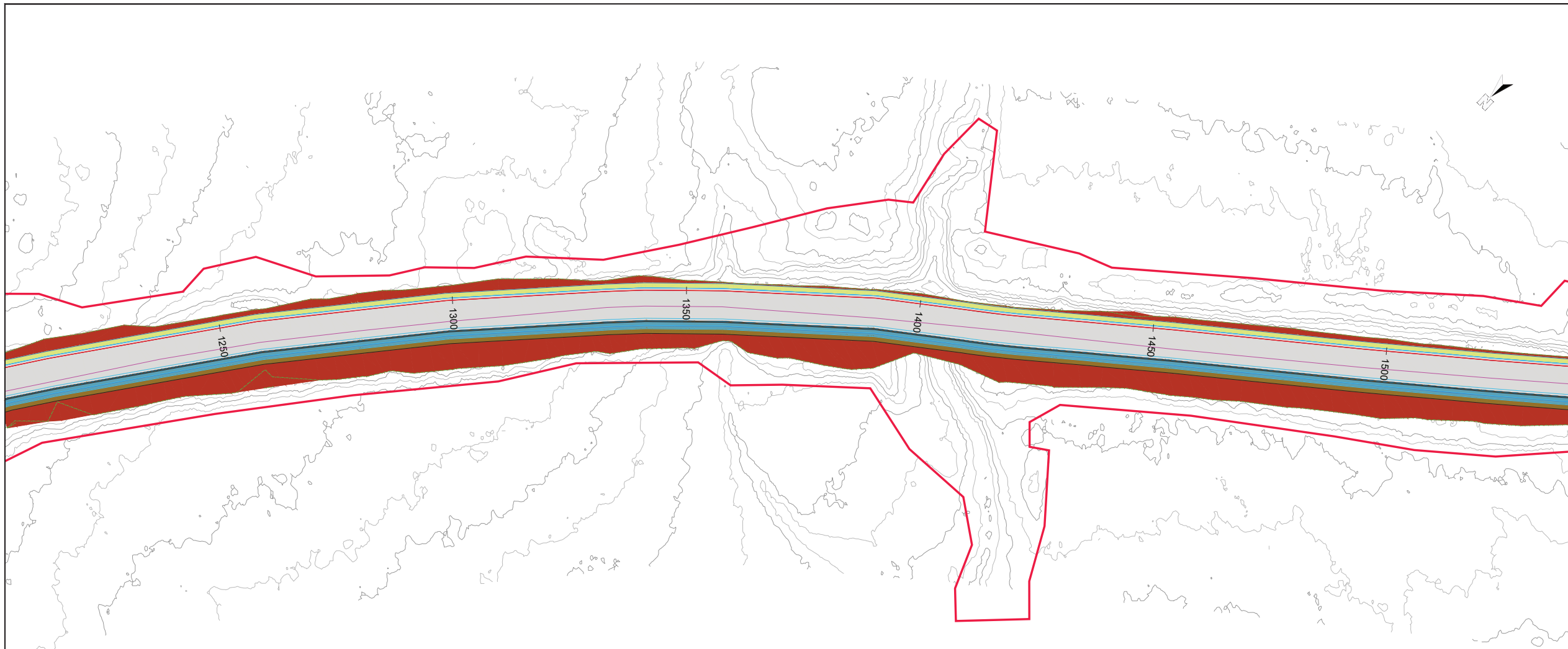


STRATHY SOUTH WIND FARM

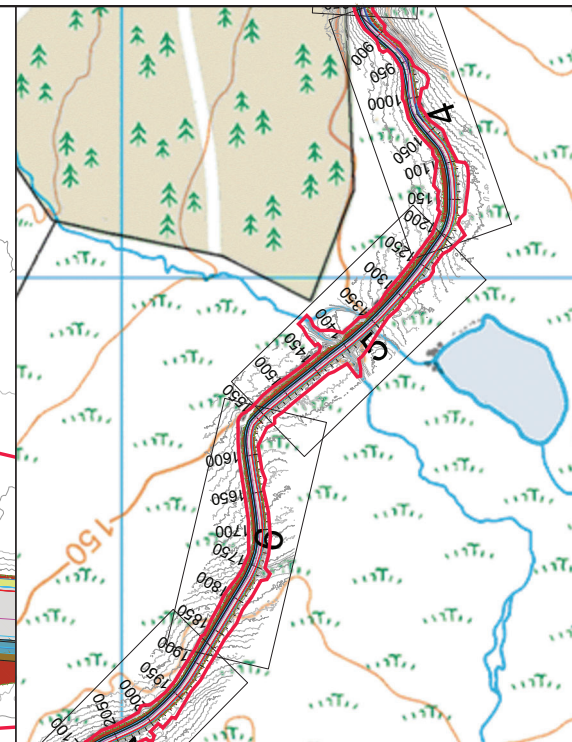
COMMON ACCESS TRACK - PROPOSED

FOR INFORMATION

Scale 1:500 @ A1	Lower Left Coord - Upper Right Coord -
Drawing number LN000019-CVL-SK-0057-02	Revision R0

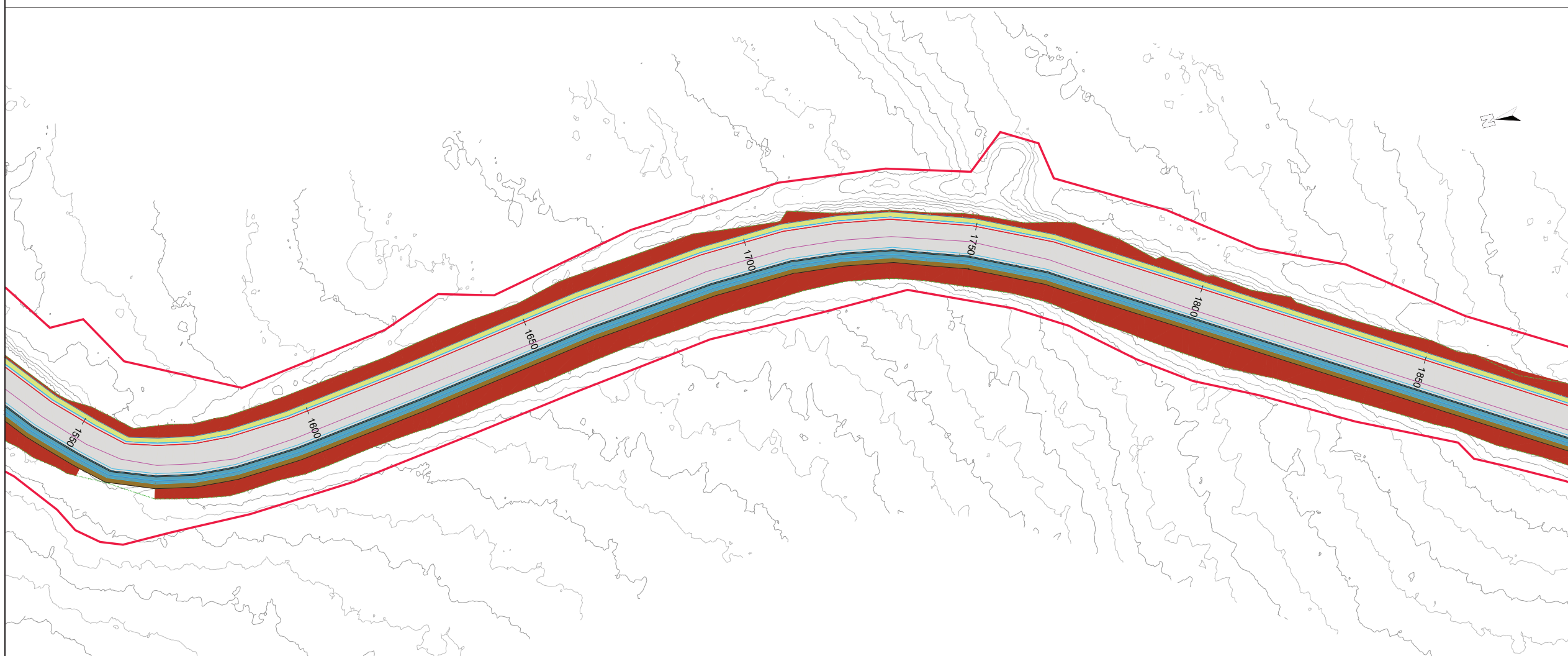


PLAN 5

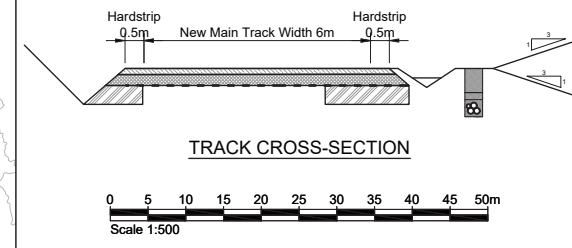


KEY PLAN

- LEGEND**
- EDGE OF HABITAT
 - EXISTING TRACK
- PROPOSED**
- TRACK
 - EARTHWORKS CUT
 - EARTHWORKS FILL
 - VERGE
 - DITCH
 - DITCH RE-FORMED



PLAN 6



RO	30/06/20	FIRST ISSUE	DL	GS	LW
Rev	Rev. Date	Purpose of revision	Drm	Chkd	Appd



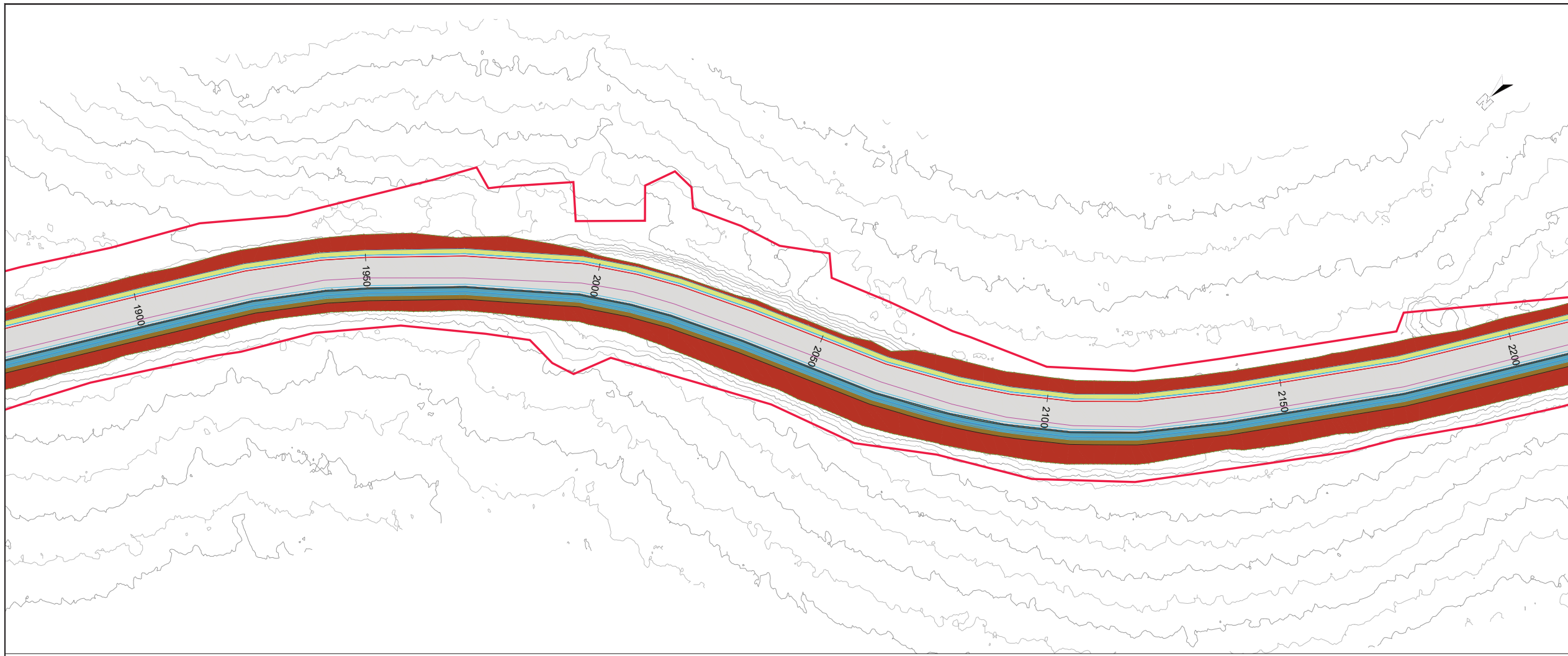
STRATHY SOUTH WIND FARM

COMMON ACCESS TRACK - PROPOSED

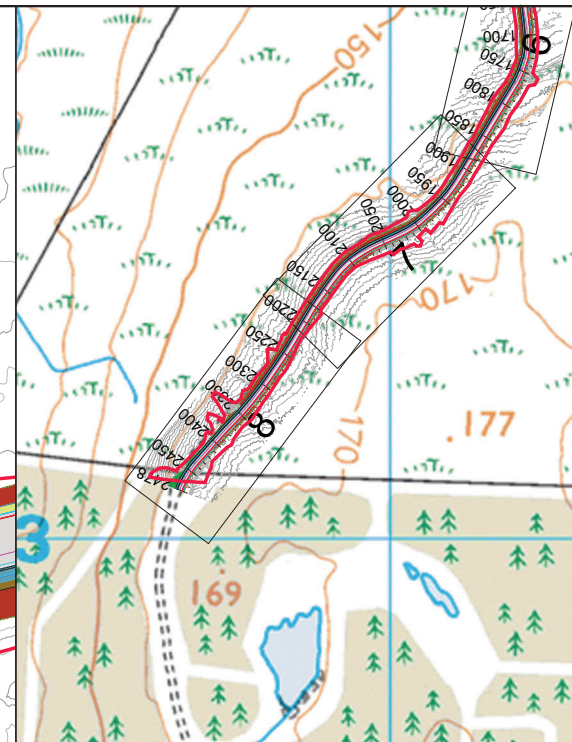
FOR INFORMATION

Scale	1:500 @ A1	Lower Left Coord	-
		Upper Right Coord	-

Drawing number	LN000019-CVL-SK-0057-03	Revision	RO
----------------	--------------------------------	----------	-----------

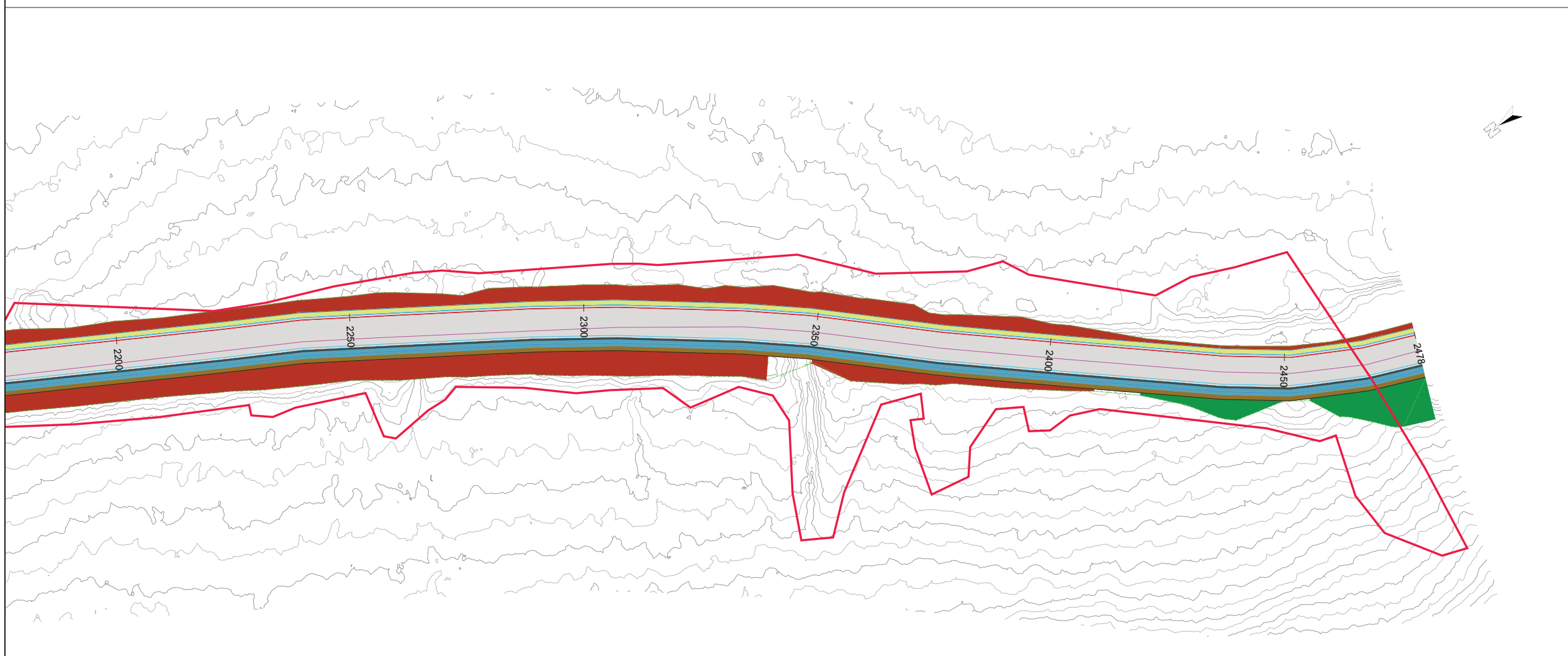


PLAN 7

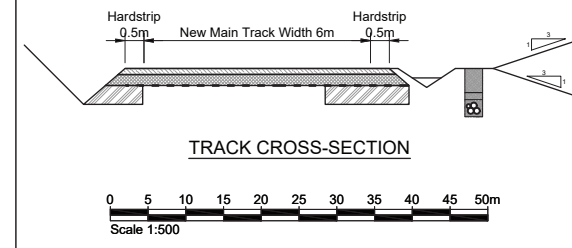


KEY PLAN


- LEGEND**
- EDGE OF HABITAT
 - EXISTING TRACK
- PROPOSED**
- TRACK
 - DITCH
 - EARTHWORKS CUT
 - DITCH RE-FORMED
 - EARTHWORKS FILL
 - VERGE



PLAN 8



Rev	Rev. Date	Purpose of revision	DL	GS	LW
R0	30/06/20	FIRST ISSUE.			



STRATHY SOUTH WIND FARM

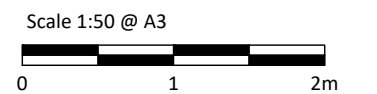
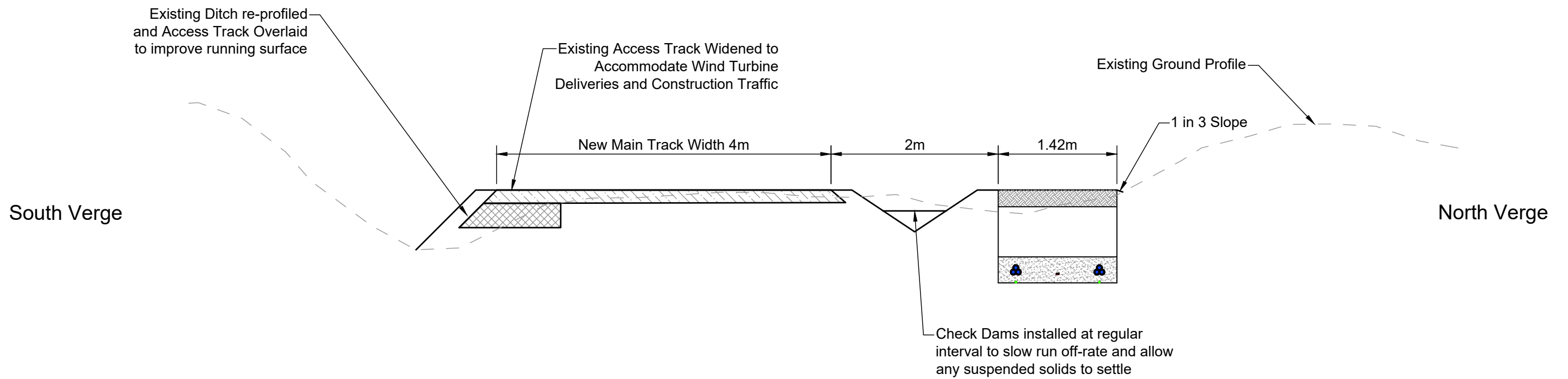
COMMON ACCESS TRACK - PROPOSED

FOR INFORMATION

Scale	Lower Left Coord -
1:500 @ A1	Upper Right Coord -
Drawing number	Revision
LN000019-CVL-SK-0057-04	R0

Appendix 5

Schematic Diagram of the Proposed Construction Methods for the Yellow Bog Track



Rev	Rev. Date	Purpose of revision	Dn	Chkd	Appd
R0	20/05/20	FIRST ISSUE			

Project
STRATHY SOUTH WIND FARM

Title
YELLOW BOG TYPICAL ACCESS TRACK

Drawing status
FOR INFORMATION

Scale
1:50 @ A3

Lower Left Coord -
Upper Right Coord -

Drawing number
LN000019-CVL-SK-0051

Revision
R0

Appendix 6

Strathy South Wind Farm Yellow Bog Access Track Assessment (RPS, 2019)

STRATHY SOUTH WIND FARM

Yellow Bog Access Track Assessment



SEC8591
Yellow Bog Access Track
Assessment
1
07 October 2019

rpsgroup.com

REPORT

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
1	Access Track Assessment	Noah Greaves	Stephen Lockwood	Dr. Simon Zisman	11 Nov. 19

Approval for issue

Dr. Simon Zisman

Simon Zisman 11 November 2019

© Copyright RPS Group Plc. All rights reserved.

The report has been prepared for the exclusive use of our client and unless otherwise agreed in writing by RPS Group Plc, any of its subsidiaries, or a related entity (collectively 'RPS'), no other party may use, make use of, or rely on the contents of this report. The report has been compiled using the resources agreed with the client and in accordance with the scope of work agreed with the client. No liability is accepted by RPS for any use of this report, other than the purpose for which it was prepared. The report does not account for any changes relating to the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

RPS accepts no responsibility for any documents or information supplied to RPS by others and no legal liability arising from the use by others of opinions or data contained in this report. It is expressly stated that no independent verification of any documents or information supplied by others has been made. RPS has used reasonable skill, care and diligence in compiling this report and no warranty is provided as to the report's accuracy. No part of this report may be copied or reproduced, by any means, without the prior written consent of RPS.

Prepared by:

RPS

Noah Greaves
Ecologist

3rd Floor, Belford House, 59 Belford Road
Edinburgh, EH4 3DE

T +44 1315 611 880
E noah.greaves@RPSGROUP.com

Prepared for:

SSE Generation Ltd

Jon Soal
Development Project Manager – Strathy South

T 01738512624
E jon.soal@sse.com

Contents

1	INTRODUCTION	1
1.1	Background	1
1.2	Aims	1
1.3	Limitations	1
2	METHODOLOGY	2
2.1	Small Unmanned Aircraft	2
2.2	Topography Surveys	3
2.3	Ground Truthing	3
3	RESULTS	5
3.1	Aerial Assessment and Habitat Impacts	5
3.2	Topographical Surveys	13
4	CONCLUSION	14
	FIGURES	15

1 INTRODUCTION

1.1 Background

RPS were commissioned in 2019 by Scottish and Southern Energy Generation Ltd (SSE) to undertake aerial mapping using Unmanned Autonomous Vehicles (UAV), colloquially referred to as drones, to assess the potential impact of widening a pre-existing access track at the proposed Strathy South Wind Farm. The track is generally referred to as the Yellow Bog Access Track; the track location is provided in Figure 1.

Strathy South forestry plantation is situated in northern Scotland (central grid reference NH79735, 51494) 8.5km south-southwest of Strathy Village. The site was afforested in the 1980's with commercial conifers, the plantation forming a "horse-shoe" shape. The access track in question runs between the two arms of the horse-shoe linking the east and west areas of the plantation (Figure 1). Surrounding the site and extending through the centre of the horse-shoe, are the Caithness and Sutherland Peatlands Special Protection Area (SPA) and Special Area of Conservation (SAC), respectively designated for their rare breeding bird species and habitats/otfers. The area forms part of the wider Flow Country which is currently being consider for inclusion as a UNESCO World Heritage Site. Widening of the access track will need to take place within areas of disturbed ground, as was agreed with Scottish Natural Heritage (SNH) for the main access track into Strathy South. In this way, likely significant effects on the surrounding SAC/SPA qualifying features would be avoided and therefore the integrity of the SAC/SPA would not be adversely affected.

1.2 Aims

The aims of this report are to:-

- Detail the methods used to assess the potential impacts of widening the access track (the approach used a combination of drone and topographic surveys completed by RPS' UAV and Geodata teams and a vegetation survey carried out by one of RPS' field ecologists);
- Map the extent of disturbed ground that has resulted from the existing access track, delineating this boundary with SAC qualifying habitats;
- Identify areas of current impact into which the required construction works could be targeted thereby reducing further potential impacts to more fragile undisturbed qualifying habitats.

1.3 Limitations

No limitations to the survey and assessment have been identified. All mapping was collected during acceptable flight conditions during periods of high light levels (intermittent sunshine and shadow does cause a degree of striping on the main image, shown in Figure 2a).



Areas of disturbance were ground-truthed by a field ecologist with significant experience of working at the Strathy South forestry plantation, and more widely in the Caithness and Sutherland Peatlands SAC.

2 METHODOLOGY

2.1 Small Unmanned Aircraft

Aerial imagery surveys were undertaken by RPS' Geomatics team using the UAVs listed in Table 1 below.

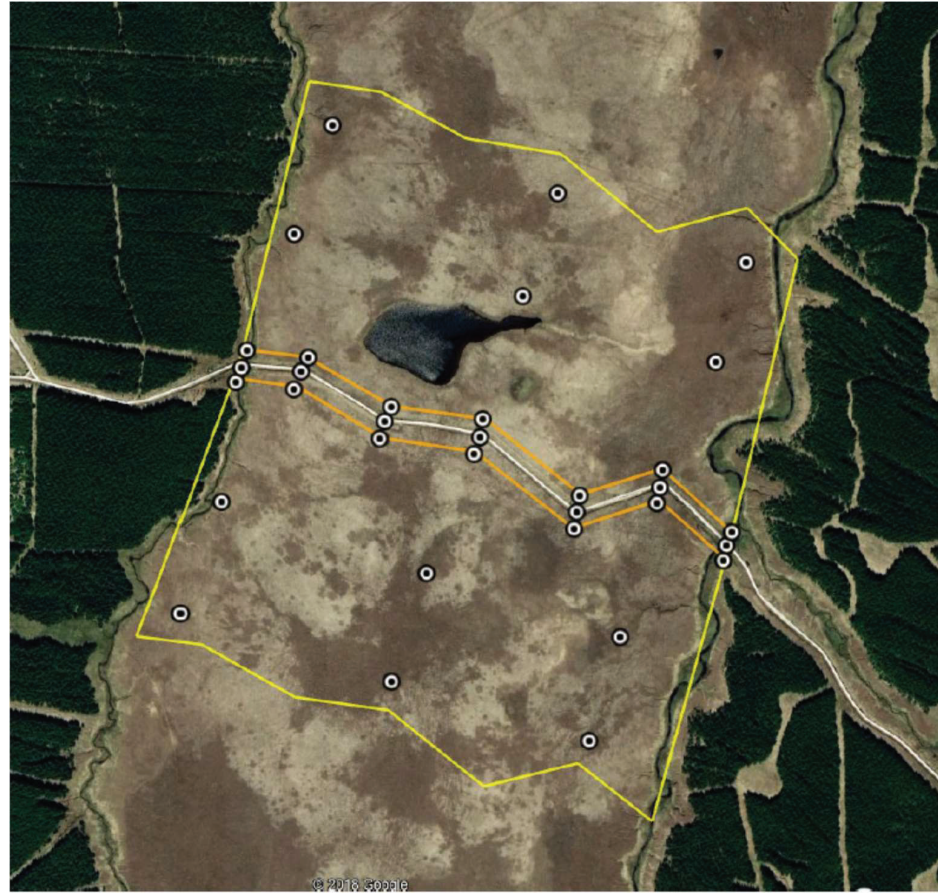
Table 1: UAVs used in the assessment of the Yellow Bog Access Track

UAVs Used to Assess the Yellow Bog Access Track				
UAV	Serial Number	Operating Frequency	Maximum Take-Off Mass (MTOM)	Aircraft Image (Ready for Take-Off)
DJI M210 RTK	0N4DF6L020018	2.400 – 2.483 GHz 5.725 – 5.850 GHZ	6,140g	
DJI M210 (V1)	0G0DF250230005	2.400 – 2.483 GHz 5.725 – 5.850 GHZ	6,140g	

Flight Limitations – Wind / Gust speed – M210 12m/s (28.8 mph), Mavic 2 and Mavic Air 8-10 m/s (18-23 mph)

The area of survey (Flight Box) for the UAV survey is provided in Image 1 below. Two flight boxes were defined; orange for a detailed assessment of the Yellow Bog Access Track and yellow for a wider assessment of the surrounding habitat. Multiple sorties of each flight box were completed to sufficiently cover the area with information downloaded following each flight.

The payload carried to collect a suite of multi-spectral images was a Zenmuse X5S RGB camera which has the capability to take stills at 20.8mp and 4k video footage. During the survey all functions of the camera were managed by data capture software to ensure uniformity. Collected imagery was stored on an SD card located in the main body of the UAV.

Image 1 – Aerial Survey Area (Flight Box) and Associated GPS Reference Markers

On completion of the site-based survey all data collected was processed using appropriate software and georeferenced to ground control points (GCPs) as showing in Image 1 above using ArcGIS.

2.2 Topography Surveys

Topographical surveys were completed following the UAV surveys. These sought to capture detailed information regarding the areas of spoil generated from construction of the current access track, including the shape, height and volume of these areas. Surveys used horizontal and vertical control points based on National Grid OSTN15 and OSGM15 respectively. All levels were recorded to two decimal places with contours at 0.5m intervals.

2.3 Ground Truthing

Following the UAV surveys and subsequent data review ground truthing of the areas of predicted impact was completed by an ecologist familiar with the site and with extensive experience working on peatlands.

In order to check the accuracy of the predicted impact zone caused by the construction of the existing access track a Garmin GPSMAP 64s unit was used. Track mode was activated on the GPS unit, which records a GPS waypoint at set time intervals tracking the route of the user, and the impact zone boundary was walked. The distinctly different vegetation composition of the impact zone from the adjacent unaffected area clearly differentiated the two and allowed for demarcation by the surveyor. Once the entire length of both sides of the access track's impact zone had been walked the track on the GPS unit was saved as a GPX file. This file was then uploaded onto ArcGIS and cross-referenced against the desk-based findings. During the ground truthing surveys the displayed accuracy of the GPS unit was recorded so that this could be considered when comparing ground truthed survey results against the predicted impact zone.

To assess the value of habitats within the impact zone additional information was collected. This included the species composition of vegetation along the length of the track, with attention to the presence of key bog species such as the main peat-forming species (e.g. *Eriophorum spp.* and *Sphagnum spp.*). Areas with similar compositions were compartmentalised to allow an assessment of the value of each compartment to be made. This was further supplemented with pictures and target notes of erosion features (e.g. peat haggings, subsidence, etc.)