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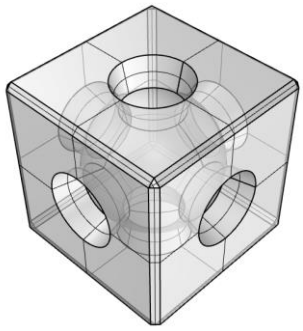

Coastal protection
Subsea infrastructure
Offshore wind
Offshore wave and tidal
Ports and Harbours
Offshore construction

NICE Project

ARC Marine Document

Report for CEFAS

This Report is for CEFAS. It should not be disclosed to other parties without the consent of ARC Marine.

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Marine matt®
Marine crete®
reef cubes®

Revision Record Sheet			
Revision	**Reason for Change**	**Page Number(s)**	**Comment**

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EXECUTIVE SUMMARY

This report is a supplementary document to collate all the additional information required for the marine licence application. This document will contain all additional drawings, images, maps and feedback from consultation with statutory bodies. The feedback gained by the consultation process for the Scientific Exemption application for the project. Following that application, it was requested by MS-LOT that a full marine licence is submitted for the application for the project. In essence, the 3 main consulting bodies, NatureScot (NS), Maritime Coastguard Agency (MCA) and the Northern Lighthouse Board (NLB), were consulted and all concluded that there will be no significant impact from the proposed activities. Copies of their feedback is included with the supporting documentation.

1 INTRODUCTION

1.1 Background

Our mission is to repair the world's damaged marine ecosystems on an unprecedented scale. We're doing this by incorporating eco-friendly artificial reefs across the globe where they not only enhance biodiversity, but they serve as subsea protection, coastal defences, moorings, marine foundations and more. By solving traditional marine problems with our plastic-free, low-carbon technologies, we allow a variety of industries to leave a lasting positive impact on the marine environment. We believe that building with nature-inclusive designs in mind is one of the most powerful ways that we can enrich marine biodiversity.

The Nature Enhanced Cable Protection (NICE) Project is to demonstrate how ARC Marine's carbon neutral Marinematt compares in biological colonisation to traditionally used, high carbon, concrete mattresses. The area that has been selected for use is the MeyGen tidal power generation location in the Pentland Firth Sound in Scotland. ARC will be placing 4 Marinematts and 4 traditional mattresses along a 170m section of one of MeyGens export cables at a depth of ~20-25m.

2 TECHNICAL PROPOSAL

There will be a total of 8 mattresses placed at the MeyGen site. 4 will be ARC Marine's Marinematt and 4 will be the Fleximat provided by SPS. Both types of mattresses will be placed over one of MeyGens export cables and monitored for biological colonisation over the course of the project using ROV photogrammetry comparisons and video surveys.

2.1 Marinematts – 6m x 3m x 0.3m

Marinematts (Figure 1) are a carbon neutral alternative concrete mattress for cable and pipeline protection that ARC Marine are offering to the offshore and coastal markets. ARC Marines mattresses have various Nature Inclusive Design (NID) elements encapsulated within them to cater for a higher biodiversity when compared to traditionally used, high carbon, concrete mattresses.

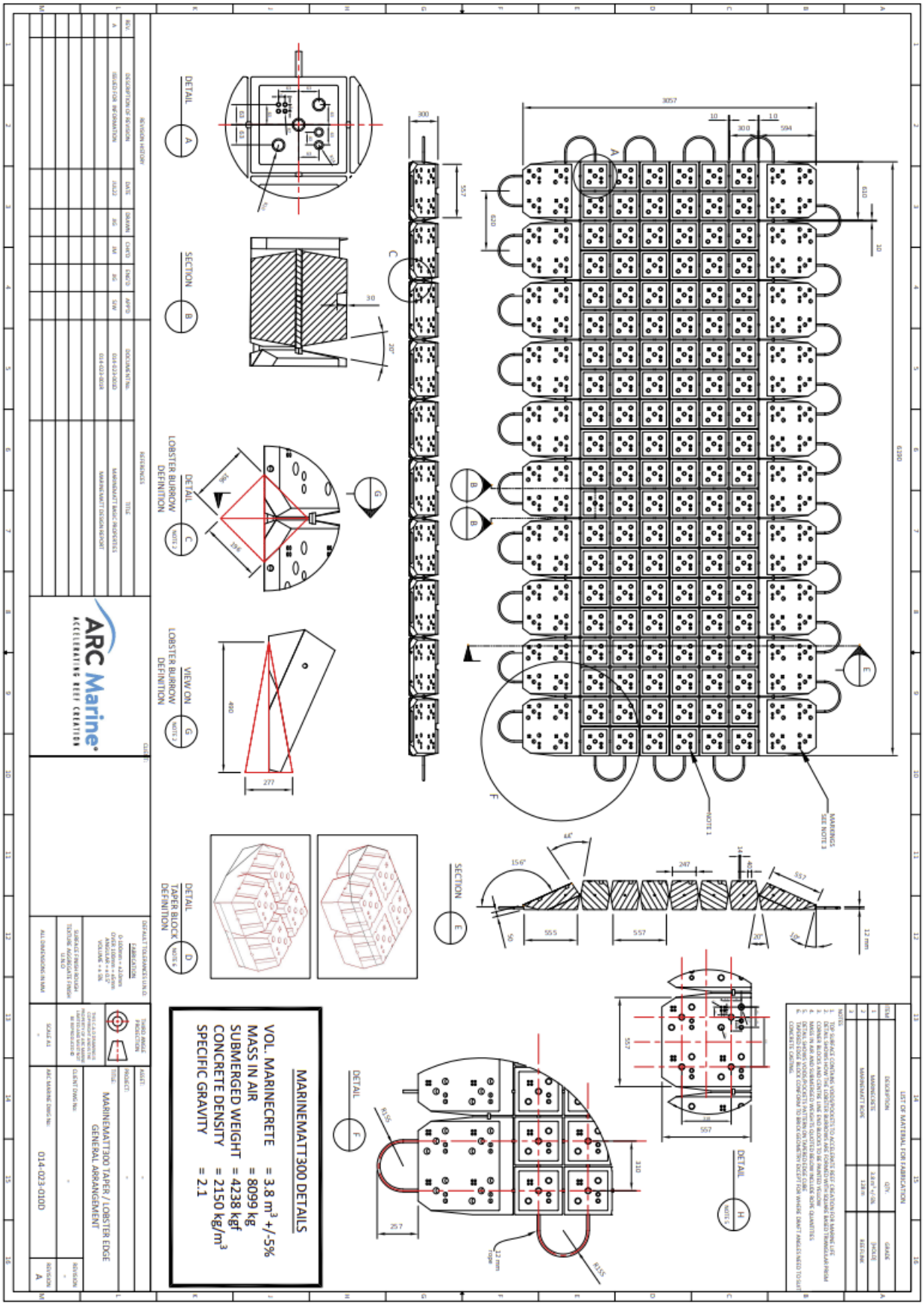

Figure 1: A specification drawing of ARC Marine's Marinematt showing the enhanced surface textures and crustacean burrows.

2.2 SPS Fleximat – 6m x 3m x 0.3m

CEFAS have decided the most suitable mattress for the comparison experiment would be the SPS Fleximat (Figure 2).

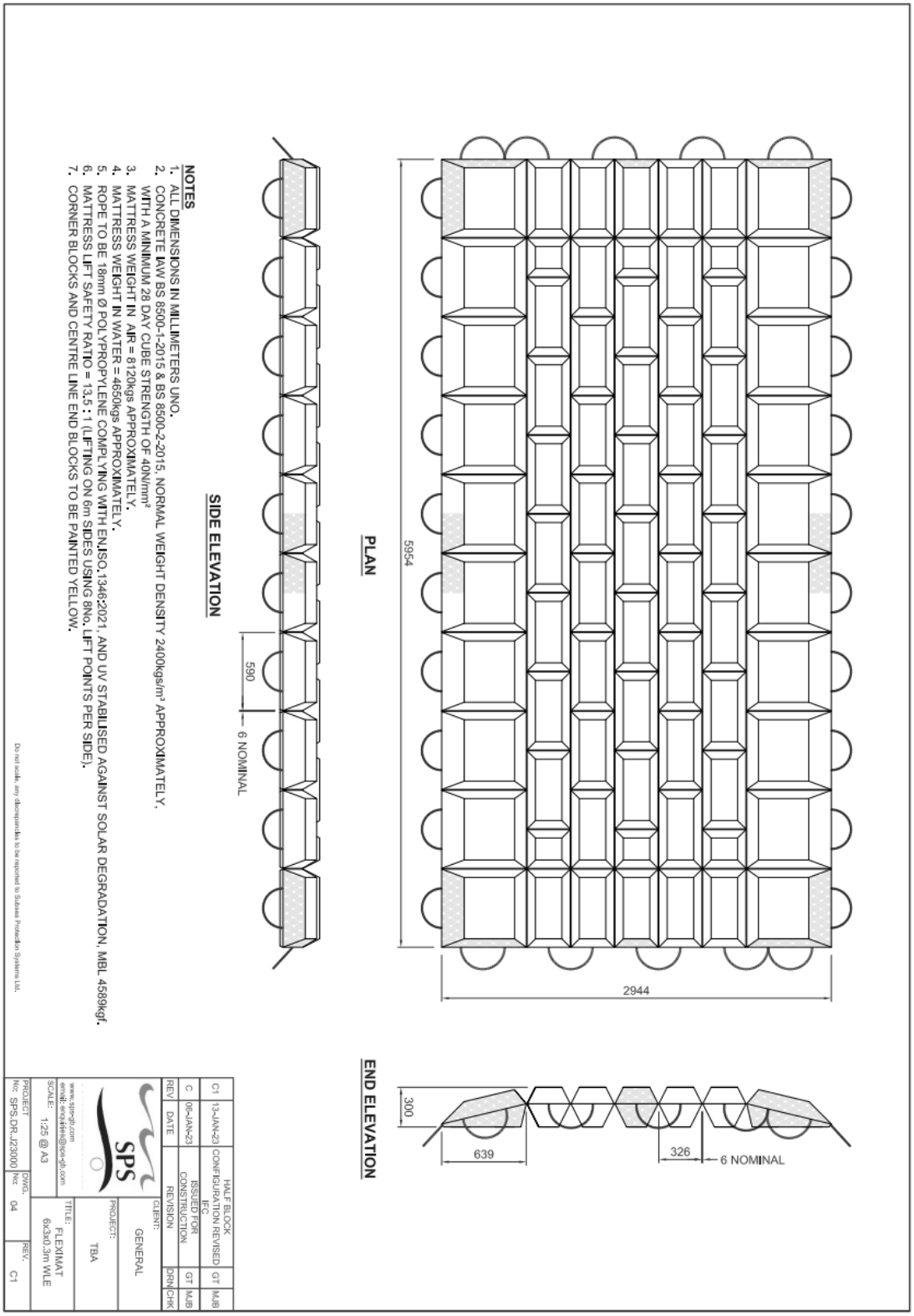

Figure 2: A specification drawing of the SPS Fleximat.

3 LOCATION

The images below are to provide information on the site detailed in the marine licence application.

3.1 MeyGen Site

Located in the Pentland Firth Sound in Northern Scotland the MeyGen tidal power demonstrator (Figure 3) location is the ideal area to perform the experiment. The area within the yellow box in Figure 3 is the area that has been agreed to be the experiment location. The area selected is an area that has a uniform rocky substrate situated at a depth of 18m-19.5m CD.

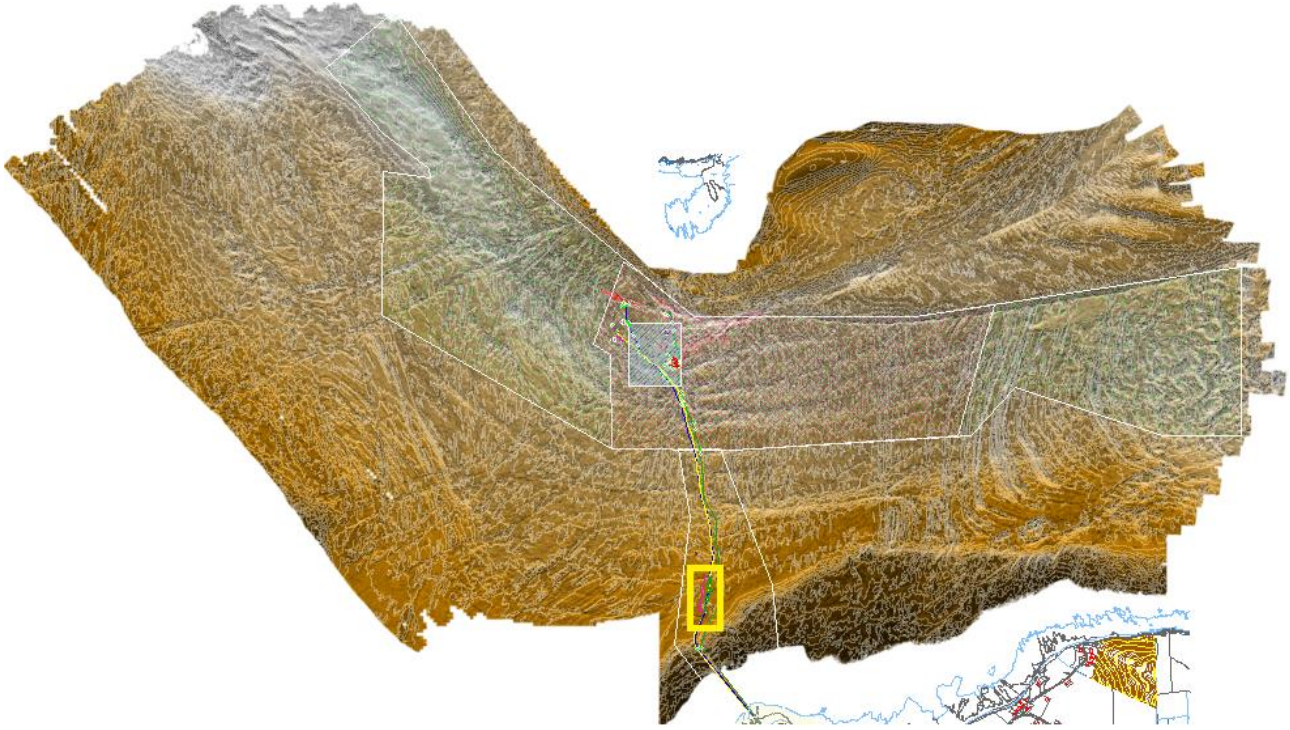

Figure 3: A map showing the MeyGen location with the yellow box showing the ARC experimental area. (GPS co-ordinates are shown in Figure 4)

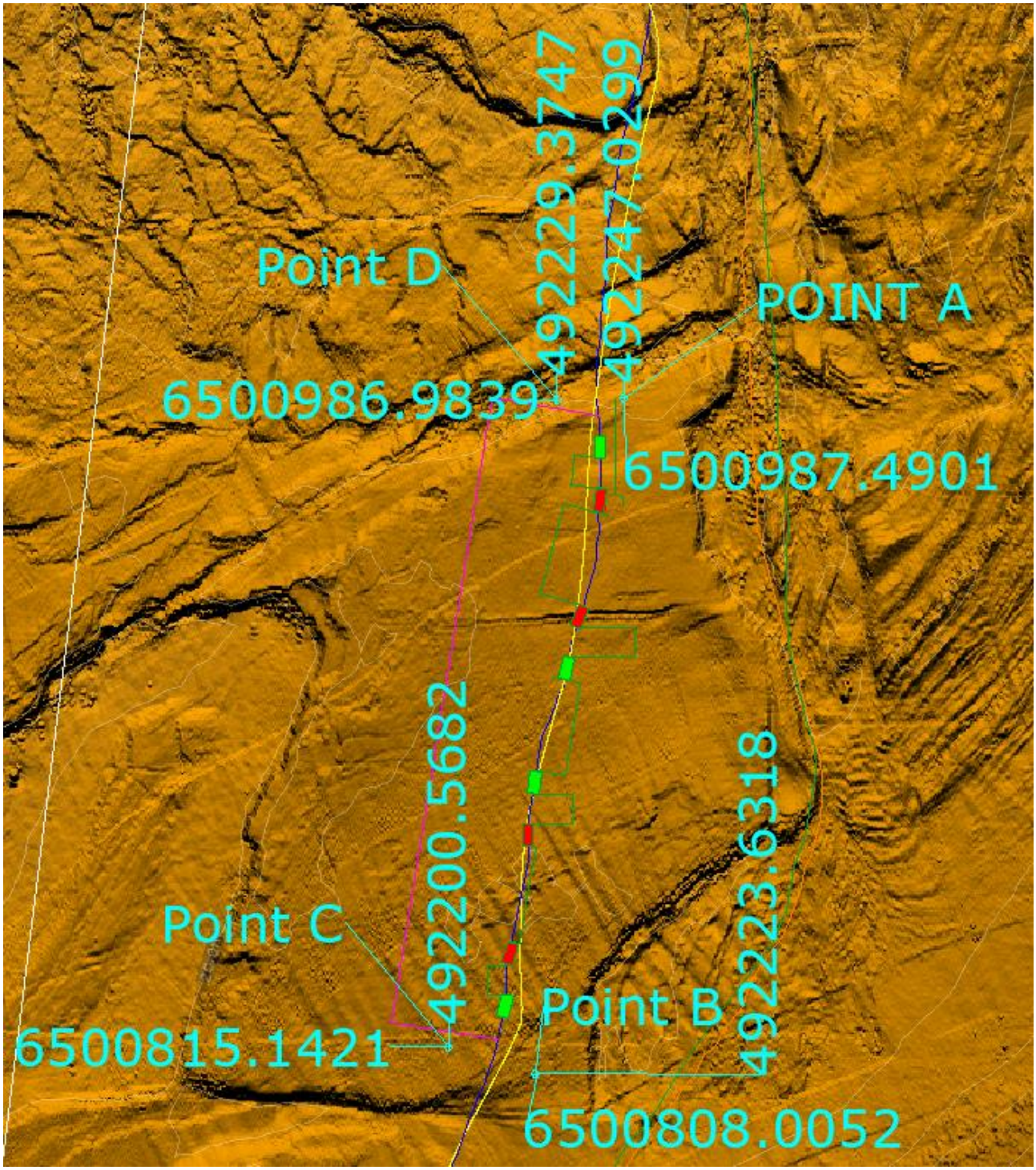

Figure 4: An image showing the MeyGen location, within the yellow box from Figure 3, showing the ARC experimental area and the co-ordinates of each of the points detailed in the Marine Licence application (all co-ordinates on the image are in the UTM84-30N co-ordinate format)

The layout of the mattresses is shown in Figure 5 below. The green rectangles are the Marinematts and the red rectangles denote the Fleximats. The layout is in accordance with our experimental design where we have 4 stations each containing 2 mattresses, 1 Marinematt and 1 Fleximat.

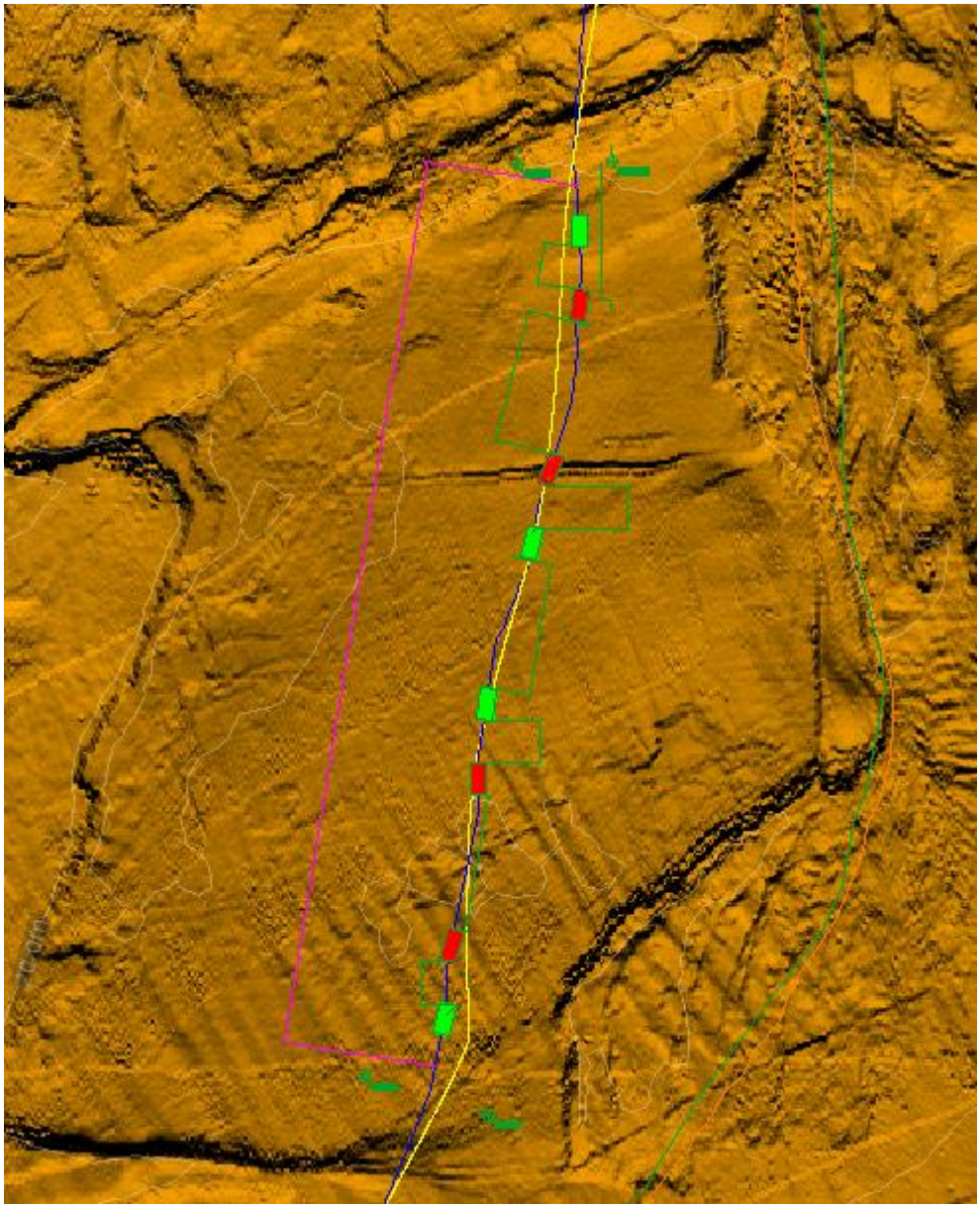

Figure 5: An image showing the layout of the 2 mattress types (green= Marinematt, red=Fleximat) in the yellow area defined in Figure 3.

Figures 6 & 7 (below) are both images taken from ROV surveys of the cables conducted at the end of 2022. The images have been taken from within the proposed experimental area and are representative of the general habitat type across the desired area. The whole proposed area is a rocky kelp habitat.

Figure 6: An image showing an example of the target area. The black line shows the cable position and orientation.

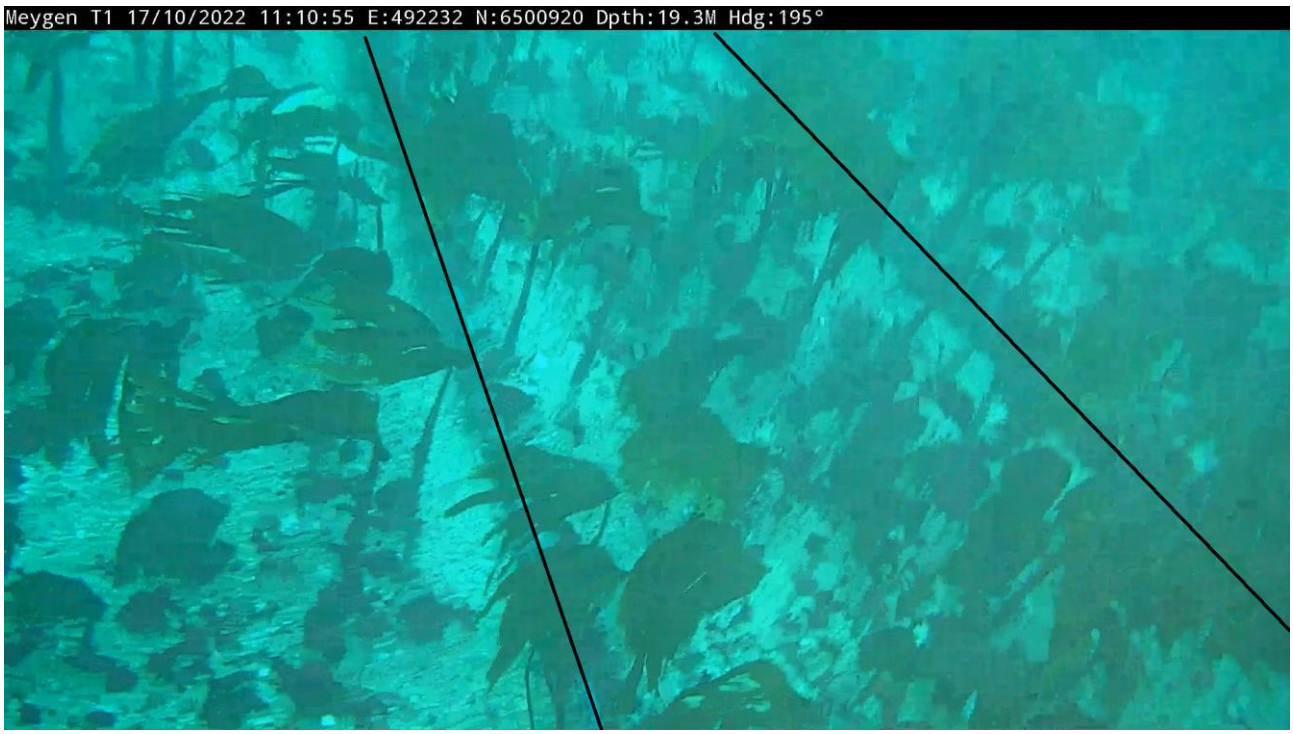

Figure 7: An image showing another example of the target area. The black lines show the cable position and orientation.

4 CONSULTATION FEEDBACK

3 statutory organisations were consulted to assess their view on the impact of the programme of works on their respective authorities. NatureScot (NS), Maritime Coastguard Agency (MCA) and the Northern Lighthouse Board (NLB) all provided feedback stating that they all concluded that the proposed work had a low risk of any significant impact. Attached are copies of the request of consultation sent by Meygen to each of the organisations and their responses. Due to GDPR, personal contact details have been redacted.

4.1 Consultation Request from MeyGen

See files:

230203_MCA_Mattress_ML exemptionFINAL

230203_NLB_Mattress_ML exemptionFINAL

230203_NS_Mattress_ML exemptionFINAL

4.2 NatureScot

See file: 230228_NICE Project_NS response

4.3 Maritime Coastguard Agency (MCA)

See file: 230217_NICE Project_MCA response.

4.4 National Lighthouse Board (NLB)

See file: 230217_NICE Project_NLB response.

5 DECOMISSIONING

The experiment is expected to end within 24 months of deployment. At the end of the project life all the mattresses will be removed from the site. This will be completed by a contractor who has experience in decommissioning mattresses using standard industry methods. Once recovered all the mattresses will be analysed for their biodiversity, cleaned and then recycled where possible. The Marinecrete that the Marinematts are constructed has been proven non-toxic and certified by SGS Intron as safe to use as a recycled aggregate in the construction industry. If it is not possible to recycle the Fleximats, they will be analysed in the same way as the Marinematts, cleaned but then sent to landfill.