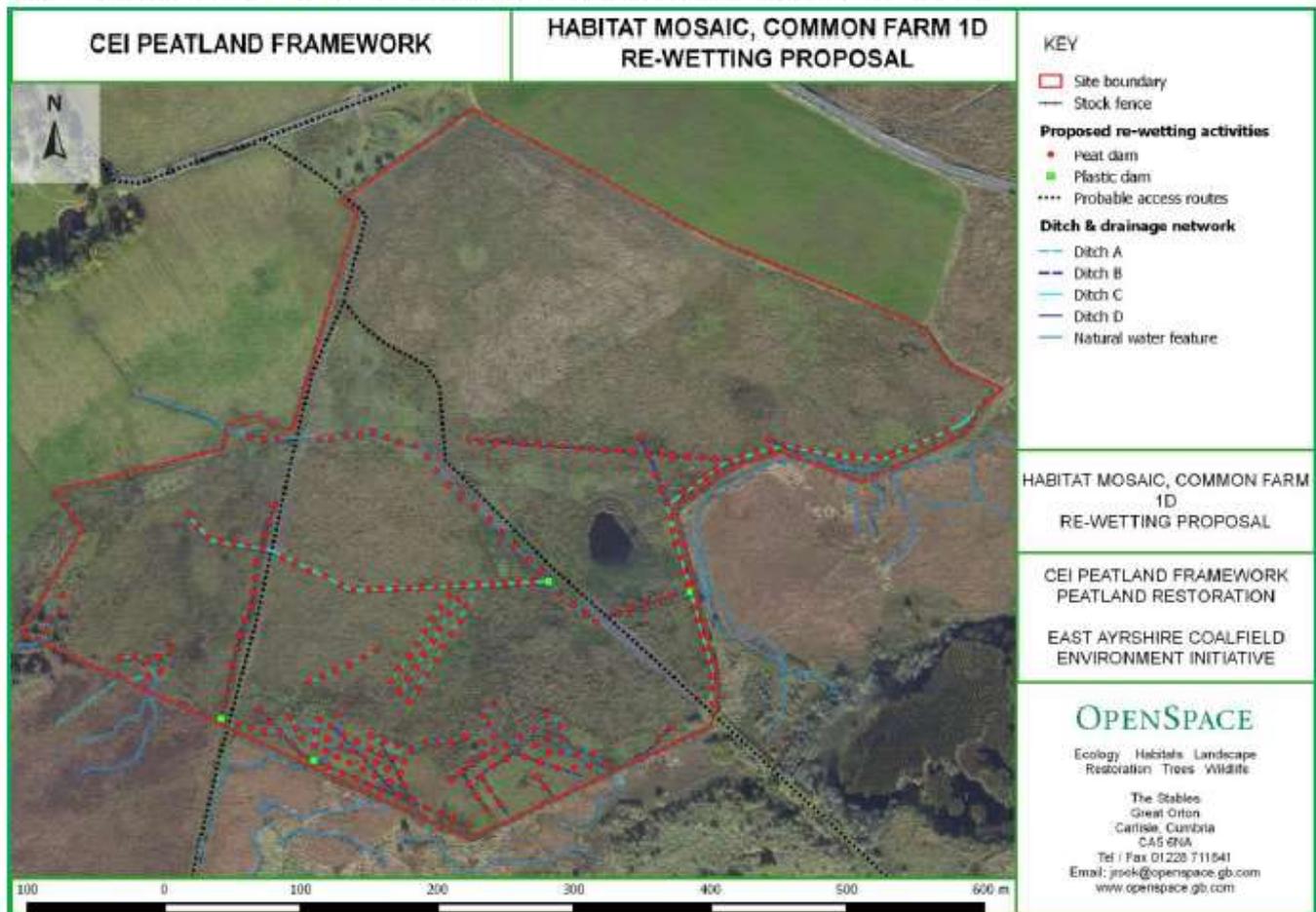


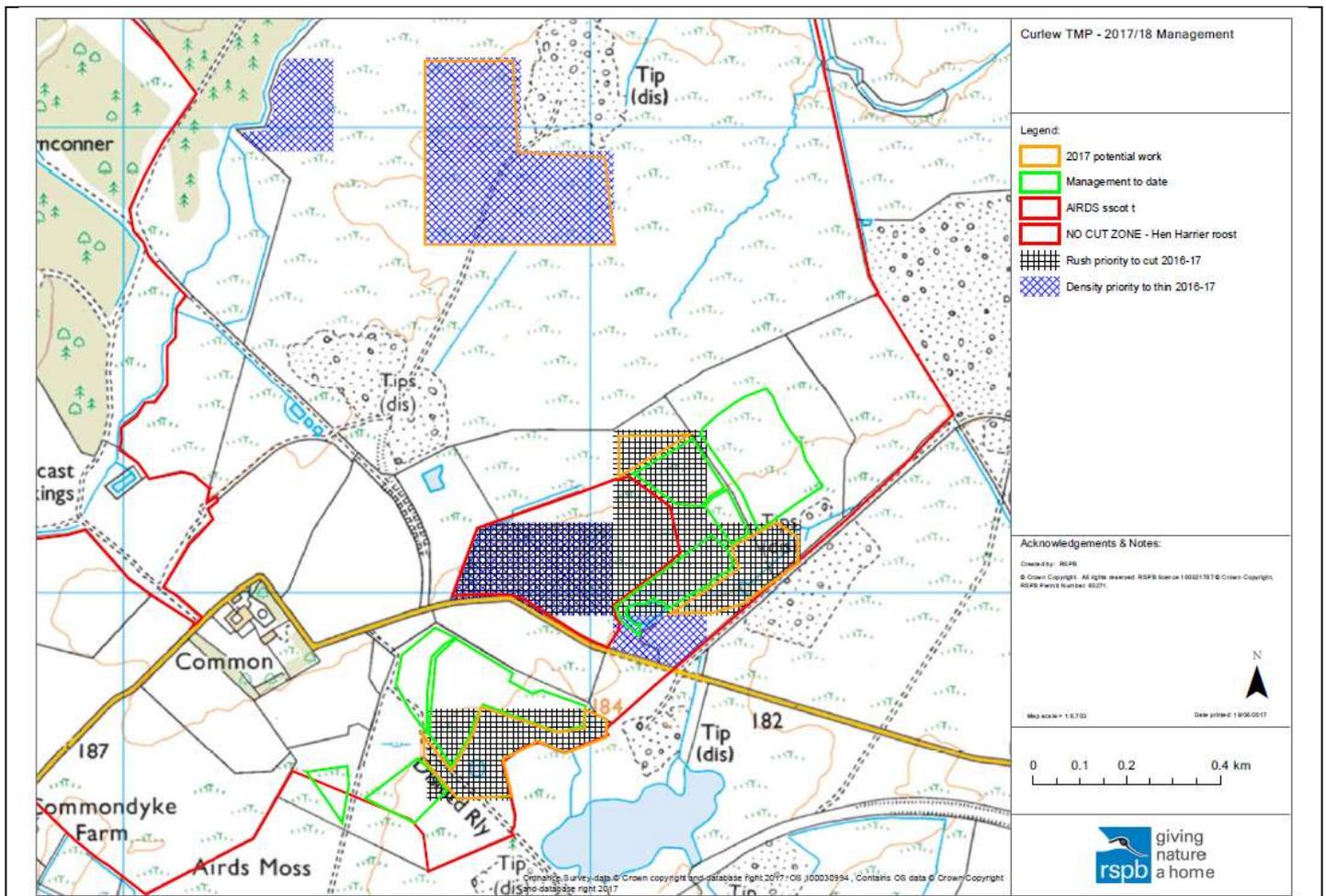
## Action C8; Innovative improvements at newly identified sites EcoCo new sites assessment: Habitat Mosaic, Common Farm

### Description (How, what, where and when)

This activity will develop actions to restore peatland habitat in an existing management zone, in the East Ayrshire Coalfields. The site is one of a cluster of fragmented bog habitat areas within a single farm holding, Common Farm, and is very close to the Airds Moss SAC/SSSI (although not structurally connected, in this case). The proposed management includes re-wetting by blocking ditches using peat and plastic piling dams (see proposal map below – Figure 4.1). This site is part of the RSPB Curlew Trial Management (CTM) project area and had been subject to rush management in 2016-17 (see map below). The proposed work could be carried out in the same contract as work on adjacent bog habitat in 2017-18 and would complement (pending) AECS funded management on the farm that will introduce a grazing management regime and fence of areas to exclude stock and control grazing. The work would begin from September 2017 and be completed before January 2018. EACEI will liaise with the RSPB Curlew Trial Management to integrate works in this location and avoid conflict with CTM management or nearby hen harrier roost.

Figure 4.1. Map showing proposed peatland restoration work / activities across the site





**Reasons why this action is necessary**

Blanket bogs are a priority habitat. The importance of the bogs within the zone is recognised in the national and international designations that some of them hold. Despite this, none are in favourable condition. Drainage, burning and overgrazing has led to their poor condition. Without appropriate intervention the peat habitat will continue to dry with a reduction in peat forming vegetation.

**Beneficiary responsible for implementation**

East Ayrshire Coalfield Environment Initiative (EACEI)

**Responsibilities in case several beneficiaries are implicated**

N/A

**Expected results (quantitative information when possible)**

- Bog habitat / wetland enhancement at Common Farm, as part of wider works across the peatland network
- At least 15 ha of bog / wetland enhancement delivered in partnership with a private landowner
- A monitoring plan to assess the condition of the bogs before, during and after interventions

**How was the cost of the action estimated?**

The costs were estimated by a consultant peatland restoration specialist.

**Permissions/licences required**

Landowner permission will be required to undertake the work (already granted for adjacent sites, so see no problem obtaining this). No consents needed as site is not designated.

# Ecological Coherence Assessment

This assessment follows the steps determined in the EcoCo Life “ecological coherence protocol” developed under Action A3

<b>1. EcoCo Partner</b>
East Ayrshire Coalfield Environment Initiative
<b>2. Vision</b>
<p><i>Bog habitat on Common Farm is enhanced and brought into favourable management through re-wetting work funded through the EcoCo LIFE project and AECS-funded management. EACEI work with the land owner, farm advisor and peatland restoration specialist to identify and deliver a high quality restoration and management scheme, where ecological coherence benefits are realised.</i></p> <p>Management of the site will be delivered through Agri-environment Climate Scheme (AECS), and EACEI will work with landowners and farm advisor (Sandra Stewart, Farming and Conservation) to continue supporting landowner where possible. If awarded, AECS contract will secure 5 year management of the site.</p> <p><b>RESTORATION PROPOSALS (OBJECTIVES AND AIMS)</b></p> <p>The main overall objective is to create conditions on site to allow peat forming vegetation to thrive and begin the process of laying down new peat layers 30% of the site. This would be achieved within a 25 year timeframe with some noticeable results within the first 10 years. The second objective is to enhance the site biodiversity by creating conditions for other habitats, on peat, to thrive.</p> <p>The main aim for peatland restoration is to restrict, reduce or slow water loss from the peat bog through the ditch network, natural features, sub-surface flow and surface run-off. This to achieve a raise in general water levels to within 10cm of the peat surface and maintain these levels. This will create conditions for peat forming vegetation to colonise and the conditions for new peat layers to be laid down.</p> <p>To achieve the objective a series of restoration techniques will be proposed across the site. Proven re-wetting techniques using agreed specifications and methods of installation will be proposed. Each techniques will aim to achieve the main objective with a number of measureable outcome to determine success, these are:</p> <ul style="list-style-type: none"><li>• Re-hydrate the peat surface to achieve general raise in peat water levels to within 10cm over 90% of the restoration area within 5 years.</li><li>• To re-hydrate the acrotelm to create suitable conditions for active peat forming vegetation within 10 years.</li><li>• To re-hydrate the peat surface to allow for the laying down of new peat layers within 25 years.</li><li>• To encourage the growth and colonisation of <i>Sphagnum</i> species within the ditch network within 5 years.</li><li>• To encourage the growth of <i>Sphagnum</i> species, especially hummock and carpet forming species on the peat surface (beyond the ditches) within 15 years.</li><li>• Reduction of dominant vegetation creating negative evapotranspiration affects over 90% of the restoration area (e.g. dense heather, dense scrub or trees) within 15 years.</li></ul>

### 3. Ecological coherence assessment

***The following section follows the ecological coherence protocol, assessing each of the elements in turn to give a qualitative assessment of the likelihood of significantly improving ecological coherence in the management zone. The ECP GIS tool has been used, along with detailed reports and surveys, partner organisation local knowledge, open data sources and SNH advice.***

#### a) Ecological functionality

The bog enhancement area at Common Farm, known as “Habitat Mosaic”, is functionally connected to the 1300 hectare Airds Moss SAC, and is one of a number of smaller fragmented areas of deep peat at the edge of the site.

#### 3.1 Vegetation and Habitat Condition

The site comprises a mixture of habitats including intermediate bog and a mosaic of wetland and rush pasture. The site is bordered by semi-improved agricultural land to the north and north-east. To the south and south-west the land falls away in to a mixture of fen, peat bog, open water and scattered scrub.

The peat habitat on site is located in the southern section and comprises of typical intact bog vegetation present with *S.rubellum*, *S.subnitens*, *S.cuspidatum* and *S.capillifolium*. Within this area there is an associated mix of Harestail cotton-grass *Eriophorum vaginatum*, deer grass *Trichophorum germanicum* and patches of *Molinia caerulea*. Since the site is grazed both the Heather *Calluna vulgaris* and Cross-leaved heath are in low density and grazed low. This habitat however forms less than 10% of the survey area and links with land to the southwest.

Much of the site is dominated by *Juncus* sp. rush, though a diverse mix of species are present including devil’s bit scabious *Succisa pratensis*, tormentil *Potentilla erecta*, and *Juncus acutiflorus*. Most of this area is located on mineral soil with associated drainage. Ditches and modified natural water features are mainly present in the south of the site and a large boundary ditch is present on the east of the site. Surface water was observed in a number of locations and some of the drainage is blocked. There is a small open water habitat near the east boundary which is standing water surrounded by rush species, common reed *Phragmites australis* and reed canary grass *Phalaris arundinacea*.

The site is surrounded by a stock fence and sheep were observed grazing on one section. This will explain the low level of scrub on site and relative uniform vegetation structure.

#### 3.2 Hydrology - Ditches

The field survey revealed a network of man-made ditches and natural water features across the south and central survey area (see Figure 3.1). The ditches / drainage features are present throughout the peat habitats in the south of the site. The northern section of the site is located on mineral soil and there is no obvious land drains.

The ditches and modified natural water feature in the west of the site drain southeast and the ditches and natural water feature in the east drain west and south. The ditches in the south drain south and west.

The peat habitats on site are heavily drained across the whole area. The main ditches

comprise of small ditches which drain in to larger feeder ditches. These have probably been installed for grazing management by the landowner. Typically they would be installed at a depth of about 0.5m with the drain below the surface. The site is also bordered by ditches with drains on neighbouring land. To the southwest of the site land is heavily drained and north of the site is agricultural land that is drained.

The drainage is highly effective and has resulted in a drier peat surface across 90% of the peat habitat. The drainage has increased hydraulic conductivity and impacts general water levels. The drainage has also altered the peat vegetation with most peat bog indicator species being lost and replaced with grasses and rushes. The on-site grazing has maintained and controlled the grass species and reduces scrub encroachment.

### Main water loss features

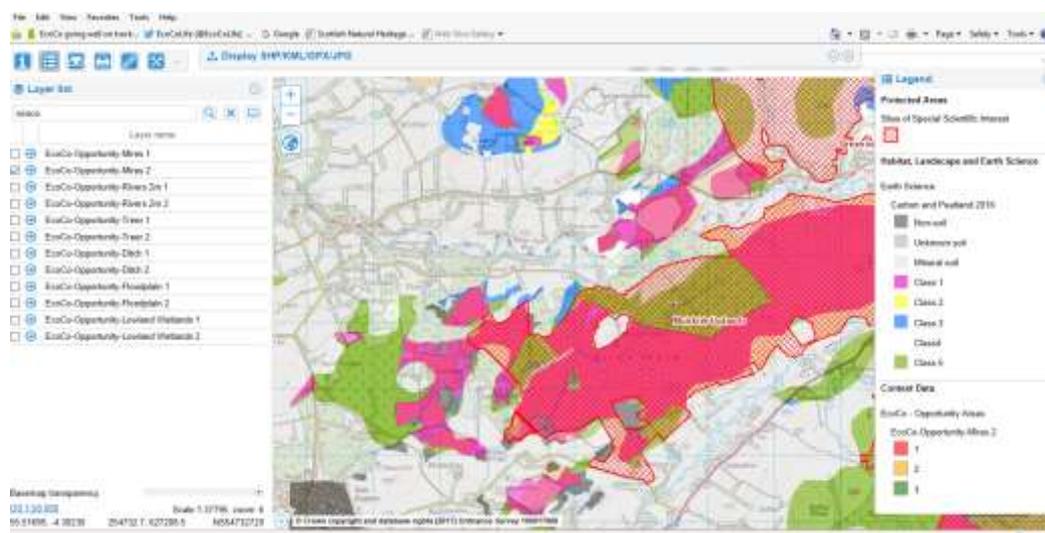
- Man-made small ditches present over most of the area.
- Large ditches present on site and site boundary.
- Peat slope with water moving across the surface and below peat surface.
- Natural water feature cutting across the site.
- Ditches on adjacent land taking water off-site. This increases the water movement from the boundary of the site.
- Hydraulic conductivity of peat is high with the upper layers dry and loose. Seepage is both lateral and vertical.
- Vegetation is dominant high evapotranspiration species the being grasses and rushes.
- Surface topography undulating and on a moderate slope.

### b) Diversity

See information on vegetation in section a.

### c) Connectivity

The GIS map below shows the connectivity of the three sites with Airds Moss SAC and the expanse of Class 1 peat soils within the area. There is functional connectivity with other EACEI enhancement sites (and recent enhancement work by a third party) Shiel Farm and Airds Moss RSPB Reserve. Common Farm is also a short distance to Low Moss, near Lugar.



#### d) Patch size

The total patch size is 17 hectares within a more extensive network of peatland and wetland habitat.

#### e) Habitats/species of conservation interest

Habitats include intermediate bog, areas of blanket bog with raised bog features (dome, lagg) and buffer habitats of fen vegetation and marshy grassland. There are some areas of wet woodland containing birch and willow. The area to the north (Shiel Farm) holds populations of large heath (*Coenonympha tullia*) butterfly. A bog-specialist beetle, *Agonum ericetii*, is also known to inhabit adjacent areas of bog. This species features on the Scottish Biodiversity List and is a UK BAP status priority species. Bog specialist vegetation including Bog rosemary (*Andromeda polifolia*), Cranberry (*Vaccinium oxycoccos*), and the large heath's food plant Hare's-tail Cottongrass (*Eriophorum vaginatum*) can also be found. Peat-forming sphagna such as *Sphagnum magellanicum*, *S. papillosum* and *S. capillifolium* are also found.

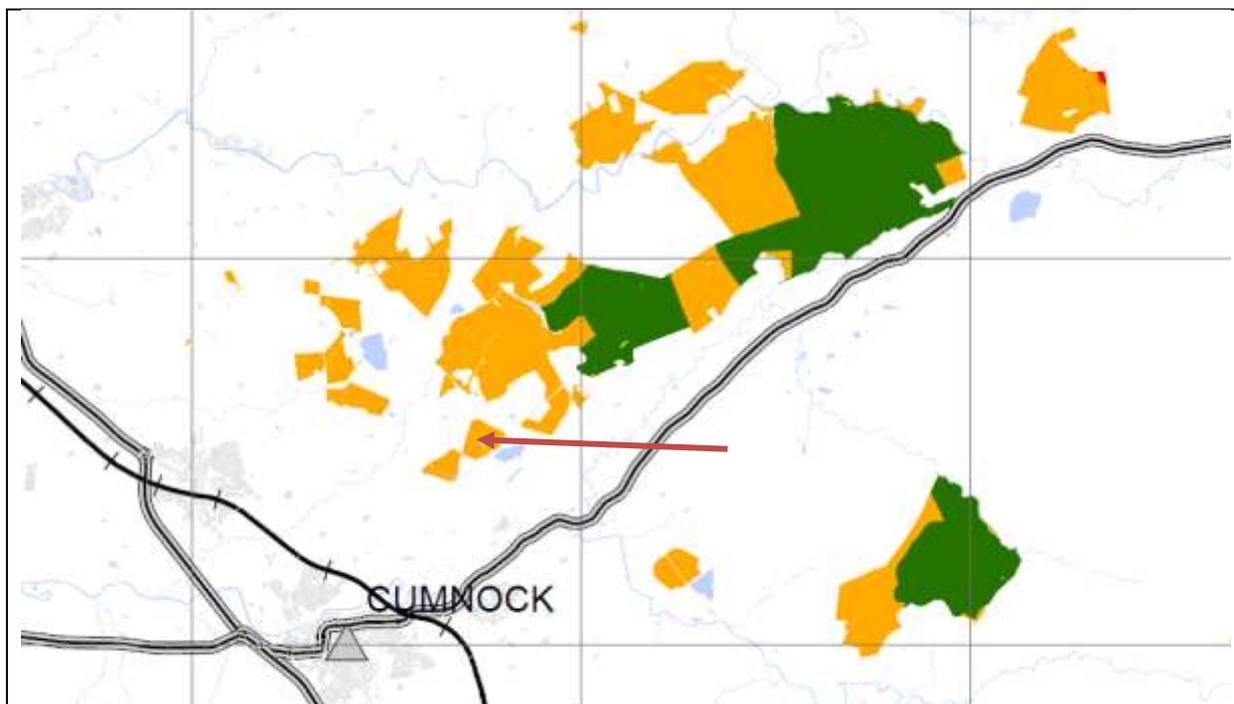
### 4. Ecosystem services assessment

Service	Provided in management zone?
Accessible nature	√
Education	√
Green travel	
Carbon	√
Local climate regulation	
Air purification	
Noise regulation	
Water purification	√
Pollination	√

Retaining water on this site could support active peat-formation which would lead to carbon sequestration and storage. The sites are accessible as they can be accessed via farm tracks and therefore could be enjoyed by walkers and used for educational visits and volunteer events. Where ditches are blocked, this can help slow water run-off and lessen the effects of heavy rainfall on watercourses.

### 5. Opportunity assessment

The Ecological Coherence Protocol mapping tool highlights Common Farm sites (see arrow showing location of site) as amber priority. EACEI's surveys have identified opportunities to carry out significant re-wetting work include ditch blocking and bunding. There is also rush-dominated areas that could be thinned in order to improve the habitat, either through RSPB CTM or EcoCo LIFE C8 actions, making use of the Softrak vehicle purchased through the project.



**a) Feasibility**

EACEI commissioned peatland enhancement surveys and restoration proposals in 2015 and 2016, which were completed by specialist consultants, Openspace (Cumbria) Ltd. The reports identified a suite of interventions that would help retain water on the site and promote the growth of sphagna and other peat-forming plants. EACEI have worked with this contractor in previous phases of bog enhancement and have found their proposals to be of high quality and suitable for localised conditions including slope, peat depth and peat condition.

Common Farm is privately owned and actively farmed. The farmer has worked with RSPB on their curlew trial management project and is supportive of conservation objectives to improve the condition of the land for the benefit of birds and other wildlife. He has been the recipient of SRDP funding in the past and is willing to work with EACEI to carry out the bog enhancement work in 2017-18.

**b) Achievability**

See above.

**c) Sustainability**

The land manager has applied for Agri-environment climate scheme funding to manage the site. If secured, this will tie him into a 5 year agreement with RPID. In the long-term, it is possible that this land will be managed as active bog habitat with the Airs Moss SAC.

**Outputs (for costings see financial annex)**

1. Management plans for 3 bog sites within a single farm holding.
2. 1 landowners engaged
3. 17 hectares of bog/wetland habitat enhanced.
4. Monitoring plan developed and undertaken, with before, during and after surveys.