# Cold Law Track Works, Cheviot Hills, Northumberland

## NVC Habitat Survey & Evaluation

March 2015

## Final Report

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| **Report Prepared For:**<br>Fairhurst<br>1 Arngrove Court<br>Barrack Road<br>Newcastle upon Tyne<br>NE4 6DB | **Project Ref:** ECN13 121<br>**Prepared By:** Mark Middleton<br>**Reviewed By:** Vicki Mordue MIoD<br>**Approved By:** Vicki Mordue MIoD<br>**Date:** 31st March 2015 |

eco NORTH
Ecological Consultants

## Document Control

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**Field Investigations and Data**

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by EcoNorth Ltd for inaccuracies in the data supplied by any other party.



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**EcoNorth Ltd**
**Garden House**
**St Nicholas Park**
**Gosforth**
**Newcastle upon Tyne**
**NE3 3XT**

Tel: 0191 285 4412
Fax: 0191 284 6794
Web: www.econorth.co.uk

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# Non-Technical Summary

EcoNorth Ltd was commissioned by Fairhurst to undertake a habitat survey and evaluation of a proposed vehicle track to Cold Law on the Lilburn Estate, Cheviot Hills, Northumberland (central grid reference NT 95643 24444) ahead of plans to upgrade the existing track to provide a more stable route up the hillside using the soil reversal technique.

The Northumberland National Park where the site lies requested that a habitat survey and evaluation of the area affected by the works be undertaken to determine whether any ecological constraints were present. A National Vegetation Survey (JNCC, 2001) was undertaken along the proposed route on 9 March 2015 by Mark Middleton, Scott Mackenzie Grad CIEEM, and Olivia Winter.

The purpose of the track works is to allow accessibility to the top of Cold Law by the Lilburn Estate for the management of the area for red grouse *Lagopus lagopus*. The existing route is badly rutted, eroding or wet in places making vehicular traffic up the slope difficult as well as damaging to the habitat here.

The proposed route (approximately 1.3km long) takes a largely direct line to the summit of Cold Law, following the existing track. Alternative routes were considered then discounted due these either crossing higher quality habitat, not being existing vehicular access routes or significantly longer in extent. The proposed track crosses a range of typical upland habitats including mainly acid grassland in the lowest sections to mosaics of heath and mire, and acid grassland at higher elevations.

The soil reversal method is an established technique which does not require importation of extra material into the area and has a relatively small working area consisting of a 6m wide corridor and final track width of 3m.

The total area affected by works will be 0.79 ha, with the permanent land take accounting for half of this (0.38 ha). About two thirds of this is a mire/heath/acid grassland mosaic (in the upper section) and about one third acid grassland (lower section). This compares to about 20,600 ha of upland heathland type habitat in the Northumberland National Park.

The NVC habitat survey revealed a range of vegetation communities along the route of the proposed works, mainly mosaics, with none being considered as botanically high quality, mainly due to modification through use as vehicular access and management of the area by burning and grazing. The proposals are unlikely to have a major detrimental effect on the heathland resource within the National Park due to the small scale of the works and fairly degraded habitats involved. The temporary disturbance to half the area is also considered to be insignificant as this will be restored immediately after works are completed. Finally the impact on protected sites in the wider area e.g. Cheviot SSSI and

River Tweed SAC is also considered to be minimal due to the distances involved, with extensive buffer zones of intermediate habitat separating these features and minimal chance of sedimentation of watercourses occurring.

However, as the works are planned for June to August which lies within the bird breeding season there is potential for ground nesting breeding birds to be present within the 6m construction corridor. Ideally a breeding bird survey would be undertaken of the area, but as a minimum the areas should be checked by a suitably qualified person e.g. an ecologist ahead of works and re-checked for nesting birds at regular intervals as the works progress to prevent possible infringement of the legislation protecting nesting birds.

# Contents

# 1. Introduction

## 1.1 Background

EcoNorth Ltd was commissioned by Fairhurst to undertake an habitat survey and evaluation of a proposed vehicle track to Cold Law on the Lilburn Estate, Cheviot Hills, Northumberland (central grid reference NT 95643 24444) ahead of plans to upgrade the existing track to provide a more accessible vehicle route up the hillside using the soil reversal method.

Specifically, this report aims to identify and evaluate the habitats present in the area to be affected by the works. In addition to identify any evidence of, or the potential for, protected or notable species being present.

This report:

- Sets out the results of the survey
- Analyses the site's value for nature conservation
- Identifies if any constraints are present from an ecological viewpoint
- Outlines recommendations for protection and enhancement

## 1.2 Site Context and Proposed Works

Figure 1.1 identifies the location of the proposed works with the proposed corridor route highlighted in red. Photographs of the site are included in Appendix A.

The site is owned by the Lilburn Estate and lies within the Northumberland National Park in an area known as the Cheviot Hills. The purpose of the track works is to allow access to the upper slopes on Cold Law as this part of the Lilburn Estate is managed for red grouse and requires vehicle access. There is an existing route up to this location but it is badly rutted, eroding or wet in places making vehicular traffic up the slope difficult as well as damaging to the habitat here.

The existing route can be divided into two sections based on broad habitat types present. Firstly the lower section leaves an existing stone track at NT 95995 25088 and meanders up the hill side, which is steep in places, to a fence line and gate at NT 95778 24697. This lower section comprises acid grassland (which shows signs of agricultural improvement in places) and stands of bracken *Pteridium aquilinium* and rushes *Juncus* sp. This area is sheep grazed. The existing track here is vague, with some sections rutted and/or compacted as a result of existing vehicle use e.g. at NT96025 24802

Secondly the upper section largely follows a fence line up towards the summit of Cold Law, from NT 95778 24697 to NT95403 24014, gradually gaining height though some

sections are quite steep for short lengths around Carling Crags for example. The route here is heavily rutted in places due to existing vehicle use, occasionally bare and with short/flattened vegetation. This route typically lies within 6m of the fence line, though does deviate around a wetter area half way along the route where the ground levels out at NT 95544 24254. Some sheep graze this area also.

The proposed works follow this existing route and does not deviate from it. It is not envisaged that works will impinge onto areas outside the 6m construction corridor into areas of established heather on the west side of the route. The east side of the corridor is bounded by a fence line with an extensive area of acid grassland beyond.

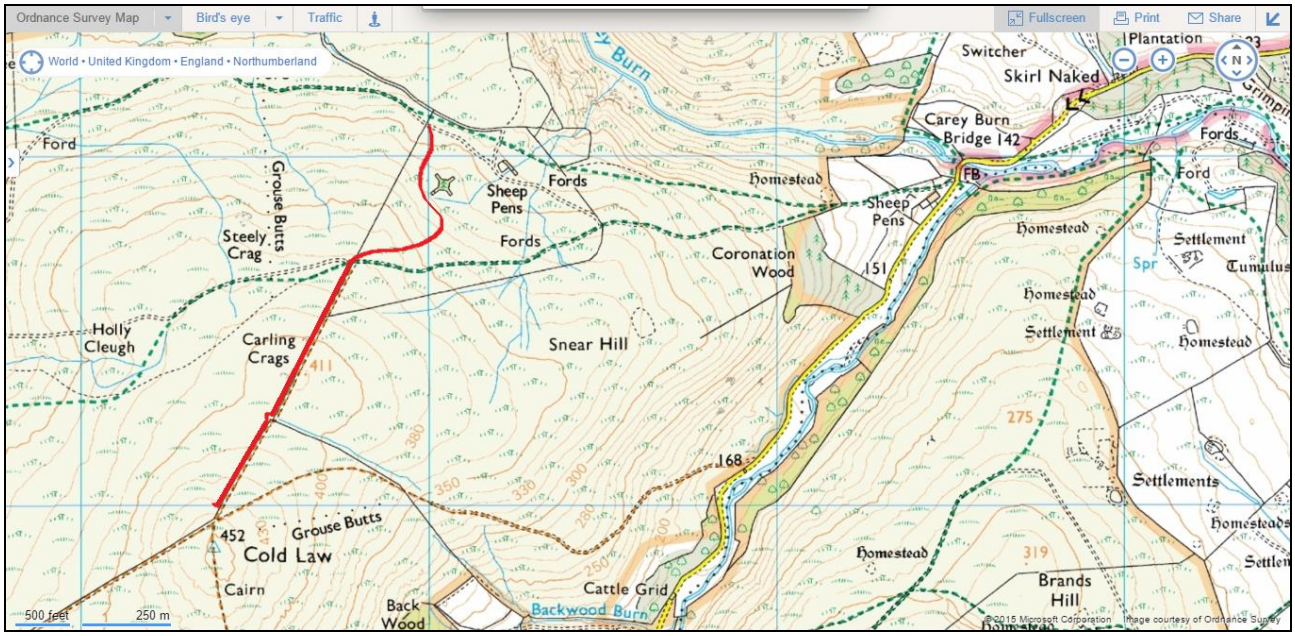
A small area below the summit of Cold Law at NT 95402 24044 comprises of short grass dominated vegetation, located at the head of the existing track route and will be used as a car park/turning area

### 1.2.3 Track Construction and Soil Reversal Method

The method for the works will be confined to a 6m works corridor, with the turf reversal technique being used to create a track about 3m wide when completed. The method used consists of a tracked 360 excavator with a bucket working upslope so that the vehicle will track on the completed surface. A ditch on the western side of the track will assist with drainage and this will be further completed by 6m drainage pipes laid at 50m intervals beneath the track taking any water to the east side of the hill where it will disperse away naturally. The ditch will be backfilled so no open drains are present.

The method is outlined in more detail in Appendix B

**Figure 1.1 Indicative Site Location** (proposed route indicated in red)



## 1.3 Legislation

Many UK wildlife species and their habitats are protected by legislation. The most pertinent of these include:

- Conservation of Habitats and Species Regulations 2010
- Wildlife and Countryside Act 1981 (as amended)
- Countryside and Rights of Way (CRoW) Act 2000
- National Park and Access to the Countryside Act 1949

A summary of specific species protection is provided in Appendix D.

In addition to species protected by law, other species have been identified within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, as requiring conservation action as Species of Principal Importance for the conservation of biodiversity in England. Section 41 also includes Habitats of Principal Importance in England which are identified as requiring action in the UK Biodiversity Action Plan. This Act also confers a biodiversity duty on public bodies, such as planning authorities, to ensure that biodiversity is integrated within all relevant policies and decisions made.

National Planning Policy Framework 2012 (NPPF) advises that the planning system should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes
- Recognising the wider benefits of ecosystem services
- Minimising impacts on biodiversity, providing net gains in biodiversity where possible

This contributes to the Government's commitment to halt the overall decline in biodiversity, including establishing coherent ecological networks that are more resilient to current and future pressures. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks. The guidance within the NPPF is a material planning consideration.

Following The Convention on Biological Diversity (1992), the UK Biodiversity Action Plan was published in 1994 to guide national strategy for the conservation of biodiversity through Species Action Plans (SAPs) and Habitat Action Plans (HAPs), which set conservation targets and objectives for their conservation. Most areas now possess a local Biodiversity Action Plan (LBAP) to complement the national strategy where local priority habitats and species are identified and targets set for their conservation.

In 2007 the UK Biodiversity Partnership published a comprehensive list of priority UK species and habitats with action plans. This contains 1149 species and 67 habitats covering

terrestrial, fresh water and marine biodiversity. The UK BAP list of priority species and habitats formed the focus for conservation action across the UK and remains an important reference source. There are also Local Biodiversity Action Plans (LBAP) which can cover the same species/habitats listed nationally and/or include other species/habitats that are of conservation concern at a local level. The site lies within the Northumberland Biodiveristy Action Plan area.

The UK BAP has been superseded in 2012 by the Post 2010 UK Biodiversity Framework following a recommitment to biological conservation at a summit in Nagoya Japan in 2010. However the UK BAP remains a focus for nature conservation in the UK and targets for species and habitats drawn up under the UK BAP are largely unchanged. Relevant priority species and habitats in England have been incorporated within the NERC Act 2006 as Section 41 list species and habitats.

Schedule 9 of The Wildlife and Countryside Act 1981 (as amended) identifies 54 invasive non-native species which are deemed to have serious negative impacts on native British species, public health or the economy. Under this Act it is an offence to plant or otherwise cause to grow in the wild[1] any plant which is included in Schedule 9 of the Act.

# 2. Methods

## 2.1 National Vegetation Classification Habitat Survey

A NVC habitat survey was undertaken by Mark Middleton, Scott Mackenzie Grad CIEEM and Olivia Winter on the 9th March 2015 after an initial site visit on 28th January 2015 by Mark Middleton and John Thompson MCIEEM. The NVC survey was undertaken in accordance with the methodology described in Field Guide for NVC Survey (JNCC, 2001). The weather at the time of this survey was cool, approximately 8°C, with showers and more persistent rain. The survey was undertaken between approximately 1030 and 1630 hrs.

Thirty quadrat samples were made at representative locations along the track route to identify plant species present and their abundance (% coverage) within the 2x2m quadrat. These results when tabulated would enable NVC plant communities to be identified and then their habitat quality can then be assessed.

Plant species were identified in accordance with Rose (2006) and Stace (2010). During the survey an assessment was made of the potential for habitats within the proposed works area to support other species of interest.

The NVC data was tabulated and entered into the TABLEFIT programme to give the best fit NVC communities to the quadrat data collected.

[1] Causing to grow in the wild can include inappropriate disposal of wastes and soils whereby it spreads into the wild.

## 2.2 Habitat Evaluation Criteria

A six-point evaluation scale has been used to assist with the identification of habitats and species of ecological significance in relation to the proposed works area. Informed by information regarding levels of protection, rarity, distribution etc. along with professional judgement, this scale is effective at this early stage of a development in order to focus further work appropriately. The six point scale is outlined below:

- Negligible value
- Low value
- Moderate value
- High value (Local/District importance or supporting protected species)
- Very high value (County importance e.g. County Wildlife Sites or supporting significant numbers of protected species) and
- Exceptional value (National or international importance e.g. Site of Special Scientific Interest (SSSI))

## 2.3 Survey Constraints

There were no survey constraints as all areas were accessible for the vegetation survey. However, conditions were not suitable for breeding bird or reptile surveys so only the potential for these groups can be assessed at this point in time.

# 3. Results

## 3.1 Desk Study

### 3.1.1 Designated Sites for Nature Conservation

There are two Sites of Special Scientific Interest (SSSI) found within 2km of the site. These include the Cheviot SSSI which lies under c.1km to the south west of the site, and Harthope Burn SSSI c.1km to the south east of the site. The Cheviot SSSI is notified for its range of upland habitats present such as blanket bog and montane heath, and its associated avifauna. The Harthope Burn SSSI is notified in its own right for its geomorphological features but also forms part of the much larger River Tweed Special Area of Conservation (SAC) which includes many of the watercourses draining the Cheviot massif. The interest features of this SAC are botanical and faunal such as important game fisheries, and species including otter *Lutra lutra*.

The site is also included within the Northumberland National Park (NNP) site boundary and the habitat the route crosses is included under an Upland Heathland designation (NERC 2006) as a priority habitat for which there is an action plan for upland heathland in Northumberland lead by the NNP – The Heather Moorland Action Plan which aims to maintain and enhance the upland heathland present within the county.

There is thought to be approximately 20,600 ha of upland heathland/heather moorland habitat within the park.

A permissive path lies on the south side of the fence from the gate up to the summit of Cold Law. The proposed works will not cross the fence or affect this route.

## 3.2 NVC Habitat Survey

### 3.2.1 Habitats

Three maps identifying the main NVC communities are included in Appendix C. These are annotated with the NVC communities assigned to each section where five quadrats were taken.

One set of five quadrats was taken at the top of the proposed route which is to be used as a car parking area, four sets of quadrats were taken along the route from here to the gate at NT 95778 24697, and one set between the gate and the start point from the existing stone track.

The upper section of the route consists of a mosaic of habitats that includes mire, wet heath, dry heath and acid grassland. The lower section is mainly acid grassland, both dry and marshy, showing signs of modification (agricultural improvement) in places and with patches of bracken.

Mire

The main area of mire habitat occurs at a saddle type location at NT 95541 24253. The ground is wetter here and the existing track deviates away from the fence line presumably due to the wetness of the ground. A small drain appears to issue from this location and flows off the hillside in a south easterly direction. Although the ground here is modified by rutting caused by vehicle access the combination of hares-tail and broad-leaved cotton grass *Eriophorum vaginatum* and *angustifolium*, deer grass *Trichophorum germanicum* , and some sphagnum moss *Sphagnum fallax* as well heather *Calluna vulgaris* and purple moor-grass *Molinia caerulea* indicate that a mire type habitat has developed.

NVC quadrat data indicates the community is combination of M20 *Eriophorum vaginatum mire* and M25 *Molinia caerulea - Eriophorum vaginatum* mire which tends to be a species poor community.

Wet Heath

There are several small areas of wet heath type habitat present along the upper section of track, though modified in each case showing a lack of cross-leaved heath *Erica Tetralix*, but typical species included deer grass, purple moor-grass and hare's-tail cotton grass

and this community most closely resembles M15 *Trichophorum germanicum - Erica Tetralix* vegetation type.

No wet heath communities were noted downslope of the gate at NT95778 24697.

Dry Heathland

Most of the wider area of the Cold Law on its northern/western flanks can be described as dry heathland dominated by heather, particularly on the steeper slopes. This forms the margins of the proposed route in several places and is likely to have been the original community present in most areas prior to vehicle access following the fence line to Cold Law summit. Modified by periodic burning it is a species poor community with heather dominating, but with some bilberry *Vaccinium myrtillus*, wavy hair-grass *Deschampsia flexuosa* and greater wood rush *Luzula sylvatica* in places. It most closely resembles NVC H9 *Calluna vulgaris- Deschampsia flexuosa* particularly in the dryer areas. This community occurs all the way up the upper section route, often as a mosaic with wet heath and acid grassland as described.

No dry heathland communities were noted downslope of the gate at NT95778 24697.

Acid Grassland

Acid grassland communities forms much of the habitat along the prosed track route, likely as a result of modification of the original wet heath and dry heath habitats (through overgrazing, then erosion and compaction by vehicle access). It is rather variable with dryer areas dominated by mat grass *Nardus stricta* and sheep's fescue *Festuca ovina* and wetter areas characterised by purple moor-grass and heath rush *Juncus squarrosus*. In the upper section it is a rather species poor community with typical associates such as tormentil *Potentila erecta* and heath bedstraw *Galium saxatile* the main herbs present. NVC communities U5 *Nardus stricta – Galium saxatile* and U6 *Juncus squarrosus – Festuca ovina* communities are both present – depending on wetness of the ground.

In the lower section acid grassland communities also dominate the proposed track route downslope of the gate at NT95778 24697. Soils here appeared to contain less peat and some sections show signs of agricultural improvement and modification with meadow grasses *Poa* sp, bents *Agrostis* sp, Yorkshire fog *Holcus lanatus* for example, with other areas support rushes, or on dryer slopes bracken. The vegetation communities here tend to correspond to U6 *Juncus squarrosus – Festuca ovina* acid grassland.

An acid grassland community also forms the bulk of the vehicle parking area below the summit of Cold Law. Modified by removal of the ericaceous shrubs (though some remnants persist) it is species poor and most closely resembles a U5/6 community.

### 3.2.2 Soils/Peat

The peat/soil depth recovered by quadrat sampling on the higher section varied from 10 to 40cm, with harder substrate below this. Though several areas along the track route were very bare and stoney, with little soil material visible, likely to be the result of erosion.

The section below the gate did not reveal peat as a major component of the soils.

### 3.2.3 Protected Species

No sign of protected species was recorded as incidental records during the NVC survey. However, there is the potential for ground nesting birds in particular to be present within or close to the working area during the breeding season and this will be considered during the recommendations section.

### 3.2.4 Predicted Impacts

Without any intervention the existing track is likely to continue to be used to access the summit of Cold Law leading to increased erosion in this area and likely a widening of the route into dryer heathland on its margins, potentially affecting undisturbed habitat here.

### 3.2.5 Alternative Routes

Several alternative routes were looked at, including a route up the west side of Cold Law. However, this was considered to have a potentially greater impact on the habitat present here as it contains more extensive areas of wet heath/mire and the route here is longer than the proposed route. In addition it is not as heavily modified as the proposed route as it has had limited vehicular access.

# 4. Site Evaluation

The higher section of the proposed route exhibits a highly modified habitat due its use as a vehicle route (through compaction, erosion, grazing) to a one that shows displays characteristics of mire, wet heath, dry heath and acid grassland communities, often in a mosaic type community. These modified habitats tend to be of a lower quality and value than semi-natural type habitats.

Peat/soil depth measurements taken when doing quadrats indicate the peat/soil depth to be less than 0.5m, often significantly less so which indicates that for the most part the route crosses drier upland heathland communities rather than blanket bog which tends to occur where peat has accumulated to a depth greater than 0.5m. This is significant as the blanket bog habitats on deeper peat tend to be the more botanically rich habitats.

The NVC communities present e.g. M20 and U6, are not considered to be of the highest quality, typically being the species poor variants of higher quality habitat types due to

modification; whether that is from overgrazing, burning, agricultural improvement or disturbance (e.g. vehicles).

In general the vegetation communities present are typical of the locality and are widespread in this part of the Cheviot Hills. They are not considered to be of the highest quality and as such are not included within the Cheviot Hills SSSI site boundary which lies further west. No rare plants or habitats were recorded along the proposed route.

The total area affected by works will be 0.79 ha, with the permanent land take accounting for half of this (0.38 ha). About two thirds of this is a mire/heath/acid grassland mosaic (in the upper section) and about one third acid grassland (lower section). This compares to about 20,600 ha of upland heathland type habitat within Northumberland National Park.

The habitat affected by the works is considered to be of low/moderate value – mainly due to the condition of the habitats in the working area at the present time (which have been highly disturbed). The overall impact of the works is considered to have minimal detrimental impact on the habitats locally and on the wider National Park resource of upland heathland due to the very small area involved and temporary nature of the works. Indeed as these are largely degraded habitats there is potential for an increase in the habitat quality through the track works as the vehicular access with be restricted to a 3m corridor rather than the wider area affected at the present time and by targeted restoration of the margins. The temporary works will only affect about 0.26 ha of heath/mire/acid grassland habitat on the upper section of the route.

After works the habitat on the west side of the new track is likely to be drier than at the present time as water is diverted under the track by the new drainage system. These drainage effects are unlikely to reach further than 2-3m from the margins of the track. Heather growth is likely to be more vigorous in this area which can be beneficial to ground nesting birds for example. Conversely the re-wetting of the area east of the track may also enhance what is an area of fairly species poor acid grassland. These consistently wetter ground conditions may allow mire type habitat to develop here over time, increasing the extent of this habitat.

The mire within saddle area at NT 95541 24253 is more extensive to the east of the track and fence line, where it forms a small M20 type mire before diminishing as the slope steepens eastwards. A small watercourse issues from the mire though only runs for about 500m before disappearing as the slope gradient changes, and it doesn't appear to connect with the Backwood Burn further south which feeds in the Harthope Burn in the valley below. Given the unconnected nature of the watercourse here and distance from proposed track works to the Harthope Burn (c.1km) it is unlikely that the proposals will have significant impact on watercourses in the area through increased runoff or sedimentation as the mire area here is likely to act as a 'sponge' receiving runoff via the new drainage system installed under the new track.

As a consequence of this there is little possibility of increased sedimentation in the main burns in the area that feed into the River Tweed SAC. Indeed by diverting the runoff east across a broad hillside where it is likely to gradually soak away this is preferable to the present situation where it can run down the existing track northwards and has the potential to enter the Carey Burn, a tributary of the Harthope Burn causing sedimentation from this location.

# 5. Recommendations

Although the proposed track works are considered to result in a very small loss of upland heathland habitat, of low/moderate interest and the effects of the works on the wider habitats and features are considered to be minimal and locally temporary, there are several recommendations to further mitigate any potential impact as follows:

1. The mire/wet heath habitat that has developed in the saddle area at NT 95541 24253 should be avoided during the works and new drains fed into this area (from the higher sections of track) to allow its expansion east of the fence line, thereby extending this mire habitat, that can utilised by breeding birds and invertebrates for example.

2. The margins of the new track will be restored to dry heathland (rather than the acid grassland that it mostly present now) thereby increasing this resource in the local area.

3. Habitats outside the 6m works corridor will not be directly affected by the habitat removal and will be cordoned off during the works and this will be maintained at all times.

4. Spill kits and bunding material will be available at all times during the works, particularly when working in inclement weather and when installing the drainage channels to contain spills, and any excess run-off.

## 5.2 Breeding Birds

There is potential for the habitats affected by the proposals to support breeding birds during the time that the works are taking place i.e. June to August inclusive, this includes such species as red grouse *Lagopus lagopus*, skylark *Aluada arvensis* and meadow pipit *Anthus pratensis*.

Bird's nests are protected by law whilst occupied and ideally to minimise the likelihood of an offence being committed any work that affects these habitats should be undertaken outside of the breeding bird season (which runs from March to August inclusive).

However, as works are planned for June to August a breeding bird check would need to be undertaken by a suitably qualified ecologist of the habitat affected by the planned work for that week, and if no active nests were found permission for site works would be valid for 7 days for works to commence in this area. The checks are likely to be having to be repeated as the work moves up the slope.

If an occupied nest is found during the breeding bird check the clearance of that area would have to cease until such a time as the ecologist deems the nest to be no longer be in use, and works can then proceed.

Ideally a breeding bird survey should be undertaken at the earliest opportunity to ascertain if any protected bird species (Schedule 1) are likely to occur in or close to the working area.

## 5.3 Reptiles

There is potential albeit low (due to rotational burning) for reptiles to occur in the area affected by the works such as common lizard *Lacerta vivipara* and adder *Vipera berus*. However, the potential impact on these species is considered to be low due to the limited extent of habitat removal/change and considering that the works avoid the main period when these reptiles produce live young i.e. late summer. In addition, the vibration from large machinery working along the route is likely to displace reptiles from the immediate area prior to the turve removal taking place.

However, a banksman should walk through the area to displace any reptiles present immediately prior to works.

## 5.4 General

Although no evidence of other protected species was identified, there is potential for them to access the working area so to minimise the chances of an offence being committed, the following generic mitigation is recommended:

- All trenches and excavations >1m deep will either be covered to prevent access or have an escape plank left in overnight to aid escape by any foraging mammals
- Ensure safe storage of materials, chemicals, oils and equipment within safety fencing to prevent accidental harm to foraging mammals, lock away securely or take offsite

# 6. Ecological Enhancement

The margins of the track works are likely to re-vegetate naturally given that the soil profile is likely to contain heather seeds and plant material such as cotton-grass shoots and roots. However, to aid rapid establishment it is recommended that a seed mix containing a nurse crop of fine grasses and heather seed is sown immediately after works to help bind the soil material and prevent any erosion (wind/water) that might occur in the early stages of growth. Hydro seeding can be effective in these circumstances. Heather seed used should be from local sources, ideally from within the Lilburn Estate.

# 7. References

JNCC, 2001. National Vegetation Classification: Field Guide to Mires and Heaths

Rose, F. as revised and updated by O'Reilly, C. (2006). *The Wild Flower Key - New Revised Expanded Edition*. Penguin Books Ltd.

Stace C. (2010). *New Flora of the British Isles, Third Edition*. Cambridge.

Northumberland National Park Authority, (2008). The Heather Moorland Action Plan

# Appendix A – Photographs

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|---|---|
| **Photo 1**: Start of track with acid grassland vegetation predominating | **Photo 2**: Close up of acid grassland on lower section of track – mainly mat grass with mosses |
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| **Photo 3**: Lower section of track with bracken/acid grassland | **Photo 4**: Lower section of track with rutted area |
|  |  |
| **Photo 5:** Upper section of track after gate, looking downslope. Fence line lies to east. Acid grassland track route with heather dominated ground to left (west) | **Photo 6**: Steeper section of track with stoney substrate, bordered by acid grassland and heathland mosaic |

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| **Photo 5**: Looking upslope towards summit of Cold Law, track rutted in places, holding water, heathland to right (west) | **Photo 6**: Close up of extensively rutted/eroding area mid-way up track route |
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| **Photo 7**: Track deviates around wetter section with mire/wet heath vegetation | **Photo 8:** Sphagnum moss (S. fallax) on mire area adjacent to track route in 'saddle' area |
|  |  |
| **Photo 9:** Near top of track looking downslope, with | **Photo 10:** Typical verge flora with rushes, purple |

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| bare eroding peaty substrate, acid grassland verge and heather dominated vegetation to west | moor-grass and heather beyond |
|  |  |
| **Photo 13:** Top of track near fence line with disturbed peaty soils, acid grassland/heath mosaic | **Photo 14:** Top of track below Cold Law summit showing vehicle parking area with short grass vegetation |
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# Appendix B – Soil Reversal Method

**Lilburn Estates Farming Partnership**

**Proposed Track Improvements at Cheviot and Cold Law**

Soil Reversal Method Statement

**INTRODUCTION:**

The proposed works to improve existing tracks at Cheviot and Cold Law will be carried out using the "Soil Reversal" technique which has been successfully used by our preferred contractor (WRCS Ltd) on a recent project on the Salter's Road (also within the Northumberland National Park).

Subject to receiving all relevant approvals it is anticipated that works will commence on 1st June 2015 (or earlier if permitted), will be carried out during daylight hours 7 days per week and shall be complete by 7 th August 2015.

Plant used will comprise one 360° tracked excavator and a ride-on twin drum vibrating roller, both of which will remain on site for the duration of the works. The operator will travel to site daily using a pick-up or small van and will carry fuel for the plant so that no fuel will be left on site out-with working hours.

The works on each track will commence at the bottom of the route meaning traffic will only travel on the completed surface with the exception of the excavator carrying out the soil reversal process.

**METHOD**:

1) Inspect site, plant and any signage daily prior to commencing work.

2) Remove turf from line of proposed track using excavator bucket by cutting and tearing large undamaged sections of topsoil and attached flora. Turn excavator through 180° and set aside the turf clear of track. Remove the exposed organic matter or sub-soil from the tack line to provide a sound foundation. Excavate ditch (upslope of new track) to find suitable hard material to form the new track. When sufficient material has been deposited (to bring the track up to the required level) form camber to shed surface water to ditch. Replace remaining excavated sub-soil into ditch and re-lay previously removed turfs on top. Track machine forward and repeat operation until the track is complete.

NB. At the end of each working day the ditch shall be filled leaving the site safe with no open excavations.

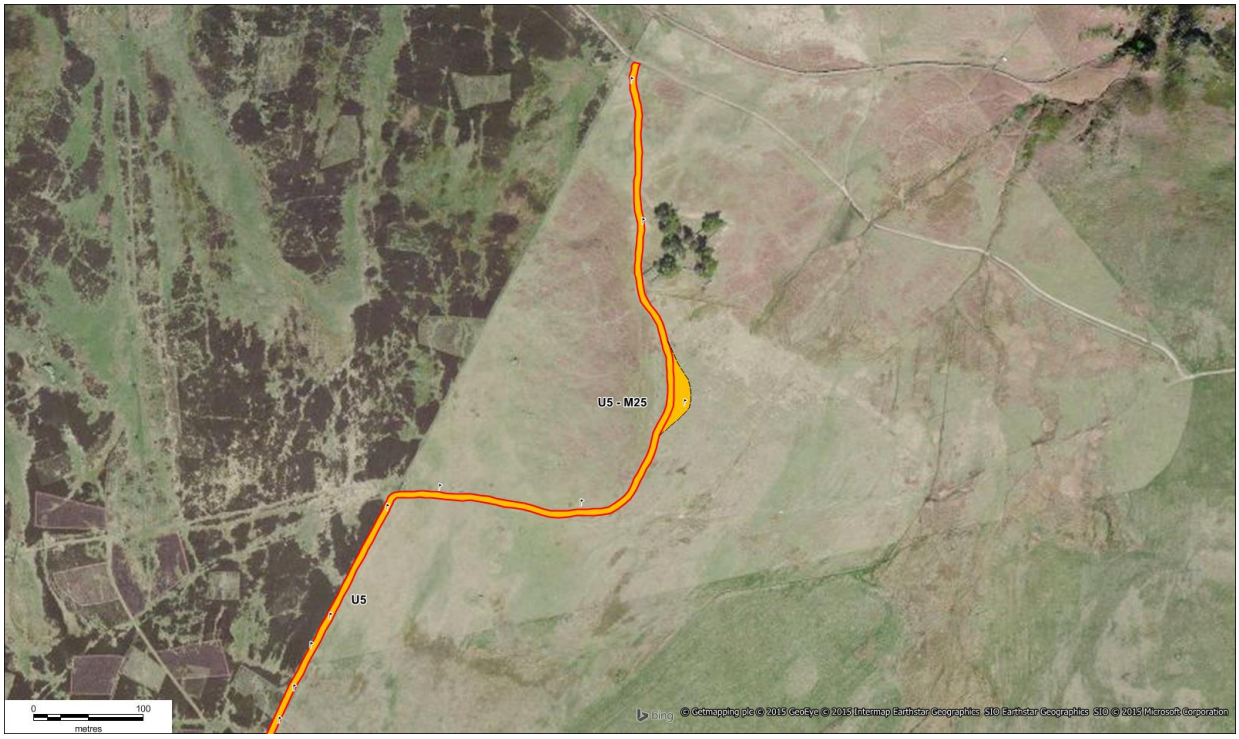
3) Lay 225mm diameter twin-wall pvcU drainage pipes in 6m lengths, at 50m intervals along the whole length of the track. Drainage pipes shall be laid level (to reduce the flow rate), conveying surface water from the ditch, below the newly formed track and discharging onto the surface of the existing terrain. Existing ground to be left within the ditch at 50m intervals to form "blockers", thus preventing surface water from running freely down the ditch.

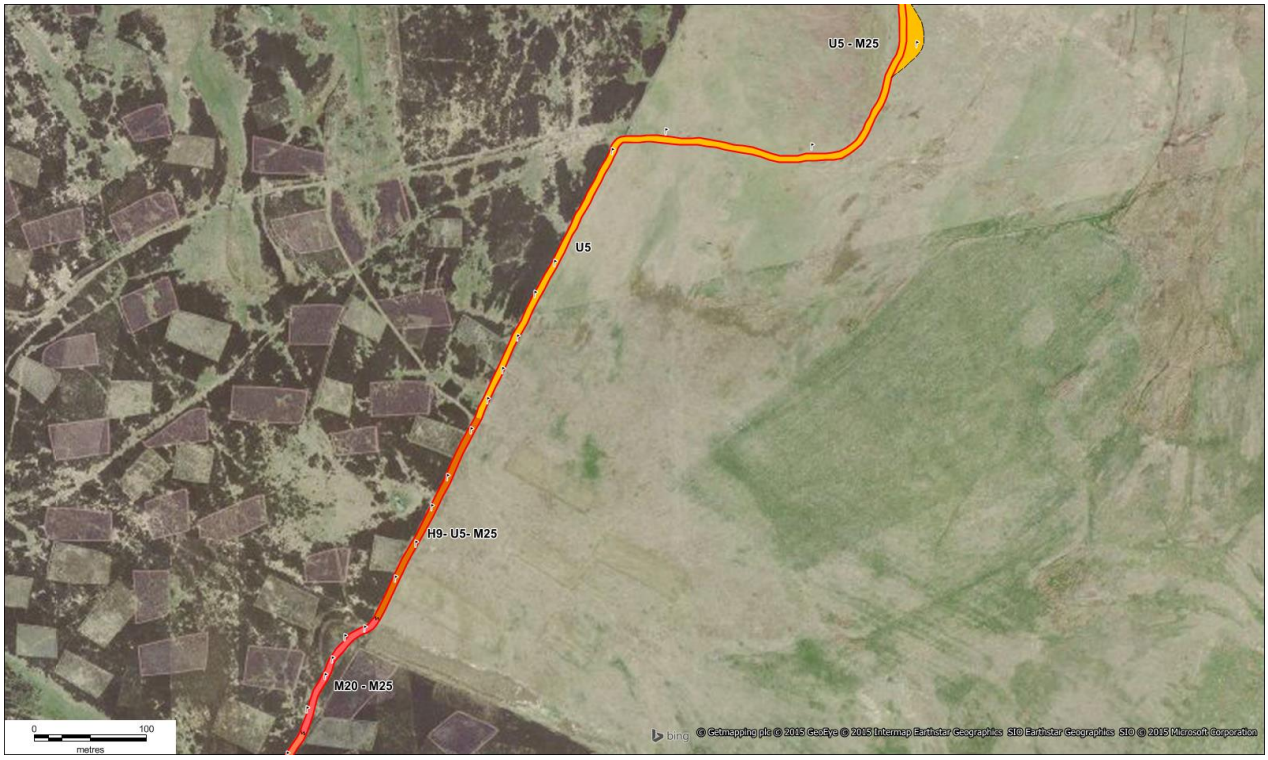
NB. Drainage materials to be delivered in two loads to each site, with the first delivery left at the bottom of the track and the second drop at the mid-point (travelling on the newly formed surface). These drainage pipes are to be the only imported materials used in the construction of the tracks.

**SITE SAFETY:**

As public footpaths run close to or through the line of the proposed track the machine operator will cordon off the working area on a daily basis using bunting tape and portable sign boards. The machine will cease working should any persons come within or close to the working area.

# Appendix C - NVC Habitat Maps 1-3 (with NVC habitat codes, the flags indicate quadrat locations)




U5 - M25
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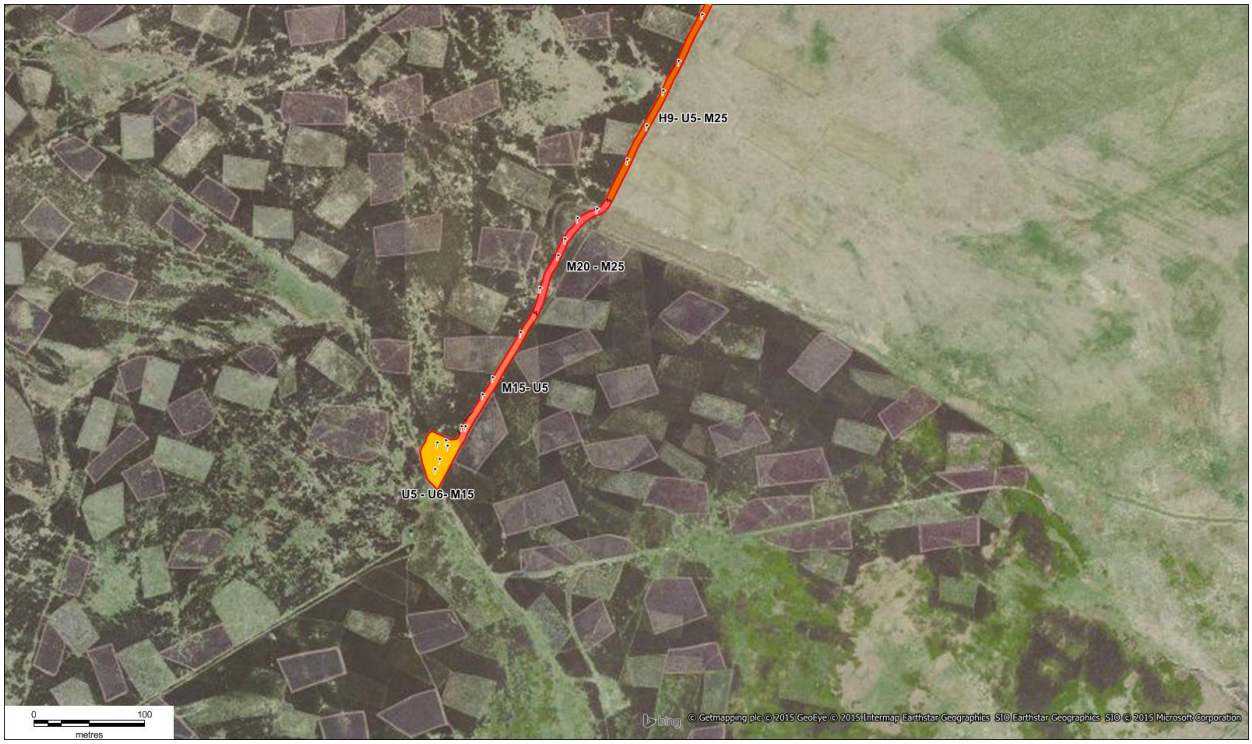


# Appendix D – Species Specific Legislation and Survey Methodologies

- **Badger (*Meles meles*)**

***Protective Legislation***

The main legislation protecting badgers is the Protection of Badgers Act (1992). This Act consolidates previous legislation by providing comprehensive protection for badgers (it is illegal to, or to attempt to, willfully kill, injure, take, possess or cruelly ill-treat any badger) and their setts (it is an offence to intentionally damage or destroy a badger sett). Set interference includes damaging or destroying a sett, obstructing access to a sett, or disturbing a badger when it is occupying a sett.

What constitutes a sett is important and the Act defines this as, "*any structure or place which displays signs indicating current use by a badger*". Further guidance is available from Natural England[2] on what constitutes a sett and what is meant by "current use". A precautionary approach is advocated. In Scotland current use is defined as, "*any sett within an occupied badger territory regardless of when it was last used*."

Fines of up to £5,000 plus up to six months imprisonment, for each illegal sett interference, badger death or injury can pertain. The legislation does, however, recognise the need for

[2] http://www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

a range of legitimate activities to be carried out and authorised sett disturbance or destruction can be carried out under licence for the purposes of development (amongst others) if certain conditions are met.

***Survey Methodology***

Suitable habitats are searched for evidence of badgers including setts, snuffle holes, runs and presence of hair on push-throughs under fences. Where access permits, searches are extended to look for evidence of badger setts within 50m of the site.

- **Bats**

***Protective Legislation***

Bats are included in The Conservation of Habitats and Species Regulations 2010 and are therefore considered to be a European Protected Species (EPS). These Regulations fully protect bats and their breeding sites or resting places, making it an offence to:

- deliberately capture (take), injure or kill bats;
- deliberately disturb bats; or
- damage or destroy a bat breeding site or resting place.

Additionally, all bats and their roosts are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), with further enforcement provided by The Countryside and Rights of Way Act 2000, making it an offence to intentionally or recklessly:

- disturb any bat whilst it is occupying a structure or place which it uses for shelter or protection; or
- obstruct access to any structure or place which any bat uses for shelter or protection.

Bat roosts (breeding sites and resting places) are protected whether or not bats are present at the time of works. Bats and bat roosts are also protected irrespective of whether planning permission has been granted or not.

***Survey Methodology***

Any trees and buildings present on site are assessed for their potential to support roosting bats; features of trees which increase the likelihood of bats being present include rot holes, cracks in tree limbs and peeling bark.

- **Birds**

***Protective Legislation***

All wild birds, their occupied nests and eggs are protected by the Wildlife & Countryside Act 1981 (as amended).

'Schedule 1' birds are species which are afforded special protection within the Wildlife & Countryside Act (as amended). It is illegal to intentionally or recklessly disturb any Schedule 1 species while it is nest building or is at (or near) a nest with eggs or young; or disturb the dependent young of such a bird.

***Survey Methodology***

- **Reptiles**

***Protective Legislation***

The four widespread species of reptile (common lizard, slow-worm, grass snake and adder) receive partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of Section 9(5). It is an offence to intentionally kill, injure, sell, or to advertise for sale, any of these species without an appropriate licence. Further enforcement has been provided by The Countryside and Rights of Way Act 2000.