Survey Methodology

1. ***Site Walkover (Stratified Sample Areas)***

Using the Walkover survey form (save a new version for sample Area), walk over the sample area (e.g. A, B, C etc.) and make general descriptive notes on:

- main plant species (DAFOR);
- habitat type e.g. main NVC and describe vegetation;
- flowering/vigour of key species;
- Sphagnum/ other moss cover;
- Non-native species – target note small areas and Sch 9/ estimate % cover of survey Area if widespread;
- Tree/ shrub colonisation – species and % cover across Area;
- animals seen/heard;
- signs of grazing animals (in particular dung);
- features such as erosion;
- grazing levels on key plants (dwarf shrubs or grasses) – estimate % cover of last year's growth browsed;
- drains (grips);
- bare peat, etc.
- Note things that are absent, such as lack of bare peat, grips, grazing, etc., which might be important in assessing the site's condition in terms of JNCC Common Standards Monitoring.

Describe in detail the restoration measures implemented on site – the walkover form for each site specifies measures which need assessing e.g:

- What restoration measures have taken place;
- what material are grip blocks/ other measures;
- are they leaking/overtopping/eroding;
- are cut stumps of trees regenerating;
- is any damage from restoration works revegetating appropriately;
- is the species being controlled noticeably affected (e.g. are there signs of cattle grazing the *Molinia*).

During the walkover, if there is anything particularly notable such as a failing dam, observation of protected species etc, record this in the 'Notable observations form' but try not to go crazy with this!

2. ***Additional photographs***

Using the Additional Photos form (save a new form for each site), take 2 or 3 photos to illustrate the sample area (e.g. A, B, C), **10-figure grid reference** and compass bearing (so they can be mapped). Include close-ups of vegetation/features of interest/restoration measures as well as a general view. Ensure the date and time is recorded and a description.

As long as the date, time, location and other details are recorded, the photos can be retrospectively labelled (see methodology for this).

3. ***Fixed Point photographs***

Using the fixed point photograph form (save a new form for each site), repeat the fixed photographic monitoring points in the sample area. Photograph using the camera zoom off. Describe the updated location and any notes about the photo or changes since. Record the date and time so that it can be described.

4. ***Quadrats – Vegetation Monitoring Protocol***

Using quadrat survey form (save a new form for each quadrat), within each sample area repeat the required number of quadrats for that site.

For each 2 m x 2 m quadrat, record the following:

- 10-figure grid reference – check this is correct against what was previously recorded
- Height of the vegetation canopy (average of 4 measurements, to the nearest cm). Exclude flowering stems and do not stretch out any grass/sedge leaves that might be bending over – *no drop down for this as it could be any height and was previously recorded to nearest 0.25cm.*
- % cover of bare ground (include bare rock if present)
- Proportion (%) of bryophyte layer damaged (note main cause of damage)
- Presence of dung and which species in notes (cattle, sheep, grouse, hare, deer) (Y/N)
- % cover litter (dead plant material, including mulch, brash or tree stumps)
- % cover standing water (only if not vegetated)
- Proportion (%) of disturbed or compacted bare peat (note main cause of damage)
- Most common growth stage of *Calluna* (seedling, pioneer, building, mature or degenerate) if present
- % cover of all higher plant species (collect samples of species not known), including species of regrowing stumps
- % cover of all lower plant species (collect samples of species not known for the main mosses). Where there are particularly problematic groups these should be recorded to Genus (ie. *Campylopus, Cladonia*) – be consistent about this between surveyors. If very difficult (for example if coming back after ground disturbance) record as 'other mosses', 'other liverworts' and 'other lichens'.

5. Grip Block Monitoring

Behind (upstream) of the grip block, find the fixed point monitoring locations and:

- **Using quadrat survey form**, survey vegetation and other factors as above in the quadrat (quadrat size specified in form);
- **Using the fixed point photo** form, take a fixed point photograph at same location as previous – this should be detailed on the form.

Equipment:

- GPS containing .gpx files with all points and outlines of sites
- Spare batteries
- Tablet, powerpack
- Spare survey forms – all types
- Waterproof notebook
- Weather writer with pencils, spare pencils, pencil sharpener and rubber
- Compass
- 2m x 2m quadrats and smaller quadrats/ dividers
- Tape measure (for other shaped quadrats)
- Ruler (for canopy/sward height)
- Hand lens, ID books, sample bags
- Mobile phone
- Binoculars
- First aid kit and RAMS, contact details of landowner
- Aerial and OS maps
- Spare food, water and clothing
- Insect repellent
- Sun cream
- Resealable food bags/ waterproof bags e.g to put phone in
- Maps for remoter sites? Or Magic Maps and map case - just the remoter sites in the north-east
- Walkie talkies
- Compass
- Headtorch and spare batteries
- Emergency numbers in people's phones
- Printed/ fixed point photos on tablet to refer back to them for each site?
- A few peat poles just in case something needs measuring