

YORKSHIRE PEAT PARTNERSHIP **SURVEY SPECIFICATION**

Introduction

Before completing a field survey YPP will have extensively pre-survey mapped the site using high-resolution aerial photography, google satellite and OS Maps.

The following features will be mapped:

- Access Tracks
- Natural Watercourses, from OS 1:50,000 Maps
- Areas of non-peatland
- Areas of archaeology

The following peatland features will be mapped

- Grips
- Erosion Gullies
- Hags
- Dendritic areas
- Bare Peat

Once the above has been completed survey points will be generated every 100m within the site boundary and transect lines drawn between them to account for terrain and efficient coverage of erosion features

Field Survey

Each surveyor will walk their transect lines, stopping at each 100m survey point and every erosion feature that they cross. This allows widescale coverage of the site, whilst still recording detailed data.

Survey Point

At each 100m sampling point along the field transect record the following information into the GPS enabled field computer:

1. Peat depth (m)
2. Heather height over a 5m x 5m area
 - Under 15cm
 - 15-30cm
 - Over 30cm
3. Vegetation community class viewed over a 2m x 2m area (Table 2)
4. Grazing
 - Under grazed
 - Over grazed
5. Bog state – in line with [Uplands Management Group - Blanket Bog Decision making toolkit](#)
 - Afforested
 - Bare beat
 - Dwarf shrub dominated
 - Grass sedge dominated
 - Modified
 - Active

6. Heather burning category in a 5m x 5m area

- No burn
- New burn
- 1-5 year burn
- 5-10 year burn
- Mature Heather
- Degenerated Heather

7. Evidence of cracked peat (true/false)

8. All indicator species present in a 2m x 2m area (Table 4)

Erosion Features

Whenever a transect crosses or passes close to a mapped erosion feature the following data will be recorded

1. Presence of erosion feature
2. Type of erosion feature – see below further.
3. Is restoration work possible / necessary

Depending on the type of erosion feature recorded the follow data is then recorded.

2a. Grips, Gullies & Natural Watercourses

- Is the feature a natural watercourse? Yes/No – if No record the following:
- Flow present
- Dams present
- Width in m
- Depth in m
- Base Type (Table 6)
- Eroding base
- Eroding sides
- Angle of sides
- Presence of sphagnum

2b. Hags

- Height of hag
- Side angle
- Sphagnum present
- Flow at base

2c. Bare Peat & Micro-erosion

- Category
 - Bare Peat
 - Bare Mineral
 - Shallow Bare Peat
 - Dendritic erosion
 - Bare Mineral
- Bog pool



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- Sphagnum present
- Cottongrass present
- Peat depth

Additionally, any unmapped features will also be recorded with notes points, polygons and lines and then the above data will also be recorded for them.

Peatland Code

If a Peatland Code Survey is required. The surveyor will follow the latest Peatland Code Protocol and collect any additional data required

Sediment Trap Mapping

On particularly complex sites, the surveyor may also map the location and type of sediment traps required. Using the Sediment Trap Decision Tree.

Post Survey Mapping

When the survey is complete, the surveyor will cleanse the data and refine the GIS layers. The following actions will be taken.

1. Restoration features in areas where work is not possible will be removed
2. Potential sphagnum inoculation areas and heather cutting areas will be mapped
3. Erosion features will be categorised as per the prescription codes (table 10) to show what intervention is the most appropriate
4. **Sediment Trap Mapping** – on particularly complex sites, the surveyor will return for a secondary field survey to accurately map the locations of the sediment traps required
5. Calculate the quantities of all the restoration interventions required and transfer to the restoration plan
6. Map the peat depth across the site
7. Map the vegetation communities and indicator species across the site

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Table 2: Vegetation community

Code	Description	NVC community
PO1	Bog pool – <i>S.cusp/S.fal</i>	M2
PO2	Bog pool – <i>E.ang</i>	M3
WBEV	Wet Bog (<i>Eriophorum vaginatum</i> abundant, with <i>Trichophorum.cespitosa</i> , <i>Eriophorum angustifolium</i> , <i>Molinia caerulea</i> , dwarf-shrubs sparse. <i>Sphagnum papillosum</i> , <i>Sphagnum capillifolium</i> . Wet, pools & hummocks	M17
WBET	<i>Erica tetralix</i> with <i>Calluna vulgaris</i> , <i>Eriophorum angustifolium</i> , <i>Eriophorum vaginatum</i> <i>Sphagnum papillosum</i> , <i>Sphagnum capillifolium</i> , <i>Sphagnum tenellum</i> , <i>Sphagnum cuspidatum</i> & <i>Sphagnum magellanicum</i> . Can be dominated by <i>Empetrum nigrum</i> . Wet, pools & hummocks.	M18
BB75	<i>Calluna.vulgaris</i> (can be a monoculture), <i>Eriophorum vaginatum</i> with some <i>Eriophorum angustifolium</i> , <i>Vaccinium myrtillus</i> , <i>Empetrum.nigrum</i> , <i>S.cap</i> , <i>S.sub</i> large mosses <i>Pleurozium</i> , <i>Hypnum</i> , <i>Rhytid</i> , <i>Plagiothecium</i> . Hags & bare peat.>75% <i>Calluna</i>	M19
BB50	<i>C.vul</i> (can be a monoculture), <i>E.vag</i> with some <i>E.ang</i> , <i>V. myr</i> , <i>E.nig</i> . <i>S.cap</i> , <i>S.sub</i> large mosses <i>Pleurozium</i> , <i>Hypnum</i> , <i>Rhytid</i> , <i>Plagiothecium</i> . Hags & bare peat. ≥25%≤75% <i>Calluna</i>	M19
BB25	<i>C.vul</i> (can be a monoculture), <i>E.vag</i> with some <i>E.ang</i> , <i>V. myr</i> , <i>E.nig</i> . <i>S.cap</i> , <i>S.sub</i> large mosses <i>Pleurozium</i> , <i>Hypnum</i> , <i>Rhytid</i> , <i>Plagiothecium</i> . Hags & bare peat.<25% <i>Calluna</i>	M19
EV	<i>E.vag</i> dominant, some <i>E.ang</i> , <i>D.fle</i> , <i>V.myr</i> , <i>E. nig</i> . <i>A.can</i> , <i>N</i> , <i>str</i> ,	M20
DH	Dry heath – <i>C. vul</i> dominant, <i>D. fle</i> , some <i>V. myr</i> , <i>E.nig.</i> , <i>V. vit</i> . Or <i>V.myr</i> dominant, <i>D.fle</i>	H9 if <i>C.vul</i> dominant, H12 if wider range of dwarf shrub, H18 if <i>V. myr</i> dominant
WH	Wet heath – <i>C.vul.</i> , <i>E.tet.</i> , <i>M.cae</i> . <i>S. com</i> & occ. <i>S.ten</i>	M15 if <i>Potentilla erecta</i> commoner and <i>S.com</i> , <i>S.ten</i> less common; M16 <i>S.com</i> , <i>S.ten</i> more common
AG	Acid grassland (<i>Festuca ovina</i> , <i>Agrostis capillaris</i> , <i>Anthoxanthum odoratum</i>)	U4
AGM	Acid grassland (<i>Molinia caerulea</i>)	M25
AGJS	Acid grassland (<i>Juncus squarrosus</i>)	U6
AGNS	Acid grassland (<i>Nardus stricta</i>)	U5
AGDF	Acid grassland (<i>Deschampsia flexuosa</i>)	U2
AGJE	Rush Pasture (<i>Juncus effusus</i>)	M23b
CG	Calcareous grassland	CG9, CG10,
BR	Bracken	U20
AF	Acidic flush	M6 (M4 if <i>Carex rostrata</i> present – unlikely; <i>J. eff</i> can be abundant but it is only

		M23a if it there are a range of other grasses and herbs, if Molinia present it is M26)
BF	Basic flush	M10, M11,
SP	Spring	M32, M35, M37
BP	Bare peat	
BM	Bare mineral	
OT	Other	

Table 4: Indicator species

Code	Species
cal_vul	<i>Calluna vulgaris</i> (Common Heather)
erio_ang	<i>Eriophorum angustifolium</i> (Common Cottongrass)
erio_vag	<i>Eriophorum vaginatum</i> (Hare's-tail Cottongrass)
sci_ces	<i>Scirpus cespitosus</i> (Deergrass)
eri_tet	<i>Erica tetralix</i> (Cross-leaved Heath)
eri_cin	<i>Erica cinerea</i> (Bell-heather)
emp_nig	<i>Empetrum nigrum</i> (Crowberry)
vac_myr	<i>Vaccinium myrtillus</i> (Bilberry)
vac_vit	<i>Vaccinium vitis-idaea</i> (Cowberry)
vac_oxy	<i>Vaccinium oxycoccos</i> (Cranberry)
rub_cha	<i>Rubus chamaemorus</i> (Cloudberry)
and_pol	<i>Andromeda polifolia</i> (Bog Rosemary)
nar_oss	<i>Narthecium ossifragum</i> (Bog Asphodel)
dro_spp	<i>Drosera</i> spp. (sundew)
mol_cae	<i>Molinia caerulea</i> (Purple Moor-grass)
jun_eff	<i>Juncus effusus</i> (Soft Rush)
jun_squ	<i>Juncus squarrosus</i> (Heath Rush)
des_fle	<i>Deschampsia flexuosa</i> (Wavy Hair-grass)
agr_spp	<i>Agrostis</i> spp. (bent)
fes_spp	<i>Festuca</i> spp. (fescue)
pol_spp	<i>Polytrichum</i> spp (star moss or Haircap)
cam_fle	<i>Campylopus flexuosos</i> (Rusty Sawn-neck moss)
rhy_squ	<i>Rhytidiadelphus squarrosus</i> (Springy Turf-moss)
rhy_lor	<i>Rhytidiadelphus loreus</i> (Little Shaggy-moss)
rhy_tri	<i>Rhytidiadelphus triquetrus</i> (Big Shaggy-moss)
hyl_spl	<i>Hylocomium splendens</i> (Glittering Wood-moss)
ple_sch	<i>Pleurozium schreberi</i> (Red-stemmed Feather-moss)
hyp_jut	<i>Hypnum jutlandicum</i> (Heath Plait-moss)
pla_und	<i>Plagiothecium undulatum</i>
sph_spp	<i>Sphagnum</i> spp.
sph_cap	<i>Sphagnum capillifolium</i>
sph_com	<i>Sphagnum compactum</i>
sph_cus	<i>Sphagnum cuspidatum</i>
sph_den	<i>Sphagnum denticulatum</i>
sph_fal	<i>Sphagnum fallax</i>
sph_fim	<i>Sphagnum fimbriatum</i>
sph_gir	<i>Sphagnum girgensohnii</i>
sph_ind	<i>Sphagnum inundatum</i>
sph_mag	<i>Sphagnum magellanicum</i>
sph_pal	<i>Sphagnum palustre</i>

sph_pap	<i>Sphagnum papillosum</i>
sph_pul	<i>Sphagnum pulchrum</i>
sph_rus	<i>Sphagnum russowii</i>
sph_sky	<i>Sphagnum skyense</i>
sph_squ	<i>Sphagnum squarrosum</i>
sph_sub	<i>Sphagnum subnitens</i>
sph_ten	<i>Sphagnum tenellum</i>

Table 13: Domin and equivalent percentage range of which all species listed in Table 4 will be recorded.

Domin scale	Range (%)	Mid-range value (%)
10	91-100	96
9	76-90	83
8	51-75	63
7	34-50	42
6	26-33	30
5	11-25	18
4	5-10	8
3	1-4	3
2	<1	0.5
1	<1	0.3
+	<1	0.1

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Table 12: Categorisation of grips and gullies from surveys and subsequent treatment prescriptions.

Prescription					
Width (m)	Depth (m)	Substrate	Dam/sediment trap (see sections 3 & 4)		Side treatment (see Technical Specification 2)
			Code	treatment	
Various	Various	Bare Peat	C	Coir log bunds	None
Various	Various	Vegetated Peat or Vegetated Mineral with no water flow	RP	Reprofile to 33 ^o (see 2.1.3 of Technical Spec 2) Revegetate (see 2.3 of Technical Spec 2).	None
<2m	<1m	Bare peat (<30cm), mineral or vegetated mineral	HB	Heather bales (see spec 5)	None
≤1	All	Vegetated Peat	T1	Timber sediment traps (2m wide half or full height) (see section 3.3)	None
		Vegetated Mineral (or peat <30cm)	S1	Stone sediment traps (1 unit) (see section 3.4)	None
		Bare peat	P1	Peat dams (see section 3.2)	Reprofile
		Bare Mineral (or peat <30cm)	S1	stone sediment traps (1 unit) (see section 3.4)	None
>1≤2	All	Vegetated Peat	T2	Timber sediment traps (3m wide full height) (see section 3.3)	None
		Vegetated Mineral (or peat <30cm)	S2	Stone sediment traps (2 units) (see section 3.4)	None
		Bare peat	P2	Peat dams (see section 3.2)	None
		Bare Mineral (or peat <30cm)	S2	Stone sediment traps (2 units) (see section 3.4)	None
	<1	Bare peat	P1	Peat dams	Reprofile
>2≤3	All	Vegetated Peat	T3	Timber sediment traps (4m wide full height) (see section 3.3)	None
		Vegetated Mineral (or peat <30cm)	S3	Stone sediment traps (3 units) (see section 3.4)	None
		Bare peat	P3	Peat dams (see section 3.2)	None
		Bare Mineral (or peat <30cm)	S3	Stone sediment traps (3 units) (see section 3.4)	None
	<1	Bare peat	P1	Peat dams	Reprofile

>3≤4	≤1	Peat	TB3	Timber flow baffles (2m wide full height) (see section 4.2)	Reprofile to 45° (see 2.1.3 of Technical Spec 2) protect toe with stone, coir logs or bales and use geo-textile on slope. Revegetate (see 2.2. & 2.3 of Technical Spec 2).
		Bare Mineral (or peat <30cm)	SB3	Stone flow baffles (2 units) (see section 4.3)	Reprofile to 45° (see 2.1.3 of Technical Spec 2) protect toe with stone, coir logs or bales and use geo-textile on slope. Revegetate (see 2.2. & 2.3 of Technical Spec 2).
	>1	Peat	TB1	Timber flow baffles (2m wide full height) (see section 4.2)	None
		Bare Mineral (or peat <30cm)	SB1	Stone flow baffles (2 units) (see section 4.3)	None
>4	≤1	Peat	TB2	Timber flow baffles (2m wide full height) (see section 4.2)	Reprofile to 33° (see 2.1.3 of Technical Spec 2) Revegetate (see 2.3 of Technical Spec 2).
		Bare Mineral (or peat <30cm)	SB2	Stone flow baffles (2 units) (see section 4.3)	Reprofile to 33° (see 2.1.3 of Technical Spec 2) Revegetate (see 2.3 of Technical Spec 2).
	>1≤2	Peat	TB3	Timber flow baffles (2m wide full height) (see section 4.2)	Reprofile to 45° (see 2.1.3 of Technical Spec 2) protect toe with stone, coir logs or bales and use geo-textile on slope. Revegetate (see 2.2. & 2.3 of Technical Spec 2).
		Bare Mineral (or peat <30cm)	SB3	Stone flow baffles (2 units) (see section 4.3)	Reprofile to 45° (see 2.1.3 of Technical Spec 2) protect toe with stone, coir logs or bales and use geo-textile on slope. Revegetate (see 2.2. & 2.3 of Technical Spec 2).
	>2	Peat	TB1	Timber flow baffles (2m wide full height) (see section 4.2)	None
		Bare Mineral (or peat <30cm)	SB1	Stone flow baffles (2 units) (see section 4.3)	None

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