

A30 Chiverton to Carland Cross Environmental Statement

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Grassland NVC Report**

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National Vegetation Classification (NVC) survey of grassland habitat within 100 m of the proposed A30 Chiverton Cross to Carland Cross Improvement Scheme



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Summary

- Grassland habitat within a 100 metre buffer zone on each side of the proposed A30 road scheme between Chiverton Cross (to the west) and Carland Cross (to the east) was initially subject to a desk screening process. Consulted information included a Phase 1 survey map (provided by the WSP) and statutory and non- statutory designated site information. Aerial imagery of the survey area was also consulted.
- The habitats prioritised during the desk study were then scoped through a ground-truthing exercise. Habitats visited were as follows: All priority habitats and habitat of potential interest including semi-improved grassland and other habitat of potential to support significant National Vegetation Classification (NVC) grassland communities.
- Grasslands within a total of eight sites, considered to support habitat of sufficient quality to be subject to detailed NVC survey were shortlisted and prioritised for further survey.
- Grassland NVC work was conducted between 29th June and 4th July, 2017 and data was collected using standard NVC survey protocol, as described in Rodwell (2006).
- Data was analysed using MAVIS (Modular Analysis of Vegetation information System).
- One of the drier grassland sites (Site 7) was classifiable as MG5c-*Cynosurus cristatus-Centaurea nigra* grassland – *Danthonia decumbens* sub-community, listed within the Lowland Meadow 'Habitat of Principal Importance' under Section 41 of the NERC Act (2006).
- Five stands (9a, 10, 11, 28 and 29) supported drier mesotrophic grassland most strongly classifiable as MG6b- – *Lolium perenne-Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community.
- The MG6b classification is not included within the Lowland Meadow classification or any other Section 41 habitat description; however, the grasslands recorded within stands 9a, 10, 28 and 29, were atypically herb-rich for MG6, with some affinity to MG5 swards. Despite not conforming to Section 41 Lowland Meadow criteria, these grasslands can be seen as being of some conservation value in supporting herb-rich swards with species characteristic of unintensively and traditionally managed grasslands such as Common Knapweed *Centaurea nigra*, Meadow Vetchling *Lathyrus pratensis*, Common Bird's-foot Trefoil *Lotus corniculatus* and Yellow Bartsia *Parentucellia viscosa*.
- Of the four remaining stands surveyed three (Stands 6a,6b and 14) supported habitat categorised within NVC as being closest to MG10a - *Holcus lanatus-Juncus effusus* rush pasture – Typical sub-community, this habitat is generally widespread and species-poor wet pasture habitat not included within the Section 41 Purple Moor-grass and rush pastures 'Habitat of Principal Importance'. However, the more herb-rich stand 6a showed some affinity with the M23b, the *Juncus effusus/acutiflorus-Galium palustre* rush-pasture – *Juncus effusus* sub-community, which is included within the Purple Moor-grass and rush pastures S41 classification. In the strictest sense the habitat does not fit into this classification, however, this stand supported some species more typical of the latter community including *Galium palustre* and *Lotus pedunculatus*.
- The wetland habitat recorded at Site 9 (Stand 9b) showed no particularly strong association to any NVC community, the strongest being the M27c – *Filipendula ulmaria – Angelica sylvestris* mire – *Juncus effusus – Holcus lanatus* sub-community. The habitat supported characteristic wet grassland/rush pasture/swamp species which complemented the adjacent wet woodland edge and drier, herb-rich grassland habitat of Site 9, but M27 and associated assemblages are not classified within the Purple Moor-grass and rush pastures S41 classification.
- No uncommon or designated species associated with grassland or arable margin habitats were recorded during the survey. However, Dorset Heath *Erica ciliaris* (Nationally Rare (Based on Pre-2001 criteria) or possibly the infertile *E. ciliaris x E. tetralix* hybrid known as *E.*

watsonii was incidentally recorded in heathland at SW83854 53660 during invertebrate surveys.

Introduction

In 2017, a study was undertaken to assess the conservation value of grassland vegetation communities occurring within a 100 metre buffer zone on either side of a proposed road scheme relating to the existing A30 between Chiverton Cross and Carland Cross, Cornwall (the 'proposed Scheme').

The survey work built on information derived from a Phase 1 survey (conducted by WSP) and was undertaken in two stages; firstly, a scoping study to ground truth the quality of habitats recorded within the Phase 1 survey and secondly, by means of detailed quadrat based, survey following National Vegetation Classification (NVC) protocol.

Alongside the NVC-specific vegetation scoping undertaken for the purpose of this project, habitat was also scoped for suitability to support invertebrate species and assemblages of conservation value. However, the findings of the invertebrate surveys will be detailed in a separate report. It should, therefore, be noted that the target notes derived from the scoping study (included in Appendix 1, Table 2, within this report) cover both grassland habitat scoped for botanical and invertebrate assessment purposes as well as other habitats, e.g. heathland and woodland, which were scoped only in relation to their invertebrate interest.

The following report details findings of the scoping study and subsequent NVC survey of semi-improved grassland habitats. Sites prioritised for NVC survey were shortlisted following the scoping study due to supporting more herb-rich communities with some potential conservation value. NVC data was analysed using the MAVIS (Modular Analysis of Vegetation Information System) package and output data is considered in terms of affinity with priority habitats described within Section 41 of the NERC Act (2006).

Aims and objectives

Aim

The main aim of the survey was to establish the NVC affinities and of semi-improved grassland habitats lying within a 100 m buffer along a 13km stretch of a proposed rerouting of the A30 between Carland Cross westwards to Chiverton Cross. Findings would be used to assess the conservation value of habitat in relation to Section 41 Priority Habitat affinity.

Objectives

1. To ground-truth and scope grassland habitat mapped as SI grassland within an existing Phase 1 survey within the described survey area;
2. To undertake NVC surveys of SI grasslands prioritised within the scoping exercise within the survey area;
3. To produce a report including findings and species lists, and an evaluation of key habitat in terms of NVC affinity.

Method

Desk study

Prior to conducting fieldwork, existing habitat and plant species records were reviewed. Reviewed information resulted from a biological records data-search conducted by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) and included citations of statutory or non-statutory nature conservation sites and species records.

Field survey

Habitat Scoping

Semi Improved (SI) grassland habitat identified and mapped within a pre-existing Phase 1 (JNCC, 1990 methodology) survey produced by WSP, was re-surveyed and scoped in 2017. For the purpose of the study, all pre-identified SI grassland habitat within a 100 metre buffer of the proposed A30 re-routing, lying between Carland Cross westwards to Chiverton Cross was walked and described by means of geo-referenced target notes.

The scoping study also provided an opportunity for recording presence/absence of individual plant species of note occurring on designated road verges and other habitat within the survey area.

Following the scoping exercise, sites considered to support plant communities of potential conservation value were short-listed for more detailed survey using standard National Vegetation Classification (NVC) protocol.

NVC survey

Survey followed standard JNCC protocol for National Vegetation Classification (NVC) survey of grassland habitat as described in Rodwell (2006).

Habitat was initially divided into homogenous stands, taking into account transitions between different communities and also the structural heterogeneity of the site. The approximate boundaries of stands were mapped as accurately as possible. Where complex habitat mosaics are present, the whole area (extent of mosaic stand) was mapped.

Within each defined stand, data was collected from five quadrats to enable frequency to be recorded in accordance with NVC protocol and quadrats were deployed randomly within each stand.

As recommended for NVC grassland surveys, 2m x 2m quadrats were used. Quadrats were set up using a 30m tape measure and with canes to mark the corners. Each quadrat was geo-referenced using a hand-held Global Positioning System (GPS).

Within each quadrat: All vascular and lower plants were listed and the Domin¹ value of each plant was recorded. Where *in situ* species identification was not practical on site, samples were collected for *ex-situ* examination.

Domin values require a visual estimate of percentage cover to be made. The percentage cover was estimated by looking vertically (or nearly vertically) down onto the quadrat. Due to the three-dimensional structure of plant architecture, with plants often growing in layers which overlap one another, percentage cover scores exceeding 100 percent are to be expected.

¹ Domin Scale is a scale of abundance based on percentage cover. A quadrat with 91-100% cover has a Domin value of 10; 76-90% = 9; 51-75% = 8; 34-50% = 7; 26-33% = 6; 11-25% = 5; 4-10% = 4; <4% (many individual plants) = 3; <4% (several individuals) = 2 and <4% (few individuals) has a Domin score of 1.

In addition to floristic composition, vegetation structure was recorded including mean sward height per quadrat as well as percentage cover of bare ground, extent of vegetable litter and standing water (as appropriate) within each quadrat. A brief description of the stand as a whole was made and plants recorded on site which did not occur within quadrats were also recorded. Each quadrat was photographed for reference purposes and general photographs of the stand were also taken.

Reporting and analysis

Analysis

Analysis of NVC data can be undertaken manually using tables and with reference to the key within the appropriate NVC volume. Alternatively, data may be analysed using software such as Tablefit, Match, Twinspan, or MAVIS (Modular Analysis of Vegetation Information System).

For the purposes of this project NVC data was analysed using MAVIS. MAVIS is a programme developed by the Centre for Ecology and Hydrology (CEH) to analyse vegetation data using different types of classification systems. These include the Countryside Vegetation System (CVS) and classifications used by the Countryside Survey 2000. MAVIS also includes classification programmes for the National Vegetation Classification (NVC). For the purpose of the current project NVC analysis only was undertaken using this software.

MAVIS output produced data tables for each surveyed stand. For each stand, the top 10 best fit NVC assemblages are defined and a percentage value relating to the conformity of the recorded stand data to each of the 10 best fit communities is given.

Best fit NVC classifications are presented for each stand sampled and resultant communities have been cross-referenced for affinity with habitats listed under the NERC Act (2006) as S41 – Habitats of Principal Importance.

Following MAVIS analysis, NVC data was also considered in relation to descriptions within the appropriate NVC volumes (1 to 5) (Rodwell, 1991, 1991a, 1992, 1995 and 2000) as appropriate.

In addition to NVC analysis, any plant recorded during the survey which receives protection under UK/European law, is listed as an S41 – Species of Principal Importance, or is subject to a higher conservation designation i.e. nationally scarce or Red Data Book species, was listed and discussed.

Survey limitations

Every effort was made to select and sample from representative habitat during the survey, to select stand boundaries and record all species present within each quadrat and to assess percentage cover/domin values with accuracy. However, certain conditions can compromise the accuracy of survey. Sites 7 and 11, were managed by fairly regular mowing and had been mowed recently prior to survey. Whilst it is not thought that this management unduly compromised identification of grasses or other species within quadrats as species were identified vegetatively from leaves, ligules and other characteristics, it is possible that certain indistinct species may have been missed and also, the accuracy of domin value estimation can be compromised in such situations. Such potential discrepancies, however, are likely to be too small to unduly compromise the results, or application of NVC within the current survey.

One site, Site 14, had been subject to a recent hay cut immediately prior to the survey and a decision was, therefore, made to sample from a representative stand of rush pasture habitat which had not

been cut. This stand was; however, reasonably representative of the more herb-rich parts of the site and such selection is not thought to have unduly influenced the survey results.

The survey was undertaken within the recommended time-frame for survey of herb-rich mesotrophic grassland communities such as MG5. Robertson and Jefferson (2000) recommend the period between mid-May and the end of July for MG5 and the vast majority of characteristic grassland plants are in evidence at this time. However, some plant species which occur for only a short period either early or late in the season would have been missed due to the 'snapshot in time' nature of the survey.

The survey focussed specifically on herb-rich, semi-improved grasslands and the emphasis was on surveying the more herb-rich stands within the survey area. As such, rare and uncommon grassland plants occurring incidentally throughout the survey area would not have been covered except as incidentals. Whilst effort was made to search the dedicated survey stands with due attention for uncommon plants or plants representative of habitat both within and outside of the quadrats, the results of the survey cannot be said to guarantee the absence of rare or uncommon species within the survey areas.

Results

Desk study

Based on a 100 metre buffer zone on either side of the proposed re-routing footprint of the A30, no grassland (or other) sites subject to statutory conservation designations under International or UK law were found. Roadside Inventory sites BS22, BS315, BS316 and BS214 were all surveyed during the scoping study.

Plant species listed within the historic data record-search (ERCCIS) dated from as far back as the 19th century. The data was narrowed to include only records from post-1990 and species recorded within 200m of the proposed carriageway. In addition, as the list contained species assigned within the Post 2001 IUCN 'Least Concern' category, which includes very common species such as Smooth Meadow-grass *Poa pratensis*, for example, were removed from the list.

Following this exercise, two species of higher designation were found to have been recorded within the zone. These included Corn Spurrey *Spergula arvensis*, a species (currently listed under post-2001 IUCN criteria as 'Vulnerable' and Field Woundwort *Stachys arvensis* (listed under post-2001 IUCN criteria as 'Near Threatened'.

Corn Spurrey was recorded in several locations within the wider landscape in the data-search, however, the most relevant records were from SW7958 4991 and SW7968 5008 in 2003, these records relating to the road verge north of the A30, just south of Marazanvose. The species was also recorded in 1992 close to the centre of the village of Zelah at SW811 518. Field Woundwort was recorded at the same time and location and also in several locations within a few hundred metres of the A30.

Post-2001 IUCN criteria is based on elements including recorded decline, rather than the pre-2001 criteria which was based more on grid square occupancy. Despite significant recorded declines nationally, in particular since the 1950s, both Corn Spurrey and Field Woundwort are still fairly widespread in Cornwall and the southwest in general. Both species are often found in disturbed ground, road verges and similar habitat. Corn Spurrey is a calcifuge, therefore is largely confined to more acid soils.

Scoping study

Appendix 1, Table 2 includes summary descriptions for each of 30 areas targeted for ground truthing² and indicates which of these areas were, subsequently, shortlisted for detailed NVC survey. The rationale for selecting/rejecting habitat at each site for more detailed survey is also indicated. Site by site locations of the 30 ground-truthed sites are indicated on maps Appendix 2, Figure 1.

In addition, target notes/habitat descriptions showing a greater resolution of information, collected jointly for the purpose of both NVC grassland and invertebrate survey (dealt with in a separate report), are presented in Appendix 1, Table 2.

NVC

Following the scoping study, grassland habitat considered of somewhat higher conservation value, i.e. more diverse herb-rich swards with at least some potential to fall within one or other of the classifications listed within the NERC Act (2006) Section 41 – Habitats of Principal Importance in England, were selected for NVC survey. Such habitat would be most likely to be associated with either 'Lowland meadows', or in the case of rush-pasture/wet grassland, 'Purple moor-grass and rush pastures' classification.

In total, eight sites were selected using the above process which supported more herb-rich swards. A precautionary approach was taken, where swards supporting herbs characteristic of less-improved swards such as *Centaurea nigra* and *Lotus corniculatus* alongside graminoids such as *Anthoxanthum odoratum*, at reasonable density were selected.

In total 10 stands were identified within the eight sites considered to support habitat of sufficient quality to warrant NVC. The majority of sites were on farmland and were managed either by grazing or cutting. In one instance (Site 7), was a wide verge managed by mowing and listed as 'calcareous grassland' Priority Habitat within the data search. For the most part, habitat was fairly constant across the entire field (or part of the field) surveyed; therefore, most were surveyed as a single stand based on five quadrats. There was a degree of hydrological variation between the sites, ranging from wet grassland and rush pasture habitat e.g. Site 6 to relatively dry grasslands.

The raw NVC data for the 10 stands is presented in Appendix 1, Tables 3 and the stands and approximate positions of quadrats within each stand are depicted in Appendix 2, Figure 2. MAVIS output listing the top ten NVC affinities per stand are included in Appendix 1, Table 4. There follows a description of habitat related to each area selected for NVC survey:

Site 6

Habitat

The survey area occupied the northwest corner of a large field variously comprising semi-improved wet grassland /rush pasture habitat with an area of wet woodland at the western boundary. The sward height was typically about 30cm for the grassy components, ranging between 25 and 50cm with the Soft Rush *Juncus effusus* stands being typically around 70cm tall. The water table was frequently at or close to the soil surface, with some slightly inundated areas, but water levels rarely exceeded one or two centimetres.

The habitat for the main comprised a mosaic of more open wet grassland in which Yorkshire Fog *Holcus lanatus* was dominant, with scattered Soft Rush *Juncus effusus* and stands of more-dense *Juncus effusus*, where *H. lanatus* and other graminoids and herbs were less prolific. The stands were

² Note: some areas were also scoped for invertebrate survey, so habitats such as heathland and woodland, for example were scoped for invertebrates only and are not relevant to the NVC study

sampled separately for the purpose of NVC, although composition was similar between the two stands, the frequency and abundance of species varied.

Stand 6a (See Appendix 3, Photograph 1) supported the more-dense *Juncus effusus* dominated stands and generally occurred in the progressively wetter areas of the site. The only constant species recorded within this stand were *Juncus effusus*, *Holcus lanatus* and Creeping Bent-grass *Agrostis stolonifera*. Other graminoids recorded included in order of frequency and abundance; Sweet Vernal-grass *Anthoxanthum odoratum* and Perennial Rye-grass *Lolium perenne*.

Marsh Thistle *Cirsium palustre* and Marsh Bedstraw *Galium palustre*, were the most frequent herbs occurring in four out of five quadrats; however, Greater Bird's-foot Trefoil *Lotus pedunculatus* whilst being less frequent, was more abundant within the stand as a whole than the aforementioned herbs. Other relatively frequent herbs included Creeping Buttercup *Ranunculus repens*, Meadow Buttercup *R. acris*, Common Nettle *Urtica dioica* and Cuckooflower *Cardamine pratensis*.

Herbs being occasional or rare within the quadrats included Square-stalked St John's-wort *Hypericum tetrapterum*, Creeping Cinquefoil *Potentilla reptans*, Water Forget-me-not *Myosotis scorpioides*, Sticky Mouse-ear *Cerastium glomeratum*, Lesser Spearwort *Ranunculus flammula*, Curled Dock *Rumex crispus*, Common Fleabane *Pulicaria dysenterica*, Red Campion *Silene dioica* and Greater Plantain *Plantago major*. Lady Fern *Athyrium filix-femina* was recorded once within the stand and Common Feather-moss *Kindbergia praelonga* was the only recorded bryophyte, occurring occasionally within the stand. In addition, small amounts of Bramble *Rubus fruticosus* (agg.) and Grey Willow *Salix cinerea* (seedlings) were recorded but only rarely.

In Stand 6b (see Appendix 3, Photograph 2), only *Holcus lanatus* and *Agrostis stolonifera* were constant and abundant throughout all quadrats. *Anthoxanthum odoratum* was also abundant, but was more patchily distributed and *Lolium perenne* was more thinly scattered. *Juncus effusus* occurred at much lower density within Stand 6b, occurring in small amounts in only two quadrats. Jointed Rush *Juncus articulatus* also occurred rarely in the sward. The sward was generally herb-poor, with only seven species recorded. Of these, *Lotus pedunculatus* and *Ranunculus acris* were abundant, with smaller amounts of *R. repens*, Ribwort Plantain *Plantago lanceolata*, Dandelion *Taraxacum officinale* (agg.), Creeping Thistle *Cirsium arvense* and Marsh Thistle *Cirsium palustre*.

Species recorded within the stands, but not occurring within the quadrat data included the grasses Marsh Foxtail *Alopecurus geniculatus* and Rough-stalked Meadow-grass *Poa trivialis*, Floating Sweet-grass *Glyceria fluitans*, Water Mint *Mentha aquatica*, Ragged Robin *Lychnis flos-cuculi*, Marsh Ragwort *Senecio aquaticus* and Tormentil *Potentilla erecta*. Species including *M. aquatica*, *L. flos-cuculi* and *G. fluitans* were more prevalent in the wetter habitat which persisted more strongly downslope towards the southern end of the field, but did occur in small amounts within the surveyed areas.

Management

No livestock were present at the time of survey and the sward was becoming rank in places. However, there was evidence of recent grazing by cattle (dung) and the site owner suggested that sheep may be on the site. It is uncertain whether or not the site receives a mixed grazing regime, or at what density and for what period the site is typically grazed. It is possible that the site may also be cut for hay.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 6a sward were as follows (percentage conformity in parenthesis): MG10a *Holcus lanatus*-*Juncus effusus* rush-pasture – typical subcommunity (61.48); MG10 *Holcus lanatus*-*Juncus effusus* rush-pasture (56.62), M23b *Juncus*

effusus/acutiflorus-Galium palustre rush-pasture – *Juncus effusus* sub-community (53.08), M27c *Filipendula ulmaria-Angelica sylvestris* mire – *Juncus effusus-Holcus lanatus* sub-community (51.55), M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture (49.50).

For Stand 6b, the top five affinities were recorded as follows: MG10a *Holcus lanatus-Juncus effusus* rush-pasture – typical subcommunity (62.50), MG10 *Holcus lanatus-Juncus effusus* (54.93), MG10b *Holcus lanatus-Juncus effusus* rush-pasture – *Juncus inflexus* subcommunity (48.63), MG11a *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland – *Lolium perenne* sub-community (48.55), MG9 *Holcus lanatus-Deschampsia cespitosa* grassland (48.40).

S41 Priority Habitat affinities

Analysis indicated that both Site 6a and 6b rush-pasture/wet grassland stands most-strongly conformed to variants of MG10 *Holcus lanatus-Juncus effusus* rush-pasture communities. MG10 is not included as a community within the description for the Purple moor-grass and rush pastures 'Habitat of Principal Importance' In England' Section 41, NERC Act, 2006.

M23 including (M23b *Juncus effusus/acutiflorus-Galium palustre* rush-pasture – *Juncus effusus* sub-community) which was represented within the MAVIS output, though not the strongest association for Stand 6a is, however, listed as one of the NVC communities ascribed to the Purple moor-grass and rush pastures priority habitat.

Site 7

Habitat

Described as 'calcareous grassland priority habitat'. The surveyed stand occupied a wide verge c15m at its widest point, extending for approximately 300m along the northern boundary of the existing A30. The fairly herb-rich sward was mowed shortly prior to survey and was uniformly 5cm tall throughout (See Appendix 3, Photograph 3). The soil was generally of sandy-clay-loam or similar and the sward was fairly compact, with few bare earth patches.

Graminoids including Common Bent-grass *Agrostis capillaris*, Yorkshire Fog *Holcus lanatus* and Sweet Vernal-grass *Anthoxanthum odoratum* were constant and co-dominant throughout the sward, with abundant Red Fescue *Festuca rubra*, Perennial Rye-grass *Lolium perenne* and Cock's-foot *Dactylis glomerata* and frequent Heath Grass *Danthonia decumbens*. Crested Dog's-tail *Cynosurus cristatus* was also recorded within the quadrat data at lower frequency, but may have been overlooked in short-grazed sward. Another species present in the sward, but which did not occur within the quadrat data, was Field Wood-rush *Luzula campestris*.

Constant forbs recorded included Common Bird's-foot Trefoil *Lotus corniculatus*, White Clover *Trifolium repens*, Black Knapweed *Centaurea nigra* and Ribwort Plantain *Plantago lanceolata*. Dandelion *Taraxacum officinale* (agg.) and Bulbous Buttercup *Ranunculus bulbosus* were both abundant, whilst Yarrow *Achillea millefolium*, Selfheal *Prunella vulgaris* and Common Cat's-ear *Hypochaeris radicata* were frequent within the sward. Less well represented species within the quadrat data included Silverweed *Potentilla anserina*, Creeping Cinquefoil *Potentilla reptans*, Common Mouse-ear *Cerastium fontanum*, Blinks *Montia fontana*, Greater Plantain *Plantago major*, Meadow Buttercup *Ranunculus acris* and Beaked Hawk's-beard *Crepis vesicaria*.

Besides the vascular plants, two common grassland bryophytes were recorded throughout the sward; Springy Turf-moss *Rhytidiadelphus squarrosus* and Neat Feather Moss *Pseudoscleropodium purum*.

Several additional herbs were recorded within the sward, but outside of the quadrats. These included Germander Speedwell *Veronica chamaedrys*, Common Sorrel *Rumex acetosa*, Cut-leaved Crane's-bill *Geranium dissectum* Procrumbent Pearlwort *Sagina procumbens*, Common Vetch *Vicia sativa*, Creeping Thistle *Cirsium arvense* and Hogweed *Heracleum sphondylium*. The latter two species occurred within a band of taller, unmown grassland between the verge and the hedge-bank, together with Cleavers *Galium aparine* and Bramble *Rubus fruticosus* (agg) and Common Gorse *Ulex europaeus* scrub.

Management

The sward is managed by mowing. During the survey, the verge was seen to have been recently mowed on two or more occasions over a three-monthly period. Mowing may be undertaken for road safety rather than management purposes. Highways Agency vehicles were also seen parked on the verge during the course of the survey.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Site 7 sward were as follows (percentage conformity in parenthesis): MG5c *Cynosurus cristatus-Centaurea nigra* grassland – *Danthonia decumbens* sub-community (61.65); MG5 *Cynosurus cristatus-Centaurea nigra* grassland (60.80); MG5a *Cynosurus cristatus-Centaurea nigra* grassland – *Lathyrus pratensis* sub-community (60.66); MG6b (58.89); MG5b *Cynosurus cristatus-Centaurea nigra* grassland – *Galium verum* sub-community (57.22).

S41 Priority Habitat affinities

Analysis indicated that the Site 7 grassland most-strongly conformed to variants of MG5 *Cynosurus cristatus-Centaurea nigra* grassland communities. MG5 is included as a community within the description for the Lowland Meadow 'Habitat of Principal Importance In England' Section 41, NERC Act, 2006.

Site 9

Habitat

Stand 9a (See Appendix 3, Photograph 4) comprised a strip of herb-rich SI grassland on a moderately steep east facing slope c20m wide and around 150m long, which sloped downwards to the woodland margin. The selected stand was distinctly less improved and more herb-rich than the adjacent, poor-SI grassland occurring on the flatter, more elevated areas of the site.

The sward within the stand was between five and 10cm tall at time of survey and was apparently managed by livestock grazing (cattle and or ponies). Constant graminoids within the sward included Yorkshire Fog *Holcus lanatus*, Perennial Rye-grass *Lolium perenne* and Common Bent-grass *Agrostis capillaris*, *H. lanatus* being the most abundant of these. Other grasses frequent within the sward included Sweet Vernal-grass *Anthoxanthum odoratum*, Crested Dogtail *Cynosurus cristatus* and Small Cat's-tail *Phleum bertelonii* whilst Red Fescue *Festuca rubra* and Cock's-foot *Dactylis glomerata* were present only in small amounts.

Herbs recorded consistently throughout the stand included Ribwort Plantain *Plantago lanceolata*, Creeping Buttercup *Ranunculus repens*, White Clover *Trifolium repens* and Common Bird's-foot Trefoil *Lotus corniculatus* which were all abundant. Meadow Buttercup *Ranunculus acris*, Selfheal *Prunella vulgaris*, Dandelion *Taraxacum officinale* (agg.) and Common Sorrel *Rumex acetosa* were frequent within the sward with Common Knapweed *Centaurea nigra*, Greater Plantain *Plantago major*, Common Mouse-ear *Cerastium fontanum*, Common Ragwort *Senecio jacobaeae*, Meadow Vetchling *Lathyrus pratensis*, Common Centaury *Centaureum erythraea*, Common Cat's-ear *Hypochaeris radicata*, Germander Speedwell *Veronica chamaedrys* and Black Medick *Medicago*

Lupulina were thinly scattered within the sward. In addition, Marsh Thistle *Cirsium palustre* was recorded only at the damper slope bottom adjacent to the woodland edge.

There were a reasonable number of small patches of bare earth within the sward, but averaging for quadrat data was less than 0.5 percent for the stand as a whole. The soil was generally a loamy clay or clay loam, although there was variation over the site and some areas appeared to be relatively free-draining.

Stand 9b (See Appendix 3, Photograph 5) comprised a small (c20m x 5m) patch of herb-rich woodland edge wet grassland/ swamp habitat at woodland margin. The stand formed part of a succession from wet grassland, tall ruderal and fen, through scrub to woodland edge, scrub forming a mosaic with tall herbs and shorter grassland/swamp habitat.

Due to the small size of habitat and inaccessibility of wetter areas, stand was assessed as a single unit, without quadrats.

Yorkshire Fog *Holcus lanatus* occurred throughout with only occasional Soft Rush *Juncus effusus*, with herbs including abundant Fleabane *Pulicaria dysenterica*, Water Mint *Mentha aquatica* and Creeping Buttercup *Ranunculus repens*, frequent Ragged Robin *Lychnis flos-cuculi*, Curled Dock *Rumex crispus*, Sorrel *R. acetosa*, White Clover *Trifolium repens*, Marsh Bedstraw *Galium palustre* and Meadow Buttercup *R. acris* and occasional Square-stalked St John's-wort *Hypericum tetrapterum*, Wild Angelica *Angelica sylvestris*, Hedge Bindweed *Calystegia sepium*, Bramble *Rubus fruticosus* (agg.), Water Forget-me-not *Myosotis scorpioides*, Greater Bird's-foot Trefoil *Lotus pedunculatus*, Sticky Mouse-ear *Cerastium glomeratum*, Marsh Thistle *Cirsium palustre*, Prickly Sowthistle *Sonchus asper*, Hemp Agrimony *Eupatorium cannabinum* and Creeping Thistle *Cirsium arvense*.

In addition, other plants characteristic of swamp habitats including Brooklime *Veronica beccabunga*, Water Figwort *Scrophularia auricularia*, Small Stitchwort *Stellaria graminea* and Greater Willowherb *Epilobium hirsutum*, were also recorded within the wetter, woodland edge habitat.

The habitat graded into wet woodland which was partially inundated at ground level at the time of survey.

Management

The grassland habitat comprising the field and associated habitats including woodland edge and swamp/ marshy grassland habitat was evidently managed by livestock grazing. However, no livestock was present at the time of survey. It is probable that the site is grazed by cattle, although ponies may also be used.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 9a sward were as follows (percentage conformity in parenthesis): MG6b *Lolium perenne-Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community (59.39); MG6a *Lolium perenne-Cynosurus cristatus* grassland – typical sub-community (58.59); MG6d *Lolium perenne-Cynosurus cristatus* grassland – *Filipendula ulmaria* sub-community (58.10); MG6 *Lolium perenne-Cynosurus cristatus* grassland – (57.74); MG5a *Cynosurus cristatus-Centaurea nigra* grassland – *Lathyrus pratensis* sub-community (56.12).

The top five affinities resulting from MAVIS analysis of the Stand 9b sward were as follows (percentage conformity in parenthesis): M27c *Filipendula ulmaria-Angelica sylvestris* mire- *Juncus effusus-Holcus lanatus* sub-community (49.86), M27 *Filipendula ulmaria-Angelica sylvestris* mire

(48.17), MG10a *Holcus lanatus*-*Juncus effusus* rush-pasture – Typical sub-community (46.56), OV26a *Epilobium hirsutum* community – *Juncus effusus*-*Ranunculus repens* sub-community (46.05), OV26 *Epilobium hirsutum* community (43.53).

S41 Priority Habitat affinities

Analysis indicated that the Site 9a grassland most-strongly conformed to variants of MG6 *Lolium perenne*-*Cynosurus cristatus* grassland. The analysis also showed some affinity to the MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community. The grassland was clearly much more herb-rich than typical MG6 communities and species such as *Lotus corniculatus*, *Centaurea nigra*, *Lathyrus pratensis* and *Centaureum erythraea* do not commonly occur in MG6 communities, but were present here. MG6 is not included as a community within the description for the Lowland Meadow 'Habitat of Principal Importance in England' Section 41, NERC Act, 2006. However, MG5 is. The habitat may be seen to be on the cusp between these communities, but may not strictly conform to Lowland Meadow criteria.

Analysis indicated that the Site 9b habitat surveyed most-strongly conformed to variants of M27 *Filipendula ulmaria*-*Angelica sylvestris* mire, however, the percentage score was comparatively low at 49.86. The MG10a *Holcus lanatus*-*Juncus effusus* rush-pasture was the third most highly ranked community in terms of affinity according to MAVIS analysis. Neither MG10 or M27 appear to be listed as assemblages within either the description for the Purple moor-grass and rush pastures, or the Lowland fens 'Habitats of Principal Importance' In England' Section 41, NERC Act, 2006.

Site 10

Habitat

Habitat to the east of the site is generally drier and to the west, areas of wetter grassland and rush pasture were recorded. The area surveyed as a stand was a strip of the drier grassland to the south and east of the site, therefore lying within the 100m buffer zone of the proposed A30 re-routing (See Appendix 3, Photograph 6).

The sward was fairly herb-rich and at the time of survey the sward height was approximately 30cm being fairly uniform. Graminoids constant in terms of quadrat data frequency included Common Bent-grass *Agrostis capillaris*, Yorkshire Fog *Holcus lanatus* and Sweet Vernal-grass *Anthoxanthum odoratum* and Perennial Rye-grass *Lolium perenne*, Crested Dog's-tail *Cynosurus cristatus* and Cock's-foot *Dactylis glomerata* all occurred to a lesser extent in decreasing order of frequency. Constant herbs included Ribwort Plantain *Plantago lanceolata*, Meadow Buttercup *Ranunculus acris* and Dandelion *Taraxacum officinale* (agg.), with Common Bird's-foot Trefoil *Lotus corniculatus*, Common Cat's-ear *Hypochaeris radicata* and Sorrel *Rumex acetosa* all being abundant.

Less frequent or more locally distributed herbs including Smooth Hawk's-beard *Crepis capillaris*, Hogweed *Heracleum sphondylium*, Common Knapweed *Centaurea nigra*, Tufted Vetch *Vicia cracca*, Red Clover *Trifolium pratense*, Meadow Vetchling *Lathyrus pratensis*, Selfheal *Prunella vulgaris*, White Clover *Trifolium repens*, Common Vetch *Vicia sativa* and Common Ragwort *Senecio jacobaeae*. A few Blackthorn *Prunus spinosa* saplings were also recorded in the sward and bryophytes including Springy Turf-moss *Rhytidiadelphus squarrosus* and Rough-stalked Feather-moss *Brachythecium rutabulum* were also recorded.

Other species recorded within the stand but not within the quadrats included Creeping Bent-grass *Agrostis stolonifera*, Greater Bird's-foot Trefoil *Lotus pedunculatus*, Cut-leaved Crane's-bill *Geranium dissectum*, Black Medick *Medicago lupulina* and Cuckooflower *Cardamine pratensis*.

Management

The site was managed as a hay meadow at the time of survey and the sward was consistent with such management. During the survey period the field was topped and baled in early July. The site supported a significant population of Five-spot Burnet *Zygaena trifolii*. The presence of this day-flying moth associated with less intensively managed meadowland, suggests that the field is not intensively managed, possibly with a single annual hay-cut.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 10 sward were as follows (percentage conformity in parenthesis): MG6b *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community (57.95); MG5 *Cynosurus cristatus*-*Centaurea nigra* grassland (53.46); MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community (53.44); MG6d *Lolium perenne*-*Cynosurus cristatus* grassland – *Filipendula ulmaria* sub-community (50.90); MG4b *Alopecurus pratensis*-*Sanguisorba officinalis* grassland – Typical sub-community (50.51).

S41 Priority Habitat affinities

Analysis indicated that the Site 10 grassland most-strongly conformed to MG6b *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community. However, the analysis also showed some affinity to the MG5 *Cynosurus cristatus*-*Centaurea nigra* and MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community. The grassland was clearly much more herb-rich than typical MG6 communities and species such as *Lotus corniculatus*, *Centaurea nigra* and *Lathyrus pratensis* do not commonly occur in MG6 communities, but were present here. MG6 is not included as a community within the description for the Lowland Meadow 'Habitat of Principal Importance in England' Section 41, NERC Act, 2006. However, MG5 is. The habitat may be seen to be on the cusp between these communities, but may not strictly conform to Lowland Meadow criteria.

Site 11

Habitat

Site 11 comprised a large field supporting a fairly uniform sward of recently mowed, SI mesotrophic grassland (See Appendix 3, Photograph 7). The sward was around five centimetres tall throughout all but a narrow marginal strip which was unmown. The field was used for equestrian activities and several horse jumps were present. The stand was taken to include habitat within the 100m buffer of the proposed A30 rerouting. Graminoids recorded at constant frequency over the five quadrats included Yorkshire Fog *Holcus lanatus*, Common Bent-grass *Agrostis capillaris*, Sweet Vernal-grass *Anthoxanthum odoratum*, Crested Dog's-tail *Cynosurus cristatus* and Perennial Rye-grass *Lolium perenne* in order of abundance. Other graminoids recorded included Cock's-foot *Dactylis glomerata*, recorded at low abundance in four out of five quadrats and Red Fescue *Festuca rubra*, recorded only once and at low abundance.

The only herbs occurring constantly over all five quadrats were Creeping Buttercup *Ranunculus repens* and Dandelion *Taraxacum officinale* (agg.), White Clover *Trifolium repens*, Meadow Buttercup *Ranunculus acris*, Common Mouse-ear *Cerastium fontanum*, Common Bird's-foot Trefoil *Lotus corniculatus* and Black Medick *Medicago lupulina* were all frequent, whilst more occasionally recorded species included Common Cat's-ear *Hypochaeris radicata*, Sorrel *Rumex acetosa*, Rough Hawkbit *Leontodon hispidus*, Ribwort Plantain *Plantago lanceolata*, Selfheal *Prunella vulgaris*, Common Vetch *Vicia sativa*, Silverweed *Potentilla anserina*, Hogweed *Heracleum sphondylium* and Cut-leaved Crane's-bill *Geranium dissectum*. A small amount of Bramble *Rubus fruticosus* (agg.) was recorded in one quadrat and one bryophyte species, the common Springy Turf-moss *Rhytidiadelphus squarrosus*, was also recorded.

Species recorded within the stand but not within any of the quadrats included Common Knapweed *Centaurea nigra*, Germander Speedwell *Veronica chamaedrys*, Red Clover *Trifolium pratense*, Daisy *Bellis perennis*, Broad-leaved Dock *Rumex obtusifolius* and Wood False-brome *Brachypodium sylvaticum*. All occurring in small amounts.

Management

The site was evidently subject to regular mowing. This being to facilitate the use of the site for equestrian activities rather than for agricultural or conservation management purposes.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 11 sward were as follows (percentage conformity in parenthesis): MG6b *Lolium perenne-Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community (68.22); MG6a *Lolium perenne-Cynosurus cristatus* grassland – Typical sub-community (63.71), MG6 *Lolium perenne-Cynosurus cristatus* grassland (62.76), MG6d *Lolium perenne-Cynosurus cristatus* grassland – *Filipendula ulmaria* sub-community (56.89); MG5a *Cynosurus cristatus-Centaurea nigra* grassland – *Lathyrus pratensis* sub-community (55.75)

S41 Priority Habitat affinities

Analysis indicated that the Site 11 grassland stand most-strongly conformed to variants of MG6 including MG6b, MG6a and MG6 (total) in ascending order of affinity. The fidelity of the sward to MG6a was relatively high, at 68.22 percent. The sward was somewhat less diverse than some of the other stands surveyed and the herb species were generally lower in overall abundance, being fairly diffusely scattered within the sward. However, as with several of the other sites, species not generally associated with MG6 communities including *Lotus corniculatus* and *Leontodon hispidus* were recorded in the sward. The grassland here was somewhat difficult to survey, due to the short-mowed nature of the sward. The closest affinity to any Section 41 'Habitat of Principal Importance in England' would be to the Lowland Meadow classification, however, whilst the results showed some degree of conformity to the MG5a *Cynosurus cristatus-Centaurea nigra* grassland – *Lathyrus pratensis* sub-community, the habitat quality was somewhat lower than that of some of the other SI grassland sites surveyed.

Site 14

Habitat

During the initial scoping exercise the site was recorded as mesotrophic wet grassland occupying the western corner of a larger field. At that time, the sward was recorded as being around 30cm with co-dominant Yorkshire Fog *Holcus lanatus* and Sweet Vernal-grass *Anthoxanthum odoratum* with scattered and locally dominant Soft Rush *Juncus effusus*. Abundant herbs recorded at this time included Meadow Buttercup *Ranunculus acris*, with Ribwort Plantain *Plantago lanceolata*, Broad-leaved Dock *Rumex obtusifolius*, Curled Dock *R. crispus*, Cuckooflower *Cardamine pratensis*, Sorrel *Rumex acetosa*, Cut-leaved Crane's-bill *Geranium dissectum*, Greater Bird's-foot Trefoil *Lotus pedunculatus*, Marsh Bedstraw *Galium palustre*, Water Mint *Mentha aquatica*, Tufted Forget-me-not *Myosotis laxa* and Germander Speedwell *Veronica chamaedrys*.

However, at the time of the NVC survey, the majority of the field had recently been cut/mown short for hay, with the exception of a stand of *Juncus effusus* dominated rush-pasture, located slightly further east. The decision was made to conduct NVC quadrat work within this stand.

The rush component of the stand was of fairly uniform height (70cm) with the under-sward being about 15cm tall throughout (See Appendix 3, Photograph 8). The underlying soils were uncertain, but the site was generally clayey. The sward was generally fairly continuous, with around 0.1 percent bare ground overall.

Constant graminoids within Stand 14 included *Holcus lanatus*, *Juncus effusus*, Creeping Bent-grass *Agrostis stolonifera* and *Anthoxanthum odoratum* with occasional Timothy *Phleum pratense*. Constant herbs included Creeping Buttercup *Ranunculus repens*, *Lotus pedunculatus*, *Ranunculus acris* and *Rumex crispus* with *Galium palustre* and *Plantago lanceolata* being frequent and Marsh Thistle *Cirsium palustre*, Square-stalked St John's-wort *Hypericum tetrapterum* and Sticky Mouse-ear *Cerastium glomeratum* occurred rarely.

Management

The majority of habitat on site had been subject to hay-cutting at the time of survey, although the surveyed stand had been left uncut. The field was stock-fenced, but it is unknown whether the field is managed for hay alone, or by grazing and hay-cutting.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 14 sward were as follows (percentage conformity in parenthesis): MG10a *Holcus lanatus*-*Juncus effusus* rush-pasture – typical subcommunity (54.56), MG10 *Holcus lanatus*-*Juncus effusus* rush-pasture (52.97), MG10b *Holcus lanatus*-*Juncus effusus* rush-pasture – *Juncus inflexus* subcommunity (45.73), MG11a *Festuca rubra*-*Agrostis stolonifera*-*Potentilla anserina* grassland – *Lolium perenne* sub-community (48.55), MG10 *Holcus lanatus*-*Juncus effusus* rush-pasture – *Iris pseudacorus* sub-community (45.73) and M27c *Filipendula ulmaria*-*Angelica sylvestris* mire- *Juncus effusus*-*Holcus lanatus* sub-community (40.75).

S41 Priority Habitat affinities

Analysis indicated that the rush-pasture/wet grassland stand surveyed within Site 14 most-strongly conformed to variants of MG10 *Holcus lanatus*-*Juncus effusus* rush-pasture communities. MG10 is not included as a community within the description for the Purple moor-grass and rush pastures 'Habitat of Principal Importance' In England' Section 41, NERC Act, 2006. The habitat generally supported a rather less diverse sward than other wet grasslands surveyed.

Site 28

Habitat

One of two contiguous fields of herb-rich mesotrophic pasture at Silver Spring Farm (the other being Site 29, below) (See Appendix 3, Photograph 9). The habitat has been grazed in the past, but the sward was fairly tall (about 20-25cm) at time of survey and becoming rank in places. There was little bare ground with around 0.1 percent cover for the most part, locally slightly higher. The sward composition was fairly consistent throughout, with the more herb-rich areas occurring towards the eastern end of the stand. The soil was a clayey loam or similar.

Common Bent-grass *Agrostis capillaris* and Yorkshire Fog *Holcus lanatus* were the constant and co-dominant graminoids throughout, with abundant Sweet Vernal-grass *Anthoxanthum odoratum*, frequent Crested Dog's-tail *Cynosurus cristatus* and Perennial Rye-grass *Lolium perenne*. Small amounts of Cock's-foot *Dactylis glomerata* and Rough-stalked Meadow Grass *Poa trivialis* also occurred within the stand and Toad Rush *Juncus bufonius* occurred locally in more disturbed areas around the gateways etc.

Constant herbs included Ribwort Plantain *Plantago lanceolata* and Meadow Buttercup *Ranunculus acris*, with abundant White Clover *Trifolium repens*, Frequent Common Knapweed *Centaurea nigra*, Common Cat's-ear *Hypochaeris radicata*, Dandelion *Taraxacum officinale* (agg.), Silverweed *Potentilla anserina*, Red Clover *Trifolium pratense* and Smooth Hawk's-beard *Crepis capillaris* and occasional Common Bird's-foot Trefoil *Lotus corniculatus*, Yellow Bartsia *Parentucellia viscosa*, Creeping Buttercup *Ranunculus repens*, Curled Dock *Rumex crispus*, Selfheal *Prunella vulgaris* and rare Scarlet Pimpernel *Anagallis arvensis*, Broad-leaved Dock *Rumex obtusifolius*, Sticky Mouse-ear

Cerastium glomeratum, Common Mouse-ear *C. fontanum*, Creeping Cinquefoil *Potentilla reptans*, Sorrel *Rumex acetosa* and Beaked Hawk's-beard *Crepis vesicaria*.

Management

Site has a history of grazing, but was not grazed at the time of survey and the sward was fairly tall indicating that any recent grazing had been limited. The site supported a menagerie of ponies, cattle and donkies.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 28 sward were as follows (percentage conformity in parenthesis): MG6b *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community (59.08); MG6d *Lolium perenne*-*Cynosurus cristatus* grassland – *Filipendula ulmaria* sub-community (56.92); MG6a *Lolium perenne*-*Cynosurus cristatus* grassland – typical sub-community (55.44); MG6 *Lolium perenne*-*Cynosurus cristatus* grassland – total (54.61) and MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community (54.54).

S41 Priority Habitat affinities

Analysis indicated that the Site 28 grassland most-strongly conformed to MG6b *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community. However, the analysis also showed some affinity to the MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community. The grassland was clearly more herb-rich than typical MG6 communities and species such as *Lotus corniculatus*, *Centaurea nigra* and *Parentucellia viscosa* do not commonly occur in MG6 communities, but were present here. MG6 is not included as a community within the description for the Lowland Meadow 'Habitat of Principal Importance in England' Section 41, NERC Act, 2006. However, MG5 is. The habitat may be seen to be on the cusp between these communities, but may not strictly conform to Lowland Meadow criteria.

Site 29

Habitat

Site 29 was the second of two fields comprising herb-rich mesotrophic pasture at Silver Spring Farm. The grassland (See Appendix 3, Photograph 10) supported a similar composition to Site 28, but was pony grazed at the time of survey and the sward was considerably shorter. The sward was however, not overgrazed and was structurally uneven. Sward height recorded within the quadrats ranged from around five to 25 centimetres. The soil was a clayey loam, as in Stand 28.

Generally, whilst diversity was similar to that recorded in Stand 28, the herb cover was higher overall and the sward appeared more flower-rich. Constant and abundant graminoids included Common Bent-grass *Agrostis capillaris*, Yorkshire Fog *Holcus lanatus*, Crested Dog's-tail *Cynosurus cristatus* and Sweet Vernal-grass *Anthoxanthum odoratum*, with frequent Perennial Rye-grass *Lolium perenne*, occasional Small Cat's-tail *Phleum bertelonii* and Cock's-foot *Dactylis glomerata* and rarely Smooth-stalked Meadow Grass *Poa pratensis* and Annual Meadow-grass *Poa annua* also occurred within the stand.

The most abundant herbs recorded included Common Knapweed *Centaurea nigra*, Ribwort Plantain *Plantago lanceolata* and Common Bird's-foot Trefoil *Lotus corniculatus* which were all well represented in all five quadrats. Other herbs recorded included frequent White Clover *Trifolium repens*, Red Clover *T. pratense*, Common Cat's-ear *Hypochaeris radicata*, Dandelion *Taraxacum officinale* (agg.), Selfheal *Prunella vulgaris* and Common Mouse-ear *Cerastium fontanum*. Yellow Bartsia *Parentucellia viscosa* and Beaked Hawk's-beard *Crepis vesicaria* were both occasional in the sward, whilst Creeping Buttercup *Ranunculus repens*, Meadow Buttercup *R. acris* and Sorrel *Rumex acetosa*, were rarely recorded.

Other species recorded included a common grassland bryophyte Springy Turf-moss *Rhytidiadelphus squarrosus* and one or two Blackthorn *Prunus spinosa* seedlings.

Management

The sward was pony grazed at the time of survey, but not overgrazed.

NVC affinities

The top five affinities resulting from MAVIS analysis of the Stand 28 sward were as follows (percentage conformity in parenthesis): MG6b *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community (62.74); MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community (60.36); MG5 *Cynosurus cristatus*-*Centaurea nigra* grassland – Total (60.23); MG6-*Lolium perenne*-*Cynosurus cristatus* grassland – Total (58.13) and MG6a *Lolium perenne*-*Cynosurus cristatus* grassland – typical sub-community (57.62).

S41 Priority Habitat affinities

Analysis indicated that the Site 28 grassland most-strongly conformed to MG6b *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community. However, the analysis also showed a fairly strong fidelity to both the MG5 *Cynosurus cristatus*-*Centaurea nigra* grassland – Total and MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland – *Lathyrus pratensis* sub-community. The grassland was clearly much more herb-rich than typical MG6 communities and species such as *Lotus corniculatus*, *Centaurea nigra* and *Parentucellia viscosa* do not commonly occur in MG6 communities, but were present here. MG6 is not included as a community within the description for the Lowland Meadow 'Habitat of Principal Importance in England' Section 41, NERC Act, 2006. However, MG5 is. The habitat may be seen to be on the cusp between these communities, but may not strictly conform to Lowland Meadow criteria.

Rare and uncommon plant species

No plant species listed within the data-search (other than species listed under the Post 2001 IUCN 'Least Concern' category) were recorded during the grassland specific survey. Neither Corn Spurrey *Spergula arvensis* and Field Woundwort *Stachys arvensis*, which have been widely recorded within close proximity to the site were recorded during the scoping or NVC study. However, both plants are relatively inconspicuous and it is probable that one or both of them still occur within the survey area.

One species Dorset Heath *Erica ciliaris* listed as Nationally Rare (RDB3) based on pre-2001 guidelines and also included within the Cornwall Red Data Book, was recorded within an area of heathland during the invertebrate survey. Dorset Heath was recorded around SW83854 53660 (see Appendix 1, Table 2) Target Note 13). It should be noted that, as the plant was recorded incidentally and without close scrutiny during an invertebrate survey it is also possible that the plant was the infertile *E. ciliaris* x *E. tetralix* hybrid known as *E. watsonii*. However, *E. watsonii* necessitates the presence of both *E. ciliaris* and *E. tetralix* within reasonably close proximity. *E. tetralix* was only recorded in small amounts on the site.

Discussion

Scoping study

The majority of the sites scoped for grassland NVC survey were mapped as SI habitat within the Phase 1 survey (provided by WSP). These included fields containing pasture and meadowland, as well as a significant number of field margins, where the fields themselves typically supported more improved stands or in some cases, arable crops. There were also some areas of herb-rich road-verge

grassland, for example, the wide mown verge (Site 7) which was listed as 'Priority Habitat' within the designated habitats map.

During the ground truthing exercise, a number of habitat areas originally mapped as SI grassland within the Phase 1 survey, were found to either to support improved swards or to have been lost through management. Sites 2, 16, 18 and 30 had all been recorded as SI within the Phase 1 survey but were in most cases found to be improved or at best poor semi-improved grassland during the scoping exercise.

Field margin habitat at sites 8, 23, 25, 26 and 27, all formerly mapped as SI, had subsequently been ploughed and sown with either arable crops such as barley, wheat or potato or sown as a *Lolium perenne* leys. Invariably the sowing in such areas persisted to the hedgerow bases, with little or no evidence of more herb-rich grassland or arable margin habitat. These habitats were, therefore, excluded from the more-detailed NVC survey. In addition, certain non-grassland habitat included for scoping for the purpose of the invertebrate survey only were also excluded these included sites 3,4,5, 13, 15 and 22.

Some sites were somewhat more herb-rich, than typical improved grassland, but fell within the poor SI habitat due to lacking floristic diversity and /or with herbs being diffusely scattered through the sward. These included the grassland at sites 12, 19 and 21.

The remaining three excluded grassland sites supported some habitat of slightly higher potential conservation value as follows: Site 17, comprised a field which had formerly been sheep-grazed pasture, but had almost completely scrubbed-over in recent years. The few remaining grassland patches recorded were fairly herb-rich, but very small and the site was also located in a position which would be unlikely to be impacted by the re-routing, being closer to the existing A30 carriageway than the proposed re-routing.

There were also some patches of fairly herb-rich SI habitat at Site 1, surveyed primarily for its priority woodland habitat, but these were rather localised and patchy in terms of quality.

Site 24 was a fairly herb-rich field margin, which supported some interesting herb species not found elsewhere in the survey area. These included Great Burnet *Sanguisorba officinalis* and Tall Fescue *Festuca arundinacea*. However, the habitat fell more into arable margin habitat category than grassland *per se* and the vegetation composition was inconsistent and generally herbs were rather sporadically scattered rather than forming a cohesive sward structure. The disparate and non-representative composition may indicate that this habitat resulted from seeding, rather than natural provenance. In Cornwall, Great Burnet is largely restricted to the Lizard, where it typically occurs in association with some heathland communities (unlike in other parts of the country where it usually found in mesotrophic water meadows and similar habitat).

Sites selected for NVC survey were all more herb-rich examples of semi-improved grassland. Six of the surveyed stands comprised drier (or at most damp) swards and the remaining four supported wet grassland/rush pasture communities.

NVC communities

Of the sites selected for detailed NVC survey, the results from MAVIS analysis did not for the most part show a clearcut affinity to a single community. Frequently, within the 10 closest fit communities presented in the output table (Appendix 1, Table 4), there was little difference in terms of percentage representation. However, there was generally some consistency across the sample sites in terms of assemblages represented.

Drier grasslands

Five out of six of the drier stands surveyed resulted in MG6b – *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community being the most strongly represented. MG6b is a variant of the major permanent pasture type on moist but free-draining soils in lowland Britain. Rodwell (1992) states that 'where pastures have been won from rocky upland topography, there may be zonations to calcifugous grasslands (with the *Anthoxanthum* subcommunity)'. However, MG6 and its subcommunities tend to lack certain herb species present in more traditionally managed swards such as the MG5 – *Cynosurus cristatus*-*Centaurea nigra* grassland community. Rodwell states that within the MG6b subcommunity, 'there are occasional records for hay-meadow species such as *Centaurea nigra*, *Leucanthemum vulgare* and *Leontodon hispidus*, but *Lotus corniculatus* and *Lathyrus pratensis* are usually absent'.

Despite being not recognised as a typical MG6 species, *Lotus corniculatus* occurred throughout all six of the drier stands sampled, being recorded at a frequency of between two and five quadrats per stand. *Lathyrus pratensis* was also recorded within the quadrat data at sites 9a and 10, whilst *Centaurea nigra* was recorded at a frequency of between one and five at all six drier grassland stands. Such species are typically found at such frequencies in the more herb-rich mesotrophic meadow community MG5 – *Cynosurus cristatus*-*Centaurea nigra* grassland.

Whilst only one of the drier grassland stands, Site 7, was most closely matched to MG5, this community was generally expressed as the second highest after MG6b and sometimes, other variants of MG6, within the MAVIS output representing the remaining drier grassland stands. Rodwell (1992) states that 'steeper banks inaccessible to ploughing may still carry patches of *Centaureo-Cynosuretum* (MG5) as remnants of previous meadow vegetation'. More significantly, it is also argued in relation to MG6 that 'In older pastures, a return to more traditional organic manuring and the withdrawal of summer grazing may permit the re-establishment of the meadow vegetation of the *Centaureo-Cynosuretum*' (MG5) and goes on to postulate that 'this is perhaps more likely in the *Anthoxanthum* and *Trisetum* sub-communities'.

For Site 7, the most strongly represented community was MG5c – *Cynosurus cristatus*-*Centaurea nigra*-*Danthonia decumbens* sub-community, with MG5- *Cynosurus cristatus*-*Centaurea nigra* and MG5a- *Cynosurus cristatus*-*Centaurea nigra*-*Lathyrus pratensis* sub-community. The MG5c-*Danthonia decumbens* sub-community according to Rodwell (1992), tends to comprise more calcifuge species than typical MG5, which is more towards the calcareous end of the mesotrophic spectrum. Two species more typical of acid soils including Blinks *Montia fontana* and *Luzula campestris* were recorded at low frequency within the stand, the latter was not recorded within the quadrats.

Overall the drier grasslands surveyed were somewhere on the spectrum between the more intensively managed MG6 and more traditionally managed MG5 meadow/pasturelands. The grasslands were invariably more herb-rich than would be expected from MG6b or other MG6 communities and whilst *Lolium perenne* was never the dominant graminoid, species more indicative of MG5 swards such as *Cynosurus cristatus* and *Festuca rubra* were never dominant, although *C. cristatus* was recorded in all six of the drier stands and generally at a reasonable frequency, these species were somewhat suppressed by *Holcus lanatus*, which was invariably dominant within the swards.

Management

The drier meadow grassland communities recorded throughout the survey area supported a consistent range of similar species and as such, it seems more likely that these grasslands have resulted from historic seed bank rather than from the deliberate seeding with wildflower mixes or similar. However, as road verges are frequently planted and seeded in order to create flower-rich

mitigation habitat, it is possible that the grassland on the wide verge at Site 7 could have resulted in part at least due to seeding following road building. Whilst grasslands were seen to be managed either by grazing or cutting, it is likely that the majority of sites have a history of less intensive management involving both cutting and aftermath grazing. However, the habitat at Site 7 can be managed only by mowing, due to its proximity to the A30.

Wet grasslands and rush pasture

All but one of the four wetter stands sampled resulted in MG10a being most strongly represented within the MAVIS output and in all cases, the second highest percentage representation was for MG10. Generally, the MG10 affinity fits well in terms of the description of the community in Rodwell (1992). In all cases, the constant graminoid species included *Juncus effusus* with *Holcus lanatus* and *Agrostis stolonifera* conformed with the constant species described in Rodwell and *Ranunculus repens*, which is cited as the most constant herb in MG10 in Rodwell (1992), was also ubiquitous within the stands.

Rodwell (1992) describes MG10 as comprising 'a sward with prominent tussocks of *Juncus effusus* up to 80cm in a generally species-poor and shorter grassy ground. MG10 is found in areas of impeded drainage and is 'characteristic of permanently moist sites over a wide range of oligotrophic and mineral soils of varying pH'. The habitat is found throughout lowland UK and whilst it is most frequently associated by grazed pastures, it also occurs in areas of abandoned agricultural land.

The MG10 habitat recorded at Site 6 (Stands 6a and 6b) was evidently managed by grazing and whilst Site 14 was haycut prior to surveying, it likely that the grassland was historically managed by a combination of grazing and cutting. Generally, the swards were somewhat species-poor compared to the drier grasslands surveyed.

The community recorded at Site 6, conformed strongly to the MG10a *Holcus lanatus*-*Juncus effusus* rush-pasture – Typical sub-community, but was somewhat varied in terms of herb-richness, with more specialised wetland herbs including *Lotus pedunculatus*, *Lychnis flos-cuculi*, *Mentha aquatica*, *Cardamine pratense*, *Ranunculus flammula* and *Galium palustre* occurring alongside generalists such as *Ranunculus acris*, *Trifolium repens* and *Rumex acetosa*. All these species are fairly frequent within MG10 as described in Rodwell (1992); however, *Lotus pedunculatus* was recorded at a somewhat higher frequency than usual. In MG10 this species is most frequent in the MG10c – *Iris pseudacorus* sub-community, which occurs in generally wetter stands. *Iris pseudacorus* itself was not recorded in any of the surveyed stands. The greater abundance of *L. pedunculatus* more strongly suggests an affinity with the M23 – *Juncus effusus/acutiflorus*-*Galium palustre* rush-pasture in which *L. pedunculatus* is a constant species alongside *J. effusus*, *Holcus lanatus* and *Galium palustre*.

Whilst MG10 was top of the list in terms of percentage conformity in the MAVIS output for both Site 6a and Site 14, M23b, the *Juncus effusus/acutiflorus*-*Galium palustre* rush-pasture – *Juncus effusus* sub-community, was listed as the third highest affinity for Site 6a and was also listed sixth for Site 14. Neither Sharp-flowered Rush *Juncus acutiflorus* nor Purple Moor-grass *Molinia caerulea* generally associated with M23 communities were recorded in any of the stands surveyed and there was a noticeable absence of sedges. No sedges whatsoever were recorded, not even Carnation Sedge *Carex panicea*, which is a typical M23 species was present.

M23 is associated with more base-poor soils than MG10, hence the presence of acidophilous species such as *Molinia caerulea* and *Carex panicea*. MG10 is ubiquitous in lowland Britain and M23 is best represented in western UK including Cornwall. These communities can also occur in close association in transitions with a variety of other wet grassland, fen and mire communities. Rodwell (1991) states that MG23 is a 'rather ill-defined assemblage of vegetation' and on balance the quadrat data recorded at both Sites 6 and 14 are closer to MG10a than any other community.

The Site 6 habitat was, however, more species-rich than the Site 14 stand and this site showed signs of more intensive historic management. The rush-pasture habitat at Site 6 was also more extensive and had a greater degree of hydrological variation than Site 9. Only the habitat towards the north of Site 6 was surveyed; however, the rush-pasture habitat persisted downslope for some distance and it is not known to what extent other communities persist in transition downslope. It is possible that more species-rich communities such as M23 are represented within this area, albeit outside of the 100m buffer zone targeted by the survey.

NVC communities and affinity with S41 habitat

The Section 41 – ‘Habitats of Principal Importance’ in England classification of most relevance to the grassland habitats subject to NVC would be expected to include the ‘Lowland Meadows’ for the dry grassland habitat and ‘Purple Moor-grass and rush pastures’ classification, for the wetter grassland/rush pasture habitats.

S41 habitat descriptions were updated from the pre-2006 UK Biodiversity Action Plan (BAP) ‘Habitat Action Plan’ (HAP) habitats and in most cases, the descriptions used for S41 habitats are the same as those formerly described in the UK BAP. BAP and S41 habitats were selected due to being considered to be the most threatened and most in need of conservation action under the UK Biodiversity Action Plan (UK BAP). Habitats falling within S41 classifications are of material consideration in English planning law.

Recorded S41 affinities with recorded drier grassland habitat

MG6-*Lolium perenne*-*Cynosurus cristatus* grassland and its sub-communities are generally more herb-poor habitats which have been subject to significant agricultural improvement and are not listed within communities associated within the S41 Lowland Meadows ‘Habitat of Principal Importance’. However, stands classed within the mesotrophic MG5 – *Cynosurus cristatus*-*Centaurea nigra* grassland community are. From the sites surveyed, only Site 7 was most strongly associated with MG5 within the MAVIS output.

The sward here was relatively herb-rich and supported constant species characteristic of the MG5c-*Cynosurus cristatus*-*Centaurea nigra* grassland – *Danthonia decumbens* sub-community, an assemblage typically found towards the more acidic end of the MG5 spectrum. The origin of this stand was uncertain, however, its proximity to the existing A30 suggests that it may have been originally created following the construction of the original road. It is unlikely to have been subject to a history of agricultural improvement and the presence of more acidophilous herbs and grasses such as *Danthonia decumbens*, *Luzula campestris* and *Montia fontana* reflect the general edaphic conditions prevailing in the less improved habitats characteristic of this part of Cornwall.

Of the remaining drier grasslands subject to NVC survey, several were more herb-rich than is typical for improved MG6 swards and whilst MG5 was listed below MG6 within the hierarchical output of MAVIS, the affinities were, in some cases, fairly strong. Furthermore, several herb species generally not associated with MG6 communities were recorded. Whilst the grassland assemblages recorded at Site 11 was arguably somewhat herb-poor, possibly as an artefact of intensive mowing, Sites 9a, 10, 28 and 29 all supported relatively herb-rich swards. These supported herbs infrequent in MG6 communities, such as *Lotus corniculatus*, *Lathyrus pratensis* are usually absent, whilst *Centaurea nigra*, which was also abundant in most stands is not frequent in any MG6 community.

In strict terms, grassland recorded as Stand 7 – can be said to conform to MG5 and therefore, can be considered to fall within the Section 41 ‘Lowland Meadows’ definition, the remaining dry grassland stands, despite their herb-richness, fall more into MG6, in particular the MG6b – *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community. The habitat however,

particularly at Sites 9a, 10, 28 and 29, was herb-rich and therefore, of some conservation value and the value of these habitats should be taken into account within mitigating biodiversity loss.

Recorded S41 affinities with recorded wet grassland/ rush pasture habitat

As discussed above, the rush pasture and other wetland stands recorded in stands 6a, 6b and 14 showed greatest affinity to the MG10a- *Holcus lanatus*-*Juncus effusus* rush pasture – Typical sub-community. However, the presence of *Galium palustre* (not usually recorded in MG10) and unusually strong presence of *Lotus pedunculatus* in the sward suggested some affinity with M23b, the *Juncus effusus/ acutiflorus*-*Galium palustre* rush-pasture – *Juncus effusus* sub-community. Whilst MG10 is generally considered to be a common-place, fairly herb-poor and non-habitat specific community, MG23 is considered to be of higher conservation value and as such is listed within the S41 'Purple Moor-grass and rush pastures' 'Habitat of Principal Importance'.

In the strictest sense, the habitats were closest to MG10a, however, the Stand recorded at Site 6 in particular, supported a fairly diverse flora and may have supported transitions to habitat of higher conservation value downslope.

Conclusions and Evaluation

The findings of a scoping study based on desk-based research and targeted ground-truthing, a shortlist of eight sites supporting grassland and rush-pasture of potentially higher conservation value was made. These habitats were subsequently surveyed using standard NVC survey protocol.

Of 10 stands subject to NVC survey, five (stands 9a, 10, 11, 28 and 29) supported drier mesotrophic grassland most strongly classifiable as MG6b- – *Lolium perenne*-*Cynosurus cristatus* grassland – *Anthoxanthum odoratum* sub-community and one, Site 7, showed a close affinity to the MG5c- *Cynosurus cristatus*-*Centaurea nigra* grassland – *Danthonia decumbens* sub-community.

Whilst habitats classed within the MG6 communities are not included within the Lowland Grassland 'Habitats of Principal Importance' classification defined under Section 41 of the NERC Act, 2006, MG5 swards are included within this classification. As such the habitat within Site 7 can be seen as qualifying as S41 Lowland Grassland habitat and as such constitutes material consideration in terms of current English planning law.

It should be noted that habitats recorded in stands 9a, 10, 28 and 29 all supported relatively herb-rich grassland which supported herbs atypical of typically herb-poor MG6 swards. Herbs such as *Lotus corniculatus*, *Centaurea nigra* and *Lathyrus pratensis* and in the case of Stands 28 and 29, Yellow Bartsia *Parentucellia viscosa*, were recorded. These herbs are more typical of more herb-rich assemblages such as the closely allied MG5 community. Whilst these habitats do not conform to S41 criteria, they can be seen as being of some conservation value and whilst no individual species of particular rarity value was recorded, the swards provide important herb-rich habitat beneficial on a landscape and individual scale to other species groups such as invertebrates requiring flower-rich resource habitats.

Of the four remaining stands surveyed, three (Stands 6a, 6b and 14) supported habitat categorised within NVC as being closest to MG10a - *Holcus lanatus*-*Juncus effusus* rush pasture – Typical sub-community. This habitat is generally widespread and species-poor wet pasture habitat not included within the Section 41 Purple Moor-grass and rush pastures 'Habitat of Principal Importance'. However, the more herb-rich stand 6a showed some affinity with the M23b, the *Juncus effusus/ acutiflorus*-*Galium palustre* rush-pasture – *Juncus effusus* sub-community, which is included within the Purple Moor-grass and rush pastures S41 classification. In the strictest sense the habitat

does not fit into this classification, however, this stand supported some species more typical of the latter community including *Galium palustre* and *Lotus pedunculatus*.

The juxtaposition of the site 6 habitats to wet woodland and more extensive wetland, suggests it may be of higher conservation value as part of a larger ecological unit.

The wetland habitat recorded at Site 9 (Stand 9b) showed no particularly strong association to any NVC community, the strongest being the M27c – *Filipendula ulmaria* – *Angelica sylvestris* mire – *Juncus effusus* – *Holcus lanatus* sub-community. The habitat supported characteristic wet grassland/rush pasture/swamp species which complemented the adjacent wet woodland edge and drier, herb-rich grassland habitat of Site 9, but M27 and associated assemblages are not classified within the Purple Moor-grass and rush pastures S41 classification.

Recommendations

Where direct impact is necessitated by the scheme, habitat should be recreated strategically on a landscape scale.

The grassland habitat potentially lost due to direct impact of the proposed scheme could be mitigated to some extent by recreation and subsequent management. Seed harvested from sites impacted by the development, or from representative habitat within the locality, but outside of the impacted area should be used in habitat recreation schemes, ensuring local provenance. This should be undertaken prior to/alongside the commencement of the scheme, to minimise net habitat loss on a landscape scale and should be undertaken strategically to promote habitat continuity within the wider landscape.

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Appendices

Appendix 1 - Tables

Table 1 – NVC scoping

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
1- Priority Deciduous Woodland	SW84844 54294	Deciduous woodland and associated scrub and wet grassland margins	Yes	Site surveyed was part of a substantial block of representative deciduous woodland and wet woodland habitats. Woodland exhibited plants and other features characteristic of ancient woodland. Edge habitat fairly herb rich and with good structure for woodland edge invertebrates. Interior of woodland reasonably open in places, with damp exposed silt and characteristic wetland/ woodland herbs with potential to support significant invertebrate assemblages	No	Grassland edge habitat with some diversity, but more herb-rich areas rather patchy
2 – not indicated as priority habitat	SW 84410 53809	Habitat mapped as SI in Phase 1 survey but herb-poor and composition more representative of improved swards	No	Too improved to be considered of high invertebrate potential	No	Habitat found to be improved grassland. Also, not directly impacted by re-routing
3 - Priority Heathland (east section). Road margin also listed as part of BS316 under Roadside Inventory	SW 84193 53741	Lowland heathland (H4 NVC type)	Yes	Lowland heathland representative of H4 <i>Ulex gallii</i> - <i>Agrostis curtisii</i> heath. Such habitat frequently supports invertebrate assemblages and species of conservation value	No	Not grassland/has previously been subject to NVC survey
4 – not indicated as priority habitat. But road margin also listed as part of BS316 under Roadside Inventory	SW 84056 53716	Mixed heath edge woodland with pond and some ericaceous ground vegetation	Yes	Site provides structural variation and potentially important edge habitat to adjacent heathland. Supports combination of habitat including open water, mature mixed woodland and willow scrub woodland and acid groundflora including scattered patches of heathland groundflora. Varied microtopography and potential significant arboreal canopy assemblages.	No	Not grassland/has previously been subject to NVC survey

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
5 - Site 2 – Priority Heathland (west section). Road margin also listed as part of BS316 under Roadside Inventory	SW 83916 53672	Lowland heathland (H4 NVC type)	Yes	Lowland heathland representative of H4 <i>Ulex gallii</i> - <i>Agrostis curtisii</i> heath. Such habitat frequently supports invertebrate assemblages and species of conservation value	No	Not grassland/has previously been subject to NVC survey
6 - Includes edge of Priority Woodland	SW83493 53258	Wet grassland, rush pasture, wet woodland and mature hedgerow	Yes	Part of extensive, herb-rich area of rush pasture in mosaic with mature woodland, bramble scrub and wet woodland/willow carr. Habitat potentially of high quality for invertebrate assemblages associated with wet grassland and wet woodland mosaic habitats.	Yes	Rush pasture and some grassland herb-rich (two habitats sampled separately)
7 – BS214 – Roadside inventory – ‘Calcareous grassland’ priority habitat	SW 82935 53166	Yorkshire Fog <i>Holcus lanatus</i> and Sweet Vernal Grass <i>Anthoxanthum odoratum</i> dominated SI neutral grassland – fairly herb-rich with <i>Plantago lanceolata</i> , <i>Lotus corniculatus</i> , <i>Achillea millefolium</i> , <i>Ranunculus repens</i> , <i>R. bulbosus</i> , <i>Centaurea nigra</i> , <i>Veronica chamaedrys</i> , <i>Rumex acetosa</i> and other typical herbs of SI neutral grassland.	No	Small, roadside fragment similar in composition to some larger areas of SI grassland within the survey area which were preferred. Habitat had been mown just prior to survey.	Yes	Habitat generally herb-rich and mapped as a Priority Habitat under the habitats inventory. Also, probable direct impact of re-routing
8 - not indicated as priority habitat	SW 82958 53230	Habitat mapped as SI, but field margins ploughed right to edges at time of survey	No	Habitat of relatively low conservation value; no sign of recorded SI grassland	No	Habitat mapped as SI, but field margins ploughed right to edges at time of survey. Also, not directly impacted by re-routing
9 – not indicated as priority habitat	SW82620 52908	Deciduous wet woodland and woodland edge habitat north of Honeycombe Barn	Yes	Habitat with good wet woodland diversity and structure. Woodland edge habitat herb-rich and with good succession from grassland edge through bramble scrub	Yes (grassland only)	Grassland areas at woodland edge fairly herb-rich SI

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
				to woodland edge.		grassland. Also, direct impact of re-routing
10 – not indicated as priority habitat	SW82351 52905	Damp SI grassland field south of A30. Herb-rich mesotrophic meadow with Yorkshire Fog <i>Holcus lanatus</i> and Sweet Vernal Grass <i>Anthoxanthum odoratum</i> co-dominant. With range of typical herbs including <i>Lotus pedicularis</i> , Common Cat's-ear <i>Hypochaeris radicata</i> and Black Knapweed <i>Centaurea nigra</i> .	Yes	Good diversity of herb-species beneficial to meadow invertebrates in sward and large size of habitat unit. Burnet moth <i>Zygaena</i> sp. cocoons and larvae in sward; species usually associated with less-improved, herb-rich swards of conservation value to invertebrates. Habitat comparable in terms of sward composition and diversity to mown verge indicated as 'Calcareous grassland' priority habitat on Magic Map.	Yes	SI grassland with good diversity of representative meadow herbs and grasses
11- not indicated as priority habitat	SW 80095 50574	SI damp grassland relatively herb-poor, but with some characteristic wet grassland species	No	Not as herb-rich as some comparable sites. Rather manicured and lacking the structural variation favourable for good invertebrate sites. Unexceptional.	Yes	Some better-quality SI habitat nearer to existing road considered worth surveying to NVC
12- not indicated as priority habitat	SW 79874 50454	SI damp grassland relatively herb-poor, but with some characteristic wet grassland species	No	Not as herb-rich as some comparable sites. Rather manicured and lacking the structural variation favourable for good invertebrate sites. Unexceptional.	No	Generally poor SI habitat
13 – Priority Woodland	SW 80089 50224	Smallish block of deciduous woodland at Nancarrow Farm. Trees mainly Sycamore <i>Acer pseudoplatanus</i> , with some Ash <i>Fraxinus excelsior</i> and Pedunculate Oak <i>Quercus robur</i> . Understorey with Hazel <i>Corylus avellana</i> , Holly <i>Ilex aquifolium</i> and Hawthorn <i>Crataegus monogyna</i> . Groundflora predominately Ivy <i>Hedera helix</i> with other mainly shade-tolerant species.	No	Rather heavily shaded and unremarkable, some potential wood decay (mainly bark and sapwood decay habitat). Adjacent strip of wet grassland with <i>Juncus</i> and mature oaks on hedgebank with some potential, but lower overall potential for invertebrates than comparable sites.	No	Some rather rank semi-improved grassland and rush pasture with tall ruderal habitat, but small and of relatively low diversity

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
14 - not indicated as priority habitat	SW 80027 50167	SI damp grassland relatively herb-poor, but with some characteristic wet grassland species including Cuckooflower <i>Cardamine pratensis</i>	No	Not as herb-rich as some comparable sites. Potentially of some conservation value, but unexceptional and on outer range of buffer	Yes	Area of rush pasture of slightly higher diversity surveyed to NVC – rest of field had been mowed
15– Priority Woodland	SW 79511 49773	Small stand of mature trees including multi-stemmed Sycamore <i>Acer psuedoplatanus</i> , Sessile Oak <i>Quercus petraea</i> , Beech <i>Fagus sylvatica</i> and Ash <i>Fraxinus excelsior</i> . No significant understorey or scrub layer and groundflora rather species-poor, cattle –grazed grassland with few significant woodland species.	No	Lacked structural diversity beneficial to invertebrates, fairly shaded at ground layer and rather exposed site. Some mature standards, but no significant wood decay habitat recorded	No	Grassland beneath canopy improved and species-poor
16 - not indicated as priority habitat	SW 79227 49527	Relatively herb-poor SI and Improved grassland (though all mapped as SI in Phase 1)	No	Unremarkable relatively herb-poor grassland, unlikely to support invertebrate assemblages of high conservation value	No	Unremarkable relatively herb-poor grassland throughout this section
17- not indicated as priority habitat	SW 78906 49501	Small areas of herb-rich SI mesotrophic sward with extensive, encroaching bramble scrub	No	Some conservation value in current condition due to mosaic and flower-rich sward, but small habitat area and habitat unlikely to be significantly impacted by development	No	Grassland mainly scrub encroached, therefore grassland patches very small maximum 10m x 5m fragments. Also, no anticipated direct impact from scheme
18 - Roadside inventory site BS315	SW 78860 49417	Short, (possibly seeded?) improved grassland sward with Perennial Rye-grass <i>Lolium perenne</i> and White Clover <i>Trifolium repens</i> . Adjacent field edge was ploughed to margin. Note: Babington's Leek	No	Habitat of low invertebrate potential	No	Habitat improved and seeded with no significant botanical interest

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
		was not recorded from verge, but was seen at margin of site 19				
19 - not indicated as priority habitat	SW 78783 49313	Relatively herb-poor SI habitat – but Babington’s Leek <i>Allium ampeloprasum var babingtonii</i>	No	Unremarkable relatively herb-poor grassland, unlikely to support invertebrate assemblages of high conservation value	No	Habitat herb-poor, despite presence of Babington’s Leek <i>Allium ampeloprasum var babingtonii</i>
20 - Roadside inventory site BS22	SW 78251 48743 (surveyed SW 78379 48690 as no evidence of priority habitat at previously mapped site)	Habitat on very narrow road verge adjacent to Hillview Farm listed for presence of? – Note: Three-cornered Garlic <i>Allium triquetrum</i> seen but reason for listing not known. SI habitat surveyed on opposite side of road to Hillview Farm scoped, but generally rather herb-poor.	No	Habitat of some potential value to typical SI grassland invertebrate assemblages, but rather herb-poor compared with some other sites surveyed.	No	Roadside verge only selected for survey due to being a notified verge – no significant habitat
21 - Not indicated as Priority Habitat	SW 77142 48594	Grassland generally rank and species-poor SI, but with small patch of slightly more diverse rush pasture with <i>Juncus effusus</i> and <i>Holcus lanatus</i> with <i>Lotus pedicularis</i> and other herbs. Habitat graded into tall ruderal/bramble scrub habitat with <i>Heracleum sphondylium</i> , <i>Stachys palustris</i> and <i>Rumex crispus</i> . Habitat potentially good for invertebrates due to proximity with Priority deciduous woodland.	Yes	Good structural and floristic diversity with grassland, tall ruderal and scrub-edge habitat analogous to brownfield habitat. Woodland edge with some mature trees	No	Some very small patches of rush pasture, but mainly tall ruderal and species-poor grassland
22 - Classified as Deciduous Woodland Priority	SW 77096 48543	Not subject to detailed evaluation, but native broadleaves including Pedunculate Oak <i>Quercus robur</i>	Yes	Remnant native broadleaved woodland at edge of plantation, with mature trees and some wood decay potential. Proximity to open grassland and scrub habitat	No	Woodland habitat has been subject to NVC in earlier survey

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
Habitat on designations map		and Ash <i>Fraxinus excelsior</i> present.		increases overall value		
23 - Not indicated as Priority Habitat on designations map	SW 76159 48283 to SW 77273 48770	Mapped as SI field margins in original Phase 1, but ploughed and sown to margins at time of survey	No		No	Habitat ploughed and sown to margins throughout
24 - Not indicated as Priority Habitat on designations map	SW 76171 48265 to SW 76706 48531	Mapped as SI field margins in original Phase 1. Grassland still with a range of herbs including Great Burnet <i>Sanguisorba officinalis</i> and Tufted Vetch <i>Vicia cracca</i> , but herbs rather thinly scattered through sward and rather disparate habitat	No	Not in direct impact zone and structurally and compositionally unexceptional as an invertebrate resource	No	Habitat with interesting overall composition with species not found elsewhere during the survey such as Great Burnet <i>Sanguisorba officinalis</i> , but herbs rather disparate and inconsistently scattered through sward so NVC considered inappropriate
25 - Not indicated as Priority Habitat on designations map	SW 75439 47898 to SW 75634 48242	Mapped with SI grassland margin on map, now ploughed and sown to edge with potato crop and <i>Lolium perenne</i>	No	Habitat of low potential to support significant invertebrate species/assemblages	No	No significant SI grassland due to ploughing and planting to edge
26 - Not indicated as Priority Habitat on designations map	SW 75372 47814 to SW 75383 48131 to SW 75383 48131 and SW 75383	Mapped with SI grassland margin on map, now ploughed and sown to edge with <i>Lolium perenne</i>	No	Habitat of low potential to support significant invertebrate species/assemblages	No	No significant SI grassland due to ploughing and planting to edge

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
	48131 to SW 75613 48246					
27 - Not indicated as Priority Habitat on designations map	SW 74938 47289 to SW 75168 47512 to SW 74975 47627 and SW 75168 47512 to SW 75363 47803	Mapped with SI grassland margin on map, now ploughed and sown to edge with <i>Lolium perenne</i>	No	Habitat of low potential to support significant invertebrate species/assemblages	No	No significant SI grassland due to ploughing and planting to edge
28 - Not indicated as Priority Habitat on designations map	SW 74859 47268	Fairly herb-rich SI grassland. Of similar composition to adjacent Site 29, but not currently grazed and slightly more rank. <i>Centaurea nigra</i> , <i>Hypochaeris radicata</i> , <i>Lotus corniculatus</i> and <i>Parentucellia viscosa</i> all locally abundant in field	Yes	Herb-rich habitat with good structural and floristic diversity with potential to support significant invertebrate species/assemblages. Direct impact of road scheme.	Yes	Good range of herbs typical of invertebrate-rich meadows, also good structural diversity of marginal habitat with encroaching Blackthorn <i>Prunus spinosa</i> . Direct impact of road scheme.
29 - Not indicated as Priority Habitat on designations map	SW 74857 47374	Herb-rich grassland with <i>Agrostis capillaris</i> , <i>Holcus lanatus</i> , <i>Cynosurus cristatus</i> and <i>Anthoxanthum odoratum</i> with <i>Centaurea nigra</i> , <i>Lotus corniculatus</i> , <i>Prunella vulgaris</i> , <i>Hypochaeris radicata</i> and <i>Parentucellia viscosa</i> . Livestock grazed, but no livestock on site during survey.	Yes	Herb-rich habitat with good structural and floristic diversity with potential to support significant invertebrate species/assemblages. Very close to proposed road scheme.	Yes	One of the more diverse areas classed as SI grassland recorded during the survey. Very close to proposed road scheme.

Site number	Grid ref.	Habitat recorded on survey	Selected for invertebrate survey?	Reason for selection/rejection	Selected for NVC survey?	Reason for selection/rejection
30 - Not indicated as Priority Habitat on designations map	SW 74909 47116	Field largely improved <i>Lolium perenne</i> grassland with very small SI remnants at margins	No	Habitat mainly improved and maturated with little floristic or structural diversity. Potential invertebrate habitat patches very small and disjunct	No	SI patches very small and at margins only

Table 2 – Target notes (NB: combined NVC and Invertebrate scoping, therefore not all TNs relevant to NVC survey)

Target note	Date	Grid reference	Site	Feature	Description
1	22/05/2017	SW84832 54332	Site 1 (Priority Woodland edge/interior)	General broadleaved woodland and grassland edge habitat (western edge of wood)	Habitat close to concrete trough denoting north-eastern edge of allowed survey area. Mature broadleaved woodland, wet woodland at this point with <i>Salix cinerea</i> and <i>Ilex aquilinum</i> . General habitat low understorey/ex-coppice woodland with no real canopy layer. <i>Corylus avellana</i> and <i>Prunus spinosa</i> abundant. Ground layer south-west of this point fairly herb-poor and shaded with <i>Glechoma hederacea</i> , <i>Silene dioica</i> , <i>Hedera helix</i> . <i>Hyacinthoides non-scripta</i> abundant in wood to north-east, occurring with a range of other ancient woodland indicators. Edge habitat with Bramble <i>Rubus fruticosus</i> agg. scrub, tall herbs including <i>Heracleum sphondylium</i> and low growing <i>Ranunculus repens</i> and <i>Galium aparine</i> . Floristically poor.
2	22/05/2017	SW84791 54239	Site 1 (Priority Woodland edge/interior)	Corner of broadleaved woodland and field margin	Woodland interior rather dense and overgrown at this point. Margin of field (ploughed at time of survey) fairly narrow (c2-3m). Edge with woodland with Bramble <i>Rubus fruticosus</i> agg. scrub and herb layer with abundant <i>Ranunculus repens</i> , <i>Holcus lanatus</i> , <i>Urtica dioica</i> and <i>Heracleum sphondylium</i> and occasional <i>Veronica chamaedrys</i> , <i>Silene dioica</i> , <i>Pteridium aquilinum</i> and <i>Galium aparine</i> . Some open Bramble and hedgerow scrub with varied structure; woodland interior at this point heavily shaded. <i>Crataegus monogyna</i> , <i>Salix cinerea</i> in woodland edge.
3	22/05/2017	SW84848 54281	Site 1 (Priority Woodland edge/interior)	More open wet woodland interior	Wetter woodland interior with leggy, mature <i>Salix cinerea</i> and some <i>Corylus avellana</i> . Ground-layer with fairly diverse flora characteristic of more open woodland/ wet woodland. Species included <i>Mentha aquatica</i> , <i>Circaea lutetiana</i> , <i>Solanum dulcamara</i> , <i>Geranium robertianum</i> , <i>Hedera helix</i> , <i>Cardamine flexuosa</i> , <i>Geum urbanum</i> , <i>Holcus lanatus</i> , <i>Angelica sylvestris</i> , <i>Viola riviniana</i> , <i>Cirsium palustre</i> , <i>Ranunculus repens</i> , <i>R. flammula</i> , <i>Veronica montana</i> , <i>Galium palustre</i> , <i>Rumex sanguineus</i> , <i>Juncus effusus</i> and ferns including <i>Dryopteris dilatata</i> , <i>Blechnum spicant</i> and <i>Polypodium</i> sp. A partial scrub layer primarily Bramble <i>Rubus fruticosus</i> agg. was present and trees with abundant epiphytic bryophytes and lichens as well as <i>Lonicera periclymenum</i> .
4	22/05/2017	SW84890 54318	Site 1 (Priority Woodland edge/interior)	Habitat adjacent to concrete water pump building	The western extent of the southern woodland margin for which survey was permitted (adjacent to a concrete water pump building at the woodland edge). Woodland margin sinuous with a good structural succession from woodland understorey, through bramble scrub zone, tall ruderal and grassland habitats. Woodland edge with <i>Salix cinerea</i> , <i>Corylus avellana</i> , <i>Prunus spinosa</i> , <i>Sambucus nigra</i> , scrub with <i>Rubus fruticosus</i> agg. and scattered <i>Ulex europaeus</i> and <i>Rubus idaea</i> . Tall ruderal vegetation with <i>Urtica dioica</i> , <i>Cirsium palustre</i> , <i>C. arvense</i> , <i>Angelica sylvestris</i> and <i>Heracleum sphondylium</i> . Uneven grassland sward with <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Ranunculus repens</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosa</i> , <i>Veronica chamaedrys</i> , <i>Dactylis glomerata</i> . Wetter areas with <i>Juncus effusus</i> , <i>Alopecurus geniculatus</i> and <i>Juncus bufonius</i> etc.

Target note	Date	Grid reference	Site	Feature	Description
5	22/05/2017	SW84831 54241	Site 1 (Priority Woodland edge/interior)	Woodland edge seepage and scallop habitat	Woodland edge scalloped adjacent to area of wet grassland/rush pasture seepage habitat. Wet woodland margin predominately <i>Salix cinerea</i> , with extensive Bramble <i>Rubus fruticosus</i> agg. scrub margin. Adjacent wet grassland habitat structurally diverse and disturbed, with water at around and in places, slightly above the soil surface. Possibly spring fed and flowing downslope. Vegetation varied with patches of <i>Juncus effusus</i> , <i>J. bufonius</i> , <i>Glyceria</i> sp., some tall ruderal vegetation with <i>Epilobium hirsutum</i> , <i>Pulicaria dysenterica</i> , <i>Solanum dulcamara</i> , <i>Cirsium palustre</i> and shorter vegetation including marshy <i>Holcus lanatus</i> , and <i>Agrostis stolonifera</i> grassland with <i>Alopecurus geniculatus</i> , <i>Anthoxanthum odoratum</i> and <i>Ranunculus repens</i> . Also bare ground areas with surface water and scattered forbs including <i>Cardamine flexuosa</i> and in wetter areas, <i>Callitriche</i> spp. .
6	22/05/2017	SW85030 54408	Site 1 (Priority Woodland edge/interior)	Field margin with wood edge	Edge habitat similar to TN4 but with more flower-rich herb margin with <i>Veronica chamaedrys</i> , <i>Ranunculus repens</i> and <i>Rumex acetosa</i> in a sward of <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> and <i>Dactylis glomerata</i> . Extensive <i>Rubus fruticosus</i> agg. and <i>Ulex europaeus</i> scrub layer between grassland and woodland margins. Woodland edge drier, with <i>Corylus avellana</i> , <i>Prunus spinosa</i> and some <i>Crataegus monogyna</i> .
7	22/05/2017	SW84177 53731	Site 3 (Humid heath - eastern section)	General heathland (H4)	Flattish area of H4 <i>Ulex gallii</i> - <i>Agrostis curtisii</i> humid heath typical of southwest England. <i>Calluna vulgaris</i> , <i>Erica cinerea</i> and <i>Ulex gallii</i> variously co-dominant, with frequent to abundant graminoids including <i>Agrostis curtisii</i> and <i>Molinia caerulea</i> and occasional to rare <i>Potentilla erecta</i> , <i>Carex binervis</i> , <i>Ulex europaeus</i> and <i>Rubus fruticosus</i> agg. General stand uniformly late building to mature stage, with little bare ground. Some patches of <i>Salix cinerea</i> and <i>Ulex europaeus</i> scrub and <i>Pteridium aquilinum</i> locally dominant/abundant. Small amounts of <i>Erica tetralix</i> occurring in damper areas, particularly close to the A30 to the eastern corner of the patch.
8	22/05/2017	SW84226 53703	Site 3 (Humid heath - eastern section)	Area with <i>Molinia caerulea</i> and <i>Pteridium aquilinum</i> dominant	Tussocky strip adjacent to heath with <i>Molinia caerulea</i> and <i>Pteridium aquilinum</i> co-dominant, with <i>Agrostis curtisii</i> , <i>Teucrium scorodonia</i> , <i>Digitalis purpurea</i> , <i>Rubus fruticosus</i> agg., <i>Anthoxanthum odoratum</i> and <i>Potentilla erecta</i> . Habitat with deep litter layer and few ericoids. Edge habitat with <i>Urtica dioica</i> and <i>Heracleum sphondylium</i> .
9	22/05/2017	SW84321 53779	Site 2 (Grassland west of Carland Cross)	Improved grassland	Grassland recorded as semi-improved in existing Phase 1, but clearly improved at time of current survey. Sward uniformly <i>Lolium perenne</i> dominated with locally abundant <i>Ranunculus repens</i> and frequent <i>Rumex obtusifolius</i> , but few other herbs. (excluded from botanical and invertebrate survey)

Target note	Date	Grid reference	Site	Feature	Description
10	22/05/2017	SW84129 53748	Site 4 (Mixed woodland and pond)	Mixed woodland with <i>Pinus maritima</i> , <i>Quercus ilex</i> and native broadleaves around ex-quarry pond	Mature planted mixed woodland sandwiched between two patches of heathland (Sites 3 and 5). Habitat with mature <i>Pinus maritima</i> and <i>Quercus ilex</i> , surrounding a largish pond located in a steep-sided basin with dense, <i>Salix cinerea/caprea</i> scrub on slopes down to pond margin. At interface with heathland edge and below canopy, heathland grades into a low <i>Rubus fruticosus</i> agg. and <i>Lonicera periclymenum</i> scrub layer, with areas of bare ground, typically with leaf litter (pine needles and <i>Q. ilex</i> leaves) and plants including <i>Holcus lanatus</i> , <i>Agrostis curtisii</i> , <i>Teucrium scorodonia</i> and <i>Digitalis purpurea</i> . Extensive resource of fallen branches and twigs at ground layer providing an often shaded wood decay resource. Broadleaves present in woodland mainly towards western interface with Site 5, including <i>Prunus spinosa</i> , <i>Quercus petraea</i> , <i>Acer pseudoplatanus</i> , <i>Crataegus monogyna</i> and <i>Fraxinus excelsior</i> . Groundflora in western section with <i>Viola riviniana</i> , <i>Brachypodium sylvaticum</i> , <i>Asplenium scolopendrium</i> , <i>Primula vulgaris</i> and <i>Hyacinthoides non-scripta</i> with introduced <i>H. hispanica</i> and <i>Allium triquetrum</i> . Habitat close to upper slopes of pond with remnant patches of heathland (described in TN11)
11	22/05/2017	SW84093 53714	Site 4 (Mixed woodland and pond)	Small patch of heathland adjacent and above pond	Small patch of sheltered <i>Erica cinerea</i> and <i>Ulex gallii</i> dominated heath overlooking pond. With cliffed-edges and varied microtopography. Ericoids budding to mature stage with <i>Molinia caerulea</i> , <i>Agrostis curtisii</i> and <i>Rubus fruticosus</i> agg. Habitat open and south-facing, but sheltered by surrounding woodland. Patches of bare ground present (virtually absent on adjacent heathland sites).
12	22/05/2017	SW83930 53680	Site 5 (Humid heath - western section)	General heathland (H4)	Heathland similar in size and shape to the eastern fragment (TN7). <i>Calluna vulgaris</i> , <i>Erica cinerea</i> and <i>Ulex gallii</i> variously co-dominant, with abundant <i>Agrostis curtisii</i> and <i>Molinia caerulea</i> . <i>Potentilla erecta</i> frequent and <i>Teucrium scorodonia</i> , <i>Polygala serpyllifolia</i> and <i>Galium saxatile</i> occasional to locally abundant. <i>Erica ciliaris</i> was also recorded in small amounts towards the westernmost extremity of the site (see TN13). Also bryophyte patches, mainly <i>Campylopus introflexus</i> . Habitat with areas of varied microtopography, including a slightly cliffed ditch edge, which afforded small amounts of bare ground. Ericoids generally late building to mature, with more mature grassy patches persisting towards the west of the site.
13	22/05/2017	SW83854 53660	Site 5 (Humid heath - western section)	More grassy heath at western end of unit	More grassy heath towards western end of more mature heathland stand. <i>Agrostis curtisii</i> and <i>Molinia caerulea</i> abundant, with <i>Ulex gallii</i> , <i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>Potentilla erecta</i> and more occasional <i>Teucrium scorodonia</i> , <i>Potentilla erecta</i> , <i>Polygala serpyllifolia</i> and <i>Galium saxatile</i> . <i>Erica ciliaris</i> locally recorded here but not elsewhere within the site. A ditch bisecting site north to south afforded some small bare earth patches.

Target note	Date	Grid reference	Site	Feature	Description
14	22/05/2017	SW83975 53676	Site 5 (Humid heath - western section)	Heather covered tumulus	Raised barrow providing microtopographic variation. Habitat with similar vegetation composition and structure as surrounding heath. Little bare ground, but microtopographic varying from flatter surrounding habitat. Sloughed Adder <i>Vipera berus</i> skin found on top of tumulus.
15	22/05/2017	SW74480 49750	Site 15 (Priority woodland)	Small triangular area of broadleaved woodland adjacent to A30	Small triangular stand of mature, broadleaved standards including <i>Quercus petraea</i> , <i>Acer pseudoplatanus</i> , <i>Fagus sylvatica</i> , <i>Fraxinus excelsior</i> . Fairly open and little structure. No significant understorey or scrub layers. Ground/field layer grassy throughout with <i>Poa trivialis</i> , <i>Lolium perenne</i> and <i>Dactylis glomerata</i> and herbs including <i>Cerastium fontanum</i> , <i>Silene dioica</i> , <i>Ranunculus repens</i> , <i>Rumex sanguineus</i> , <i>Ranunculus ficaria</i> , <i>Urtica dioica</i> , <i>Stellaria media</i> and <i>Ranunculus acris</i> . In addition, one species <i>Veronica montana</i> which is considered to be an ancient woodland indicator species in southwest England, was recorded. The non-native invasive <i>Hyacinthoides hispanica</i> was also recorded, however, native <i>H. non-scripta</i> was absent. Whilst many of the trees were mature and some showed signs of historic coppicing (being multitemmed). The wood was fairly open, with dappled shade at ground layer, but lacked structural diversity and there was little fallen or standing wood decay habitat, although some trees on the eastern boundary/hedge-bank had some rot holes and flaking bark. The wood was open to grazing by cattle and the sward uniformly c20cm tall.
16	23/05/2017	SW82933 53166	Site 7 (Grass verge mapped as Priority 'calcareous grassland')	Mown verge with fairly herb-rich semi-improved grassland	Described as 'calcareous grassland priority habitat'. Verge c15m at widest point, extending for approximately 300m along northern boundary of the existing A30. Sward mowed shortly prior to survey and uniformly 5cm tall throughout. Grassland with graminoids including <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Dactylis glomerata</i> , <i>Festuca rubra</i> , <i>Luzula campestris</i> and forbs including <i>Ranunculus repens</i> , <i>Lotus corniculatus</i> , <i>Plantago lanceolata</i> , <i>Geranium dissectum</i> , <i>Centaurea nigra</i> , <i>Achillea millefolium</i> , <i>Ranunculus bulbosus</i> , <i>Trifolium pratensis</i> , <i>Rumex crispus</i> , <i>Potentilla reptans</i> , <i>Potentilla anserina</i> , <i>Trifolium repens</i> , <i>Taraxacum officinale</i> (agg.), <i>Cerastium fontanum</i> , <i>Veronica chamaedrys</i> , <i>Rumex acetosa</i> , <i>Sagina procumbens</i> , <i>Vicia sativa</i> , <i>Cirsium arvense</i> and <i>Heracleum sphondylium</i> . Taller grassland close to the hedgerow/scrub edge with <i>Heracleum sphondylium</i> , <i>Rubus fruticosus</i> (agg.), <i>Ulex europaeus</i> and <i>Galium aparine</i> .

Target note	Date	Grid reference	Site	Feature	Description
17	23/05/2017	SW82965 53228	Site 8 (Mapped as SI grassland along field margin)	Hedgerow/field margin habitat	Field with ruderal vegetation (<i>Epilobium</i> sp.) and bare ground. Hedge-bank lacking woody species, but with c2m wide grassy margin. Tall grasses mainly <i>Dactylis glomerata</i> and <i>Holcus lanatus</i> with <i>Urtica dioica</i> , <i>Pteridium aquilinum</i> , <i>Heracleum sphondylium</i> , <i>Aphanes arvensis</i> , <i>Geranium robertianum</i> , <i>Ranunculus repens</i> , bare ground but low diversity. Hedgebank variously with tall, rank <i>Dactylis glomerata</i> , <i>Holcus lanatus</i> , <i>Digitalis purpurea</i> , <i>Heracleum sphondylium</i> , <i>Rubus fruticosus</i> agg., <i>Pteridium aquilinum</i> , <i>Teucrium scorodonia</i> , <i>Lonicera periclymenum</i> , <i>Galium aparine</i> , <i>Umbilicus rupestris</i> , with few woody species but <i>Prunus spinosa</i> further north with <i>Galium mollugo</i> and <i>Festuca rubra</i> .
18	23/05/2017	SW82953 53263	Site 8 (Mapped as SI grassland along field margin)	Ploughed and sown field and field margin	Field margin indicated as 'SI grassland' on Phase 1 map. Ploughed to margin and sown with arable (wheat) crop. No remaining marginal habitat. Adjacent hedgebank as TN17.
19	23/05/2017	SW82564 52950	Site 9 (Wet and dry grassland and woodland margin north of Honeycombe Barn)	Wetland and scrub at woodland edge (western edge of woodland)	Herb-rich woodland edge wet grassland and scrub at woodland margin. Habitat with diverse structural succession from wet grassland, tall ruderal and fen, through scrub to woodland edge, scrub forming a mosaic with tall herbs and shorter grassland/swamp habitat. Grassland with rich-flower resource, with graminoids including <i>Holcus lanatus</i> , <i>Poa trivialis</i> and <i>Juncus effusus</i> , with forbs including <i>Ranunculus repens</i> , <i>Veronica beccabunga</i> , <i>Myosotis scorpioides</i> , <i>Scrophularia auriculata</i> , <i>Pulicaria dysenterica</i> , <i>Lychnis flos-cuculi</i> , <i>Stellaria graminea</i> , <i>Rumex crispus</i> , <i>Cardamine pratensis</i> , <i>Urtica dioica</i> , <i>Cirsium palustre</i> , <i>Mentha aquatica</i> , <i>Epilobium hirsutum</i> , <i>Angelica sylvestris</i> , <i>Galium palustre</i> , <i>G. aparine</i> . Scrub mainly <i>Rubus fruticosus</i> (agg.) and woodland margin with <i>Corylus avellana</i> and <i>Salix caprea/cinerea</i> . Woodland carr habitat at this point with standing water.
20	23/05/2017	SW82618 52909	Site 9 (Wet and dry grassland and woodland margin north of Honeycombe Barn)	Wet woodland interior (towards northern end of wood)	Fairly shaded wet woodland interior. Mainly low canopy woodland/carr with leggy <i>Salix cinerea/caprea</i> (possibly hybrids occurring), with <i>Fraxinus excelsior</i> and understorey also of lower growing <i>Salix cinerea/caprea</i> with <i>Sambucus nigra</i> and <i>Corylus avellana</i> and <i>Hedera helix</i> , <i>Lonicera periclymenum</i> and <i>Rubus fruticosus</i> (agg.) mainly in the scrub layer. Some <i>Prunus spinosa</i> and <i>Crataegus monogyna</i> at margins. Groundlayer mainly shaded with <i>Hedera helix</i> , <i>Urtica dioica</i> , <i>Circaea lutetiana</i> , <i>Glyceria</i> sp., <i>Cardamine flexuosa</i> , <i>Dryopteris dilatata</i> , <i>Geranium robertianum</i> , <i>Galium palustre</i> , <i>Rumex sanguineus</i> , <i>Blechnum spicant</i> . Non-native Spanish Bluebell <i>Hyacinthoides hispanica</i> also present. Small stream flowing through centre of woodland with steep banks in places. Bryophytes and lichens abundant in places.

Target note	Date	Grid reference	Site	Feature	Description
21	23/05/2017	SW82626 52870	Site 9 (Wet and dry grassland and woodland margin north of Honeycombe Barn)	East-facing flower-rich SI grassland at woodland edge	Herb-rich SI grassland on moderately steep east facing slope c20m wide sloping downwards to woodland margin. Sward height c5-10cm at time of survey and apparently managed by livestock grazing (cattle). Sward with graminoids including <i>Anthoxanthum odoratum</i> and <i>Holcus lanatus</i> and forbs including abundant <i>Ranunculus repens</i> , <i>Veronica chamaedrys</i> and <i>Plantago lanceolata</i> with <i>Lotus corniculatus</i> , <i>Medicago lupulina</i> , <i>Rumex acetosa</i> , <i>Hypochaeris radicata</i> , <i>Trifolium repens</i> , <i>Ranunculus acris</i> , <i>Centaurea nigra</i> and <i>Centaureum erythraea</i> . Fairly damp at slope bottom, drier upslope. Many small bare ground patches.
22	23/05/2017	SW82667 52835	Site 9 (Wet and dry grassland and woodland margin north of Honeycombe Barn)	General woodland interior (southern end of wood)	Woodland interior slightly more open than at TN20. Canopy with leggy <i>Fraxinus excelsior</i> and <i>Quercus robur</i> and tall <i>Salix caprea/cinerea</i> . Understorey with shorter <i>Salix caprea/cinerea</i> , <i>Crataegus monogyna</i> and <i>Ilex aquifolium</i> . Scrub layer with <i>Rubus fruticosus</i> (agg.) and <i>Lonicera periclymenum</i> . Some more mature trees (<i>Quercus robur</i> and <i>Fraxinus excelsior</i>) on hedge-bank. Ground vegetation with <i>Urtica dioica</i> , <i>Rumex sanguinius</i> , <i>Carex remota</i> , <i>Cardamine flexuosa</i> , <i>Viola riviniana</i> , <i>Circaea lutetiana</i> , <i>Glyceria</i> sp., <i>Silene dioica</i> , <i>Geum urbanum</i> , <i>Geranium robertianum</i> , <i>Digitalis purpurea</i> , <i>Asplenium scolopendrium</i> , <i>Poa trivialis</i> and <i>Galium aparine</i> .
23	23/05/2017	SW83493 53258	Site 6 (Rush pasture/wet grassland/wet woodland edge)	Wet grassland and rush pasture	Survey area in the northwest corner of a large field variously comprising semi-improved wet grassland and rush pasture habitats and with an area of wet woodland at the western boundary. <i>Holcus lanatus</i> dominated wet grassland generally tall at time of survey and forming a mosaic with fairly dense <i>Juncus effusus</i> dominated stands. Some areas of site waterlogged, particularly towards the west of the field and increasing downslope from the survey area. Water level frequently at or close to the soil surface. Other graminoids abundant within the sward included <i>Anthoxanthum odoratum</i> , <i>Poa trivialis</i> , <i>Alopecurus geniculatus</i> , <i>Glyceria</i> sp. Herbs including <i>Ranunculus repens</i> , <i>Lotus pedunculatus</i> , <i>Rumex acetosa</i> , <i>Cirsium palustre</i> and <i>Cardamine pratensis</i> occurred both within the wet grassland and <i>Juncus</i> dominated stands, with species such as <i>Galium palustre</i> , <i>Myosotis scorpioides</i> , <i>Senecio aquaticus</i> , <i>Potentilla erecta</i> , <i>Mentha aquatica</i> , <i>Ranunculus flammula</i> and <i>Lychnis flos-cuculi</i> more confined to the wetter areas and <i>Juncus</i> stands. A strip of woodland followed the fenceline and included wetter carr with <i>Salix cinerea</i> and some <i>Alnus glutinosa</i> and areas of raised drier woodland with trees including mature <i>Quercus petraea</i> , <i>Ilex aquifolium</i> , <i>Fraxinus excelsior</i> and <i>Crataegus monogyna</i> . Rush pasture and fen habitat persisted to some extent beneath the wet woodland, with areas of seepage habitat and exposed, saturated mud. There was some wood decay habitat and saturated wood.

Target note	Date	Grid reference	Site	Feature	Description
24	23/05/2017	SW82314 52953	Site 10 (SI meadow and wet grassland)	Mesotrophic damp SI grassland adjacent to A30	Habitat managed as hay meadow. Habitat to east of site generally drier and to the west, areas of wetter grassland and rush pasture were recorded. Both swards were fairly herb-rich. At the time of survey the sward height was approximately 20cm being fairly uniform. Graminoids including <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Agrostis stolonifera</i> with <i>Lolium perenne</i> , <i>Dactylis glomerata</i> and <i>Cynosurus cristatus</i> with herbs including <i>Ranunculus acris</i> , <i>Lotus pedunculatus</i> , <i>Rumex acetosa</i> , <i>Trifolium repens</i> , <i>T. pratense</i> , <i>Centaurea nigra</i> , <i>Vicia sativa</i> , <i>Hypochaeris radicata</i> , <i>Geranium dissectum</i> , <i>Medicago lupulina</i> , <i>Lotus corniculatus</i> , <i>Cardamine pratensis</i> , <i>Heracleum sphondylium</i> , <i>Taraxacum officinale</i> (agg.). Field margin with taller herbs including abundant <i>Heracleum sphondylium</i> , <i>Digitalis purpurea</i> and <i>Silene dioica</i> with some <i>Rubus fruticosus</i> (agg.) Scrub. Hedgerow fairly uniform, cut with <i>Prunus spinosa</i> , <i>Sambucus nigra</i> , <i>Crataegus monogyna</i> , <i>Ulex europaeus</i> and Italian Alder <i>Alnus cordata</i> ? Also with <i>Lonicera periclymenum</i> . Presence of Burnet Moth <i>Zygaena</i> sp. cocoons on old grass stems suggests that field is not frequently cut.
25	23/05/2017	SW80100 50580	Site 11 (SI grassland)	SI grassland (recently mowed at time of survey)	Recently mowed, SI mesotrophic grassland. Field used for equestrian activities (horse jumps). Sward with graminoids including <i>Holcus lanatus</i> and <i>Anthoxanthum odoratum</i> with <i>Dactylis glomerata</i> , <i>Festuca rubra</i> , and <i>Lolium perenne</i> and forbs including <i>Lotus corniculatus</i> , <i>Veronica chamaedrys</i> , <i>Plantago lanceolata</i> , <i>Hypochaeris radicata</i> , <i>Medicago lupulina</i> , <i>Centaurea nigra</i> , <i>Ranunculus repens</i> , <i>Rumex acetosa</i> , <i>Ranunculus repens</i> , <i>Rumex acetosa</i> , <i>Trifolium repens</i> , <i>T. pratense</i> , <i>Bellis perennis</i> , <i>Geranium dissectum</i> , <i>Rumex obtusifolius</i> . Field margin with slightly taller sward of similar composition but with <i>Brachypodium sylvaticum</i> , <i>Heracleum sphondylium</i> , <i>Prunus spinosa</i> (seedlings), <i>Galium mollugo</i> , <i>G. aparine</i> , <i>Silene dioica</i> , <i>Geranium robertianum</i> and <i>Pteridium aquilinum</i> . Woody species comprising hedge included <i>Prunus spinosa</i> , <i>Ulex europaeus</i> , <i>Rubus fruticosus</i> (agg.), <i>Acer pseudoplatanus</i> , <i>Crataegus monogyna</i> , <i>Fraxinus excelsior</i> . Uniformly cut.
26	23/05/2017	SW79917 50411	Site 12 (SI grassland)	SI grassland (sheep grazed)	<i>Holcus lanatus</i> dominant with <i>Anthoxanthum odoratum</i> . Similar composition to TN25, but with longer sward and sheep grazed (low density). Sward height c10cm. Hedgerow of similar composition to TN25, but less manicured.

Target note	Date	Grid reference	Site	Feature	Description
27	23/05/2017	SW80088 50222	Site 13 (Priority woodland - Nancarrow Farm)	Broadleaved woodland	Broadleaved woodland with canopy predominately of mature <i>Acer pseudoplatanus</i> with <i>Fraxinus excelsior</i> and <i>Quercus robur</i> . Understorey with <i>Corylus avellana</i> , <i>Ilex aquifolium</i> , <i>Crataegus monogyna</i> and <i>Taxus baccata</i> . Scrub layer generally of low <i>Rubus fruticosus</i> (agg.) throughout with <i>Rosa arvensis</i> . Shaded groundlayer with continuous <i>Hedera helix</i> carpet, with <i>Dryopteris filix-mas</i> and rather thinly scattered groundflora species including <i>Circaea lutetiana</i> , <i>Geranium robertianum</i> , <i>Galium aparine</i> , <i>Blechnum spicant</i> , <i>Asplenium scolopendrium</i> , <i>Hyacinthoides non-scripta</i> , <i>Urtica dioica</i> , <i>Ranunculus ficaria</i> , <i>Veronica montana</i> and <i>Brachypodium sylvaticum</i> . Varied structure and topography, some light reaching groundlayer in places but generally rather heavily shaded. Some bark and sapwood decay habitat.
28	23/05/2017	SW80044 50158	Site 13 (Priority woodland - Nancarrow Farm)	Hedgebank with mature <i>Quercus robur</i> and <i>Juncus</i> dominated strip	Hedgebank with mature <i>Quercus robur</i> and <i>Fraxinus excelsior</i> adjacent to a narrow strip of wet grassland with <i>Juncus effusus</i> co-dominant with <i>Holcus lanatus</i> . Also with <i>Anthoxanthum odoratum</i> , <i>Ranunculus repens</i> , <i>R. acris</i> , <i>Urtica dioica</i> , <i>Stellaria graminea</i> , <i>Cardamine flexuosa</i> , <i>Veronica chamaedrys</i> , <i>Ranunculus ficaria</i> , <i>Cirsium palustre</i> , <i>Scrophularia auricularia</i> . Patches of <i>Rubus fruticosus</i> (agg.) scrub also present in mosaic. Structural diversity.
29	23/05/2017	SW80044 50158	Site 14 (Marshy SI grassland south of Nancarrow Farm)	SI mesotrophic wet grassland	Mesotrophic wet grassland in western corner of a larger field. Sward tall (c30cm) at time of survey. <i>Holcus lanatus</i> and <i>Anthoxanthum odoratum</i> abundant in sward with scattered and locally dominant <i>Juncus effusus</i> . <i>Ranunculus acris</i> abundant with other herbs including <i>Plantago lanceolata</i> , <i>Rumex obtusifolius</i> , <i>R. crispus</i> , <i>Cardamine pratensis</i> , <i>Rumex acetosa</i> , <i>Geranium dissectum</i> , <i>Lotus pedunculatus</i> , <i>Galium palustre</i> , <i>Mentha aquatica</i> , <i>Myosotis laxa</i> and <i>Veronica chamaedrys</i> . Hedgerow margins with <i>Heracleum sphondylium</i> , <i>Silene dioica</i> , <i>Urtica dioica</i> , <i>Rubus fruticosus</i> (agg.), <i>Galium aparine</i> , <i>Geum urbanum</i> , <i>Cirsium palustre</i> and <i>Digitalis purpurea</i> . Woodland edge/hedgerow with <i>Salix cinerea/caprea</i> , <i>Crataegus monogyna</i> , <i>Corylus avellana</i> , <i>Prunus spinosa</i> , <i>Fraxinus excelsior</i> .
30	23/05/2017	SW78843 49410	Site 18 (Roadside Inventory BS315)	Listed due to presence of Babington's Leek <i>Allium ampeloprasum</i> var <i>babingtonii</i> ?	Verge surveyed initially as it was said to be 'heathland'. But only short, mown <i>Lolium perenne</i> dominated amenity grassland, with <i>Trifolium repens</i> , but v. herb-poor. Adjacent field ploughed to margin. No Babington's Leek recorded - though it was recorded in nearby Site 19.

Target note	Date	Grid reference	Site	Feature	Description
31	23/05/2017	SW78800 49363	Site 19 (SI grassland south of A30)	Damp SI grassland south of A30	Fairly short sward (c5-10cm) mesotrophic damp grassland with <i>Agrostis capillaris</i> , <i>Holcus lanatus</i> and <i>Anthoxanthum odoratum</i> with scattered <i>Juncus effusus</i> and <i>J. conglomeratus</i> and herbs including <i>Ranunculus repens</i> , <i>Rumex crispus</i> , <i>R. acetosa</i> , <i>Myosotis laxa</i> , <i>Pulicaria dysenterica</i> , <i>Taraxacum officinale</i> (agg.), <i>Cirsium arvense</i> , <i>Cirsium palustre</i> and rarely <i>Centaurea nigra</i> , <i>Lotus pedunculatus</i> , and <i>Geranium dissectum</i> and <i>Trifolium repens</i> . Field margin/hedge-bank with <i>Urtica dioica</i> , <i>Silene dioica</i> , <i>Dactylis glomerata</i> , <i>Heracleum sphondylium</i> , <i>Digitalis purpurea</i> and <i>Galium mollugo</i> and woody species including <i>Rubus fruticosus</i> (agg.), <i>Crataegus monogyna</i> (mature), <i>Salix cinerea</i> and <i>Acer pseudoplatanus</i> (young) and <i>Ulex europaeus</i> . Babington's Leek <i>Allium ampeloprasum</i> var <i>babingtonii</i> also recorded in hedge.
32	23/05/2017	SW78368 48699	Site 20 (Roadside Inventory BS22 adjacent)	Reason for listing uncertain, but was said to be 'Molina caerulea/heathland) Area surveyed opposite field which appeared to support SI grassland.	Roadside verge adjacent to Hillview Farm rather botanically unremarkable and narrow. Area surveyed included small field on opposite side of road which contained SI grassland. Habitat here with graminoids including <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , <i>Agrostis capillaris</i> and <i>A. stolonifera</i> , with herbs including <i>Rumex acetosa</i> , <i>Crepis capillaris</i> , <i>Ranunculus repens</i> , <i>R. acris</i> , <i>Cirsium palustre</i> , <i>Hypochaeris radicata</i> , <i>Plantago lanceolata</i> and <i>Trifolium pratensis</i> Hedgebank and within the sward <i>Epilobium angustifolium</i> , <i>Pteridium aquilinum</i> , <i>Dactylis glomerata</i> and <i>Rubus fruticosus</i> (agg.). Hedgebank otherwise with no woody species.
33	23/05/2017	SW78917 49512	Site 17 (SI grassland and scrub habitat)	Largely scrubbed over mesotrophic grassland.	Habitat formerly sheep-grazed, SI grassland. Now largely scrubbed over with <i>Rubus fruticosus</i> (agg.) forming a close mosaic with two small (c5m x 5m) patches of grassland and one or two other very small patches. The grassland patches, whilst small have been maintained as a short sward due to rabbit grazing. Bramble scrub extending continuously (height c0.5 to 1m tall) to field margin lined with woody hedgerow species including mature <i>Acer pseudoplatanus</i> , <i>Fraxinus excelsior</i> , <i>Crataegus monogyna</i> , <i>Sambucus nigra</i> and <i>Prunus spinosa</i> . Grassland with <i>Holcus lanatus</i> and <i>Anthoxanthum</i> with abundant <i>Veronica chamaedrys</i> , <i>Ranunculus repens</i> , <i>Plantago lanceolata</i> and <i>Rumex acetosa</i> and frequent <i>Cirsium palustre</i> , <i>Rumex crispus</i> , <i>Trifolium repens</i> and <i>Dipsacus fullonum</i> , <i>Veronica serpyllifolia</i> , <i>Lotus corniculatus</i> and <i>Glechoma hederacea</i> . Habitat patches very small but herb-rich.
34	23/05/2017	SW79066 49517	Site 16 (mapped as SI grassland) Nanteague Farm	Mainly cattle grazed improved pasture (mapped as SI grassland in Phase 1 survey).	Complex of fields mainly managed as pasture and cattle grazed. Habitat virtually all herb-poor, with <i>Lolium perenne</i> and <i>Holcus lanatus</i> dominant with <i>Poa pratensis</i> and some <i>Ranunculus repens</i> and <i>Trifolium repens</i> . Few other herbs though very thinly scattered <i>Cerastium fontanum</i> , <i>Veronica chamaedrys</i> and <i>Potentilla anserina</i> , but not present in most fields. Hedgerow habitat of greater conservation value, with mature <i>Crataegus monogyna</i> , <i>Fraxinus excelsior</i> and <i>Prunus spinosa</i> with <i>Rubus fruticosus</i> (agg.)

Target note	Date	Grid reference	Site	Feature	Description
35	23/05/2017	SW79164 49507	Site 16 (mapped as SI grassland) Nanteague Farm	Mainly cattle grazed improved pasture (mapped as SI grassland in Phase 1 survey).	Cattle-grazed pasture. Poor SI field - slightly less improved than all other fields in complex, with <i>Holcus lanatus</i> , <i>Lolium perenne</i> , <i>Anthoxanthum odoratum</i> , <i>Ranunculus acris</i> , <i>Trifolium pratense</i> , <i>T. repens</i> , <i>Veronica chamaedrys</i> , <i>Geranium dissectum</i> , <i>Taraxacum officinale</i> (agg.), <i>Cerastium fontanum</i> , <i>Ranunculus repens</i> , <i>Veronica serpyllifolium</i> and <i>Cirsium arvense</i> . Sward height <5cm. Hedge mature but grassland very thinly scattered with flowering herbs.
36	02/07/2017	SW74867 47338	Ste 29 (SI habitat at Silver Spring Farm)	Herb-rich SI grassland	One of two contiguous fields. Grassland with graminoids including <i>Agrostis capillaris</i> , <i>Holcus lanatus</i> , <i>Cynosurus cristatus</i> and <i>Anthoxanthum odoratum</i> and herbs including <i>Centaurea nigra</i> , <i>Lotus corniculatus</i> , <i>Prunella vulgaris</i> , <i>Hypochaeris radicata</i> , <i>Parentucellia viscosa</i> . Pony grazed but sward fairly uneven and not over-grazed. Some mature trees in boundary hedge and some encroaching <i>Prunus spinosa</i> providing good edge habitat for invertebrates.
37	02/07/2017	SW74863 47292	Ste 28 (SI habitat at Silver Spring Farm)	Herb-rich SI grassland	One of two contiguous fields at Silver Spring Farm. Habitat with similar floristic composition as described in TN36, but not subject to grazing at time of survey, therefore, sward fairly tall and locally rank. Co-ominant graminoids included <i>Agrostis capillaris</i> , <i>Holcus lanatus</i> . Herbs somewhat more diffuse in coverage than in TN36, possibly due to management. <i>Centaurea nigra</i> and <i>Hypochaeris radicata</i> constant with some largish aggregations of <i>Parentucellia viscosa</i> . Hedgerow with fairly diverse range of native species, but with a line of <i>Cupressus x leylandii</i> adjacent to buildings. Good scrub edge succession in places away from farm buildings, with <i>Prunus spinosa</i> encroaching onto field margin, also <i>Rubus fruticosus</i> (agg.)
38	02/07/2017	SW74911 47113	Site 30 (mapped as SI habitat) adjacent to Chiverton Cross	Improved grassland (mapped as SI grassland) Chiverton Cross	Improved, <i>Lolium perenne</i> dominated ley, with <i>Holcus lanatus</i> , <i>Trifolium repens</i> , <i>T. pratense</i> . Unsown margin slightly more diverse with elements of SI grassland including <i>Lotus corniculatus</i> , but generally uniform and lacking diversity.
39	02/07/2017	SW74933 47050	Site 30 (mapped as SI habitat) adjacent to Chiverton Cross	Tumulus with rank, coarse grasses, in improved grassland field, Chiverton Cross	Taller sward, rank <i>Holcus lanatus</i> , <i>Agrostis capillaris</i> and <i>Anthoxanthum</i> grassland on tumulus in field described in TN38. With <i>Cirsium arvense</i> , <i>Rubus fruticosus</i> agg. and anomalously, <i>Circaea lutetiana</i> in species-poor sward.

Target note	Date	Grid reference	Site	Feature	Description
40	02/07/2017	SW77148 48567	Site 21 (Grassland East of North Plantation	Grassland, tall ruderal and woodland edge habitat east of North Plantation	Grassland generally rank and species-poor, with graminoids including <i>Holcus lanatus</i> , <i>Agrostis stolonifera</i> , <i>A. capillaris</i> and <i>Anthoxanthum odoratum</i> and occasional <i>Phleum pratense</i> and <i>Dactylis glomerata</i> . Herbs included <i>Plantago lanceolata</i> , with occasional <i>Hypochaeris radicata</i> , <i>Ranunculus acris</i> , <i>R. repens</i> , <i>Rumex crispus</i> , <i>R. obtusifolius</i> and <i>Centaurea nigra</i> . Also very small area of rush pasture with <i>Holcus lanatus</i> , <i>Juncus effusus</i> , <i>Anthoxanthum odoratum</i> , <i>Phleum pratense</i> , <i>Agrostis stolonifera</i> and <i>Lotus pedunculatus</i> . Bank with Tall herb habitat including abundant <i>Stachys paulstris</i> , <i>Rumex crispus</i> , <i>Heracleum sphondylium</i> , <i>Cirsium palustre</i> and <i>Rubus fruticosus</i> (agg.) scrub. Also largish dump of scallop shells in middle of field. <i>Rubus fruticosus</i> (agg.) scrub at woodland margin. Woodland edge with some mature/veteran <i>Quercus robur</i> , and <i>Fraxinus excelsior</i> .
41	02/07/2017	SW76461 48434	Site 24 (Field edge grassland immediately west of North Plantation and south of A30	Field margin with a range of herbs and grasses, possibly sown?	Field margin SI grassland strip adjacent to potato crop in field. Grassland with <i>Holcus lanatus</i> , <i>Agrostis stolonifera</i> with a range of other graminoids occurring locally including <i>Phleum pratense</i> , <i>Arrhenatherum elatius</i> , <i>Dactylis glomerata</i> , <i>Festuca rubra</i> , <i>F. arundinacea</i> and <i>Juncus conglomeratus</i> and <i>J. effusus</i> . Herbs thinly and disparately scattered through sward, but quite diverse with species including <i>Ranunculus repens</i> , <i>Rumex acetosa</i> , <i>R. crispus</i> , <i>Trifolium pratense</i> , <i>T. repens</i> , <i>Sanguisorba officinalis</i> , <i>Lotus corniculatus</i> , <i>Centaurea nigra</i> , <i>Geranium dissectum</i> , <i>Dipsacus fullonum</i> , <i>Vicia sativa</i> , <i>V. cracca</i> , <i>Cirsium palustre</i> , <i>Heracleum sphondylium</i> , <i>Senecio jacobaeae</i> , <i>Achillea millefolium</i> , <i>Cirsium vulgare</i> , <i>Calystegia sepium</i> with <i>Rubus fruticosus</i> agg. scrub.
42	02/07/2017	SW76294 48341	Site 24 (Field edge grassland in field immediately west of TN41	Field margin mapped as SI in Phase 1, now ploughed with barley to margin	No significant field margin habitat, planted to edge with barley crop. Four tumuli in field.
43	02/07/2017	SW 76159 48283 to SW 77273 48770	Site 23 (Field edge habitat adjacent to north margin of A30 opposite North Plantation	Habitat mapped as SI grassland, but ploughed and sown with various crops along entire length	Mapped as SI field margins in original Phase 1, but ploughed and sown to margins at time of survey

Target note	Date	Grid reference	Site	Feature	Description
44	02/07/2017	SW 76088 48235	Field edge mapped as SI grassland, immediately west of TN43	Habitat mapped as SI grassland in Phase 1, now ploughed to margin	No SI grassland recorded, ploughed to margin and sown with potato crop
45	03/07/2017	SW 76472 48473	Site 23 (Field edge habitat adjacent to north margin of A30 opposite North Plantation	Habitat mapped as SI grassland in Phase 1, now ploughed to margin	No SI grassland recorded, ploughed to margin and sown with barley crop
46	03/07/2017	SW 77199 48733	Site 23 (Field edge habitat adjacent to north margin of A30 opposite North Plantation	Habitat mapped as SI in Phase 1, now Lolium perenne ley and planted right to hedgerow	Grassland at margin of improved Lolium perenne ley. Grassland at margin with Lolium perenne (dominant), Holcus lanatus, Trifolium repens, Ranunculus repens, Rumex obtusifolius, Plantago lanceolata. At extreme margin with hedge with Silene dioica, Cirsium arvense, Heracleum sphondylium and Rubus fruticosus (agg.). Small, damp area at field bottom with small amounts of Juncus effusus, Potentilla anserina and Stachys palustris, but very localised and very rarely, small patch or two of Lotus corniculatus and Vicia sativa.
47	03/07/2017	SW 77086 48702	Site 23 (Field edge habitat adjacent to north margin of A30 opposite North Plantation	Very small patch of SI grassland and tall ruderal vegetation in extreme southeast corner of field	Very small (c5m x 15m) patch of fairly herb-rich SI grassland in corner of otherwise improved grassland field. Graminoids included Holcus lanatus, Cynosurus cristatus, Anthoxanthum odoratum, Dactylis glomerata, Agrostis stolonifera, with herbs including Lotus pedunculatus, Potentilla anserina, Lathyrus pratensis, Vicia cracca, Plantago lanceolata, Trifolium pratense and Rumex crispus. Habitat graded into tall ruderal/rank grassland vegetation with Heracleum sphondylium, Cirsium arvense and Rubus fruticosus (agg.)
48	03/07/2017	SW 75278 47660	Site 27 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	Field with Lolium perenne dominated improved sward reaching to boundary. Road margin outside of field boundary slightly less improved with abundant Heracleum sphondylium tall ruderal habitat with rank, tall Arrhenatherum elatius and Holcus lanatus grassland at extreme edge. Tiny bit of habitat with Lotus pedunculatus and Potentilla anserina at extreme corner (SW 75358 47806). Possible remnant of former damp SI grassland margin which had been subsequently sown to margin as Lolium perenne ley?

Target note	Date	Grid reference	Site	Feature	Description
49	03/07/2017	SW 75271 47854	Site 27 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	As TN48
50	03/07/2017	SW 75431 47936	Site 27 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	As TN48 - Lolium perenne ley sown to margin, with disturbed ground flora Ranunculus repens, Trifolium repens, Matricaria discoidea, Taraxacum officinale (agg.), Rumex obtusifolius, Plantago major and Galium mollugo.
51	03/07/2017	SW 75490 48050	Site 26 (Field edge habitat near Trevisome Park)	Small patch of remnant SI in corner of field	Very small (c4m x 4m) remnant patch of SI grassland in corner of otherwise improved grassland field. Graminoids included Holcus lanatus, Anthoxanthum odoratum, Lotus pedunculatus, Ranunculus acris and Galium mollugo.
52	03/07/2017	SW 75431 48091	Site 26 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	Ploughed and planted to field boundary with Lolium perenne monoculture
53	03/07/2017	SW 75440 48095	Site 26 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	Ploughed and planted to field boundary with Lolium perenne monoculture
54	03/07/2017	SW 75554 48145	Site 26 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	Ploughed and planted to field boundary with Lolium perenne monoculture

Target note	Date	Grid reference	Site	Feature	Description
55	03/07/2017	SW 75621 48232	Site 25 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with potato crop	Ploughed and planted to field boundary with potato crop
56	03/07/2017	SW 75516 48037	Site 25 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	Ploughed and planted to field boundary with Lolium perenne monoculture
57	03/07/2017	SW 75490 47861	Site 25 (Field edge habitat near Trevisome Park)	Mapped on Phase 1 with SI grassland margin on map, now ploughed and sown to edge with Lolium perenne	Ploughed and planted to field boundary with Lolium perenne monoculture

Table 3 – NVC quadrat data tables

Site 6A - Rush pasture/marshy grassland north of Ennis Farm											Date: 29/6/2017				
Habitat: Mosaic of rush pasture and semi-improved wet grassland. <i>Juncus effusus</i> and <i>Holcus lanatus</i> co-dominant in stand.															
Quadrat grid reference:		Q3: SW83547 53263		Notes: Stand surveyed <i>Juncus effusus</i> dominated rush pasture, <i>Holcus lanatus</i> dominated wet grassland stand sampled separately (see site 6B)											
Q1: SW83502 53246		Q4: SW83552 53262													
Q2: SW83501 53255		Q5: SW83556 53271													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Soft Rush	<i>Juncus effusus</i>	1	7	1	8	1	7	1	8	1	8	5	(7-8)	7.6
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	7	1	6	1	6	1	6	1	6	5	(6-7)	6.2
Graminoid	Creeping Bent-grass	<i>Agrostis stolonifera</i>	1	4	1	3	1	3	1	3	1	3	5	(3-4)	3.2
Forb	Marsh Thistle	<i>Cirsium palustre</i>	1	4	1	2	1	2	1	2			4	(2-4)	2
Forb	Marsh Bedstraw	<i>Galium palustre</i>	1	3			1	1	1	2	1	2	4	(1-2)	1.6
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	4	1	4					1	3	3	(3-4)	2.2
Forb	Greater Bird's-foot Trefoil	<i>Lotus pedunculatus</i>	1	3			1	4	1	3			3	(3-4)	2
Forb	Creeping Buttercup	<i>Ranunculus repens</i>			1	3	1	3			1	3	3	(3)	1.8
Forb	Meadow Buttercup	<i>Ranunculus acris</i>	1	3	1	2			1	2			3	(2-3)	1.4
Forb	Common Nettle	<i>Urtica dioica</i>					1	2	1	2	1	2	3	(2)	1.2
Forb	Cuckooflower	<i>Cardamine pratensis</i>			1	2	1	1	1	2			3	(1-2)	1
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>	1	3	1	2							2	(2-3)	1
Bryophyte	Common Feather-moss	<i>Kindbergia praelonga</i>							1	2	1	3	2	(2-3)	1
Forb	Square-stalked St John's-wort	<i>Hypericum tetrapterum</i>					1	1	1	2			2	(1-2)	0.6
Forb	Creeping Cinquefoil	<i>Potentilla reptans</i>	1	3									1	(3)	0.6
Forb	Water Forget-me-not	<i>Myosotis scorpioides</i>	1	3									1	(3)	0.6
Forb	Sticky Mouse-ear	<i>Cerastium glomeratum</i>	1	2									1	(2)	0.4
Forb	Bramble (agg.)	<i>Rubus fruticosus</i>	1	2									1	(2)	0.4

		(agg)													
Forb	Lesser Spearwort	<i>Ranunculus flammula</i>					1	2					1	(2)	0.4
Forb	Curled Dock	<i>Rumex crispus</i>									1	2	1	(2)	0.4
Forb	Common Fleabane	<i>Pulicaria dysenterica</i>									1	2	1	(2)	0.4
Forb	Red Campion	<i>Silene dioica</i>									1	2	1	(2)	0.4
Forb	Grey Willow	<i>Salix cinerea</i>									1	2	1	(2)	0.4
Forb	Greater Plantain	<i>Plantago major</i>			1	1							1	(1)	0.2
Polypodiopsida	A Lady Fern	<i>Athyrium filix-femina</i>							1	1			1	(1)	0.2
			Q1	Q2	Q3	Q4	Q5	Mean							
Mean sward height (cm) – graminoids and (* <i>Juncus</i> spp.)			20(70*)	30(70*)	50(80*)	50(80*)	20(70*)	34 (74*)							
Bare ground (% cover)			2	5	2	2	3	2.8							
Substrate			Clay loam												

Site 6B - Rush pasture/marshy grassland north of Ennis Farm											Date: 29/6/2017				
Habitat: Mosaic of rush pasture and semi-improved wet grassland. <i>Juncus effusus</i> and <i>Holcus lanatus</i> co-dominant in stand. Not grazed at time of survey, but evidence of recent cattle grazing. Habitat of variable quality, <i>Holcus lanatus</i> dominant/co-dominant throughout.															
Quadrat grid reference:		Q3: SW83516 53254		Notes: Stand surveyed <i>Holcus lanatus</i> dominated wet grassland. <i>Juncus effusus</i> rush pasture stand sampled separately (see site 6A).											
Q1: SW83540 53250		Q4: SW83499 53270													
Q2: SW83527 53253		Q5: SW83495 53275													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	6	1	8	1	6	1	8	1	10	5	(6-10)	7.6
Graminoid	Creeping Bent-grass	<i>Agrostis stolonifera</i>	1	7	1	6	1	3	1	5	1	3	5	(3-7)	4.8

Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	6	1	6	1	7	1	6			4	(6-7)	5	
Forb	Greater Bird's-foot Trefoil	<i>Lotus pedunculatus</i>	1	4	1	3	1	3	1	3			4	(3-4)	2.6	
Graminoid	Perennial Ryegrass	<i>Lolium perenne</i>			1	3	1	2	1	3	1	3	4	(2-3)	2.2	
Forb	Meadow Buttercup	<i>Ranunculus acris</i>	1	3	1	2	1	3	1	2			4	(2-3)	2	
Forb	Creeping Buttercup	<i>Ranunculus repens</i>					1	1	1	2	1	2	3	(1-2)	1	
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>	1	3							1	2	2	(2-3)	1	
Graminoid	Soft Rush	<i>Juncus effusus</i>					1	3	1	2			2	(2-3)	1	
Forb	Dandelion (agg.)	<i>Taraxacum officinale (agg.)</i>	1	1	1	2							2	(1-2)	0.6	
Graminoid	Jointed Rush	<i>Juncus articulatus</i>					1	2					1	(2)	0.4	
Forb	Creeping Thistle	<i>Cirsium arvense</i>									1	2	1	(2)	0.4	
Forb	Marsh Thistle	<i>Cirsium palustre</i>		1	1								1	(1)	0.2	
			Q1			Q2			Q3			Q4		Q5		Mean
	Mean sward height (cm)		30			25			30			30		30		29
	Bare ground (% cover)		0.1			0.1			0.1			0.1		0.1		0.1
	Substrate		Clay loam													

Site 7 – Semi-improved grassland on wide road verge north of A30 north of Ventonteague (listed as 'Calcareous grassland' Priority Habitat)											Date: 29/6/2017				
Habitat: Mown SI grassland on wide road verge, with <i>Holcus lanatus</i> , <i>Agrostis capillaris</i> and <i>Anthoxanthum odoratum</i> prominent in sward, with abundant <i>Plantago lanceolata</i> , <i>Lotus corniculatus</i> , <i>Trifolium repens</i> and <i>Centaurea nigra</i> .															
Quadrat grid reference:		Q3: SW82912 53158				Notes: Frequently mowed site with short (c5cm tall sward throughout). Litter layer of bryophytes on surface due to mowing.									
Q1: SW82898 53154		Q4: SW832932 53163													
Q2: SW82904 53157		Q5: SW82963 53175													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Common Bent-grass	<i>Agrostis capillaris</i>	1	5	1	6	1	6	1	6	1	6	5	(5-6)	5.8
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	6	1	5	1	3	1	5	1	7	5	(3-7)	5.2
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	5	1	5	1	5	1	5	1	5	5	(5)	5
Bryophyte	Springy Turf-moss	<i>Rhytidiadelphus squarrosus</i>	1	6	1	6	1	4	1	4	1	3	5	(3-6)	4.6
Forb	Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>	1	4	1	5	1	4	1	3	1	3	5	(2-4)	3.8
Forb	White Clover	<i>Trifolium repens</i>	1	4	1	3	1	2	1	3	1	4	5	(2-4)	3.2
Forb	Common Knapweed	<i>Centaurea nigra</i>	1	2	1	2	1	4	1	3	1	3	5	(2-4)	2.8
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>	1	3	1	3	1	2	1	3	1	3	5	(2-3)	2.8
Graminoid	Red Fescue	<i>Festuca rubra</i>	1	3	1	5	1	5	1	5			4	(3-5)	3.6
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>	1	3	1	3	1	2			1	4	4	(2-3)	2.4
Graminoid	Cock's-foot	<i>Dactylis glomerata</i>	1	2	1	3	1	3	1	2			4	(2-3)	2
Bryophyte	Neat Feather Moss	<i>Pseudoscleropodium purum</i>	1	3	1	3	1	2	1	1			4	(1-3)	1.8
Forb	Dandelion (agg.)	<i>Taraxacum officinale</i> (agg.)	1	1			1	1	1	2	1	4	4	(1-4)	1.6
Forb	Bulbous Buttercup	<i>Ranunculus bulbosus</i>			1	1	1	1	1	2	1	2	4	(1-2)	1.2
Graminoid	Heath Grass	<i>Danthonia decumbens</i>	1	3	1	4					1	2	3	(2-4)	1.8
Forb	Yarrow	<i>Achillea millefolium</i>	1	3	1	3	1	2					3	(3-5)	1.6
Forb	Selfheal	<i>Prunella vulgaris</i>					1	2	1	3	1	3	3	(1-3)	1.6
Forb	Cat's-ear	<i>Hypochaeris radicata</i>	1	1	1	2			1	2			3	(1-2)	1

Forb	Silverweed	<i>Potentilla anserina</i>							1	3	1	1	2	(1-3)	0.8
Forb	Creeping Cinquefoil	<i>Potentilla reptans</i>							1	1	1	2	2	(1-2)	0.6
Graminoid	Crested Dog's-tail	<i>Cynosurus cristatus</i>	1	3									1	(3)	0.6
Forb	Common Mouse-ear	<i>Cerastium fontanum</i>							1	1			1	(1)	0.2
Forb	Blinks	<i>Montia fontana</i>							1	1			1	(1)	0.2
Forb	Greater Plantain	<i>Plantago major</i>									1	1	1	(1)	0.2
Forb	Red Clover	<i>Trifolium pratense</i>									1	1	1	(1)	0.2
Forb	Meadow Buttercup	<i>Ranunculus acris</i>									1	1	1	(1)	0.2
Forb	Beaked Hawk's-beard	<i>Crepis vesicaria</i>									1	1	1	(1)	0.2
			Q1	Q2	Q3	Q4	Q5	Mean							
Mean sward height (cm)			5	5	5	5	5	5							
Bare ground (% cover)			0.1	0.1	0.1	0.1	1	0.28							
Substrate			Sandy clay loam												

Site 9A – Woodland edge SI grassland north of Honeycombe Barn										Date: 29/6/2017					
Habitat: Fairly herb-rich SI grassland at woodland edge. Grassland grazed, but no livestock at time of survey. Surveyed stand occupied a moderately steep east-facing slope down to woodland margin. Grassland on flatter part of field above more improved and lacking diversity.															
Quadrat grid reference:		Q3: SW82623 52871		Notes: Stand composition consistent across slope area. Most other areas of site of relatively improved, therefore not surveyed apart from stand 9B (in separate table)											
Q1: SW82611 52884		Q4: SW82630 52871													
Q2: SW82618 52881		Q5: SW82638 52856													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	4	1	5	1	5	1	6	1	7	5	(4-7)	5.4
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>	1	5	1	4	1	5	1	5	1	5	5	(4-5)	4.8
Graminoid	Common Bent-grass	<i>Agrostis capillaris</i>	1	3	1	5	1	4	1	6	1	5	5	(3-6)	4.6
Forb	Ribwort	<i>Plantago lanceolata</i>	1	4	1	4	1	3	1	4	1	3	5	(3-4)	3.6

	Plantain														
Forb	Creeping Buttercup	<i>Ranunculus repens</i>	1	4	1	3	1	5	1	3	1	3	5	(3-5)	3.6
Forb	White Clover	<i>Trifolium repens</i>	1	1	1	5	1	4	1	3	1	5	5	(1-5)	3.6
Forb	Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>	1	3	1	3	1	3	1	3	1	3	5	(3)	3
Forb	Meadow Buttercup	<i>Ranunculus acris</i>	1	3	1	4	1	3	1	2			4	(2-3)	2.4
Forb	Selfheal	<i>Prunella vulgaris</i>	1	2	1	1	1	2	1	1			4	(1-2)	1.2
Forb	Dandelion (agg.)	<i>Taraxacum officinale (agg.)</i>	1	1			1	2	1	2	1	1	4	(1-2)	1.2
Forb	Sorrel	<i>Rumex acetosa</i>			1	3			1	3	1	3	3	(3)	1.8
Graminoid	Crested Dog's-tail	<i>Cynosurus cristatus</i>			1	3	1	3	1	3			3	(3)	1.8
Graminoid	Smaller Cat's-tail	<i>Phleum bertelonii</i>			1	1			1	4	1	3	3	(1-4)	1.6
Forb	Common Knapweed	<i>Centaurea nigra</i>			1	3					1	4	2	(3-4)	1.4
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	3			1	1					2	(3)	0.8
Forb	Greater Plantain	<i>Plantago major</i>			1	1	1	2					2	(1-2)	0.6
Forb	Common Mouse-ear	<i>Cerastium fontanum</i>	1	1					1	1			2	(1)	0.4
Forb	Common Ragwort	<i>Senecio jacobaeae</i>					1	3					1	(3)	0.6
Graminoid	Red Fescue	<i>Festuca rubra</i>									1	3	1	(3)	0.6
Forb	Meadow Vetchling	<i>Lathyrus pratensis</i>	1	2									1	(2)	0.4
Graminoid	Cock's-foot	<i>Dactylis glomerata</i>	1	1									1	(1)	0.2
Forb	Common Centaury	<i>Centaureum erythraea</i>			1	1							1	(1)	0.2
Forb	Cat's-ear	<i>Hypochaeris radicata</i>			1	1							1	(1)	0.2
Forb	Prickly Sow-	<i>Sonchus asper</i>			1	1							1	(1)	0.2

	thistle														
Forb	Marsh Thistle	<i>Cirsium palustre</i>					1	1					1	(1)	0.2
Forb	Germander Speedwell	<i>Veronica chamaedrys</i>	1	4	1	5	1	5	1	6	1	7	5	(4-7)	5.4
							Q1	Q2	Q3	Q4	Q5	Mean			
Mean sward height (cm)							10	8	5	10	12	9			
Bare ground (% cover)							0.1	0.1	1	0.5	0.1	0.36			
Substrate							Clay loam								

Site 9A – Woodland edge marshy grassland/swamp north of Honeycombe Barn										Date: 29/6/2017					
Habitat: Small (c20m x 5m) stand of field edge wet grassland/tall herb swamp habitat at western margin of woodland.															
Notes: Assessed as a single stand as too small for meaningful quadrat work. Centroid grid reference: SW82598 52927															
Category		Common name				Scientific name				Domin (stand)					
Forb		Common Fleabane				<i>Pulicaria dysenterica</i>				7					
Graminoid		Yorkshire Fog				<i>Holcus lanatus</i>				5					
Forb		Water Mint				<i>Mentha aquatica</i>				4					
Forb		Creeping Buttercup				<i>Ranunculus repens</i>				4					
Forb		Ragged Robin				<i>Lychnis flos-cuculi</i>				3					
Forb		Curled Dock				<i>Rumex crispus</i>				3					
Forb		Sorrel				<i>Rumex acetosa</i>				3					
Forb		White Clover				<i>Trifolium repens</i>				3					
Forb		Marsh Bedstraw				<i>Galium palustre</i>				3					
Forb		Meadow Buttercup				<i>Ranunculus acris</i>				3					
Forb		Square-stalked St John's-wort				<i>Hypericum tetrapterum</i>				2					
Forb		Wild Angelica				<i>Angelica sylvestris</i>				2					
Forb		Hedge Bindweed				<i>Calystegia sepium</i>				2					
Forb		Bramble (agg.)				<i>Rubus fruticosus (agg)</i>				2					
Forb		Water Forget-me-not				<i>Myosotis scorpioides</i>				2					
Forb		Greater Bird's-foot Trefoil				<i>Lotus pedunculatus</i>				2					
Forb		Sticky Mouse-ear				<i>Cerastium glomeratum</i>				1					
Forb		Marsh Thistle				<i>Cirsium palustre</i>				1					

Forb	Prickly Sow-thistle	<i>Sonchus asper</i>	1
Graminoid	Soft Rush	<i>Juncus effusus</i>	1
Forb	Hemp Agrimony	<i>Eupatorium cannabinum</i>	1
Forb	Creeping Thistle	<i>Cirsium arvense</i>	1
Mean sward height (cm)	Bare ground (% cover)		Substrate
35	0.1		Clay loam

Site 10 – SI grassland near Penny come-quick													Date: 29/6/2017		
Habitat: SI mesotrophic grassland meadow. Sward composition consistent in area survey with <i>Holcus lanatus</i> and <i>Agrostis capillaris</i> co-dominant throughout, with a varying degree of herb-richness. <i>Lotus corniculatus</i> and <i>Plantago lanceolata</i> constant in sward, <i>Centaurea nigra</i> locally abundant. Wet grassland/rush pasture at western end of site not sampled.															
Quadrat grid reference:		Q3: SW82229 52800		Notes: Site managed by hay cutting, probably only annually as Five-spot Burnet Moth <i>Zygaena trifolii</i> abundant on site.											
Q1: SW82138 52780		Q4: SW82361 52921													
Q2: SW82173 52812		Q5: SW82393 52921													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Common Bent-grass	<i>Agrostis capillaris</i>	1	7	1	7	1	7	1	6	1	6	5	(6-7)	6.6
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	6	1	6	1	7	1	6	1	7	5	(6-7)	6.4
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	5	1	5	1	5	1	6	1	6	5	(5-6)	5.4
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>	1	3	1	5	1	3	1	4	1	4	5	(3-5)	3.8
Forb	Meadow Buttercup	<i>Ranunculus acris</i>	1	3	1	2	1	2	1	3	1	3	5	(2-3)	2.6
Forb	A dandelion	<i>Taraxacum officinale (agg.)</i>	1	2	1	2	1	2	1	3	1	2	5	(1-3)	2.2
Forb	Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>	1	4	1	4	1	5	1	3			4	(3-5)	3.2
Forb	Cat's-ear	<i>Hypochaeris radicata</i>	1	2			1	3	1	2	1	3	4	(2-4)	2

Forb	Sorrel	<i>Rumex acetosa</i>	1	1	1	2	1	2	1	1			4	(1-2)	1.2
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>					1	3	1	3	1	3	3	(3)	1.8
Graminoid	Crested Dog's-tail	<i>Cynosurus cristatus</i>							1	6	1	4	2	(4-6)	2
Graminoid	Cock's-foot	<i>Dactylis glomerata</i>			1	5			1	5			2	(5)	2
Forb	Smooth Hawk's-beard	<i>Crepis capillaris</i>			1	2			1	4			2	(2-4)	1.2
Forb	Blackthorn	<i>Prunus spinosa (seedling)</i>	1	1							1	1	2	(1)	0.4
Forb	Hogweed	<i>Heracleum sphondylium</i>			1	4							1	(4)	0.8
Forb	Common Knapweed	<i>Centaurea nigra</i>									1	3	1	(3)	0.6
Forb	Tufted Vetch	<i>Vicia cracca</i>	1	3									1	(3)	0.6
Forb	Red Clover	<i>Trifolium pratense</i>					1	3					1	(3)	0.6
Bryophyte	Springy Turf-moss	<i>Rhytidiadelphus squarrosus</i>							1	3			1	(3)	0.6
Forb	Meadow Vetchling	<i>Lathyrus pratensis</i>					1	2					1	(2)	0.4
Forb	Selfheal	<i>Prunella vulgaris</i>							1	2			1	(2)	0.4
Bryophyte	Rough-stalked Feather-moss	<i>Brachythecium rutabulum</i>							1	2			1	(2)	0.4
Forb	White Clover	<i>Trifolium repens</i>							1	1			1	(1)	0.2
Forb	Common Vetch	<i>Vicia sativa</i>	1	1									1	(1)	0.2
Forb	Common Ragwort	<i>Senecio jacobaeae</i>									1	1	1	(1)	0.2
							Q1	Q2	Q3	Q4	Q5	Mean			
Mean sward height (cm) – graminoids and (*Juncus sp.)							35	30	25	30	35	31			
Bare ground (% cover)							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Substrate							Clay loam								

Site 11 – SI grassland at Marazanvose (Chiverton Estates)											Date: 29/6/2017				
Habitat: SI mesotrophic grassland, recently mown at time of survey. <i>Holcus lanatus</i> dominant with <i>Agrostis capillaris</i> and herbs including <i>Lotus corniculatus</i> , <i>Prunella vulgaris</i> and <i>Vicia sativa</i> .															
Quadrat grid reference:		Q3: SW80107 50560		Notes: Land used for equestrian activity – horse jumps in field. Sward generally consistent throughout and whole field taken as representative.											
Q1: SW80138 50577		Q4: SW80078 50528													
Q2: SW80125 50567		Q5: SW80035 50498													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	7	1	7	1	7	1	7	1	5	5	(5-7)	6.6
Graminoid	Common Bent-grass	<i>Agrostis capillaris</i>	1	7	1	7	1	6	1	6	1	7	5	(6-7)	6.6
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	5	1	5	1	4	1	4	1	6	5	(4-5)	4.8
Forb	Creeping Buttercup	<i>Ranunculus repens</i>	1	3	1	4	1	3	1	3	1	2	5	(2-4)	3
Forb	Dandelion (agg.)	<i>Taraxacum officinale</i> (agg.)	1	2	1	3	1	2	1	5	1	3	5	(2-5)	3
Graminoid	Crested Dog's-tail	<i>Cynosurus cristatus</i>	1	3	1	3	1	3	1	2	1	2	5	(2-3)	2.6
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>	1	3	1	3	1	3	1	2	1	2	5	(2-3)	2.6
Forb	White Clover	<i>Trifolium repens</i>			1	4	1	3	1	3	1	2	4	(2-4)	2.4
Graminoid	Cock's-foot	<i>Dactylis glomerata</i>	1	3	1	3			1	3	1	2	4	(2-3)	2.2
Forb	Meadow Buttercup	<i>Ranunculus acris</i>			1	1	1	1	1	2	1	2	4	(1-2)	1.2
Forb	Common Mouse-ear	<i>Cerastium fontanum</i>	1	1	1	1			1	1	1	1	4	(1)	0.8
Forb	Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>	1	4			1	5			1	3	3	(3-5)	2.4
Forb	Black Medick	<i>Medicago lupulina</i>	1	2	1	3					1	2	3	(2-3)	1.4
Forb	Cat's-ear	<i>Hypochaeris radicata</i>	1	3	1	1							2	(1-3)	0.8
Forb	Sorrel	<i>Rumex acetosa</i>	1	1							1	2	2	(1)	0.6
Forb	Rough Hawkbit	<i>Leontodon hispidus</i>	1	1	1	1							2	(1)	0.4
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>					1	1	1	1			2	(1)	0.4

Graminoid	Red Fescue	<i>Festuca rubra</i>									1	4	1	(4)	0.8
Bryophyte	Springy Turf-moss	<i>Rhytidiadelphus squarrosus</i>	1	3									1	(3)	0.6
Forb	Selfheal	<i>Prunella vulgaris</i>	1	2									1	(2)	0.4
Forb	Common Vetch	<i>Vicia sativa</i>	1	2									1	(2)	0.4
Forb	Bramble (agg.)	<i>Rubus fruticosus (agg)</i>	1	1									1	(1)	0.2
Forb	Silverweed	<i>Potentilla anserina</i>			1	1							1	(1)	0.2
Forb	Hogweed	<i>Heracleum sphondylium</i>							1	1			1	(1)	0.2
Forb	Cut-leaved Crane's-bill	<i>Geranium dissectum</i>							1	1			1	(1)	0.2
			Q1	Q2	Q3	Q4	Q5	Mean							
Mean sward height (cm)			5cm	5cm	5cm	5cm	5cm	5cm							
Bare ground (% cover)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1							
Substrate			Clay loam												

Site 14 – Wet grassland at Marazanvose (south of Nancarrow Farm)											Date: 22/6/2017				
Habitat: Mesotrophic wet grassland with <i>Holcus lanatus</i> and <i>Juncus effusus</i> co-dominant.															
Quadrat grid reference:		Q3: SW80148 50165		Notes: Most of field haycut just prior to survey, but stand of <i>Juncus</i> dominated rush pasture left uncut, hence surveyed in lieu of general habitat.											
Q1: SW80135 50168		Q4: SW80157 50164													
Q2: SW80139 50168		Q5: SW80161 50154													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	7	1	8	1	6	1	7	1	6	5	(6-8)	6.8
Graminoid	Soft Rush	<i>Juncus effusus</i>	1	7	1	5	1	7	1	7	1	7	5	(5-7)	6.6
Graminoid	Creeping Bent-grass	<i>Agrostis stolonifera</i>	1	5	1	6	1	7	1	6	1	6	5	(5-7)	6
Forb	Creeping Buttercup	<i>Ranunculus repens</i>	1	5	1	4	1	4	1	4	1	4	5	(4-5)	4.2
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	5	1	5	1	3	1	3	1	4	5	(3-5)	4
Forb	Greater Bird's-foot	<i>Lotus pedunculatus</i>	1	4	1	6	1	3	1	3	1	3	5	(3-6)	3.8

	Trefoil														
Forb	Meadow Buttercup	<i>Ranunculus acris</i>	1	4	1	4	1	3	1	3	1	3	5	(3-4)	3.4
Forb	Curled Dock	<i>Rumex crispus</i>	1	1	1	2	1	2	1	2	1	2	5	(1-2)	1.8
Forb	Marsh Thistle	<i>Galium palustre</i>			1	2	1	6	1	1			3	(0-6)	1.8
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>	1	2	1	1					1	2	3	(0-2)	1
Graminoid	Timothy	<i>Phleum pratense</i>							1	5	1	2	2	(0-5)	1.4
Forb	Marsh Thistle	<i>Cirsium palustre</i>							1	3			1	(0-3)	0.6
Forb	Square-stalked St John's-wort	<i>Hypericum tetrapterum</i>					1	2					1	(0-2)	0.4
Forb	Sticky Mouse-ear	<i>Cerastium glomeratum</i>	1	1									1	(0-1)	0.2
				Q1	Q2	Q3	Q4	Q5	Mean						
Mean sward height (cm) – graminoids and (* <i>Juncus</i> spp.)				15(70*)	15(70*)	15(70*)	15(70*)	15(70*)	15(70*)						
Bare ground (% cover)				0.1	0.1	0.1	0.1	0.1	0.1						
Substrate				Clay											

Site 28 – SI grassland at Silver Springs Farm, Chiverton Cross											Date: 2/7/2017				
Habitat: SI mesotrophic grassland with fairly tall sward. <i>Holcus lanatus</i> and <i>Agrostis capillaris</i> co-dominant throughout stand, with frequent patches of <i>Centaurea nigra</i> , <i>Lotus corniculatus</i> and <i>Parentucellia viscosa</i> . Habitat towards top of field to the west generally less rank and more diverse than lower areas closer to farm buildings to the east.															
Quadrat grid reference:		Q3: SW74879 47298		Notes: Not grazed at time of survey and with fairly rank sward compared to adjacent Site 29.											
Q1: SW74862 47306		Q4: SW74886 47293													
Q2: SW74866 47293		Q5: SW74909 47282													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Common Bent-grass	<i>Agrostis capillaris</i>	1	8	1	7	1	7	1	6	1	7	5	(6-8)	7
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	6	1	7	1	7	1	6	1	6	5	(6-7)	6.4
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>	1	4	1	3	1	3	1	4	1	4	5	(3-4)	3.6
Forb	Meadow Buttercup	<i>Ranunculus acris</i>	1	2	1	1	1	1	1	3	1	3	5	(1-3)	2
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>			1	5	1	6	1	6	1	6	4	(5-6)	4.6
Forb	White Clover	<i>Trifolium repens</i>	1	3	1	3	1	3			1	3	4	(3)	2.4
Graminoid	Crested Dog's-tail	<i>Cynosurus cristatus</i>					1	5	1	5	1	5	3	(5)	3
Forb	Common Knapweed	<i>Centaurea nigra</i>	1	1	1	5			1	6			3	(1-5)	2.4
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>	1	4			1	3	1	3			3	(3-4)	2
Forb	Cat's-ear	<i>Hypochaeris radicata</i>					1	3	1	3	1	3	3	(3)	1.8
Forb	Dandelion (agg.)	<i>Taraxacum officinale</i> (agg.)					1	2	1	3	1	2	3	(2-3)	1.4
Forb	Silverweed	<i>Potentilla anserina</i>	1	3	1	2			1	1			3	(1-3)	1.2
Forb	Red Clover	<i>Trifolium pratense</i>			1	1	1	2			1	3	3	(1-3)	1.2
Forb	Smooth Hawk's-beard	<i>Crepis capillaris</i>					1	2	1	2	1	2	3	(2)	1.2
Forb	Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>							1	4	1	3	2	(3-4)	1.4
Forb	Yellow Bartsia	<i>Parentucellia viscosa</i>	1	4							1	2	2	(2-4)	1.2
Forb	Creeping Buttercup	<i>Ranunculus repens</i>	1	3	1	2							2	(2-3)	1
Forb	Curled Dock	<i>Rumex crispus</i>	1	1	1	2							2	(1-2)	0.6
Forb	Selfheal	<i>Prunella vulgaris</i>					1	1			1	1	2	(1)	0.4

Forb	Scarlet Pimpernel	<i>Anagallis arvensis</i>	1	2								1	(2)	0.4
Forb	Broad-leaved Dock	<i>Rumex obtusifolius</i>			1	2						1	(2)	0.4
Forb	Sticky Mouse-ear	<i>Cerastium glomeratum</i>			1	2						1	(2)	0.4
Graminoid	Rough-stalked Meadow Grass	<i>Poa trivialis</i>			1	2						1	(2)	0.4
Graminoid	Cock's-foot	<i>Dactylis glomerata</i>						1	2			1	(2)	0.4
Forb	Creeping Cinquefoil	<i>Potentilla reptans</i>	1	1								1	(1)	0.2
Forb	Common Mouse-ear	<i>Cerastium fontanum</i>	1	1								1	(1)	0.2
Graminoid	Toad Rush	<i>Juncus bufonius</i>	1	1								1	(1)	0.2
Forb	Sorrel	<i>Rumex acetosa</i>			1	1						1	(1)	0.2
Forb	Beaked Hawk's-beard	<i>Crepis vesicaria</i>					1	1				1	(1)	0.2
				Q1	Q2	Q3	Q4	Q5	Mean					
Mean sward height (cm)				15	25	25	25	20	22					
Bare ground (% cover)				1	0.1	0.1	0.1	0.1	0.28					
Substrate				Clay loam										

Site 29 – SI grassland at Silver Springs Farm, Chiverton Cross											Date: 29/6/2017				
Habitat: SI mesotrophic grassland on gentle, west-facing slope. Stand more or less consistent throughout, with <i>Agrostis capillaris</i> , <i>Holcus lanatus</i> and <i>Cynosurus cristatus</i> constant with <i>Centaurea nigra</i> , <i>Plantago lanceolata</i> and <i>Lotus corniculatus</i> .															
Quadrat grid reference:		Q3: SW74872 47362		Notes: Sward pony grazed, but not overgrazed											
Q1: SW74867 47339		Q4: SW74867 47378													
Q2: SW74866 47349		Q5: SW74864 47394													
Category	Common name	Scientific name	Quadrat 1	Domin	Quadrat 2	Domin	Quadrat 3	Domin	Quadrat 4	Domin	Quadrat 5	Domin	Frequency	Domin (range)	Domin (mean)
Graminoid	Common Bent-grass	<i>Agrostis capillaris</i>	1	7	1	6	1	7	1	6	1	7	5	(6-7)	6.6
Graminoid	Yorkshire Fog	<i>Holcus lanatus</i>	1	6	1	6	1	7	1	7	1	5	5	(5-7)	6.2
Graminoid	Crested Dog's-tail	<i>Cynosurus cristatus</i>	1	6	1	6	1	5	1	5	1	5	5	(5-6)	5.4
Forb	Common Knapweed	<i>Centaurea nigra</i>	1	4	1	7	1	6	1	5	1	5	5	(4-7)	5.4
Graminoid	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	1	3	1	4	1	5	1	7	1	7	5	(3-7)	5.2
Forb	Ribwort Plantain	<i>Plantago lanceolata</i>	1	3	1	5	1	5	1	7	1	6	5	(3-7)	5.2
Forb	Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>	1	4	1	5	1	6	1	5	1	5	5	(4-6)	5
Graminoid	Perennial Rye-grass	<i>Lolium perenne</i>	1	2	1	5					1	3	3	(2-5)	2
Forb	White Clover	<i>Trifolium repens</i>	1	3	1	3					1	2	3	(2-3)	1.6
Forb	Cat's-ear	<i>Hypochaeris radicata</i>	1	3	1	3			1	1			3	(3)	1.4
Forb	Red Clover	<i>Trifolium pratense</i>	1	2	1	3			1	2			3	(2-3)	1.4
Forb	Dandelion (agg.)	<i>Taraxacum officinale</i> (agg.)			1	2	1	2	1	2			3	(2)	1.2
Forb	Selfheal	<i>Prunella vulgaris</i>	1	3	1	2					1		3	(2-3)	1
Forb	Common Mouse-ear	<i>Cerastium fontanum</i>	1	1	1	1			1	2			3	(1-2)	0.8
Graminoid	Smaller Cat's-tail	<i>Phleum bertelonii</i>					1	3			1	3	2	(3)	1.2
Forb	Yellow Bartsia	<i>Parentucellia viscosa</i>	1	3			1	1					2	(1-3)	0.8
Graminoid	Cock's-foot	<i>Dactylis glomerata</i>					1	2			1	2	2	(2)	0.8
Graminoid	Smooth Meadow Grass	<i>Poa pratensis</i>			1	3							1	(3)	0.6

Forb	Beaked Hawk's-beard	<i>Crepis vesicaria</i>	1	3									1	(3)	0.6
Forb	Creeping Buttercup	<i>Ranunculus repens</i>	1	2									1	(2)	0.4
Bryophyte	Springy Turf-moss	<i>Rhytidiadelphus squarrosus</i>	1	2									1	(2)	0.4
Graminoid	Annual Meadow Grass	<i>Poa annua</i>	1	2									1	(2)	0.4
Forb	Blackthorn	<i>Prunus spinosa</i> (seedling)					1	2					1	(2)	0.4
Forb	Meadow Buttercup	<i>Ranunculus acris</i>					1	2					1	(2)	0.4
Forb	Sorrel	<i>Rumex acetosa</i>									1	1	1	(1)	0.2
				Q1	Q2	Q3	Q4	Q5	Mean						
Mean sward height (cm)				5	15	25	15	10	14						
Bare ground (% cover)				1	1	0.1	0.1	0.5	0.54						
Substrate				Clay loam											

Table 4 – MAVIS NVC output per stand

MAVIS NVC output showing 10 best fit NVC communities per stand					
Order of best fit	Site 6a	Site 6b	Site 7	Site 9a	Site 9b
1	NVC: MG10a 61.48	NVC: MG10a 62.50	NVC: MG5c 61.65	NVC: MG6b 59.39	NVC: M27c 49.86
2	NVC: MG10 56.62	NVC: MG10 54.93	NVC: MG5 60.80	NVC: MG6a 58.59	NVC: M27 48.17
3	NVC: M23b 53.08	NVC: MG10b 48.63	NVC: MG5a 60.66	NVC: MG6d 58.10	NVC: MG10a 46.56
4	NVC: M27c 51.55	NVC: MG11a 48.55	NVC: MG6b 58.89	NVC: MG6 57.74	NVC: OV26a 46.05
5	NVC: M23 49.50	NVC: MG9 48.40	NVC: MG5b 57.22	NVC: MG5a 56.12	NVC: OV26 43.53
6	NVC: MG10c 49.34	NVC: MG9a 47.71	NVC: U4b 55.40	NVC: MG5 53.97	NVC: MG10 43.31
7	NVC: MG10b 47.18	NVC: MG15 46.68	NVC: MG6 53.25	NVC: MG4b 52.80	NVC: M27b 42.51
8	NVC: M23a 44.73	NVC: MG4c 46.40	NVC: MC9c 51.22	NVC: MG5b 52.11	NVC: M23 39.25
9	NVC: M27 42.87	NVC: MG12a 45.28	NVC: MG1e 51.20	NVC: MG8d 52.03	NVC: OV26c 39.22
10	NVC: M28a 41.95	NVC: MG10c 45.28	NVC: MG6a 51.19	NVC: MG7E 52.02	NVC: W1 38.75

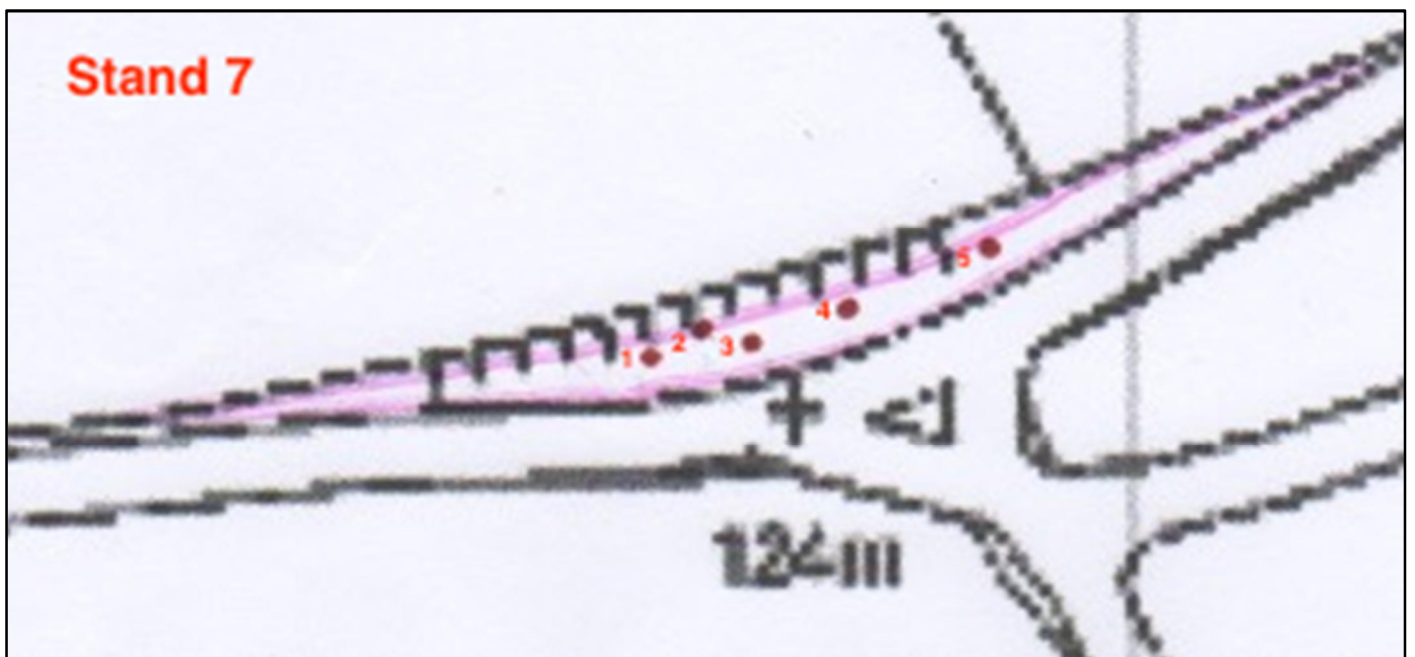
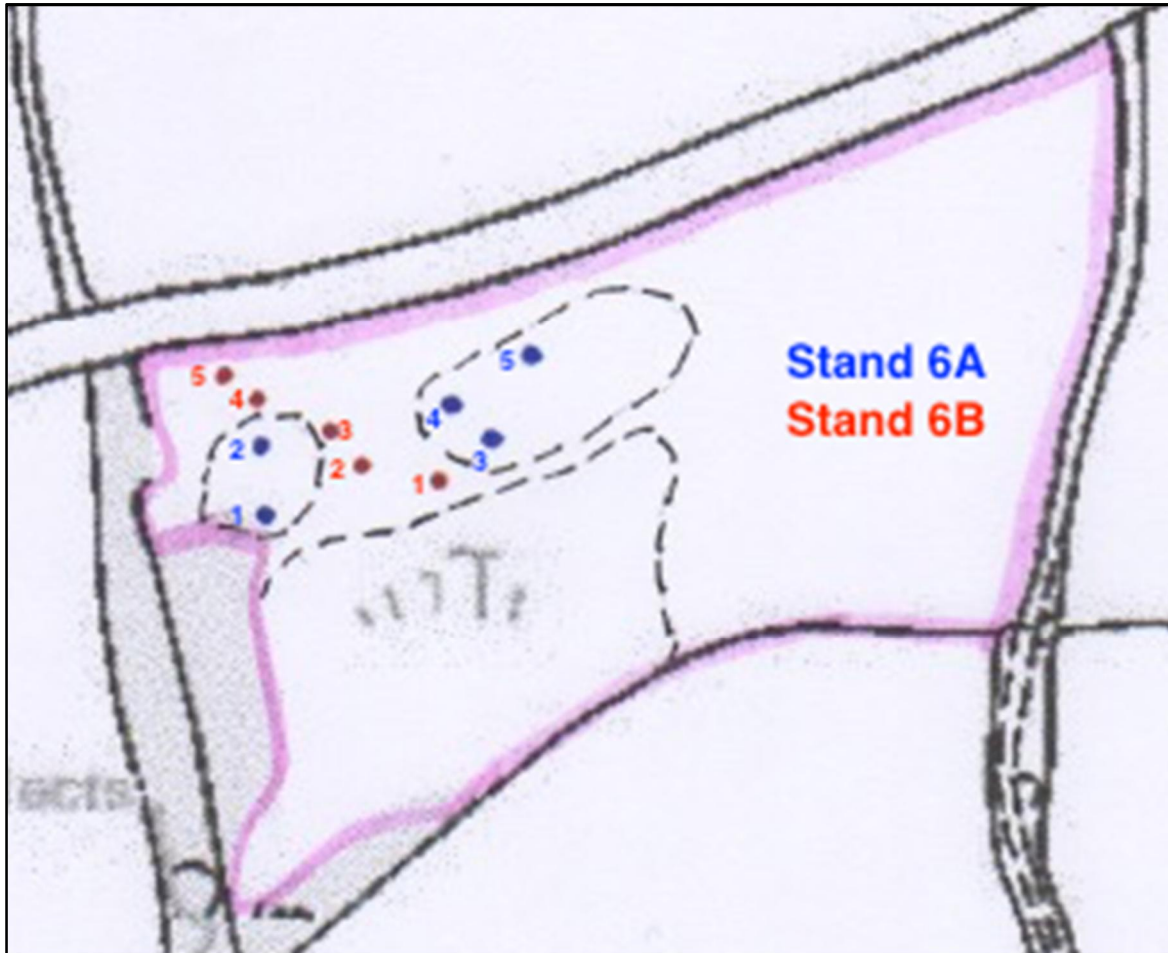
Order of best fit	Site 10	Site 11	Site 14	Site 28	Site 29
1	NVC: MG6b 57.95	NVC: MG6b 68.22	NVC: MG10a 54.56	NVC: MG6b 59.08	NVC: MG6b 62.74
2	NVC: MG5 53.46	NVC: MG6a 63.71	NVC: MG10 52.97	NVC: MG6d 56.92	NVC: MG5a 60.36
3	NVC: MG5a 53.44	NVC: MG6 62.76	NVC: MG10b 46.93	NVC: MG6a 55.44	NVC: MG5 60.23
4	NVC: MG6d 50.90	NVC: MG6d 56.89	NVC: MG10c 45.73	NVC: MG6 54.61	NVC: MG6 58.13
5	NVC: MG4b 50.51	NVC: MG5a 55.75	NVC: M27c 44.99	NVC: MG5a 54.54	NVC: MG6a 57.62
6	NVC: MG6 49.74	NVC: MG7D 54.57	NVC: M23b 44.93	NVC: OV23c 53.85	NVC: MG5b 57.34
7	NVC: MG5b 49.70	NVC: MG7 53.02	NVC: M23 42.83	NVC: MG4b 53.71	NVC: MG5c 55.92
8	NVC: MG3 49.37	NVC: U4b 52.79	NVC: MG14b 42.70	NVC: MG8v2 53.63	NVC: U4b 54.73
9	NVC: MG6a 48.74	NVC: OV23c 52.67	NVC: MG14 42.06	NVC: MG5 53.32	NVC: MG6d 52.81
10	NVC: MG5c 48.57	NVC: MG5 52.53	NVC: M23a 40.75	NVC: MG4v2 52.94	NVC: MG4b 52.37

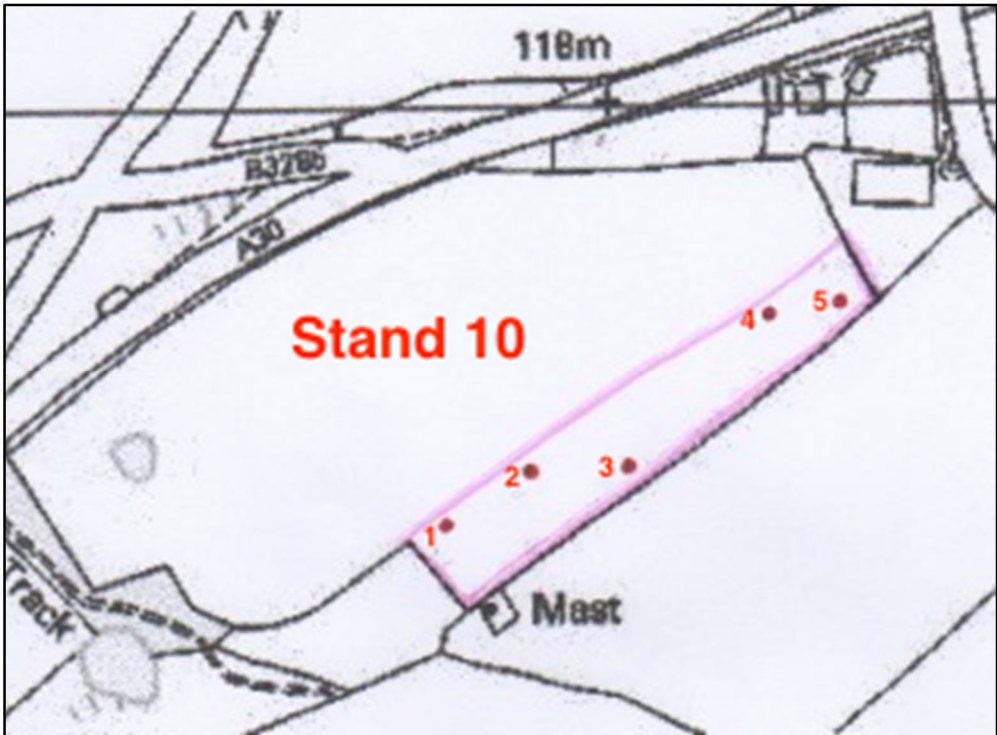
Appendix 2 - Figures

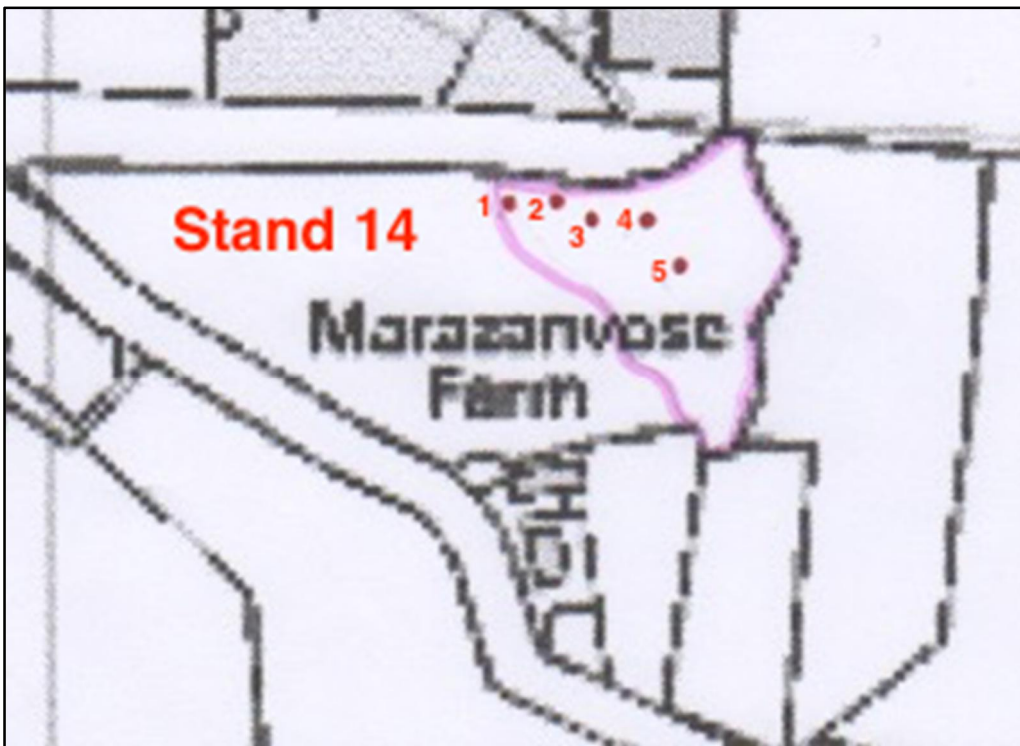
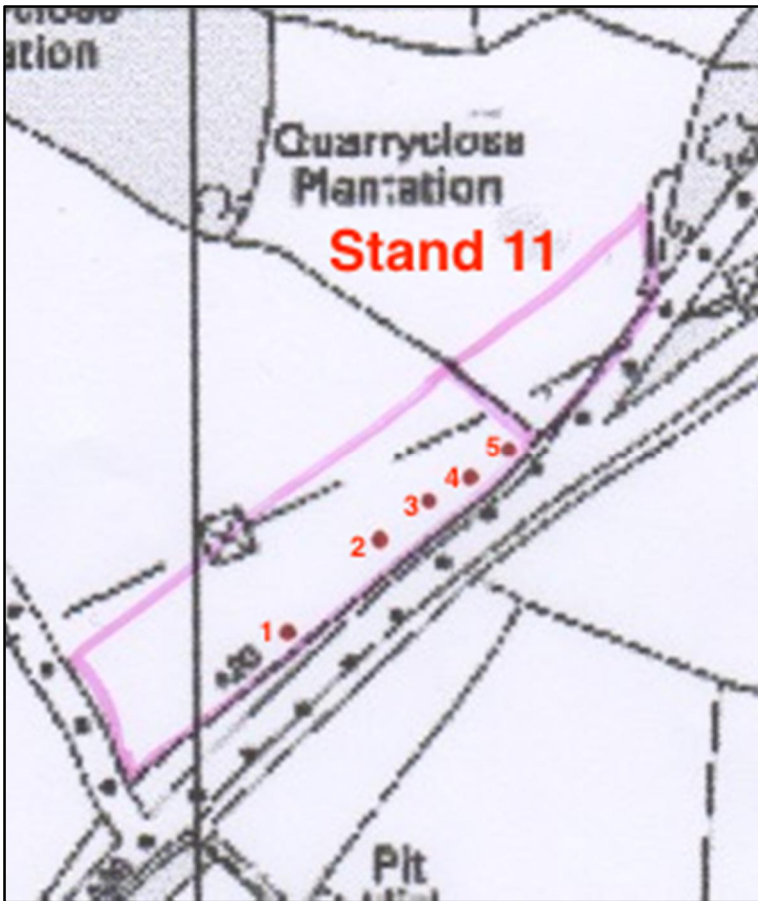
Figure 1 – A30 scoping sites for combined grassland and invertebrate surveys (not to scale)

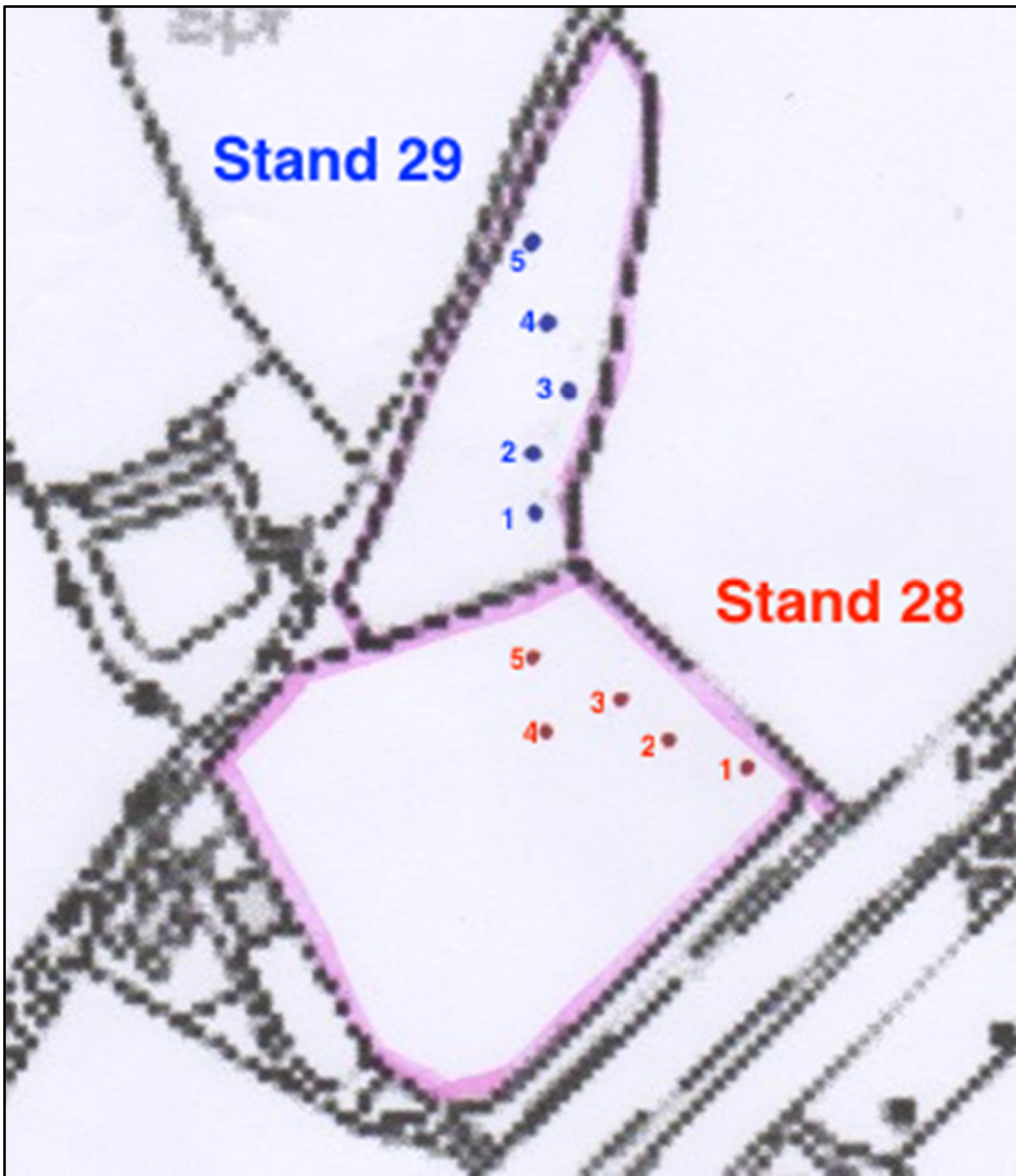


Figure 2 – NVC sites and stands surveyed – with numbered quadrat locations (not to scale)









Appendix 3 - Photographs



Photograph 1 – Stand 6a Quadrat 3



Photograph 2 – Stand 6b Quadrat 1



Photograph 3– Stand 7 Quadrat 5



Photograph 4 – Stand 9a Quadrat 3



Photograph 5 – Stand 9b



Photograph 6– Site 10 Quadrat 3



Photograph 7 – Site 11 Quadrat 3



Photograph 8– Site 14 Quadrat 5



Photograph 9 – Site 28 Quadrat 1



Photograph 10 –Site 29 Quadrat 5

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.