THE ENVIRONMENT PARTNERSHIP

HAWESWATER AQUEDUCT RESILIENCE PROGRAMME

PROPOSED MARL HILL SECTION

MARL HILL SSSI ASSESSMENT (RVBC-MH-APP-009)

TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

Tel: 01925 844004
Email: tep@tep.uk.com
www.tep.uk.com

Offices in Warrington, Market Harborough, Gateshead, London and Cornwall

Document Title	Marl Hill SSSI Assessment (RVBC-MH-APP-009)
Prepared for	United Utilities
Prepared by	TEP - Warrington
Document Ref	7478.03.008

Author	Mike Walker
Date	June 2021
Checked	Elizabeth Seal
Approved	Elizabeth Seal

Amendment History					
Version	Date	Modified by	Check / Approved by	Reason(s) issue	Status
2	12.06.21	MW	EJS	Refinement of GWDTE text	Final

CONTENTS PAGE

APPENDICES

Executive Summary

1. United Utilities maintains and operates the Haweswater Aqueduct, a pipeline running 110 km from Cumbria through Lancashire to Greater Manchester. Inspections of the aqueduct identified areas of concern that pose a potential future risk to water quality and supply. In response UU is replacing six tunnel sections of the aqueduct, collectively this is known as the Haweswater Aqueduct Resilience Programme (HARP).

2. This document provides an assessment of potential impacts on six Sites of Special Scientific Interest (SSSI) from the proposed Marl Hill Section of HARP and supports the associated planning application to Ribble Valley Borough Council.

3. The Proposed Marl Hill Section broadly comprises an above-ground launch facility, from which the tunnel boring machine (TBM) would drive approximately 4.1 km northwards at depths of between 15 m and 65 m below-ground to an above-ground reception facility. Above-ground works include a mix of temporary construction activities and permanent installations. A number of highways improvements works are required to facilitate construction traffic access to the rural compounds including road widening and passing places, a proposed new temporary crossing of the River Ribble and use of existing parking facilities near Clitheroe, in turn these works would need their own temporary compounds.

4. Six SSSIs fall within 5 km of the proposed development. Langcliff Cross Meadow SSSI, Bell Sykes Meadows SSSI, Myttons Meadows SSSI, Field Head Meadows SSSI and Standridge Farm Pasture SSSI are all designated for their important grassland habitats, whereas the Bowland Fells SSSI is designated for its blanket bog and heather moorland habitats and the birds they support, in particular important breeding populations of hen harrier, merlin and lesser black-backed gull.

5. Five of the SSSIs assessed are within 5 km to the north of the northern compound (Bonstone compound), with the closest of these 3.6 km north east. The sixth SSSI is Standridge Farm Pasture SSSI and is located 4.5 km from the nearest highways improvement works. A further five geological SSSIs fall within 5 km of the Ribble Crossing and Clitheroe parking facilities, these are excluded from this ecological assessment.

6. Due to the distance of the SSSIs from the proposed development no air quality impacts are predicted. There are no hydrological links with any of these SSSIs and therefore no hydrological impacts are predicted. Due to the distance of the site from the Bowland Fells SSSI, as well as the absence of suitable habitat or breeding bird records within or near the site for the wider ranging species for which the SSSI is designated, there are no predicted impacts on the Bowland Fells SSSI.

7. No effects on the SSSIs assessed are predicted to arise as a result of decommissioning the existing Marl Hill tunnel.

8. It is concluded that there would be no significant impact from the proposed development on any SSSI.

1.0 Introduction

1.1 TEP was commissioned by United Utilities to complete an assessment of potential impacts on Sites of Special Scientific Interest (SSSI) that might arise as a result of the proposed Marl Hill Section of the Haweswater Aqueduct Resilience Programme (HARP), located in north Lancashire.

Site Proposals

1.2 United Utilities (UU) maintains and operates the Haweswater Aqueduct, a pipeline running 110 km from Cumbria through Lancashire to Greater Manchester. The pipeline is comprised of multiple pipe and single tunnel sections. Inspections of the aqueduct identified areas of concern that posed a potential future risk to both water quality and supply. In response UU is replacing all tunnel sections of the aqueduct. Each tunnel section is an independent development, the completion of which is not reliant on any other tunnel section, therefore each section will be accompanied by its own Environmental Statement to support the planning application (some tunnel sections require multiple planning applications where they cross planning authority boundaries). Collectively this is known as the Haweswater Aqueduct Resilience Programme (HARP).

1.3 The Environment Partnership Limited (TEP) was commissioned by United Utilities to undertake an assessment of any impacts that may occur to SSSIs as a result of the scheme. This work is in addition to the assessment of potential impacts on European sites which is provided in the Habitats Regulations Assessment (RVBC-MH-APP-010).

1.4 This assessment covers the Proposed Marl Hill Section (henceforth referred to as 'the Project'), which is located in Lancashire, north west of Clitheroe between National Grid References SD696489 and SD709449. It is located between Waddington at the southern end and Newton-in-Bowland at the northern end (Figure 1).

1.5 The existing aqueduct between these areas would be replaced with a single tunnel. The new tunnel would be bored from the southern end with a reception shaft at the northern end.

1.6 The Proposed Marl Hill Section broadly comprises an above-ground launch facility, from which the tunnel boring machine (TBM) would drive approximately 4.1 km northwards below-ground to an above-ground reception facility. Tunnel boring activities would be at depths of between 15 m and 65 m below ground level.

1.7 Above-ground works include a mix of temporary construction activities and permanent installations. Above-ground works consist of two main working areas:

- Braddup Compound would be the launch facility in the south, approximately 3.8 km north west of Clitheroe
- Bonstone Compound would be the reception facility in the north, approximately 8 km north west of Clitheroe

1.8 Tunnel arisings would be extracted at the southern (launch) compound and transported to Waddington Fell Quarry, accessed by the B6478.

1.9 Transport routes for both compounds for light vehicles and HGVs would be from Junction 31 of the M6 along the A59 then the A671 Pimlico Link Road and B6478, with an adapted route along Clitheroe Road for abnormal loads. An alternative route to minimise construction traffic through the villages of West Bradford and Waddington is also proposed and included in this assessment. This is referred to as the Ribble Crossing as it would require a temporary road bridge crossing the River Ribble just north of Clitheroe. The location is shown at Figure 1

1.10 Site access for the Braddup Compound would be from the B6478 in the east via an upgraded existing track. Site access for the Bonstone Compound would be from the B6478 in the east, initially via an upgraded track and then heading northwest along a newly constructed access road.

1.11 To facilitate construction traffic getting to and from site, two existing parking areas at Hansons Cement works would be used by the proposed development and a number of highways improvement works are proposed which would include road widening and installation of additional passing places.

1.12 Construction activities are anticipated to continue for a period of two and a half years, (Q2 2024 to Q3 2026) excluding commissioning (connecting to the existing asset) and land reinstatement. The exact timing of commissioning depends on the connection approach and if requiring a full outage of the aqueduct this can only be undertaken once (in September/October) every two years. Land reinstatement would be carried out progressively, starting as early as possible at each of the construction compounds. This involves land restoration activities being commenced in appropriate locations at the compounds whilst construction and commissioning activities are still underway.

1.13 Construction compounds are the locations within which construction activities would be undertaken. The construction compounds would contain tunnel launch and reception facilities (e.g. vertical tunnel shafts), tunnel slurry treatment facilities, diesel generators (where necessary), welfare and administration facilities, vehicle parking, surplus materials storage areas, and water management areas. Lighting would be required for safety reasons and where 24-hour working is required. Lighting designs and locations would minimise light spill towards any sensitive locations.

1.14 The locations of construction compounds and highways works for the proposed Marl Hill Section are shown in Figure 1.

1.15 Enabling works would include fencing working areas and preparing sites. Working areas would be topsoil stripped and construction phase drainage installed where required. As required, trees would be felled and vegetation would be cleared. Compounds and laydown areas would be constructed and safe access and egress to and from the sites would be provided via the local road network.

1.16 Open-cut trenching would be required when connecting the new single line aqueduct into the existing aqueduct. Trenches would be excavated in the ground with pipes being placed in the trenches prior to backfilling with excavated or imported material.

1.17 For the majority of the length of the replacement aqueduct there would be no permanent above-ground structures with much of the new sections of aqueduct being located deep below ground level. Permanent new valve houses would be built at the end of each replacement tunnel section, these would be single storey structures approximately 11 m wide by 12 m long.

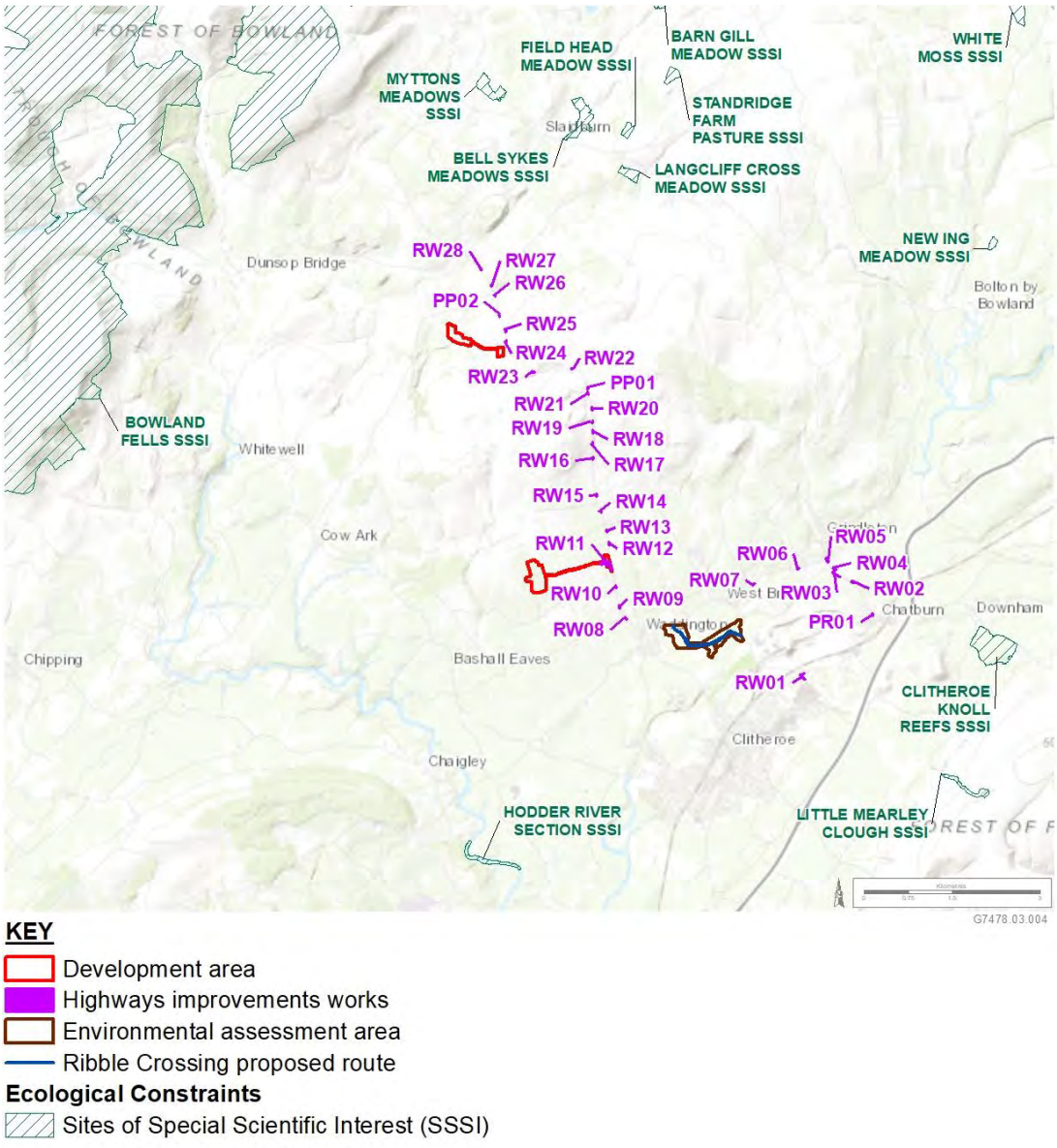

Figure 1. Location of proposed works at Marl Hill and SSSIs within 5 km designated for their ecological interest.

1.18 Land used for temporary compounds would be reinstated after completion of construction works with temporary access roads being removed. Where launch and reception facilities (e.g. shafts) exist, these would be covered and reinstated at ground level.

1.19 The new tunnel sections would connect to the existing overflow pipes that allow the aqueduct to be drained to existing outfall points. The overflows are only used in an emergency or for rare maintenance requirements and represents no change to the existing operational activities of the aqueduct. The only operational phase change resulting from the proposed development is the discharge of water from the decommissioned asset via the existing overflow pipes as a result of water ingress into the unused tunnel sections.

1.20 Once the new section of aqueduct has been constructed, the replaced section of aqueduct would be decommissioned, with the new asset being tested and commissioned before the existing sections of aqueduct are decommissioned.

Highways Improvement Works

1.21 A number of highways improvement works are proposed which would include road widening and installation of additional passing places. There are no highways improvement works proposed for within at least 2km of any SSSI designated for ecological interest.

Previous Consultation

1.22 A consultation response was received from Natural England (NE) on 28th October 2020 regarding the wider Haweswater Aqueduct Resilience applications, including the application for the Swarther section. The response stated *'there are many SSSIs close to the compound sites which have different designated features which may be impacted by the development. Many of these are not classified as an SAC, SPA or Ramsar site. Therefore SSSI assessments will be required for all the compound sites and we would like to review these once they are available'*.

Document Purpose

1.23 The purpose of this document is to assess the potential impacts of the proposals on any SSSIs within influencing distance of the proposed works. From initial assessment within the Environmental Impact Assessment this zone of influence has been determined to be 5 km from the proposed works for SSSIs. There are six SSSIs designated for their ecological interest within 5 km of the proposed works. Five of these are within 5 km of the reception compound (Bonstone) and one is within 5 km of the highways improvement works. The locations of these protected sites relative to the proposed works is shown at Figure 1. The assessment therefore focuses on these SSSIs to determine if any mitigation is required to reduce any potential impacts to an acceptable level.

2.0 Protected Sites Background

2.1 The following SSSIs are located within 5 km of the reception compound (Bonstone compound):

- Langcliff Cross Meadow SSSI - located 3.6 km northeast.
- Bell Sykes Meadows SSSI - located 3.7 km northeast
- Myttons Meadows SSSI - located 3.9 km north
- Bowland Fells SSSI - located 4.1 km northwest.
- Field Head Meadows SSSI - located 4.2 km northeast

2.2 In addition, the following SSSI is located within 5 km of the highways improvement works:

- Standridge Farm Pasture SSSI - located 4.5 km north east.

2.3 Further details are provided regarding each of these protected sites in Table 1 below and Appendix A.

Table 1. SSSI designations within 5km of the proposed above ground works (including Highways Improvement Works) at the Marl Hill Section.

Name	Distance at closest point (km)	Area (ha)	Description	Condition
Langcliff Cross Meadow SSSI	3.6	5.27	An area of northern hay meadow containing 19 grass species. Forms part of the North Pennine Dales Meadows SAC	Favourable
Bell Sykes Meadows SSSI	3.7	13.68	One of three of the SSSI underlying the North Pennine Dales Meadows SAC. Six fields of unimproved, enclosed, herb-rich grassland supporting a rich floral community. Forms part of the North Pennine Dales Meadows SAC	Four of six units in favourable condition, the other two are in unfavourable recovering condition
Myttons Meadows SSSI	3.9	10.09	One of the SSSI underlying the North Pennine Dales Meadows SAC. Three fields below Myttons Farm and part of a fourth field to the south representing the largest traditionally managed, species-rich hay meadows in Lancashire. The site forms part of the North Pennine Dales Meadows SAC	Favourable

Name	Distance at closest point (km)	Area (ha)	Description	Condition
Bowland Fells SSSI	4.1	15,759	Extensive upland fells supporting the largest expanse of blanket bog and heather moorland in Lancashire and provide suitable habitat for a diverse upland breeding bird community which includes hen harrier, merlin and peregrine. Additional interest is provided by the existence of one of the largest lesser black-backed gull colonies in Great Britain, the presence of a number of nationally or locally uncommon plant species and a variety of upland habitats and their associated avifauna.	The closest units to the proposals are in favourable condition or unfavourable recovering condition
Field Head Meadow SSSI	4.2	3.29	One of the SSSIs forming part of the North Pennine Dales Meadows SAC. Field Head Meadows consists of a single field of enclosed, moderately herb-rich hay meadow, typical of its type in northern England. Field Head Meadow is one of the few remaining herb-rich grasslands present in this part of Lancashire. The SSSI Unit (1022962) was last reported to be in 'favourable' condition.	Favourable
Standridge Farm Pasture SSSI	4.5	4.46	The site consists of an unimproved enclosed herb-rich flushed pasture on a north-facing slope. Standridge Farm Pasture is one of the few remaining unimproved herb-rich pastures present in this part of Lancashire.	Favourable

3.0 Assessment of Potential Impacts

3.1 The potential impact pathways that could affect the six SSSIs listed earlier within this document Include the following:

- Air quality impacts through vehicle exhaust emissions and through generator use at compounds.
- Waterborne pollution impacts from connecting watercourses between the compound and road improvement works areas and the SSSIs.
- Habitat impacts through changes to groundwater conditions.
- Disturbance to birds associated with the Bowland Fells SSSI.

3.2 There would be no works within any of the SSSIs. The closest part of any part of the works to any SSSI is 3.6 km. There would therefore be no direct impacts on any SSSI.

3.3 The Air Quality Assessment scoped into the assessment those SSSIs that either fell within 200 m of the modelled road links or 2 km of the diesel generators associated with the proposed works. There are no SSSI designations within 2km of the proposed diesel generators or within 200 m of the modelled road links and therefore there would be no air quality impacts on any SSSI.

3.4 There are no hydrological linkages between the proposed works and any of the SSSIs. Due to this and the distance between the SSSIs and the proposed works there would be no waterborne pollution impacts on these designated sites.

3.5 In relation to potential for impacts on ground water dependant terrestrial ecosystems (GWDTE), the groundwater assessment of potential effects has been based on an interpretation of data from the ground investigations which characterises the groundwater environment intercepted by the Proposed Marl Hill Section, and confirms groundwater levels (i.e. groundwater pressures above the tunnelled sections, areas of shallow groundwater conditions, geological settings and groundwater quality). Based on this information, an Overarching GWDTE Assessment Area was defined as a 200 m buffer in all directions around the surface works proposed development envelope (Ref: RVBC-MH-TA-007-002). As the nearest SSSI site is located 3.6 km from the proposed surface works, this impact is scoped out.

3.6 No effects on GWDTE are predicted to arise during tunnel construction as the lining will be installed immediately behind the tunnel boring machine preventing any route for dewatering, furthermore the proposed tunnel does not pass beneath any SAC, SPA or Ramsar designations.

3.7 The potential for dewatering effects on GWDTEs to arise as a result of decommissioning the existing asset are dependent on the construction type and depth of the existing Haweswater Aqueduct (HA) and the geological conditions between the asset and the surface. Therefore a detailed assessment has been undertaken to identify any lengths of the HA where effects on GWDTEs might occur and estimate a dewatering zone of influence. Based on this assessment, lateral effects at the surface are expected to extend no further than 200m. The existing tunnel section proposed for decommissioning does not travel beneath or within 200m of any European sites and there will therefore be no impacts on European sites as a result of the decommissioning works. Groundwater impacts will not be considered further within the assessment.

3.8 As the site lies within 5 km of the Bowland Fells SSSI, there is potential for birds associated with the SSSI to be disturbed by the proposed construction works. Potential for disturbance impacts to birds associated with the Bowland Fells SSSI will therefore be discussed further.

Bowland Fells SSSI

3.9 The Bowland Fells SSSI is designated for supporting internationally important numbers of breeding hen harrier, merlin and lesser black backed gull, as well as important numbers of other raptor species including peregrine and short-eared owl and a wide range of wader species and other upland birds.

3.10 No hen harrier or merlin were recorded within or near to the two works areas during the winter bird survey undertaken by Bowland Ecology for the Scheme in winter 2019/2020 (Ref RVBC-MH-TA-009-01-07). It is highly unlikely that these species use the works area or land near to them for nesting, and due to the distance from the SPA it is highly unlikely that these areas provide valuable foraging habitat.

3.11 Records of a number of known hen harrier winter roost sites within the wider surrounding area north of the Bowland Fells have been obtained from the RSPB. It is the view of the RSPB (Bray, Pers comms, November 2020) that the proposed works would not have a negative impact on roosting hen harrier, due to no known roosting locations being present within 500 m of the Marl Hill works. In addition there is no suitable roosting habitat within 500 m of the works.

3.12 There are no known hen harrier or merlin nest sites that could be impacted by the works and the habitat surrounding the sites is not suitable for nesting by these species. No hen harrier or merlin were recorded during breeding bird surveys undertaken by Bowland Ecology for the scheme during 2020 (Ref RVBC-MH-TA-009-01-07). There would therefore be no disturbance impacts on hen harrier or merlin.

3.13 The nearest large lesser black-backed gull colony is approximately 10.8 km northwest of the reception compound and 15 km northwest of the launch compound. During the breeding season lesser black-backed gull were only recorded within the Launch site during the April survey visit with one individual within the site. A peak count of five individuals were recorded within 100 m of the Launch site compound during the breeding bird survey and a peak of two lesser black backed gull between 100 m and 500 m from the compound.

3.14 Three lesser black-backed gulls were recorded within 500 m of the reception compound on one occasion, with no other lesser black-backed gull recorded within or surrounding the reception compound during the breeding bird survey. It is highly unlikely that lesser black-backed gull nest within 500 m of the site due to the lack of suitable habitat and the lack of breeding observations.

3.15 Due to the very low usage of the compounds and low usage within 500 m of the compounds, as well as the known high tolerance of this species to disturbance the proposals are highly unlikely to result in any disturbance impacts on breeding lesser black-backed gull. There is an abundance of suitable feeding habitat for this species in the wider surrounding area. Very little usage was observed within the footprint of the works. It is therefore highly unlikely that the works would result in a loss of feeding or nesting habitat for lesser black backed gulls and would not have an impact on the Bowland Fells SSSI population.

3.16 The majority of nesting upland birds for which the Bowland Fells SSSI is designated are highly unlikely to use the more lowland areas associated with the proposed works. The SSSI citation stated that the rushy lower slopes of the SSSI provide ideal habitat for waders such as redshank, curlew, lapwing, snipe and oystercatcher.

3.17 During the 2020 breeding bird survey undertaken at the compound areas, small numbers of confirmed or probable breeding waders were recorded including one pair of redshank, three pairs of curlew and lapwing and one pair of oystercatcher within and near the Bonstone Compound and one pair of curlew at the Braddup compound.

3.18 During the breeding season the birds at the compounds are likely to occupy territories containing the land within the compound and immediate surrounding land. Due to the distance of the compounds from the SSSI (3.7 km at closest point) it is highly unlikely that these are the same birds that breed within the SSSI. The populations of birds that use the SSSI would therefore not be affected.

Overall Assessment

3.19 It is therefore assessed that there would be no impacts on any SSSI as a result of the Marl Hill proposals.

4.0 Conclusions

4.1 The proposed development, the Marl Hill Section of the Haweswater Aqueduct Resilience Scheme (HARP) comprises the replacement of an existing pipeline located in Lancashire, northwest of Clitheroe.

4.2 The above ground works comprise two site compounds (Braddup and Bonstone), construction access and a number of highways improvement works, including road widening and passing place constructions, a proposed new temporary crossing of the River Ribble and use of existing parking facilities at a cement works near Clitheroe. Five SSSI designations are located within 5 km of the proposed main compounds (all centred around the northern compound (Bonstone Compound), the closest being 3.6 km away. One further SSSI is located within 5 km of the proposals being located 4.5 km from the highways improvements.

4.3 Due to the distance from the works to the SSSIs there are no predicted air quality impacts on these protected sites. There are also no hydrological links and therefore no hydrological impacts are predicted.

4.4 The proposals are within 5 km of the Bowland Fells designated primarily for nesting hen harrier and merlin, however due to the distance from the SSSI as well as the lack of suitable habitat within or near to the proposed works at Marl Hill and the absence of records of these species from the breeding bird survey, it is considered that there would be no impact on the populations of these species associated with the SSSI. It is also considered that there would be no impact on the populations of other species for which the Bowland Fells SSSI is important due to the distance from the protected site.

4.5 It is concluded that there would no adverse impacts on any SSSI as a result of the Marl Hill proposals.

APPENDIX A: Protected Site Citations

COUNTY: LANCASHIRE **SITE NAME:** BELL SYKES MEADOWS

DISTRICT: RIBBLE VALLEY

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 as amended.

Local Planning Authority: Ribble Valley Borough Council

National Grid Reference: SD 718526 **Area:** 13.68 (ha.) 33.80 (ac.)

Ordnance Survey Sheet 1:50,000: 103 **1:10,000:** SD 75 SW

Date Notified (Under 1981 Act): 26 May 1999

Other Information:
1. This is a new site.
2. The site lies within the Forest of Bowland AONB.

Description and Reasons for Notification:
Bell Sykes Meadows lies at an altitude of between 140--150m OD, approximately 0.5km north-east of the village of Slaidburn. The site consists of six fields of unimproved, enclosed, herb-rich grassland. The river alluvium of the flatter ground close to the River Hodder supports three fields of herb-rich flood meadow. The field on the higher ground to the east supports herb-rich northern hay meadow, whilst the leached soils overlying carboniferous limestone on the west facing slope supports two fields of herb-rich seasonally grazed pasture. Bell Sykes Meadows is one of the few remaining unimproved herb-rich grasslands present in this part of Lancashire. This vulnerable habitat has become increasingly scarce nationally and has been largely destroyed in Lancashire due to agricultural intensification.

The seasonally-flooded meadows support a herb-rich, neutral grassland community, typical of its type in northern England. This community is characterised by meadow foxtail *Alopecurus pratensis*, Yorkshire fog *Holcus lanatus*, sweet vernal-grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, soft brome *Bromus hordeaceus* and crested dog's-tail *Cynosurus cristatus* with greater burnet *Sanguisorba officinalis*, meadowsweet *Filipendula ulmaria*, yellow rattle *Rhinanthus minor*, lady's mantle *Alchemilla glabra*, meadow vetchling *Lathyrus pratensis*, eyebright *Euphrasia* agg, smooth hawk's-beard *Crepis capillaris* and pignut *Conopodium majus*. Other species present also include abundant ribwort plantain *Plantago lanceolata*, red clover *Trifolium pratense*, meadow buttercup *Ranunculus acris*, daisy *Bellis perennis* and common sorrel *Rumex acetosa*. The diversity of these meadows is further enhanced by the presence of meadow cranesbill *Geranium pratense* and melancholy thistle *Cirsium heterophyllum* along the field edges.

The west facing, sloping ground supports herb-rich meadow and, on the steeper ground, herb-rich pasture. These are characterised by common bent *Agrostis capillaris*, sweet vernal-grass, red fescue, crested dog's-tail and field woodrush *Luzula campestris* with greater burnet, lady's mantle, eyebright, yellow rattle, pignut, common cat's-ear *Hypocheiris radicata*, common bird's-foot trefoil *Lotus corniculatus* and selfheal *Prunella vulgaris*. The pasture on the steeper ground, which supports a mosaic of neutral and acidic grassland, is also characterised by sheep's fescue *Festuca ovina*, tormentil *Potentilla erecta*, heath bedstraw *Galium saxitile* and bitter vetch *Lathyrus montanus*.

A small amount of woodland and scrub is also present on the site.

Date Notified: 28th March 1988

File ref: (L) SD 65/2

County: Lancashire **Site Name: Bowland Fells**

District: Lancaster, Ribble Valley, Wyre

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: Lancaster City Council, Ribble Valley Borough Council, Wyre Borough Council

National Grid Reference: SD 620570 **Area:** 15,759.0 (ha) 38,940.5 (ac)

Ordnance Survey Sheet 1:50,000: 97, 98, 102. 103 **1:10,000:** SD 54 NE, NW, SE
SD 55 NE, NW, SE, SW
SD 56 SE, SW
SD 64 NW, SW
SD 65 NE, NW, SE, SW
SD 66 SE, SW
SD 75 NW

Date Notified (Under 1949 Act): 1951 **Date of Last Revision:** 1979

Date Notified (Under 1981 Act): 1988 **Date of Last Revision:** 1988

Other Information:
1. The site includes the former West Bowland Fells and Mallowdale and Bottom Head Fells SSSI.
2. The boundary has been amended by minor deletions and a large extension at this revision.
3. The site is situated within the Forest of Bowland AONB.

Description and Reasons for Notification:
This site encompasses the main upland block within the area of Lancashire known as the Forest of Bowland, an outlier of the Pennine Range situated in the north of the county and to the east of the M6 motorway. Most of this land, stretching from Clougha and Whitray Fell in the north to Parlick in the south, is over 250 m OD and rises sharply to a stream – dissected plateau with the highest point being Ward's Stone at 561 m. The underlying rock is Millstone Grit beneath which lies Carboniferous Limestone.

These extensive upland fells support the largest expanse of blanket bog and heather moorland in Lancashire and provide suitable habitat for a diverse upland breeding bird community which includes three species (hen harrier, merlin and peregrine), which are afforded special protection under the Wildlife and Countryside Act 1981 by virtue of their rarity or vulnerability. Additional interest is provided by the existence of one of the largest lesser black-backed gull colonies in Great Britain, the presence of a number of nationally or locally uncommon plant species and a variety of upland habitats and their associated avifauna.

The most extensive plant communities within the site are dry heather-dominated heathland, generally found on the steeper slopes, and heather *Calluna vulgaris* and cottongrass *Eriophorum vaginatum*-dominated blanket bog which covers the tops of the ridges and shallow slopes.

Within the blanket bog communities bog mosses *Sphagnum* spp. are sparse, due to the effects of past burning practices, although bog rosemary *Andromeda polifolia*, a nationally scarce species, cranberry *Vaccinium oxycoccus*, crowberry *Empetrum nigrum*, and cloudberry *Rubus chamaemorus* are all widely distributed. Some areas of bog have been more heavily burnt and this, perhaps coupled with greater numbers of grazing sheep, has resulted in the loss of heather to give bilberry *Vaccinium myrtillus* and cottongrass bog. In some areas dwarf shrub component has been reduced still further to produce a cottongrass dominated degraded blanket bog community. In places within the site there is active and extensive peat erosion leaving large mounds and haggs surrounded by shallow peat and a stony mineral soil.

The extensive areas of *Calluna* heath are generally managed by small patch burning to encourage red grouse. On recently burnt areas, bilberry is quick to recover and is at first dominant over the regenerating heather but the bilberry later becomes less conspicuous as the heather eventually reasserts its dominance. Heavy burning and high levels of sheep grazing have in some areas resulted in the loss of heather and its replacement by a bilberry/wavy hair-grass *Deschampsia flexuosa* community. In other places cowberry *Vaccinium vitis-idaea* has become co-dominant with bilberry, as on the summit plateau of Ward's Stone where these species are associated with a variety of lichens. Where grazing has been heavier still, the dwarf shrubs are replaced by species-poor acid grassland dominated by mat-grass *Nardus stricta* or, to a lesser extent, heath rush *Juncus squarrosus*, or purple moor-grass *Molinia caerulea*. Despite such modifications, the site is of particular value for the extent of heather moorland still remaining, and represents a good example of a habitat type which has been significantly reduced across upland Britain.

On the lower ground, bracken forms extensive stands in some areas. Dense growth of bracken suppresses the ground flora but where it is less dense bilberry community grows beneath, along with other plant species more usually associated with woodland, such as wood sorrel *Oxalis acetosella* and climbing corydalis *Corydalis claviculata*. Chickweed wintergreen *Trientalis europaea* has also been recorded on the site growing beneath bracken and here is nearly at its southern limit and in its only Lancashire location.

A number of interesting plants grow on the Millstone Grit crags, where they are protected from grazing and burning. These include fir clubmoss *Huperzia selago* and also Scottish filmy-fern *Hymenophyllum wilsonii* and hayscented buckler-fern *Dryopteris aemula* in their only Lancashire sites.

Flushes and springs are not common but provide a habitat for the Lancashire rarities lesser twayblade *Listera cordata*, broad-leaved cottongrass *Eriophorum latifolium* and pale forget-me-not *Myosotis stolonifera* – a nationally scarce species. Tree cover in the form of oak *Quercus petraea* scrub is fragmented and occurs on the steep slopes and in the cloughs, adding to the diversity of habitats within the site. Many of the trees are of great age, supporting a variety of lichens, and the shelter they provide allows the growth of carpets of tall ferns.

The maintenance of heather moorland over much of the site has provided an excellent habitat not only for red grouse for which the moors have primarily been managed, but for other moorland birds requiring the presence of heather for nesting cover and as a source of prey. Of these the hen harrier is the most notable: the Bowland Fells represent the only regularly-used

breeding locality in England and thus supports a very important breeding nucleus for this species which is in decline and increasingly experiencing a reduced success in breeding performance. Other nesting predatory birds (raptors) include merlin (another species suffering a continued decline in numbers), peregrine, short-eared owl, sparrowhawk and kestrel. The open moorland and blanket bog communities support other upland birds such as golden plover, ring ouzel, meadow pipit, skylark, whinchat and wheatear while the damp, rushy lower slopes provide ideal habitat for waders such as redshank, curlew, lapwing, snipe and oystercatcher. The fast-flowing upland streams are the typical habitat for common sandpiper, dipper and grey wagtail while the presence of tree cover adjacent to open moorland is ideal for woodcock, redstart and spotted flycatcher.

Mallowdale and Tarnbrook Fells also support one of the five largest breeding colonies of lesser black-backed gulls in Great Britain which probably contains over 10% of the British and 1% of the European populations.

COUNTY: LANCASHIRE **SITE NAME:** FIELD HEAD MEADOW

DISTRICT: RIBBLE VALLEY

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 as amended.

Local Planning Authority: Ribble Valley Borough Council

National Grid Reference: SD 725524 **Area:** 3.29 (ha.) 8.13 (ac.)

Ordnance Survey Sheet 1:50,000: 103 **1:10,000:** SD 75 SW

Date Notified (Under 1981 Act): 25 May 1999

Other Information:
1. This is a new site.
2. The site lies within the Forest of Rowland AONB.

Description and Reasons for Notification:
Field Head Meadow lies at an altitude of 210m OD, approximately 1.3km east of the village of Slaidburn. The site consists of a single field of enclosed, moderately herb-rich hay meadow, typical of its type in northern England. Field Head Meadow is one of the few remaining herb-rich grasslands present in this part of Lancashire. This vulnerable habitat has become increasingly scarce nationally and has been largely destroyed in Lancashire due to agricultural intensification.

The meadow is a variant of the 'northern hay meadow' type. It is characterised by sweet vernal-grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, Yorkshire fog *Holcus lanatus*, crested dog's-tail *Cynosurus cristatus*, rough meadow-grass *Poa trivialis* and field woodrush *Luzula campestris* with greater burnet *Sanguisorba officinalis*, yellow raffle *Rhinanthus minor*, lady's mantle *Alchemilla glabra*, eyebright *Euphrasia* agg and pignut *Conopodium majus*. Other species present also include abundant ribwort plantain *Plantago lanceolata*, red clover *Trifolium pratense*, meadow buttercup *Ranunculus acris*, daisy *Bellis perennis* and common sorrel *Rumex acetosa*. Yellow oat-grass *Trisetium flavescens*, common knapweed *Centaurea nigra*, autumn hawkbit *Leontodon autumnalis*, common bird's-foot trefoil *Lotus corniculatus*, smooth hawk's-beard *Crepis capillaris* and meadow vetchling *Lathyrus pratensis* are also occasionally present in the sward.

File ref: (L) SD 75/6

County: Lancashire **Site Name:** **Langcliff Cross Meadow**

District: Ribble Valley

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981.

Local Planning Authority: Ribble Valley Borough Council

National Grid Reference: SD 726517 **Area:** 5.3 (ha) 13.1 (ac)

Ordnance Survey Sheet 1:50 000 103 **1:10 000** SD 75 SW

Date Notified (Under 1949 Act): – **Date of Last Revision:** –

Date Notified (Under 1981 Act): 1989 **Date of Last Revision:** –

Other Information:

1. This is a new site.

2. The site lies within the Forest of Bowland AONB

Description and Reasons for Notification:

Langcliff Cross Meadow lies approximately 1g km to the east of the village of Slaidburn and at an altitude of 190 m OD. It represents one of the best examples of the few remaining species-rich meadow grasslands in the county. This nationally scarce and vulnerable habitat has, in Lancashire, been almost completely destroyed by agricultural intensification so that a site displaying such a high diversity of grass and herb species and containing many plants representative of unimproved meadows, is regarded as being of very great importance in the county context.

The community is a variant of the 'northern haymeadow' type and contains a total of 19 grass species, co-dominated by sweet vernal-grass *Anthoxanthum odoratum* and red fescue *Festuca rubra*, with crested dog's-tail *Cynosurus cristatus*, Yorkshire fog *Holcus lanatus*, common bent *Agrostis capillaris* and downy oat-grass *Avenula pubescens* frequent within the sward. The local occurrence of quaking grass *Briza media* and yellow oat-grass *Trisetum flavescens* along with spring-sedge *Carex caryophyllea* indicate pockets of more base-rich conditions.

The grassland is herb-rich throughout and includes many species characteristic of old meadows such as pignut *Conopodium majus*, great burnet *Sanguisorba officinalis*, smooth lady's-mantle *Alchemilla glabra*, yellow rattle *Rhinanthus minor* and meadowsweet *Filipendula ulmaria.*

The diversity of species found within the site is increased by the presence of a wet area at the eastern end of the field which supports marsh marigold *Caltha palustris*, marsh arrowgrass *Triglochin palustris* and floating sweet-grass *Glyceria fluitans*.

File ref: SD 75/5

County: Lancashire **Site Name: Myttons Meadows**

District: Ribble Valley

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981.

Local Planning Authority: Ribble Valley Borough Council

National Grid Reference: SD 703531 **Area:** 10.0 (ha) 24.7 (ac)

Ordnance Survey Sheet 1:50 000 103 **1:10 000** SD 65 SE
SD 75 SW

Date Notified (Under 1949 Act): – **Date of Last Revision:** –

Date Notified (Under 1981 Act): 1985 **Date of Last Revision:** –

Other Information:

1. This is a new site.

2. The site lies within the Forest of Bowland AONB.

Reasons for Notification:

Myttons Meadows are situated on the south-eastern edge of the Forest of Bowland at an altitude of between 155 m and 180 m OD, approximately 1g km north-west of Slaidburn. The site comprises a series of three fields below Myttons Farm and part of another field to the south, which together represent the largest and best surviving example of traditionally managed, species-rich meadow grassland identified in Lancashire. This nationally scarce and highly vulnerable habitat has, in Lancashire, been almost completely destroyed by agricultural intensification so that, in the county context, this site is regarded as being of outstanding importance.

The soils are derived from glacial drift containing fragments of the underlying Carboniferous Limestone and tend to be neutral to calcareous in nature. The variations in depth of drift, soil moisture content and base status are reflected in slight floristic differences evident within the site, while management practices have had a significant effect upon the species composition of the vegetation within the individual fields.

The eastern field adjacent to Croasdale Brook is managed as a traditional hay meadow and supports a uniformly rich and diverse grassland flora with over 95 species having been recorded. The community is of the 'northern hay meadow' type, containing a range of grass species co-dominated by sweet vernal-grass and red fescue with soft brome, hairy oat-grass, Yorkshire fog and common bent occurring frequently within the sward. The uncommon hybrid fescue is also found here along with perennial rye-grass, meadow foxtail and rough meadow-grass. The field is herb-rich throughout

and supports many species characteristic of old meadows, notably wood anemone, common bistort, two species of lady's mantle *Alchemilla glabra* and *A. xanthochlora*, pignut, great burnet, yellow rattle and meadowsweet. In addition are certain old meadow species indicative of base-rich conditions such as rough hawkbit, meadow crane's-bill and cross-wort. A range of sedges occur within the community including spring *Carex caryophyllea*, carnation *C. panicea*, hairy *C. hirta*, glaucous *C. flacca*, flea *C. pulicaris* and pale sedge *C. pallescens*, while occasional wetter areas are dominated by lesser pond-sedge *C. acutiformis* in association with brown sedge *C. disticha*, water avens, marsh marigold and marsh hawk's-beard. Most notable amongst the low-frequency associates of the main community are melancholy thistle (occurring mainly along the edges but also within the main sward), globeflower, common spotted orchid and common twayblade which occur between the Eller Beck and a wall which forms the southern boundary of the field.

The adjacent field to the south contains a small knoll which, presumably because of its shape, has escaped agricultural improvement. The community is akin to that described above but, in addition to melancholy thistle, common spotted orchid and twayblade, includes such notable species as fragrant orchid and the locally scarce adder's-tongue fern.

To the west is a small field formerly part of the larger hay-field above it but fenced off because of steeply sloping ground and waterlogged conditions at the foot of the slope. The management of this field differs from those on either side of it as it is grazed rather than mown, and this is reflected in the patchiness and uneven height of the vegetation. The lower part of the field is wet and the vegetation is dominated by lesser pond-sedge with Yorkshire fog, red fescue, tall fescue and rough meadow-grass and abundant meadowsweet, marsh marigold, creeping buttercup and water avens. Along the eastern boundary the banks of a small stream support globeflower, marsh valerian, marsh hawk's-beard, bitter vetch and great hairy willow-herb with abundant glaucous sweet-grass in the shallow water. The middle section of the field is occupied by a steep bank supporting the same species-rich, northern hay-meadow community as the adjacent fields. Species indicative of base-rich conditions occur, such as hairy oat-grass, quaking grass, glaucous sedge, spring-sedge and rough hawkbit, but in contrast other areas on the upper slopes support species typical of more acid conditions such as mat-grass, common bent, oval sedge, many-headed wood-rush and tormentil.

To the north-west is the largest of the three fields which is also under traditional hay-meadow management with aftermath grazing. The higher frequency of soft brome and perennial rye-grass in this field plus the apparent absence of sedges, is indicative of more intensive agricultural management practices in the past which have altered the species composition to some extent. However, the sward is uniformly rich throughout in grasses and herbs and is typically co-dominated by sweet vernal grass, crested dog's-tail, soft-brome and red fescue, with an abundance of great burnet, yellow rattle and pignut, frequent oxeye daisy, rough hawkbit, meadow buttercup, red clover and lady's mantle *Alchemilla glabra* and *A. xanthochlora* and occasional wood anemone, tufted vetch and burnet saxifrage.

File ref: (L) SD 75/9

County: Lancashire **Site Name:** **Standridge Farm Pasture**

District: Ribble Valley

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981, as amended.

Local Planning Authority: Ribble Valley Borough Council

National Grid Reference: SD 733534 **Area:** 4.46 (ha) 11.02 (ac)

Ordnance Survey Sheet 1:50 000 103 **1:10 000** SD 75 SW

Date Notified (Under 1949 Act): – **Date of Last Revision:** –

Date Notified (Under 1981 Act): 14 May 1998 **Date of Last Revision:** –

Other Information:

1. This is a new site.

2. The site lies within the Forest of Bowland AONB.

Description and Reasons for Notification:

Standridge Farm Pasture lies at an altitude of between 225–250 m OD, approximately 2.5 km north-east of the village of Slaidburn. The site consists of an unimproved enclosed herb-rich flushed pasture on a north-facing slope. The underlying Bowland Shales give rise to base-rich conditions and impeded drainage, which results in much spring-fed flushing of the slope with ground water. Standridge Farm Pasture is one of the few remaining unimproved herb-rich pastures present in this part of Lancashire. This vulnerable habitat has become increasingly scarce nationally and has been largely destroyed in Lancashire due to agricultural intensification.

The site supports a mosaic of flushed mire and neutral grassland communities. The flushed mire community is characterised by purple moor-grass *Molinia caerulea*, quaking grass *Briza media*, common sedge *Carex nigra*, carnation sedge *C. panicea*, glaucous sedge *C. flacca* and jointed-rush *Juncus articulatus*, with bird's-eye primrose *Primula farinosa*, globeflower *Trollius europaeus*, marsh valerian *Valeriana dioica*, grass-of-Parnassus *Parnassia palustris*, devil's-bit scabious *Succisa pratensis* and sneezewort *Achillea ptarmica*. Round-leaved sundew *Drosera rotundifolia* is occasionally present in more acidic flushes.

The grassland communities are characterised by sweet vernal-grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, crested dog's-tail *Cynosurus cristatus* and Yorkshire fog *Holcus lanatus*, with greater burnet *Sanguisorba officinalis*, early-purple orchid *Orchis mascula*, saw-wort

Serratula tinctoria, common knapweed *Centaurea nigra*, tormentil *Potentilla erecta*, dyer's greenweed *Genista tinctoria*, meadow buttercup *Ranunculus acris* and selfheal *Prunella vulgaris*.

THE ENVIRONMENT PARTNERSHIP

HEAD OFFICE

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
E-mail: tep@tep.uk.com

MARKET HARBOROUGH

No. 1 The Chambers,
Bowden Business Village,
Market Harborough,
Leicestershire,
LE16 7SA

Tel: 01858 383120
E-mail: mh@tep.uk.com

GATESHEAD

Office 26, Gateshead
International Business
Centre,
Mulgrave Terrace,
Gateshead
NE8 1AN

Tel: 0191 605 3340
E-mail: gateshead@tep.uk.com

LONDON

8 Trinity Street,
London,
SE1 1DB

Tel: 020 3096 6050
E-mail: london@tep.uk.com

CORNWALL

4 Park Noweth,
Churchtown,
Cury,
Helston
Cornwall
TR12 7BW

Tel: 01326 240081
E-mail: cornwall@tep.uk.com