Preliminary Ecological Appraisal

Whitehaven Golf Course, Red Lonning, Whitehaven, Cumbria CA28 8UH

2021

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No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. We therefore cannot guarantee that the investigations fully identified the degree or extent of e.g. species presence. Professional judgement and opinion has been utilised where required. All opinion is provided in good faith.

Nothing in this report constitutes legal advice or opinion. If legal opinion is required a qualified legal professional should be contacted for advice.

Contents

1. Introduction

1.1. Background and Pre-Existing Site Information

This report details a Preliminary Ecological Appraisal conducted Whitehaven Golf Course, Red Lonning, Whitehaven, Cumbria CA28 8UH (Nat. Grid Ref. NX 99361 18434 - Approx. centre of site. See Figure 1).

Plans 'as proposed' have been provided along with a detailed description of the proposed works produced by MJN Associates (See, 'WHITEHAVEN GOLF COURSE: PROPOSED AMENDMENTS TO COURSE CONFIGURATION TO INCREASE PLAYABILITY AND DRAINAGE WITH ADDITIONAL AND RE-ESTABLISHED PLANTING AREAS (Jan. 2021). It is thereby understood that a proposal exists to carry out the phased importation of clean top and sub-soils to improve the quality of the setting of the fairways. Phasing will occur over a 15 year period and will ultimately involve the importation of 215,000 cubic m., averaging 14,000 cubic m./year. Alongside each phase, areas of new woodland will be planted and existing areas of woodland 're-established' (See Section 1.2 below).

A search of historic planning applications for the post-code area was attempted on the Copeland Borough Council planning application search facility (https://www.copeland.gov.uk/planning/application-search) on 06/04/2021. The Copeland Borough Council planning application search facility does not allow planning applications to be searched using 'location', 'site name' nor 'post-code' and is therefore unfit for this purpose and could not be used to summarise the planning history of the site, nor to identify any previous ecological survey reports which may have been submitted with other planning applications in the area. Ecological survey effort has undoubtably been expended on adjacent development sites - this information is inaccessible via the usual routes and can therefore not be considered in this report.

The Whitehaven Golf Club proposal document prepared by MJN Associates presents a detailed history of the golf course facility since the 1990's and for the purposes of this assessment is considered to be accurate.

This survey has been commissioned to complete a baseline preliminary ecological assessment of the site and specifically to identify;

- Any areas of potential conservation interest,
- Any potential impacts to legally protected species / species groups,
- Any likely impacts on statutory and non-statutory designated sites as a result of the proposal,
- The presence of any invasive species listed in Schedule 9 of The Wildlife and Countryside Act 1981 (as amended).
- Opportunities to enhance the biodiversity value of the site in line with the National Planning Policy Framework (2019)

Robert Metcalfe of MJN Associates Ltd. commissioned Hesketh Ecology to complete this survey and report in February 2021. It is understood that this report will be used to inform the finalisation of proposal for the site and to accompany a full planning application.

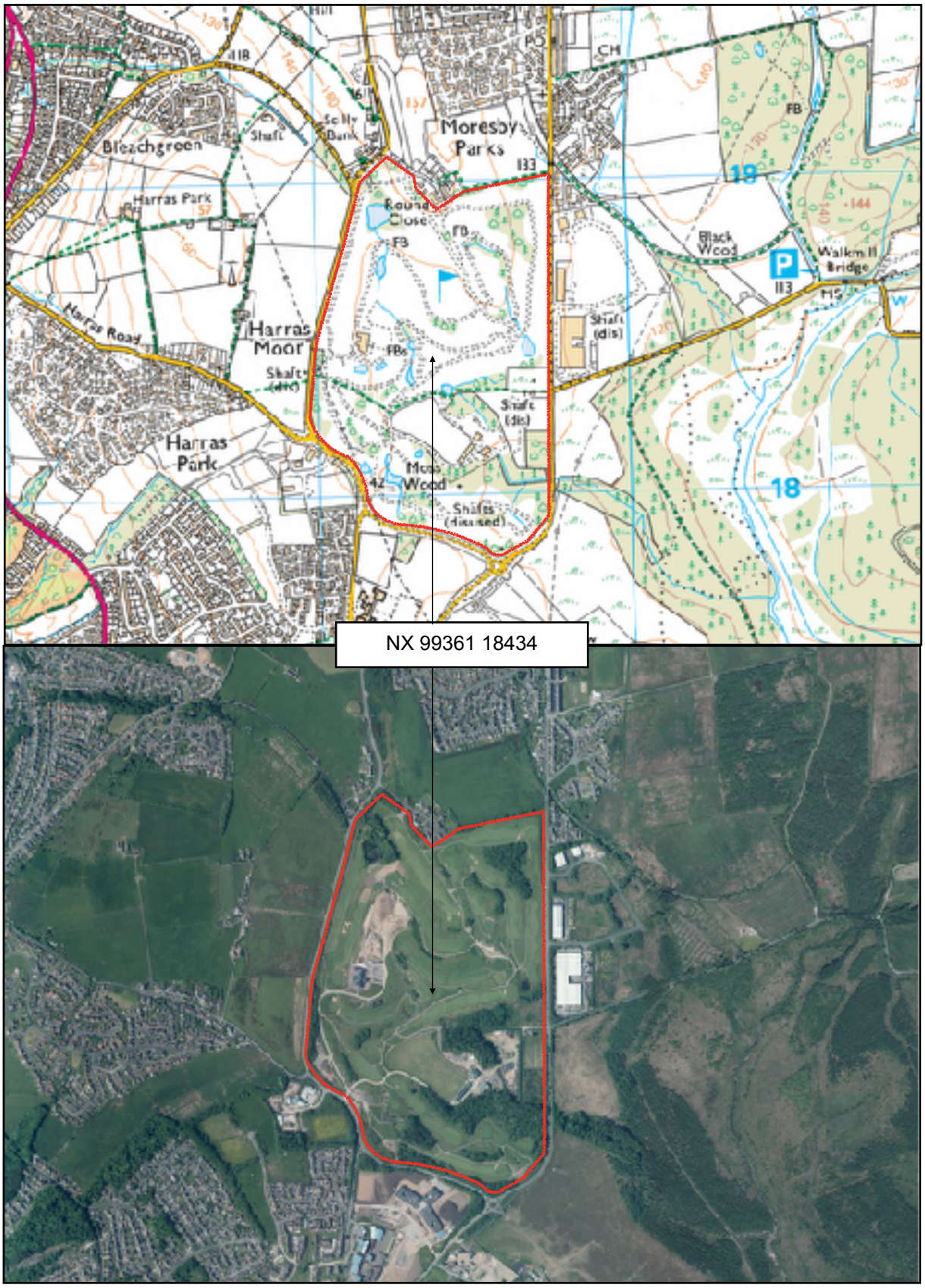


Figure 1: *Location Plan - Whitehaven Golf Course, Red Lonning, Whitehaven, Cumbria CA28 8UH*

1.2. Full Details of Proposed Works on Site

See Figures 1, 2, 3, 4 & 5. The following extract is taken from "WHITEHAVEN GOLF COURSE: PROPOSED AMENDMENTS TO COURSE CONFIGURATION TO INCREASE PLAYABILITY AND DRAINAGE WITH ADDITIONAL AND RE-ESTABLISHED PLANTING AREAS (Jan. 2021 by MJN Associates);

> *"It is proposed to carry out a phased importation of clean top and subsoils to improve the quality of the setting of the fairways, dealing with the drainage issues inherent at the present time. This will include introduction of swales where appropriate. Depth of new fill will vary but commonly be between .5 to 3 m.*
>
> *Phasing will occur over a 15-year period giving an importation of around 215,000 cubic m. (to be confirmed) Annual importation will average out at about 14,000cm per annum.*
>
> *At the same time, each phase will incorporate new and re-established woodland to increase course setting and eliminating the current problems in those latter areas.*
>
> *Provision will be made on site for storage and lay down of materials.*
>
> *Material will be sourced from the G&AM Lawson recycling facility at the Energy Coast Business Park at Haile which has a licenced throughput of 75,000 cubic m per annum. Importation from that facility would take up to 20% of the throughput from that source annually.*
>
> *The specification for the material will be set by the independent landscape architect (Galpin Landscape based in Windermere) for the project and the product would be produced and monitored to that specification to ensure that the quality required was met.*
>
> *(note there is a commonality of Directorships between Western Lakes Ltd and G&AM Lawson so this arrangement can be secured relatively easily.)*
>
> *It would be intended to maintain an 18 hole offer throughout the works period. This can be done by taking a hole out of use for works and introducing an additional par 3 hole or splitting a par 5 into two par 3's or a par 3 and par 4. The driving range, pro-shop and clubhouse will remain open at all times 364 days per year.(Covid 19 permitting)*
>
> *Clearly the scale of the works proposed are more than the current activities on site where localised issue of drainage have been sought to be remediated and planning permission will be required.'*
>
> Section 3 , Pg. 2-3.

In summary, it is proposed to import c.215,000 cubic metres of clean top soil to the golf course site over a period of 15 years. This is proposed so as to improve the drainage of the site and create a better playing surface. A significant percentage of the remediated ground

will then be planted as ‘woodland’ and ‘scrub’, vastly increasing the area of these habitats on site. Much of the woodland planting will be as discreet blocks of irregular shape. No wholesale felling of any existing areas of woodland is proposed. It may be necessary to fell and prune back edges of the existing woodland blocks so as to accommodate landscaping and proposed woodland planting, but there will be no clear felling of blocks and no removal of large mature trees. None of the existing ponds on site will be directly affected by the proposed works, but topsoil will be spread on amenity grassland in close proximity to the ponds.

Figure 2: *Whitehaven Golf Course - Proposed Drainage Masterplan All Phases (1-16) - Drawing Number WGC 1070-06_337 Draft1, by Galpin Landscape Architecture.*

Figure 3: *Whitehaven Golf Course - Proposed Planting Masterplan All Phases (1-16) - Drawing Number WGC 1070-06_701 Draft1, by Galpin Landscape Architecture.*

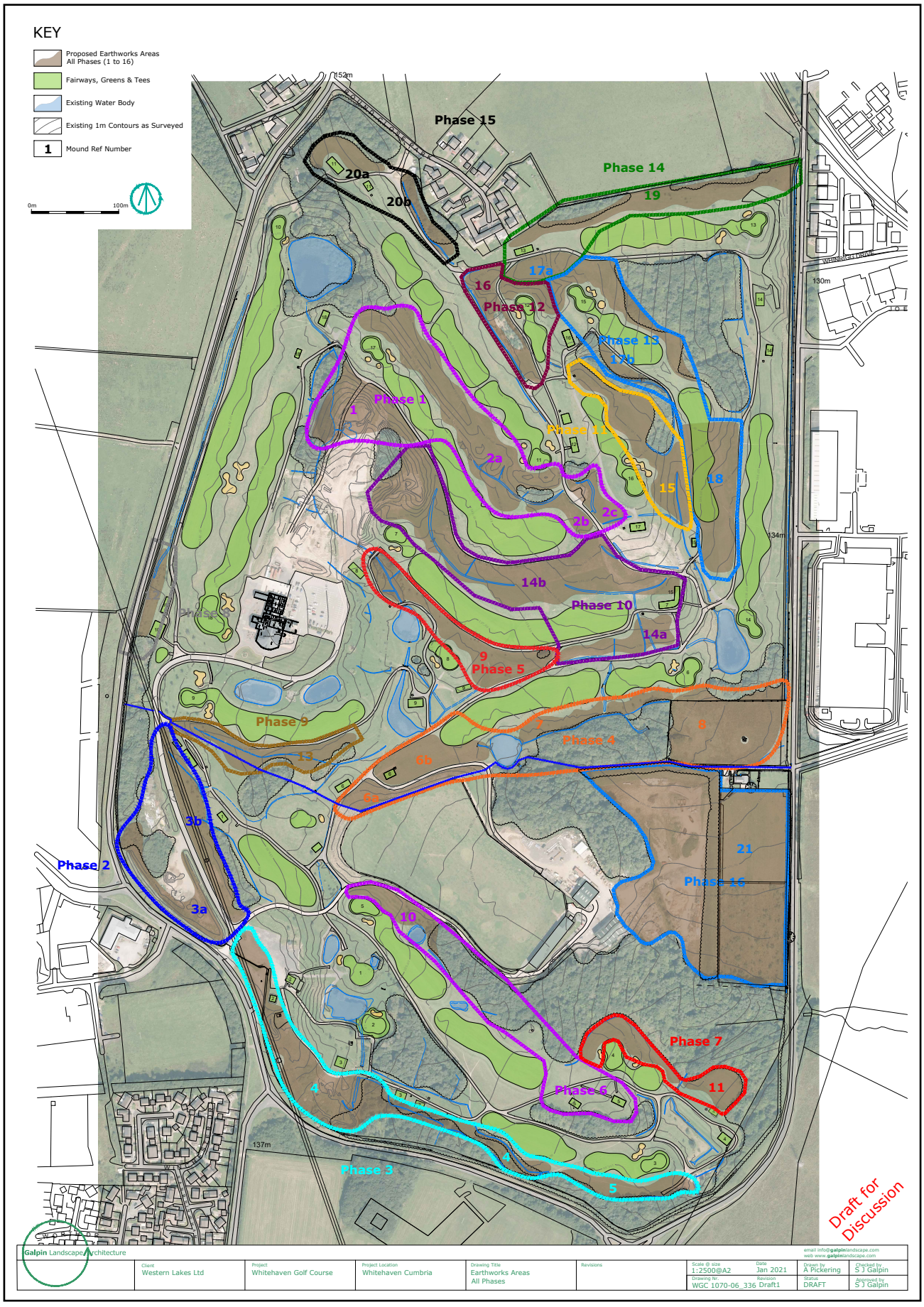


Figure 4: *Whitehaven Golf Course - Earthworks Areas All Phases - Drawing Number WGC 1070-06_336 Draft1, by Galpin Landscape Architecture.*

Whitehaven Golf Course

Phased Earthwork Areas

Phase	*Mound*	*m³*	Accurate Volumes	*Estimated Volumes*	*date?*	*years*
Phase 1					2021	1
	1	7,944				
	2a, 2b, 2c	28,987				
			36,931	19,600		
Phase 2					2022	2
	3a, 3b	12,770				
			12,770	8,100		
Phase 3					2023	3
	4	28,021				
	5	2,785				
			30,806	11,500		
Phase 4					2024	4
	6a, 6b	6,480				
	7a & 7b	1,470				
	8					
			7,950	19,650		
Phase 5					2025	5
	9					
			0	4,300		
Phase 6				4,400	2026	6
Phase 7				4,300	2027	7
Phase 8				1,250	2028	8
Phase 9				5,500	2029	9
Phase 10				19,700	2030	10
Phase 11				6,300	2031	11
Phase 12				3,700	2032	12
Phase 13				13,050	2033	13
Phase 14				9,300	2034	14
Phase 15				3,300	2035	15
Phase 16				39,000	2036	16
		Total Volume=	***88,457***	***172,950***	***m³***	

Estimated Total Volume (>) = ***214,257*** (values in green) to date 8/1/21

Figure 5: *Whitehaven Golf Course - Phased Earthwork Areas.*

2. Legislation and Policy

2.1. Designated Sites

There are broadly 3 levels of designation currently in place to protect the most significant areas for habitats and wildlife. These are Internationally Designated Sites (Special Areas of Conservation, Special Protection Areas etc.), Domestically Designated Sites (Sites of Special Scientific Interest, National Nature Reserves etc.) and Locally Designated Sites (County Wildlife Sites, Local Nature Reserves etc.).

The Conservation of Habitats and Species Regulations 2017 provides safeguards for European Protected Sites and Species (as listed in the Habitats Directive). This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

2.2. Internationally Designated Sites

Special Areas of Conservation (SACs) are areas which have been given special protection under the European Union's Habitats Directive. They provide increased protection to a variety of wild animals, plants and habitats. All SAC's are also designated as SSSI's. The legal requirements relating to the designation and management of SACs in England are set out in The Conservation of Habitats and Species Regulations 2017. The SAC designation is recognition that some or all of the wildlife and habitats are particularly valued in a European context.

Special Protection Areas (SPAs) are areas which have been identified as being of international importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds found within European Union countries. They are European designated sites, classified under the 'Birds Directive 1979' which provides enhanced protection given by the Site of Special Scientific Interest (SSSI) status all SPAs also hold. The legal requirements relating to the management and protection of SPAs in England are set out in The Conservation of Habitats and Species Regulations 2017.

Natura 2000 is the centrepiece of EU nature & biodiversity policy. It is an EU wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive. Natura 2000 is not a system of strict nature reserves where all human activities are excluded. Whereas the network does include nature reserves most of the land is privately owned and the emphasis is on ensuring that future management is sustainable, both ecologically and economically.

The 'competent authority' is required to complete an Appropriate Assessment of a proposal, if the proposed activities would be likely to have a significant effect on the Natura 2000 site. An Appropriate Assessment aims to determine if the proposed development would have an adverse effect on the notified interest features of the SAC. The developer or proposers of the plan or project shall provide such information as the competent authority may reasonably require for the purposes of the assessment (Regulation. 43(2)).

2.3. Domestically Designated Site

Sites of Special Scientific Interest (SSSIs) are the country's very best wildlife and geological sites and give legal protection to these sites in England. Natural England now has responsibility for identifying and protecting SSSIs in England under the Wildlife and Countryside Act 1981 (as amended). The SSSI notification package includes a list of operations requiring Natural England's consent (formerly known as operations likely to damage the special interest). None of the listed operations can be carried out without Natural England's consent, or the consent of another public body (provided that the other body has formally consulted us). Operations listed on the list of operations requiring Natural England's consent (which are not already consented to) requires permission from Natural England. To obtain consent, a written notice must be submitted to Natural England containing the details of the operations in order for the proposal to be assessed and permission granted.

National Nature Reserves (NNRs) are all also designated as SSSIs. It is via this designation that legal protection is afforded to NNRs.

2.4. Locally Designated Sites

There are currently a number of different terms in use to describe Local Wildlife Sites, including Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and County Wildlife Sites. Local Wildlife Sites are usually selected within a local authority area and this process is often managed by the local Wildlife Trust together with representatives of the local authority and other local wildlife conservation groups. They support both locally and nationally threatened wildlife, and many sites will contain habitats and species that are priorities under the county or UK Biodiversity Action Plans (BAP).

In Cumbria, Local Wildlife Sites are known as 'County Wildlife Sites'. They are designated and reviewed at a county level by the Wildlife Selection Panel for the Cumbria Local Sites Partnership, administered by Cumbria Wildlife Trust. County Wildlife Sites are not afforded any legal protection.

2.5. Protected Species

The legislation protecting wildlife exists regardless of the requirements of any planning consent.

The legal protection of animals and plants in the United Kingdom is mainly provided for by:

- The Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000,
- The Habitats and Species Directive (92/43/EC) enacted through The Conservation of Habitats and Species Regulations 2017.
- The Protection of Badgers Act 1992.

The level of protection for each species varies according to the conservation status of the species.

The Conservation of Habitats and Species Regulations 2017 provides safeguards for European Protected Sites and Species (as listed in the Habitats Directive). This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

The Countryside and Rights of Way Act 2000 supplemented existing legislation for wildlife protection by prohibiting reckless acts that result in the killing or injuring of protected species.

The Natural Environment and Rural Communities Act 2006 requires that every public authority in exercising its functions must have regard as far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Section 41 of this Act re-

Conservation of Habitats and Species Regulations 2010 (as amended): Schedule 5 – Plants
Shore dock (*Rumex rupestris)*
Killarney fern (*Trichomanes speciosum)*
Early gentian (*Gentianella anglica*)
Lady's-slipper (*Cypripedium calceolus*)
Creeping marshwort (*Apium repens)*
Slender naiad (*Najas flexilis)*
Fen orchid (*Liparis loeselii*)
Floating-leaved water plantain (*Luronium natans)*
Yellow marsh saxifrage (*Saxifraga hirculus*)

Table 2: *Conservation of Habitats and Species Regulations 2010 (as amended): Schedule 5 - Plants*

quires the Secretary of State to have prepared lists of species and habitats which are considered to be of principal importance for the purpose of conserving biodiversity [The UK Biological Action Plan (BAP) species].

2.6. Schedule 2 - European Protected Species of Animal

These species are listed in Schedule 2 of the Habitat Regulations and in Schedule 5 of the Wildlife & Countryside Act 1981. The legislation makes it illegal to:

- Intentionally or deliberately kill, injure or capture (or take);
- Deliberately disturb;
- Recklessly disturb or obstruct access to any place used for rest and shelter
- Damage or destroy any place used for rest and shelter
- Possess or transport an animal or any part of, unless acquired legally,
- Sell (or offer for sale) or exchange

Work that disturbs Schedule 2 species is illegal without a Wildlife Development Licence issued by Natural England.

2.7. Schedule 5 - European Protected Species of Plants

Conservation of Habitats and Species Regulations 2010 (as amended): Schedule 2 Animals
Horseshoe bats *Rhinolophidae* - all species
Common bats *Vespertilionidae* - all species
Wild cat (*Felis silvestris)*
Dolphins, porpoises and whales *Cetacea* – all sp.
Dormouse (*Muscardinus avellanarius)*
Pool frog (*Rana lessonae)*
Sand lizard (*Lacerta agilis)*
Fisher's estuarine moth (*Gortyna borelii lunata)*
Great crested newt (*Triturus cristatus)*
Otter (*Lutra lutra)*
Lesser whirlpool ram's-horn snail (*Anisus vorticulus)*
Smooth snake (*Coronella austriaca)*
Sturgeon (*Acipenser sturio)*
Natterjack toad (*Epidalea calamita)*
Marine turtles (*Caretta caretta, Chelonia mydas, Lepidochelys kempii, Eretmochelys imbricata* and *Dermochelys coriacea)*

Table 1: *Conservation of Habitats and Species Regulations 2010 (as amended): Schedule 2 Animals*

These species are listed in Schedule 5 of the Habitat Regulations and in Schedule 8 of the Wildlife & Countryside Act 1981. The legislation makes it illegal to pick, uproot, destroy, or trade in these plants.

2.8. Otters

Otters are protected under Section 39 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species and Section 9 of the Wildlife and Countryside Act 1981 (as amended) (Schedule 5). It is an offence to:

- Deliberately capture, injure or kill an Otter;
- Intentionally or recklessly disturb an Otter in a place used for shelter or protection, or deliberately disturb Otters in such a way as to be likely significantly to affect (i) the ability of any significant group of Otters to survive, breed, rear or nurture their young, or (ii) the local distribution or abundance.
- Damage or destroy a breeding or resting place

- Intentionally or recklessly obstruct access to a place used for shelter or protection
- Possess an Otter (alive or dead), or any part of an Otter.

Work that disturbs otters is illegal without a Wildlife Development Licence issued by Natural England.

2.9. Badgers

Badgers are a protected species. In addition to The Wildlife and Countryside Act 1981, The Countryside and Rights of Way (CRoW) Act 2000 and The Conservation of Habitats and Species Regulations 2017, badgers and their setts are also covered by the provisions of the Protection of Badgers Act (1992). A sett is defined as "any structure or place which displays signs indicating current use by a badger". The legislation makes it illegal to:

- Intentionally or deliberately kill, injure or capture (or take) badgers;
- Damage a badger sett or any part of it;
- Destroy a badger sett;
- Obstruct access to, or any entrance of, a badger sett;
- Disturb a badger when it is occupying a badger sett;

Work that disturbs badgers is illegal without a Wildlife Development Licence issued by Natural England.

2.10. Breeding Birds

All wild birds (birds in a wild state resident in or visiting Great Britain) and their nests and eggs are protected under the Wildlife & Countryside Act 1981. Particular emphasis is given to the protection of breeding birds. With certain exceptions, it is an offence to:

- Kill, injure or take wild birds
- Take, damage or destroy the nest of wild birds while in use or being built
- Take or destroy the eggs of wild birds
- Disturb wild birds listed in Schedule 1 when nest building or at a nest containing eggs or young, or disturb dependent young of wild birds

2.11. Reptiles

Reptiles, including common lizards, slow worms and grass snakes, are protected under the Wildlife & Countryside Act 1981 against deliberate killing, injuring and sale (Sub-Sections 9 (1) and 9 (5)). These species are listed in Schedule 5.

2.12. Other Mammals

Mammal species not covered by the above legislation (rabbits, foxes, hares, moles etc) are protected by the Wild Mammals (Protection) Act 1996. This states; ‘any person [whom] mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering he shall be guilty of an offence.’ This is potentially relevant in the case of burrowing animals on a development site.

2.13. Invasive Non-Native Species

In the UK, it is an offence under section 14(2) of the Wildlife and Countryside act 1981 to "plant or otherwise cause to grow in the wild" any plant listed in Schedule 9, Part II to the Act. This could include cutting the plant or roots and disturbing surrounding soil if not correctly managed.

An offence under the Wildlife and Countryside Act can result in a criminal prosecution. An infringement under the Environmental Protection Act can result in enforcement action being taken by the Environment Agency (EA) which can result in an unlimited fine.

Schedule 9 – List of Invasive plant species	
Australian swamp stonecrop or New Zealand pygmyweed (*Crassula helmsii)*	Small-leaved cotoneaster (*Cotoneaster microphyllus*)
Californian red seaweed (*Pikea californica*)	Three-cornered garlic (*Allium triquetrum*)
Curly waterweed (*Lagarosiphon major*)	Variegated yellow archangel (*Lamiastrum galeobdolon subsp. argentatum*)
Duck potato (*Sagittaria latifolia*)	Virginia creeper (*Parthenocissus quinquefolia*)
Entire-leaved cotoneaster (*Cotoneaster integrifolius*)	Wakame (*Undaria pinnatifida*)
False Virginia creeper (*Parthenocissus inserta*)	Giant salvinia (*Salvinia molesta*)
Fanwort or Carolina water-shield (*Cabomba caroliniana*)	Green seafingers (*Codium fragile*)
Few-flowered garlic (*Allium paradoxum*)	Himalayan cotoneaster (*Cotoneaster simonsii*)
Floating pennywort (*Hydrocotyle ranunculoides*)	Hollyberry cotoneaster (*Cotoneaster bullatus*)
Floating water primrose (*Ludwigia peploides*)	Hooked asparagus seaweed (*Asparagopsis armata*)
Giant hogweed (*Heracleum mantegazzianum*)	Hottentot fig (*Carpobrotus edulis*)
Giant kelp (Macrocystis spp.)	Hybrid knotweed (*Fallopia japonica × Fallopia sachalinensis*)
Giant knotweed (*Fallopia sachalinensis*)	Indian (Himalayan) balsam (*Impatiens glandulifera*)
Giant rhubarb (*Gunnera tinctoria*)	Japanese knotweed (*Fallopia japonica*)
Japanese rose (*Rosa rugosa*)	Wall cotoneaster (*Cotoneaster horizontalis*)
Japanese seaweed (*Sargassum muticum*)	Water fern (*Azolla filiculoides*)
Laver seaweeds (except native species) (Porphyra spp)	Water hyacinth (*Eichhornia crassipes*)
Parrot's-feather (*Myriophyllum aquaticum*)	Water lettuce (*Pistia stratiotes*)
Perfoliate alexanders (*Smyrnium perfoliatum*)	Water primrose (*Ludwigia grandiflora*)
Pontic rhododendron (*Rhododendron ponticum*)	Water primrose (*Ludwigia uruguayensis*)

Schedule 9 – List of Invasive plant species	
Red algae (*Grateloupia luxurians*)	Waterweeds (Elodea spp.)
Rhododendron (*Rhododendron ponticum x Rhododendron maximum*)	Yellow azalea (*Rhododendron luteum*)
Purple dewplant (*Disphyma crassifolium*)	

Table 3: *Schedule 9 – List of Invasive plant species*

2.14. Natural Environment and Rural Communities (NERC) Act (2006)

Beyond the legal protection afforded to species in the UK, the Natural Environment and Rural Communities (NERC) Act (2006) states;

> *'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.'*
> NERC Act 2006 - Section 40.
>
> '*The Secretary of State must, as respects England, publish a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity.'*
>
> *'Without prejudice to section 40(1) and (2), the Secretary of State must—*
>
> > *(a) take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or*
> > *(b) promote the taking by others of such steps.'*
>
> NERC Act 2006 - Section 41

2.15. UK Biodiversity Action Plan (BAP) priority species / UK Post-2010 Biodiversity Framework

UK Biodiversity Action Plan (BAP) priority species were those that were identified as being the most threatened and requiring conservation action under the UK Biodiversity Action Plan (UK BAP). The original list of UK BAP priority species was created between 1995 and 1999. In 2007, however, a revised list was produced, following a 2-year review of UK BAP processes and priorities, which included a review of the priority species and habitats lists.

The UK BAP has now been superseded by the UK Post-2010 Biodiversity Framework. The UK Post-2010 Biodiversity Framework covers the period from 2011 to 2020, and was developed in response to two main drivers: the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020 and its five strategic goals and 20 'Aichi Biodiversity Targets', published in October 2010; and the EU Biodiversity Strategy (EUBS), released in May 2011. The UK Post-2010 Biodiversity Framework now serves to meet the statutory obligation imposed by Section 41 of the NERC Act. The UK BAP list, as revised in

2007, was incorporated into the UK Post-2010 Biodiversity Framework with only minor alterations.

The Cumbria Biodiversity Action Plan (CBAP) was designed to implement national biodiversity targets set out in the UK BAP at a local level, with an emphasis on local priorities. At its inception the CBAP included 40 species / species groups, 21 of which had dedicated action plans with a further 19 without action plans. The original CBAP list was updated in 2010 to include all UK BAP species which occur in Cumbria.

2.16. National Planning Policy Framework (NPPF) 2019

The National Planning Policy Framework (NPPF) was originally published by the Department of Communities and Local Government in 2012, consolidating over two dozen previously issued documents called Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPG) for use in England. A revised NPPF was published by the UK Government's Ministry of Housing, Communities and Local Government in 2018 and then again in 2019. The revised National Planning Policy Framework sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in 2012, and revised in 2018.

Chapter 15 of the NPPF, Conserving and Enhancing the Natural Environment, states (NB the following is a summary only, selecting points which relate to biodiversity and species only, for the full text see National Planning Policy Framework; February 2019, Ministry of Housing, Communities and Local Government ;

> *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> - *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
>
> - *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;'*
>
> Paragraph 170, Pg. 49.
>
> *To protect and enhance biodiversity and geodiversity, plans should:*
>
> - *Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
>
> - *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*
>
> Paragraph 174, Pg. 50.

When determining planning applications, local planning authorities should apply the following principles:

- *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists;*

Paragraph 175, Pg. 50.

3. Methodology

3.1. Desk Based Investigation

Natural England's MAGIC website (http://www.magic.gov.uk) was consulted for information relating to statutory designated sites adjacent to the site or within the immediate area.

A data search was commissioned from Cumbria Biodiversity Data Centre for all records of rare, scare, protected or invasive non-native species and non-statutory designated sites within a 2km radius of national grid ref. NX 99361 18434 (the approximate centre of the site).

3.2. Field Survey

A daytime inspection of the site was conducted during which all areas of the site were inspected in detail during a walk over survey. A methodology based on that outlined in the JNCC Phase 1 Habitat Survey Guidelines was employed, as per the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013), and the species / habitat codes presented therein used. Areas immediately adjacent the site were inspected from public rights of way only. Mature trees were inspected from ground level only using binoculars and an AG80 20x- 60x spotting scope as necessary. The following evidence of potential for protected species is a brief summary only.

Bats

Evidence of potential for bats includes:

- Evidence of bats (droppings, seeing bats, smelling bats)
- Older trees/woodlands for foraging and roosting;
    - Woodpecker holes
    - Gap / crevices behind bark
    - Rot holes
    - Bird / bat boxes
    - Cracks associated with damaged limbs
- Linear landscape elements e.g. hedgerows and watercourses for commuting and foraging
- Built structures e.g. buildings and bridges for summer roosting or hibernation

In relation to bats, the survey methodology conformed with that laid out in '*Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London*'. Any buildings, woodland areas and standard trees within the site were categorised (negligible, low, medium or high) for their potential to support roosting bats.

The survey area for bats comprised accessible land within 50m of the site boundary.

Amphibians

Evidence of potential for protected amphibian species includes:

- Evidence of protected amphibian species (seeing great crested newts or natterjack toads)
- Ponds or other bodies of open standing water on site or within 500m of site
- Suitable terrestrial habitat including foraging habitat and / or hibernation potential

In relation to great crested newts, the survey methodology conformed with that laid out in '*English Nature (2001) Great crested newt mitigation guidelines Version: August 2001. English Nature. ISBN 1 85716 568 3*'. All ponds onsite or within 500m of the site boundary were identified using OS maps and a Habitat Suitability Index Score was calculated using '*Oldham R.S., Keeble J., Swan M.J.S., and Jeffcote M. (2000) Evaluating the suitability of habitat for the great crested newt. Herpetological Journal 10: 143-155*'.

The survey area for amphibians comprised accessible land within 500m of the site boundary.

Otter

Evidence of potential for otters includes:

- Evidence of otters (seeing otters, spraint, footprints, feeding remains)
- Watercourses / water bodies
- Woodland or rough grassland / scrub for holts and lying up

In relation to otter, the survey methodology conformed with that laid out in '*Chanin (2003) Monitoring the Otter*' and '*Liles (2003) Conserving Otter Breeding Sites*'. Any evidence of otter, such as places of rest (holts or couches), spraint sites, prints and slides, as well as any otter sightings would be recorded.

The survey area for otters comprised accessible land within 50m of the site boundary.

Badger

Evidence of potential for badgers includes:

- Evidence of badgers (latrines, setts, footprints, fur, runs)
- Woodland for foraging and setts

In relation to badger, the survey methodology conformed with that laid out in '*Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1.*'. Any evidence of badger, such as latrines, setts, footprints, fur and runs, as well as any badger sightings would be recorded.

The survey area for badgers comprised accessible land within 50m of the site boundary.

Birds

Evidence of potential for breeding birds includes:

- Evidence of breeding birds (nests, nest building behaviour, courtship and display behaviour, distraction display, used nests or eggshells)

- Trees/woodlands for nesting
- Built structures for nesting
- Natural habitat features for nesting (watercourses, embankments, rough grassland)

In relation to breeding birds the survey methodology employed a simple 'look and see', Visual Encounter Survey technique in which the evidence identified above was recorded as encountered.

The survey area for birds comprised land within the site boundary and immediately adjacent the site boundary only.

Reptiles

Evidence for potential for reptiles includes:

- Evidence of reptiles (seeing reptiles, sloughed skin)
- Rough grassland
- South facing slopes

In relation to reptiles, the survey methodology involved a Habitat Suitability Assessment using the characteristics laid out in '*Natural England Technical Information Note TIN102 Reptile mitigation guidelines*' [WITHDRAWN].

The survey area for reptiles comprised land within the site boundary and immediately adjacent the site boundary only.

'Other Mammals'

Evidence for potential for 'other mammal' species:

- Evidence of 'other mammals' (seeing other mammals, droppings, burrows, mole hills)

In relation to 'other mammals', the survey methodology conformed with that laid out in '*The Mammal Society (2013). How to Find and Identify Mammals*'.

3.3. Timing

The survey was conducted over multiple visits between 17th February 2021 and 27th April 2021.

3.4. Weather conditions

Date	Activity	Weather conditions			
		Temp (°C)	Wind (Beaufort scale)	Cloud (%)	Precipitation
17/02/2021	Site inspection	8	0	40	None
22/03/2021	Site inspection	10	0	100	None

Date	Activity	Weather conditions			
22/04/2021	Site inspection	12	0	0	None
27/04/2021	Site inspection	11	0	20	None

Table 4: *Weather conditions.*

3.5. PERSONNEL

The site inspection was conducted by Sam Griffin BSc ACIEEM.

4. Results

4.1. Designated Sites

Internationally Designated Sites

A search for all 'land-based' designated sites on Natural England's MAGIC website (http://www.magic.gov.uk) conducted on 23/04/2021 has confirmed that no internationally designated sites exist within a 2km radius of the site boundary.

The site is not directly connected to any more distant internationally designated site, but is connected to the River Keekle via ditches and small watercourses which leave the eastern side of the site. These are all very small and appear to only flow seasonally. The River Keekle is a tributary of the River Ehen, the confluence being c.7km downstream of the site bounary. Upstream of the confluence the River Ehen is designated as the River Ehen Special Area of Conservation (SAC).

The River Ehen SAC (SAC EU Code UK0030057) consists of 'Inland water bodies (Standing water, Running water) (90%), Broad-leaved deciduous woodland (8%) and Coniferous woodland (2%)' and is designated for the following Annex II species;

- Freshwater pearl mussel (*Margaritifera margaritifera*)

'*The River Ehen supports the largest freshwater pearl mussel (Margaritifera margaritifera) population in England. Exceptionally high densities (greater than 100 m2) are found at some locations, with population estimates for the entire river exceeding 100,000. The conservation importance of the site is further enhanced by the presence of juvenile pearl mussels, indicating recruitment since 1990.*'

https://sac.jncc.gov.uk/site/UK0030057

The following Annex II species are also listed as 'present as a qualifying feature, but not a primary reason for site selection';

- Atlantic salmon - *Salmo salar*

The site is not directly connected to the River Ehen SAC but as the River Ehen SAC is designated for freshwater pearl mussels and Atlantic salmon, and as migratory fish generally provide a host for freshwater pearl mussel glochidia and are therefore critical to the lifecycle of the species, it is conceivable that impacts to water quality as a result of the proposed works could affect the ability of migratory fish to access the River Ehen and thereby impact upon the qualifying features of the River Ehen SAC.

It must also be recognised that the current situation at the golf course - i.e. close mown amenity grassland on compacted clay soils and subsoils, with very poor drainage - leads to significant surface run-off entering tributaries of the River Keekle. The proposed importation of top-soils is, in part, designed to address this issue and will, alongside the planting scheme, ameliorate the risk of surface run-off. Ultimately the site will represent a more natural situation which will have benefits for aquatic habitats downstream of the site and this could in turn represent *positive* impacts to the River Ehen SAC.

The River Ehen SAC lies 4.5km to the south east 'as the crow flies'; but is c.7km downstream of the site boundary. The site is not directly connected to the SAC as the

SAC designation is upstream of the confluence. Despite this, as the River Ehen SAC is designated for mobile species which must use the river downstream of the confluence, potential impacts must be considered. The proposed works present potential for both positive and negative impacts.

Domestically Designated Sites

A search for all 'land-based' designated sites on Natural England's MAGIC website (http://www.magic.gov.uk) conducted on 23/04/2021 has confirmed that no domestically designated sites exist within a 2km radius of the site boundary.

The site is not directly connected to any more distant domestically designated site, but is connected to the River Keekle via ditches and small watercourses which leave the eastern side of the site. These are all very small and appear to only flow seasonally. The River Keekle is a tributary of the River Ehen, the confluence being c.7km downstream of the site bounary. Upstream of the confluence the River Ehen is designated as the River Ehen (Ennerdale Water to Keekle Confluence) Site of Special Scientific Interest (SSSI).

River Ehen (Ennerdale Water to Keekle Confluence) SSSI is notified as '*an oligotrophic, or nutrient-poor, river flowing over bryophyte-dominated substrates of shingle, pebbles and rock*' and '*supports outstanding populations of the freshwater mussel Margaritifera margaritifera*.' (https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000147.pdf).

As above it must also be recognised that ultimately the proposed works will address drainage issues which will have benefits for aquatic habitats downstream of the site and this could in turn represent positive impacts to the River Ehen (Ennerdale Water to Keekle Confluence) SSSI.

The River Ehen (Ennerdale Water to Keekle Confluence) SSSI lies 4.5km to the south east 'as the crow flies'; but is c.7km downstream of the site boundary. The site is not directly connected to the SSSI as the SSSI designation is upstream of the confluence. Despite this, as the River Ehen SSSI is designated for mobile species which must use the river downstream of the confluence, potential impacts must be considered. The proposed works present potential for both positive and negative impacts.

Locally Designated Sites

A detailed data search for all locally designated sites was commissioned from Cumbria Biodiversity Data Centre (CBDC) for all Locally Designated Sites within a 2km radius of Nat. Grid Ref. NX 99361 18434 (the approximate centre of the site). This revealed that the site contains a single County Wildlife Site and a further two County Wildlife Sites exist within 2km of the site, along with four Sites of Invertebrate Significance and two Local Geological Sites. These are as follows;

- **Hope Mission Pond County Wildlife Site (ON SITE)**
- Bonnywood County Wildlife Site (approximately 1km to the north east)
- Castle Park Wood County Wildlife Site (approximately 1.5km to the south west)
- Midgey Gill county Wildlife Site (approximately 1.5km to the south west)
- Priestgill Wood Site of Invertebrate Significance (approximately 10m to the east)
- Keekle, River Site of Invertebrate Significance (approximately 1km to the west)
- Weddicar Hall Site of Invertebrate Significance (approximately 1.2km to the south east)

- Moresby Site of Invertebrate Significance (approximately 1.5km to the north east)
- Lamb Hill Local Geological Site (approximately 1.9km to the north west)
- Bransty Quarries & Parton Cliffs Local Geological Site (approximately 1.95km to the west)

Hope Mission Pond County Wildlife Site (Site Ref. CO-NX91-09) measures 1.3ha and was apparently last surveyed in 1999, at a time when the pond existed on the site of a '*proposed* golf course'. The site was selected under County Wildlife Site criteria H6.1.2: Waterbodies with characteristic emergent vegetation, but supports a variety of habitats including '*grassy banks, wet woodland, woodland and scrub, emergent vegetation, swamp and open water*'. The site description presented on the site citation document, despite being >20 years old, is still broadly accurate and lists a range of plant species which are still found on the site.

Hope Mission Pond County Wildlife Site is within the Golf Course site, but is without the proposed works area. No works will occur within the CWS boundary but works will be conducted adjacent the site boundary. Works proposed during Phase 1 (programmed to occur in 2021) will occur directly adjacent the southern boundary. This presents a risk that habitats within the CWS may be affected.

Hope Mission Pond County Wildlife Site exists on the Golf Course and is immediately adjacent Phase 1 (See Figures 4, 5, 6 & 7). Due to the proximity of the proposed works there is a risk that Hope Mission Pond CWS could be affected by the proposed works.

Priestgill Woods Site of Invertebrate Significance lies directly adjacent to the site to the east of Moresby Road. The small, unnamed watercourse which flows from the golf course flows through Priestgill Wood. No details of the reasons for this site being identified as a Site of Invertebrate Significance are available, but it is likely that water quality within the un-named watercourse contributes to the value of this site. There is potential for water quality within the un-named water course to be affected (both positively and negatively) by the proposed works and therefore it is possible that impacts to the interest features of Priestgill Woods Site of Invertebrate significance could occur.

All remaining Locally Designated Sites are remote and disconnected from the site and no impacts are anticipated.

4.2. Site Description

Whitehaven Golf Course lies on the outskirts of Whitehaven, adjacent to Scilly Bank, in west Cumbria. The golf course is c.1.6km to the east of Whitehaven town centre.

The document 'WHITEHAVEN GOLF COURSE: PROPOSED AMENDMENTS TO COURSE CONFIGURATION TO INCREASE PLAYABILITY AND DRAINAGE WITH ADDITIONAL AND RE-ESTABLISHED PLANTING AREAS (Jan. 2021)' produced by MJN Associates presents the following background to the site;

> '*Whitehaven golf course is owned and run by Western Lakes Ltd. The owners are a local company, and they bought the site from Copeland Borough Council in 2003; prior to that the course was tenanted and run by a PGA professional. The course occupies an area of around 83ha on the northern fringe of Whitehaven.*

The course was developed in the early 1990's following on from an Opencast Coal mining operation (apart from 6 acres in the south west corner of the site; current holes 3 and 4). Reinstatement of the opencast site was agreed to be a golf course.

Handover of the course was proposed in 1995 although the Council did not accept the course as complete or playable. Following litigation, the Council took over the course in the late 1990's and the tenancy mentioned above was commenced.'

And goes on to describe the issues which the proposed works are designed to address;

'The site has some intrinsic issues in relation to its physical condition as opposed to its design and this has a critical influence on playability and thus economic viability. Following opencast activity there was very little topsoil returned to site. This means that most if not all fairways are on essentially subsoil with a very high clay content. This has led to the presence of impeded drainage on most fairways which means that in times of high rainfall and during the period October to March the course is unplayable due to ponding and plugging of balls.

To add to this much of the wooded areas on site which were planted following opencast operations were inserted via a "ridge and furrow" (sometimes known as rig and furrow) method meaning they are impenetrable by players trying to find balls and are unable to be accessed by machinery for maintenance purposes. These areas also suffer impeded drainage and in most areas such planting has not grown well, comprising stunted growth and a tangled understory.

The restrictions on play caused by drainage issues and impenetrable planted areas have affected membership and restricts serious play to summer months. Even that can be interrupted by periods of heavy rainfall.'

A review of historic maps and aerial photography has shown that the site comprised enclosed agricultural land in 1865 (earliest available OS Plan). At this time the site was subdivided in to a number of fields and contained a single residential property (Moor House) and a number of 'Old Coal Shafts' and 'Air Shafts' as well as what appears to be an active coal shaft known as 'North Pit'. The first significant changes on site identified by old OS maps is in 1899, when the pond now known as Hope Mission Pond first appears along with a belt of woodland marked as 'Roundclose Wood / Bearmouth Wood' dissects the site in a north west - south east alignment. This woodland follows the 'Whitehaven Parliamentary and Municipal Borough Boundary' (as was). OS maps from throughout the early 1900s show very little change on site. The 1979 OS map shows extensive open cast coal mining within Weddicar parish to the east but shows field boundaries across the golf course site. Areal photography from 1985 - although very low resolution - clearly shows that by this time the golf course site had been almost entirely excavated as part of the opencast mining operation. The next available aerial photograph was taken in 2003 and shows that the site has been (superficially) remediated and is laid out as a golf course, similar to that which exists today albeit with more extensive 'rough' areas and less infrastructure.

4.3. Habitat Description

The site now lies within Cumbria Landscape Character Assessment Type 5: Lowland; Sub Type 5d: Urban Fringe (as defined by the 'Cumbria Landscape Character Guidance and Toolkit PART ONE Landscape Character Guidance, Cumbria County Council 2011). This landscape type includes extensive areas of lowland agricultural pasture and agricultural land

influenced by urban fringe development. The key characteristics of 'Sub Type 5d: Urban Fringe' are as follows;

- Long term urban influences on agricultural land
- Recreation, large scale buildings and industrial estates are common
- Mining and opencast coal workings are found around Keekle and Moor Row
- Wooded valleys, restored woodland and some semi-urbanised woodland provide interest

Urban Fringe is '*largely an urban influenced landscape with mainly species-poor hedgerows and occasional small areas of woodland. There are isolated areas of coastal grazing marsh around Carlisle and hay meadows in West Cumbria. In addition to this, derelict former industrial or other previously developed sites have the potential to support a range of habitats and species which may have colonised the site since the previous uses ended.*'

Cumbria Landscape Character Guidance and Toolkit PART ONE Landscape Character Guidance, Cumbria County Council 2011, Pg. 79.

The Golf Course site measures c.76ha and lies between Moresby Park Road and Red Lonning. The site consists of;

- Mixed semi-natural woodland,
- Broadleaved semi-natural woodland,
- Broadleaved and Mixed plantation woodland,
- Scrub,
- Amenity grassland,
- Tall Ruderal,
- Bare ground,
- Standing water,

The vast majority of the site by area is amenity grassland. Away from the fairways, where the management regime is seemingly less intensive, the species present suggest semi-improved neutral grassland, but the vast majority of grassland areas on site are routinely mown. The fairways contain perennial rye (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), annual meadow grass (*Poa annua*) and sweet vernal grass (*Anthoxanthum odoratum*) with daisy (*Bellis perennis*), creeping buttercup (*Ranunculus repens*) and dandelion (Taraxacum officinale sp. agg.) and is improved grassland however the regular mowing regime makes identification of grass species particularly difficult. The putting greens have been seeded with an *Agrostis capillaris* cultivar and are maintained in a very closely mown state.

Amenity grassland away from the fairways is notably more species rich and contains a higher proportion of herbs. All amenity grassland areas are managed in broadly the same manner - being routinely close mown - but the species composition of areas of 'rough' suggest neutral grassland. In addition to the species listed above as occurring within the fairways, the 'rough' areas also contain meadow foxtail (*Alopecurus pratensis*), red fescue (*Festuca rubra*), sheep fescue (*F. ovina*), springy turf moss (*Rhytidiadelphus squarrosus*), soft rush (*Juncus effusus*), ribwort plantain (*Plantago lanceolata*), cuckoo flower (*Cardamine pratensis*), white clover (*Trifolium repens*), meadow buttercup (*Ranunculus acris*), yarrow (*Achillea millefolium*), common sorrel (*Rumex acetosa*), colts foot (*Tussilago farfara*) and ragwort (*Jacobaea vulgaris*). In lower lying areas, around some of the ponds and in areas with impeded drainage, stands of Juncus rushes exist. These areas contain *J. effusus* with some *J. inflexus* and *J. conglomeratus*. Where grasslands are not routinely mown - which on the golf

course site is broadly limited to areas beneath recently planted trees - a more substantial structure has developed. These areas, often on the peripheries of the site and in areas adjacent woodland, contain cocksfoot (*Dactylis glomerata*) and tufted hair grass (*Deschampsia cespitosa*).

The woodland areas on site are predominantly immature, having been planted in c.1990's, but they are also rather stunted, partly as a result of the substrate and planting method (See Section 4.2 - above) but also as a result of planting density. The lack of any significant top soil has resulted in very shallow root systems and a large proportion of immature trees have been wind blown. In places, particularly the discontinuous blocks at the northern end of the site, the close planting has resulted in a very shaded interior with very little vegetation growth on the woodland floor. The rather sparse understory within the interior is contrasted by the dense understory around the peripheries of these blocks of immature woodland which are generally dense bramble, with a stark interface between mown 'rough' or fairway and the woodland blocks.

Some discreet areas of more mature, broadleaved and mixed woodland exist at the northern and southern ends of the golf course. These appear to be remnants of 'Roundclose Wood / Bearmouth Wood' which were marked on historic OS maps until 1979. Woodland around Hope Mission Pond at the northern end of the site contains alder (*Alnus glutinosa*), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), grey willow (*Salix cinerea*), sycamore (*Acer pseudoplatanus*) and Scots pine (*Pinus sylvestris*).

Mature, mixed semi-natural woodland at the southern end of the site exists around the driving range and associated buildings. This appears to pre-date the opencast workings and contains planted non-native species such as Sitka spruce (*Picea sitchensis*) and Rhododendron (*Rhododendron ponticum*) along with the following native species; Scots pine, sycamore, hawthorn, alder, holly (*Ilex aquifolium*), beech, hazel (*Corylus avellana*), rowan (*Sorbus aucuparia*) and ash. This woodland is mature and has - without the stands of Rhododendron which shade out all growth - a natural understory consisting of self seeded broadleaved tree species (although this natural regeneration is limited to an extent by roe deer which are abundant in this area and browsing damage to saplings is common) with bramble (Rubus fruticosus agg), raspberry (*Rubus idaeus*), and some honeysuckle (*Lonicera periclymenum*). The ground flora consists of tufted hair grass (*Deschampsia cespitosa*), lady fern (*Athyrium filix-femina*), broad buckler fern (*Dryopteris dilatata*), red campion (*Silene dioica*), herb Robert (*Geranium robertianum*), wood sorrel (*Oxalis acetosella*) and common dog violet (*Viola riviniana*) with soft rush and Angelica (*Angelica sylvestris*) growing in glades created by wind blown trees. Wind blown and standing dead trees are abundant in the mature woodland around the driving range. Many of the standing dead trees, and a number of live trees, contain woodpecker holes and other features which offer potential for bats to roost. They also provide a habitat for a range of fungi and invertebrate species which rely on deadwood.

Small areas of scrub and tall ruderal habitat exist particularly along the western and southern boundary of the site and in-and-around the grounds maintenance compounds and working areas.

Bare ground occurs on site on access tracks and in an area to the north of the club house where some ad hoc remedial works are taking place using imported material under an Environment Agency disposal licence.

Standing water occurs as a series of ponds on site. These are all manmade, however the pond known as Hope Mission Pond has been marked on OS plans since 1899. All other ponds which currently exist appear to have been created during the remediation of the site following opencast mining. In total twelve separate ponds exist, some of these are connected via ditches / drains, whilst others appear to be entirely unconnected.

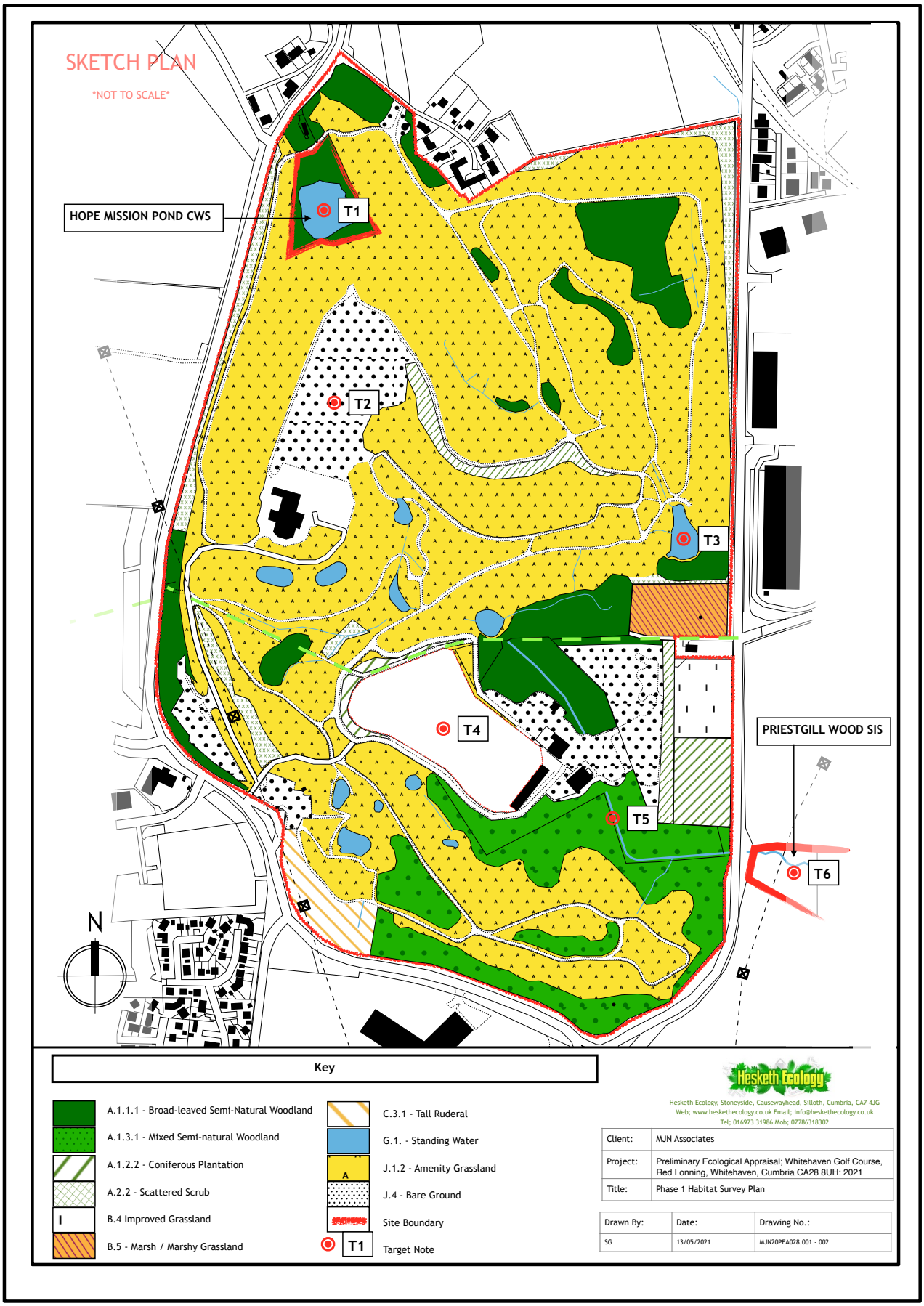


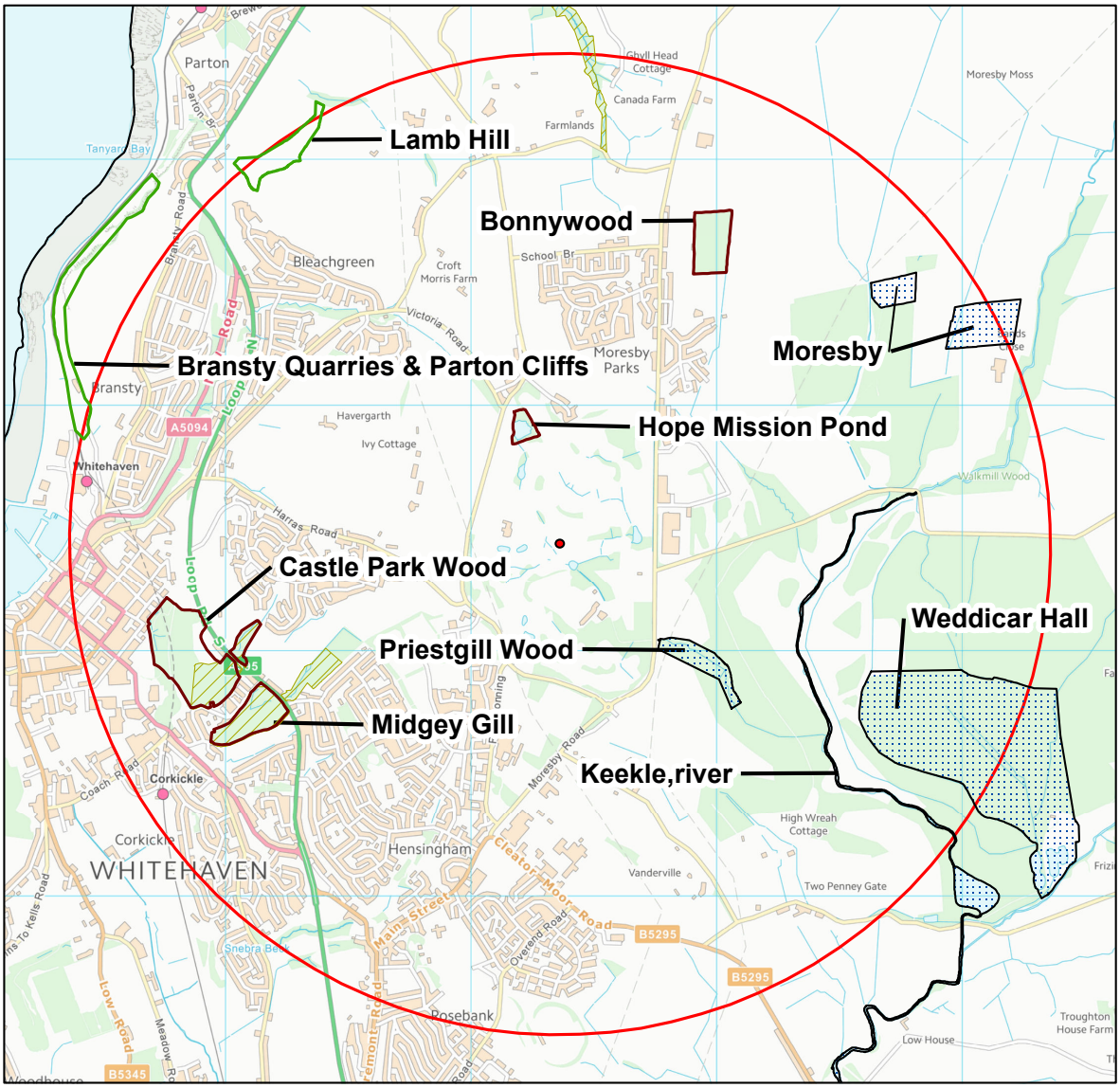
Figure 6: *Phase 1 Habitat survey Plan.*

Cumbria Biodiversity Data Centre (CBDC): Non-Statutory Sites Search

For: Sam Griffin at Hesketh Ecology

Site Name: Whitehaven Golf Club
Centroid: NX 99361 18434
Buffer: 2km
Search Date: 08/02/2021

N.B. Sites are displayed only if they exist within the search area



Key

0 250 500 1,000 m

N

- County Wildlife Sites
- Local Geological Sites
- Site of Invertebrate Significance
- Ancient Woodland

Any queries in the first instance contact:
Dr Moustafa Eweda
Biological Data Officer
Cumbria Biodiversity Data Centre (CBDC)

T. 01228 618770
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Tullie House Museum and Art Gallery Trust

Figure 7: *Cumbria Biodiversity Data Centre (CBDC): Non-Statutory Sites Search for Whitehaven Golf Club.*

4.4. Legally Protected Species

A data search was commissioned from Cumbria Biodiversity Data Centre for all records of rare, scare, protected or invasive non-native species within a 2km radius of nat. grid. ref. NX 99361 18434 (the approximate centre of the site). The search was conducted on 08/02/2021. This detailed biological records search returned a total of 3371 records of 222 rare, scarce and protected species.

Taxon Group	Number of historic records	Number of species
Fungus	0	0
Lichen	0	0
Moss	1	1
Conifer	3	1
Flowering Plant	11	8
Mollusc	1	1
Crusacean	0	0
Spider	0	0
Insect	463	61
Jawless Fish	0	0
Bony Fish	1	1
Amphibian	33	4
Reptile	42	4
Bird	2489	120
Marine Mammal	3	2
Terrestrial Mammal (including unidentified bat species)	324	19
TOTAL	3371	222

Table 6: *Summary of detailed biological records search from Cumbria Biodiversity Data Centre.*

With 3371 individual historic records of 222 species; species of all taxon groups are well recorded in this search area. However, historic biological records are of use in identifying potential presence of a species in an area, but should never be taken to imply likely absence. A lack of records is more likely to suggest lack of recorder effort than likely absence. This be-

ing the case, each species / species group is considered individually in relation to the site and the features of the site which may offer potential for the species / species group.

4.5. BATS

Records obtained from Cumbria Biodiversity Data Centre include 13 historic records of bat species from within 2km of the site. A total of 5 positively identified species have been previously recorded, these are soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), Natterer's bat (*Myotis nattereri*), Daubenton's bat (*Myotis daubentonii)* and brown long-eared bats (*Plecotus auritus*) . Records of 'bats' (i.e. bat species not identified to genus or species level) also exist.

Of the 13 historic records; 11 relate to bat roosts and of these, 3 explicitly relate to maternity roosts. By accounting for multiple records of the same roost location - 5 separate roost sites have been identified in the search area of which 3 are recorded as maternity roosts.

All records of bats within the search area come from >1.2km from the site. No records of bats - roosts or individuals - have been identified for the golf course site itself. This is certain to be a result of recorder effort rather than indicating an actual absence of bats from the site.

Although built structures do exist on the site - the Club House, Driving Range and grounds maintenance buildings - none of these will be affected by the proposed works. Earthworks are proposed in close proximity to the buildings, but this will not physically affect the structures.

Large mature trees exist on site, these are exclusively within areas of mature woodland. The proposed works will not affect areas of mature woodland and therefore no large or mature trees will be affected. Some very small areas of immature woodland will be cut back to allow for the grading of imported topsoil, these are primarily self-seeded Salix sp. trees adjacent to planted blocks of woodland and at the time of the site inspection were not found to offer any features likely to be used by roosting bats. However, the proposed scheme is phased over a period of 15 years. This is sufficient time for trees which are currently immature, and offer 'nil' / 'negligible' bat roost potential, to grow and develop Potential Roost Features (PRF's). Further assessment is therefore likely to be necessary throughout the programmed works to ensure no features likely to be used by bats have developed.

Bats are certain to use the site for foraging purposes, but this is currently likely to be limited to the areas around the existing woodland blocks as the majority of the site is close mown amenity grassland and therefore contains no features likely to be attractive to bats. The proposed works will involve the temporary disturbance of areas likely to be used by foraging bats, but as the works are phased any disturbance will be constrained to distinct areas of the site and individual bats are likely to be able to adapt to this.

Ultimately the planned works involve a significant increase in woodland planting. This is planned to occur in discreet blocks across the site and consequently will significantly increase the amount of woodland edge habitat and will create additional foraging and commuting routes through the golf course and eventually, as planted trees mature, will inevitably lead to Potential Roost Features developing in trees. The planting will occur after the importation of topsoil and will therefore occur annually for the next 15 years (up to 2036).

As the proposed works do not affect any feature which could offer bat roost potential, *currently* the risk of bat roosts being affected is considered to be 'nil'. However as works are programmed to occur every year for the next 15 years, there is a risk that bat roost features could develop during this time.

The site is likely to be used by foraging and/or commuting bats, but this is likely to be limited to the existing woodland edge habitats primarily around the peripheries of the site. The proposed works are programmed to occur over 15 years with only small areas affected during any one year and therefore bats are likely to be able to adapt to this low level disturbance.

4.6. AMPHIBIANS

Records obtained from Cumbria Biodiversity Data Centre include 33 historic records of amphibians from within 2km of the site. These historic records include common toad (*Bufo bufo*), common frog (*Rana temporaria*), palmate newt (*Lissotriton helveticus*) and smooth newt (*Lissotriton vulgaris*) within the search area. No records of great crested newt presence within 2km of the site have been identified via the CBDC data search but records of common toad and common frog on the golf course site have been returned.

A review of data contained on Natural England's MAGIC website (http://www.magic.gov.uk) conducted on 27/04/2021 has identified no 'Great Crested Newt Class Licence Returns' nor any 'Great Crested Newt Pond Surveys 2017-2019' which confirm presence within 2km of the site. The closest great crested newt pond survey results which are available via MAGIC are 2.6km to the north east and this suggested GCN *absence* from the pond surveyed.

The Association of Local Government Ecologists (ALGE) trigger list for when protected species surveys may be required suggests that any pond within 500m of a major proposal (one that is more than 10 dwellings or more than 0.5 hectares) or within 100m of a minor proposal (fewer than 10 dwellings or less than 0.5 hectares) may require full survey work for great crested newts unless a barrier to dispersal exists. The site here considered must be considered as a 'major' proposal meaning that ponds within 500m of the proposed works should be identified and potentially surveyed for great crested newts if deemed to be suitable for this species.

The golf course site contains 12 separate ponds. Some of these are connected via ditches and drains. No historic dedicated survey data for these ponds has been identified. None of the proposed works directly affect any of the ponds which currently exist and therefore there is unlikely to be any direct impacts to potential breeding ponds. However, every phase of the works will affect terrestrial habitat within close proximity to existing ponds and therefore there is a risk that great crested newts could be affected *if present.*

Water samples were collected for eDNA analysis on 9th June 2021 from all 12 ponds, however the samples collected from ponds which are obviously and directly connected via wet ditches / culverts were combined into a single sample (See Figure 8 - below). The samples were analysed by SureScreen Scientifics Division Ltd. using their standard service. All the eDNA tests returned a 'negative' result, meaning that no evidence of great crested newts was discovered in water samples taken from the pond. This is considered to be conclusive as no constraints to the survey were experienced and the methodology for collecting and submitting samples to the registered laboratory were strictly followed.

Lab Sample No.	Site Name	Co-ordinates	SIC	DC	IC	Result	Positive Replicates
5948	Pond 1	NX 99197 18892	Pass	Pass	Pass	Negative	0
5944	Pond 2	NX 99677 18464	Pass	Pass	Pass	Negative	0
5946	Pond 3	NX 99133 18417	Pass	Pass	Pass	Negative	0
5945	Pond 4	NX 99203 18412	Pass	Pass	Pass	Negative	0
5947	Pond 5	NX 99216 18122	Pass	Pass	Pass	Negative	0
5941	Pond 6	NX 99316 18136	Pass	Pass	Pass	Negative	0
5943	Pond 7	NX 99270 18110	Pass	Pass	Pass	Negative	0
5942	Pond 8	NX 99235 18054	Pass	Pass	Pass	Negative	0
5940	Pond 9	NX 99368 18057	Pass	Pass	Pass	Negative	0

Table 7: *eDNA Technical Report Results Summary for ponds on the Whitehaven Golf course site.*

Great crested newts have been confirmed as 'absent' from the pond via an eDNA test. The risk of great crested newts being affected by the proposed works is therefore 'nil'.

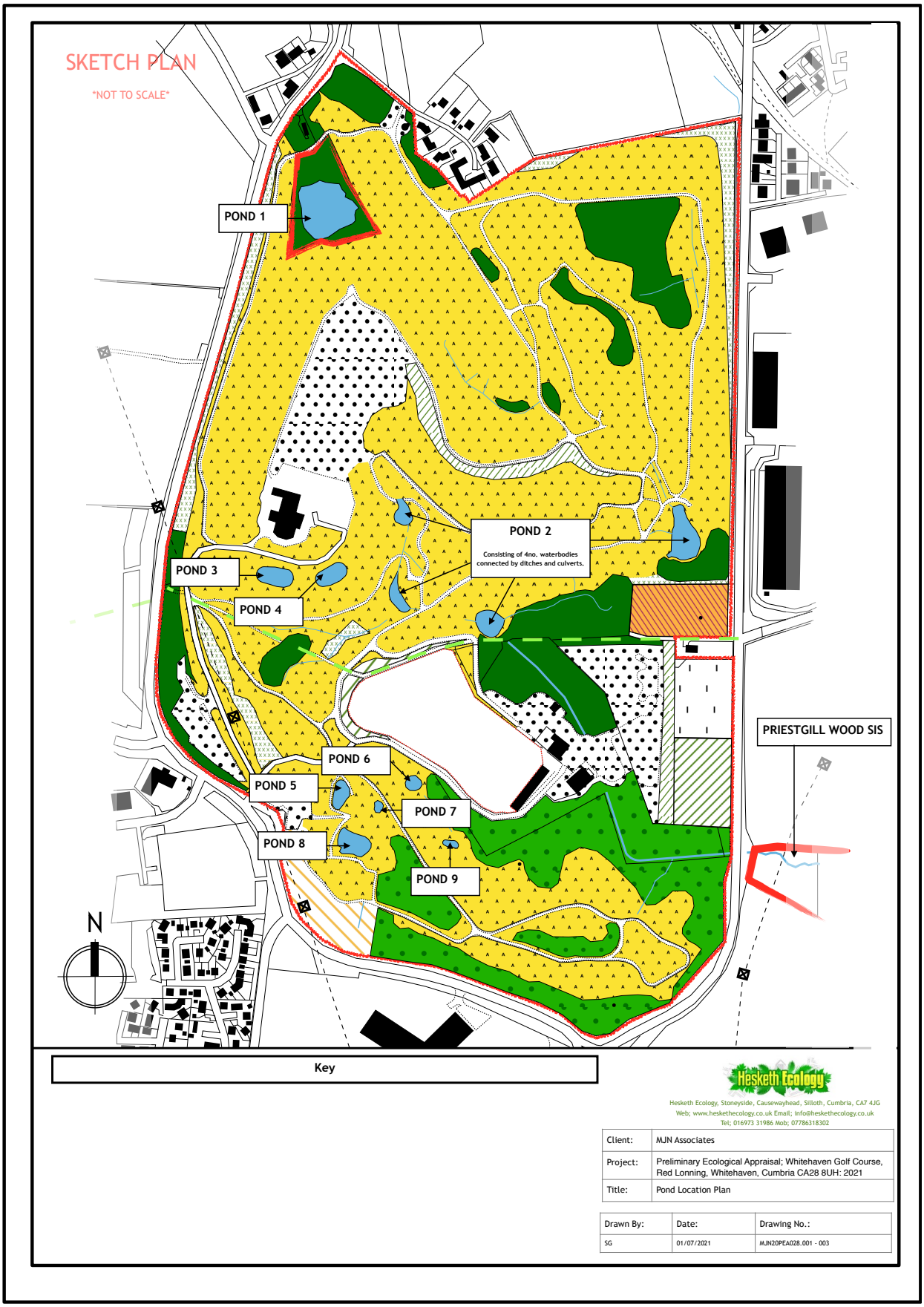

Figure 8: *Pond Location Plan.*

4.7. OTTERS

Records obtained from Cumbria Biodiversity Data Centre include 5 historic record of otter (*Lutra lutra*) within 2km of the site. These records relate to 'dung or other signs' and 'field records' with no historic records of otter holts within the search area. Historic records have been collected between 2004 and 2018 and come primarily from the River Keekle and Whitehaven Harbour / Marina.

Otter are now widespread in Cumbria and are likely to at least occasionally use *any* watercourse. The River Keekle lies approximately 0.6km to the east and is connected to the site via small, unnamed watercourses and ditches. The Site itself contains a total of 12 ponds with a network of drains and ditches. Furthermore, areas of woodland exist which may offer some potential for otter to lie-up. As no large watercourses exist on site or immediately adjacent to the site, it is considered unlikely that the site provides sufficient suitable habitat for otter to routinely occur however individual otter may occasionally access the site.

No evidence of otters having been present on the site was discovered during the site inspection.

The proposed works will not directly impact upon ponds or other waterbodies and will not affect any areas of mature woodland. It is therefore highly unlikely that any otter holts or couches will be affected. The proposed works could conceivably result in surface run-off entering watercourses and being transported downstream and thereby affect otters using water courses downstream of the site, but this is considered to be a very low risk.

The risk of otter holts or couches being affected by the proposed works is considered to be 'nil'. Individual otter may occasionally occur on site and there is some potential for surface run-off to enter watercourses and be transported downstream and therefore there is a 'negligible' risk that individual otter could be harmed during works.

4.8. BADGERS

Records obtained from Cumbria Biodiversity Data Centre include 2 historic records of badger (*Meles meles*) within 2km of the site. These records relate to 'field records' only and were collected 1.5km and 1.7km from the site boundary.

The site itself - being an operational golf course consisting primarily of amenity grassland - is broadly unsuitable for badger setts but areas of mature woodland at the northern and souther end of the site does offer some potential. The amenity grassland could be used by foraging badger, but considering the nature of the substrate (i.e. heavily compacted subsoil and clay) the land is unlikely to offer particularly suitable foraging habitat.

No evidence of badgers having been present on the site was discovered during the site inspection.

The proposed works seek to improve the amenity grassland areas via the importation of top soil and complete a programme of tree and scrub planting. This will ultimately make the site more suitable for badgers.

The risk of badger setts being affected by the proposed works is considered to be 'nil'. It is currently unlikely that individual badger would forage on the site and there-

fore there is no more than a 'negligible' risk that individual otter could be harmed during works.

4.9. Reptiles

Records obtained from Cumbria Biodiversity Data Centre include 42 historic records of reptiles from within 2km of the site. The species previously recorded within the search area are common lizard (*Zootoca vivipara*), slow worm (*Anguise fragilis*), adder (*Vipera berus*) and grass snake (*Natrix helvetica*). The vast majority of these records were collected by the author of this report on Land adjacent Corkickle Station, Whitehaven, during dedicated reptile surveys conducted in 2013 and 2014. These surveys confirmed that populations of both common lizard and slow worm exist on the Corkickle Station site (c.2km from the golf course).

The following list gives characters that influence reptile habitat suitability;

- Location in relation to species range
- Vegetation structure
- Isolation
- Aspect
- Topography
- Surface geology
- Connectivity to nearby good quality habitat
- Prey abundance
- Refuge opportunity
- Hibernation habitat potential
- Disturbance regime

The site primarily consists of amenity grassland. This amenity grassland is routinely mown right up to the edge of the existing blocks of planted woodland with very little graduated interface between open habitats and dense woodland. Small areas of Ephemeral / Short perennial habitat and bare ground, which could theoretically offer some potential for reptile species, do exist but these are fragmentary and very poorly connected, meaning that potentially suitable habitat exists in very small islands within an otherwise unsuitable expanse of mown amenity grassland. As the site was created from bare ground - following opencast mining activities - it is unlikely that any reptiles which may have occupied the site prior to the creation of the golf course have persisted.

The proposed work primarily affects areas of mown amenity grassland. This habitat is broadly unsuitable for reptiles, but reptiles will occur IF adjacent habitat which is of high suitability. As no highly suitable reptile habitat exists on the site, it is concluded that reptile species are unlikely to occur.

The risk of reptiles being affected by the proposed works is considered to be 'nil'.

4.10. Breeding Birds

Records obtained from Cumbria Biodiversity Data Centre include 2489 records of birds relating to 120 species occurring within 2km of the site. The majority of species recorded are identified as either possible, probable or confirmed as breeding. The precise location of bird records, specifically nest sites, is rarely provided in historic data.

The majority of the site is amenity grassland and is routinely cut and therefore offers very no potential for breeding birds. The blocks of woodland (all types), ponds, scrub and ephemeral / short perennial habitats all offer potential for breeding birds.

Where the proposed work involves the cutting back / clearance of self-seeded trees, scrub and ephemeral / short perennial habitat there is potential for the work to impact upon breeding birds. This would only be a risk where vegetation is cleared during the breeding season (March - September inclusive).

The proposed works ultimately seek to complete a programme of tree and scrub planting. This will substantially increase the amount of suitable nesting habitat. As this planting will occur over a period of 15 years, and as no wholesale felling nor extensive woodland management of the existing woodland blocks is proposed, the new woodland planting will form part of mosaic of woodland across the site which varies in age and structure and thereby offers a range of potential nesting habitats suitable for a wide range of bird species.

All wild birds (birds in a wild state resident in or visiting Great Britain) and their nests and eggs are protected under the Wildlife & Countryside Act 1981. Particular emphasis is given to the protection of breeding birds. With certain exceptions, it is an offence to:

- Kill, injure or take wild birds
- Take, damage or destroy the nest of wild birds while in use or being built
- Take or destroy the eggs of wild birds

Although habitats on site do have potential for breeding birds, these areas will be broadly unaffected by the proposed works and therefore the risk to breeding birds is currently considered to be 'low'. Ultimately the scheme will provide additional nesting habitat for a range of bird species.

4.11. Red Squirrels

Records obtained from Cumbria Biodiversity Data Centre included 165 records of red squirrels (*Sciurus vulgaris*) and 23 records of grey squirrels (*Sciurus carolinensis*) within 2km of the site. Red squirrels have been recorded between 1990 - 2016; grey squirrels have been recorded between 2006 and 2015. Both red and grey squirrels are routinely recorded within suitable habitat throughout the area. Red squirrels have been previously recorded crossing both Red Lonning and Moresby Park Road adjacent the golf course boundary.

The Site contains areas of woodland which are suitable for both red and grey squirrels. The mature woodlands at the north and south of the site are suitable for squirrels, immature woodland blocks elsewhere on site are less suitable.

The proposed works primarily affect areas of mown amenity grassland which offer no potential for squirrels. Where the proposed work involves the cutting back / clearance of self-seeded trees there is only very limited potential for the work to impact upon squirrels.

The proposed works ultimately seek to complete a programme of tree and scrub planting. This will ultimately substantially increase the area of suitable habitat.

No squirrel dens or dreys were observed during the site inspection. Very old, stripped pine cones were discovered in the mature woodland to the south east of the driving range. These were typical of squirrels, but the species could not be confirmed.

The risk of red squirrels being affected by the proposed works is considered to be 'negligible'.

4.12. Other Mammals

Records obtained from Cumbria Biodiversity Data Centre include records of hedgehog (*Erinaceus europaeus*), water shrew (*Neomys fodiens*), common shrew (*Sorex araneus*) , pygmy shrew (*Sorex minutes*), stoat (*Mustela erminea*), weasel (*Mustela nivalis*), roe deer (*Capreolus capreolus*) and rabbit (*Oryctolagus cuniculus*) from within 2km of the site.

During the survey rabbits, brown hare, roe deer and moles were confirmed as occurring on site but other small mammal species are certain to occur also. The proposed works primarily affect mown amenity grassland - and operational golf course - and therefore small mammals of any species are unlikely to be affected in these areas.

'Other mammals', including burrow dwelling species may occur on site. There is only a 'negligible' risk that 'other mammals' will be affected by the proposed works.

4.13. Invasive Non-Native Species

Records obtained from Cumbria Biodiversity Data Centre include historic records of four Schedule 9 - Invasive Plant Species occurring within 2km of the site. These are Himalayan balsam (*Impatiens glandulifera*), Japanese knotweed (*Fallopia japonica*), Canadian waterweed (Elodea canadensis) and Rhododendron (*Rhododendron ponticum*); of which Himalayan balsam, Japanese knotweed and Canadian waterweed have been previously recorded on the golf course site.

During the survey Canadian waterweed was identified in Hope Mission Pond and Rhododendron was recorded throughout the remnants of Bearmouth Wood which surrounds the driving range buildings. A small stand of Japanese knotweed was identified to the north west of Hope Mission Pond.

Notwithstanding the seasonal constraints of the survey, the risk of invasive non-native species currently growing on site being spread within or beyond the site boundary is currently considered to be 'low'. The generic risk of invasive non-native species being introduced to the site and then spread within or beyond the site boundary is considered to be 'low'.

5. Photographs

Figure 8: *Showing Hope Mission Pond CWS, surrounded by close mown amenity grassland (17/02/2021).*

Figure 9: *Showing mixed plantation woodland / mown amenity grassland interface (17/02/2021)*

Figure 10: *Showing broadly similar management regimes on 'rough' (foreground) and fairway (beyond). All grassland habitats on site are routinely close mown (22/03/2021).*

Figure 11: *Showing ridge and furrow planting within dense plantation woodland blocks (22/03/2021).*

Figure 12: *Showing example of windblown trees within ridge and furrow planted woodland blocks (22/03/2021).*

Figure 13: *Showing examples of ponds and ditches (standing water habitats) on site (17/02/2021 & 22/03/2021).*

Figure 14: *Showing example of recently planted coniferous trees with un-mown Juncus grassland beneath (22/03/2021).*

Figure 15: *Showing example of tall ruderal habitat (22/03/2021).*

Figure 16: *Showing mature mixed semi-natural woodland and unnamed water-course to which existing drains and waterbodies discharge. This watercourse Sid a tributary of the River Keekle (22/03/2021).*

Figure 17: *Showing 'bare ground' to the rear of the driving range (22/03/2021).*

Figure 18: *Showing 'bare ground' adjacent the site entrance (27/04/2021).*

Figure 19: *Showing typical amenity grassland habitat on site (22/04/2021).*

Figure 20: *Showing typical amenity grassland habitat on site (22/04/2021).*

Figure 21: *Showing scattered scrub habitat on the western side of the site (17/02/2021).*

6. Impact Assessment

6.1. Summary of Predicted Impacts

This survey has identified potential ecological impacts (in the absence of any mitigation) to;

- The River Ehen SAC
- The River Ehen (Ennerdale Water to Keekle Confluence) SSSI
- Hope Mission Pond County Wildlife Site
- Priestgill Woods Site of Invertebrate Significance
- Breeding birds
- Invasive Non-Native Species

Each of these features will be discussed below.

6.2. The River Ehen SAC / The River Ehen (Ennerdale Water to Keekle Confluence) SSSI

The River Ehen SAC / SSSI lies 4.5km to the south east 'as the crow flies'; but is c.7km downstream of the site boundary. The site is not directly connected to the SAC as the SAC designation is upstream of the confluence. Despite this, as the River Ehen SAC / SSSI is (partly) designated for mobile species which must use the river downstream of the confluence, potential impacts must be considered. The proposed works present potential for both positive and negative impacts.

In the absence of mitigation, the potential impacts to the River Ehen SAC / SSSI include;

- *Pollution incidents.*

  Any pollutant (chemical or silt) released on site could be mobilised towards the River Keekle via surface run-off entering ditches and ponds on site which ultimately connect to a tributary of the River Keekle before leaving the site in the extreme south east corner via Priestgill Wood. The River Ehen SAC / SSSI is upstream of the Keekle confluence, but should pollution enter the water course, and be transported c.7km downstream of the site, this could have a direct toxic effect on freshwater pearl mussels and salmonids using the River Ehen downstream of the SAC / SSSI designations. Furthermore, pollution incidents of this nature could reduce or prevent salmonid migration up the river system, which would have a detrimental impact to the SAC / SSSI.

  Pollution incidents could occur through spillages from plant on site during the development phase and release of heavily silt laden water from the site via surface run-off.

  The severity and duration of any such event would be entirely dependent on the amount of polluted water, and nature of the pollutant, entering the River Ehen downstream of the SAC / SSSI. As the work is phased over a period of 15 years and as the works involved in each phase are relatively small scale, and will result in bare ground being created for a relatively short period, any impact is likely to be very limited and comparatively lower than the potential impacts of routine agricultural operations (i.e. ploughing) which occur within the catchment of the River Keekle.

It must also be recognised that ultimately the proposed works will address drainage issues which will have benefits for aquatic habitats downstream of the site and this could in turn represent positive impacts to the River Ehen SAC / SSSI.

Through increasing the amount of top-soil on site the capacity of the site to 'hold' water will be increased and the severity of surface run-off (in terms of instantaneous flows, water quality, speed etc.) will be mitigated. Although the site has *not* been identified as a source of pollutants entering the river system, the heavily compacted clay soils, under a routine management regime of close mowing, will inevitably result in elevated levels of surface run-off and this presents the potential for pollutants to enter watercourses.

- *Spread of invasive non-native species.*

Invasive non-native species have been identified on site and could conceivably be introduced to the site via imported materials. If these were caused or allowed to spread, and were to enter any watercourse via surface run-off transporting vegetative material or seeds, they could impact the entire watercourse(s) downstream of the site which would then have a detrimental impact on Salmonids migrating up the river (which would have a corresponding impact on freshwater pearl mussels). This potential impact is considered in Section 6.6 (below).

6.3. Hope Mission Pond County Wildlife Site and Priestgill Woods Site of Invertebrate Significance

Hope Mission Pond County Wildlife Site exists on the Golf Course and is immediately adjacent Phase 1 of the proposed works (See Figures 4, 5, 6 & 7). Due to the proximity of the proposed works there is a risk that Hope Mission Pond CWS could be affected by the proposed works.

Priestgill Woods Site of Invertebrate Significance lies directly adjacent to the site to the east of Moresby Road. The small, unnamed watercourse which flows from the golf course flows through Priestgill Wood. No details of the reasons for this site being identified as a Site of Invertebrate Significance are available, but it is likely that water quality within the un-named watercourse contributes to the value of this site. There is potential for water quality within the un-named water course to be affected (both positively and negatively) by the proposed works and therefore it is possible that impacts to the interest features of Priestgill Woods Site of Invertebrate significance could occur.

In the absence of mitigation, the potential impacts to Hope Mission Pond (CWS) and Priestgill Woods (SIS) include;

- *Pollution incidents.*

Any pollutant (chemical or silt) released on site could be mobilised towards Hope Mission Pond (CWS) and Priestgill Woods (SIS). Pollution incidents affecting these sites could have a direct toxic affect on plants and animals, could engulf existing sediments covering over egg laying habitat and / or increase nutrient input leading to a change in water chemistry (pH, suspended solids and dissolved oxygen specifically).

Pollution incidents could occur through spillages from plant on site during the development phase and release of heavily silt laden water from the site via surface run-off.

The severity and duration of any such event would be entirely dependent on the amount of polluted water, and nature of the pollutant, entering the sites.

It must also be recognised that ultimately the proposed works will address drainage issues which will have benefits for aquatic habitats downstream of the site and this could in turn represent positive impacts to all water / wetland habitats onsite and downstream of the site.

- *Spread of invasive non-native species.*

  Invasive non-native species have been identified on site and could conceivably be introduced to the site via imported materials. If these were caused or allowed to spread, and were to enter any waterbodies or watercourses via surface run-off transporting vegetative material or seeds, they could impact these waterbodies and watercourses. This potential impact is considered in Section 6.6 (below).

6.4. Breeding Birds

Although habitats on site do have potential for breeding birds, these areas will be broadly unaffected by the proposed works and therefore the risk to breeding birds is currently considered to be ‘low'. Ultimately the scheme will provide additional nesting habitat for a range of bird species.

Potential impacts to breeding birds as a result of activities on site include;

- Disturbance / destruction of active nest sites and harm to nesting birds. Any felling or pruning of trees, boundary hedges, scrub or tall ruderal habitat during the bird nesting season would risk disturbing / destroying active nest sites and harming nesting birds. This would only be a risk during the bird breeding season (March - September inclusive).

6.5. Invasive Non-Native Species

Notwithstanding the seasonal constraints of the survey, the risk of invasive non-native species currently growing on site being spread within or beyond the site boundary is currently considered to be ‘low’. The generic risk of invasive non-native species being introduced to the site and then spread within or beyond the site boundary is considered to be ‘low’.

The potential risks as regards invasive non-native species are as follows;

- Spread of invasive non-native species on / off site. Invasive non-native species have been confirmed as growing on site. Such species could be spread on site following any excavation or disturbance of ground, or via seed or vegetative material adhering to plant / vehicles moving around the site. Furthermore, the importation of topsoils to the site also presents a risk that invasive non-native species might be accidentally imported to the site either within the top soil itself, or adhering to vehicle’s transporting or handling top soil to / within the site.

7. Mitigation / Recommendations

In the absence of mitigation, the following potential impacts have been identified;

- Pollution incidents;
  - The River Ehen SAC / The River Ehen (Ennerdale Water to Keekle Confluence) SSSI
  - Hope Mission Pond (CWS) and Priestgill Woods (SIS)

- Spread of invasive non-native species;
  - The River Ehen SAC / The River Ehen (Ennerdale Water to Keekle Confluence) SSSI
  - Hope Mission Pond (CWS) and Priestgill Woods (SIS)

- Disturbance / destruction of active nest sites and harm to nesting birds;
  - Breeding Birds

- Invasive Non-Native Species
  - Spread of invasive non-native species on / off site.

7.1. Pollution Incidents

The mitigation measures recommended to reduce the risk of pollution incidents impacting upon the River Ehen SAC / SSSI and Hope Mission Pond (CWS) and Priestgill Woods (SIS) are as follows;

- No vehicles, plant or personnel will enter any wet ditches or ponds anywhere on site, for any purpose.

- No vehicles or plant will be parked overnight anywhere within 50m of the ponds or ditches and must be secured so as to prevent theft of fuel etc.

- Any refuelling or vehicle maintenance will be undertaken by a trained individual either off-site or within a drip tray large enough to contain any spilled fluids. Any spillage will then be disposed of in a safe and appropriate manner.

- Operators will check their vehicles on a daily basis before starting work to confirm the absence of leakages. A reporting system shall be devised and implemented to ensure that repairs are undertaken as soon as discovered and before starting work.

- Sufficient oil sorbant material (3M Oil-Sorb or similar) shall be available on site to cope with a loss equal to the total fluid content of the largest item of plant. Following the use of such oil sorbant material, any contaminated materials shall be disposed of in a safe and appropriate manner.

- All plant used on site shall be serviced at the manufacturers recommended service intervals to minimise the potential for contamination following breakage of hoses or lines etc.

- Emergency spill kits will be available and immediately to hand at all times.

- No dirty water (i.e. water containing visible turbidity) will be discharged from the site during the works to any watercourse, pond or ditch. Any dirty water which does accumulate on site must be discharged to land in a manner which does not result in it flowing into watercourses, ponds or ditches.

- Silt fencing will be erected around any section of the proposed works which could shed surface run-off towards watercourses, ponds or ditches. This will be dug in to a depth of at least 100mm, staked every 1 - 1.5m and securely attached to stakes. Straw bales will be available on site for immediate, reactive deployment in the event of a rainfall event which breaches previously adequate silt control measures.

- As all water which leaves the site passes through numerous culverts, an opportunity exists to install ultra-fine sediment / oil filter ‘silt socks’ to these culverts to intercept any pollutant which may have been mobilised on site. Correctly installed and maintained, these can be a broadly passive system which will collect sediments down to one micron and can be emptied and re-used a number of times.

- A regular and comprehensive site inspection must be conducted to identify any new surface run-off routes which may become apparent on site, the condition of all silt fencing and the efficacy of all ‘silt socks'. The identification of new run-off routes or damaged silt controls (along with the frequency / regularity of inspections) must be recorded and any water management plan may need to be altered so as to prevent release of site water to watercourses. As an absolute minimum a full inspection and consideration of implications to the water management plan must occur weekly.

7.2. Spread of invasive non-native species

The mitigation measures recommended to reduce the risk of invasive non-native species impacting upon the River Ehen SAC / SSSI and Hope Mission Pond (CWS) and Priestgill Woods (SIS) are as follows;

- All plant and equipment (including boots and hand tools) will be washed to remove any mud or debris prior to being delivered to site.

- All materials delivered to site will be clean and free from contamination with seeds or vegetative material from invasive non-native species.

- Identification of invasive non-native species must for part of a regular and comprehensive site inspection. This should be conducted by a competent individual who is capable of identifying all life stages of all invasive non-native species and should be designed to identify any incidental introduction quickly so as to allow for the effective removal of the species before further spread occurs.

7.3. Breeding Birds

<u>Disturbance / destruction of active nest sites and harm to nesting birds</u>

- Vegetation clearance should occur outside of the bird nesting season (March - August).

- If any vegetation clearance must occur during the bird breeding season, a breeding bird survey must be conducted immediately prior to vegetation clearance commencing. Should evidence of active nest sites (or dependant young) be identified, no work will be possible until the nest can be confirmed as no longer active or the young have fledged and / or moved out of the works area. This should be conducted by a suitably experienced ecologist.

7.4. Invasive Non-Native Species

See Section 7.2 (Above).

8. Summary

8.1. Summary of development and mitigation

This report details a Preliminary Ecological Appraisal conducted Whitehaven Golf Course, Red Lonning, Whitehaven, Cumbria CA28 8UH (Nat. Grid Ref. NX 99361 18434 - Approx. centre of site. See Figure 1).

Plans 'as proposed' have been provided along with a detailed description of the proposed works produced by MJN Associates (See, 'WHITEHAVEN GOLF COURSE: PROPOSED AMENDMENTS TO COURSE CONFIGURATION TO INCREASE PLAYABILITY AND DRAINAGE WITH ADDITIONAL AND RE-ESTABLISHED PLANTING AREAS (Jan. 2021). It is thereby understood that a proposal exists to carry out the phased importation of clean top and sub-soils to improve the quality of the setting of the fairways. Phasing will occur over a 15 year period and will ultimately involve the importation of 215,000 cubic m., averaging 14,000 cubic m./year. Alongside each phase, areas of new woodland will be planted and existing areas of woodland 're-established' (See Section 1.2 below).

The vast majority of the site by area is amenity grassland. Away from the fairways, where the management regime is seemingly less intensive, the species present suggest semi-improved neutral grassland, but the vast majority of grassland areas on site are routinely mown. It is mown amenity grassland habitats which will be primarily affected by the proposed work with only minor (temporary) net loss of woodland, tall ruderal and scrub habitats, all of which will ultimately be compensated for via the programme of planting which will follow the importation of soils.

This survey has identified that, in the absence of mitigation, there are potential ecological impacts to;

- The River Ehen SAC
- The River Ehen (Ennerdale Water to Keekle Confluence) SSSI
- Hope Mission Pond County Wildlife Site
- Priestgill Woods Site of Invertebrate Significance
- Breeding birds
- Invasive Non-Native Species

Indicative mitigation measures have been presented in Section 7 to address identified risks to all ecological receptors.

Following mitigation it is concluded there will be no negative impacts to The River Ehen SAC nor The River Ehen (Ennerdale Water to Keekle Confluence) SSSI. The works are likely to have a legacy beneficial impact to these receptors.

It should be recognised that as the proposed works are programmed to occur over a 15 year period, further ecological assessment should be completed to inform Phases 6 - 10 (2026 - 2030) and Phases 11 - 16 (2031 - 2036).

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Appendix

SureScreen Scientifics

Folio No: E10887
Report No: 1
Purchase Order: HESECO 002
Client: HESKETH ECOLOGY
Contact: Sam Griffin

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 11/06/2021
Date Reported: 18/06/2021
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
5940	POND 9	NX 99368 18057	Pass	Pass	Pass	Negative	0
5941	POND 6	NX 99316 18136	Pass	Pass	Pass	Negative	0
5942	POND 8	NX 99235 18054	Pass	Pass	Pass	Negative	0
5943	POND 7	NX 99270 18110	Pass	Pass	Pass	Negative	0
5944	POND 2	NX 99677 18464	Pass	Pass	Pass	Negative	0
5945	POND 4	NX 99203 18412	Pass	Pass	Pass	Negative	0
5946	POND 3	NX 99133 18417	Pass	Pass	Pass	Negative	0

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5947	POND 5	NX 99216 18122	Pass	Pass	Pass	Negative	0
5948	POND 1	NX 99197 18892	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth **Approved by:** Chris Troth

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

SIC: **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

DC: **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

IC: **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

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Result:

Presence of GCN eDNA [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

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