

### REPORT

# Land at Robertsbridge - British Gypsum

Preliminary Ecological Appraisal - Closed Landfill

Submitted to:

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# **Distribution List**

British Gypsum - 1 electronic copy (pdf)

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# 1.0 INTRODUCTION

Golder Associates (UK) Ltd ('Golder') was requested by British Gypsum Ltd ('the Client') to carry out a Preliminary Ecological Appraisal (PEA) of land within the Robertsbridge gypsum mine site, located at National Grid Reference (NGR) TQ 72912 19717 ('the Site'), as shown on Drawing 1. The PEA is required to inform of potential ecological constraints, and opportunities, that may influence the development of the Site. Preliminary development proposals include the provision of a passive leachate treatment facility and solar array on what is currently a closed landfill.

The spatial scope of the PEA is indicated in Drawing 1 and comprises land that is being considered for development.

This appraisal presents a summary of ecological features that are, or have the potential to be, ecological constraints, or indeed opportunities, to the development of the Site. It also recommends additional survey work that may be required to inform a future planning application for the Site, if applicable.

Planning guidelines, international commitments, legislation and planning policies relevant to the protection, conservation and enhancement of nature conservation interests were taken into account in the process. Priority Habitats and Species listed on Section 41 of the NERC<sup>1</sup> Act 2006 (formerly UK BAP priority species) and habitats and species listed on the local Biodiversity Action Plan (LBAP) form the context for the habitat and, to a certain extent, the species surveys recommended for the Site.

# 1.1 **Project Description**

The project description can be summarised as the 'installation of a passive leachate treatment system comprising biochemical reactor sequestering units to convert sulphate to sulphide, a sand filter and an aerobic polishing wetland to oxidise the water prior to discharge. It is proposed that the system will sit on top of the Site. The system would treat the leachate before discharging into the nearby River Line' (SLR, 2021).

# **1.2 Site Description and Ecological Context**

As stated in the Robertsbridge Biodiversity Action Plan (BAP, 2012), the Robertsbridge gypsum mine contains a number of habitats, including woodland, grassland and streams. These habitats are of ecological value in the context of both the local and wider area.

The following broad habitats types were recorded within the land ownership:

- Woodland (including ancient);
- Streams and water bodies;
- Semi-improved grassland; and
- Grassland.

As described by Landvision (2011) within their Phase 1 habitat report "woodlands are interspersed with species diverse unimproved, dry, south facing limestone grassland, with wet grassland and woodlands of the SSSI of the River Line.

The woodlands largely comprise ancient semi-natural broadleaved woodland, primarily of hornbeam coppice with oak standards, unrivalled in other parts of Sussex, with a very varied ground flora, which, despite lack of management and shading out of species, in parts still contains rare and localised species.

<sup>&</sup>lt;sup>1</sup> Natural Environment and Rural Communities (HMSO, 2006)



Disturbance for centuries has been a feature in these woods, with old woodland rides and paths, historic hedge banks, old lime kilns, saw pits, ancient track ways to the mine and historic hedge banks and veteran trees marking old boundaries and former edges of old coppice compartments, all producing clues to the past."

It is important to distinguish between the broader habitats at the Robertsbridge gypsum mine which include those habitats described above and the Site footprint. The Site footprint is exclusively comprised of grazed semi-improved grassland which has been sown and managed to provide stability and aesthetic value to the previous land use of the Site i.e. gypsum based landfill. Further descriptions of Site condition and habitat are provided in the following sections.

# 2.0 METHODS

## 2.1 Background Data Search and Previous Studies

A desktop study was undertaken in January 2021 to obtain up-to-date ecological information held by the local biological records centre. The following ecological information was requested from the Sussex Biodiversity Record Centre (SBRC):

- Records of non-statutory sites designated for nature conservation value within 3 km of the Site boundary; and
- Records of legally protected and notable species within 3 km of the Site boundary.

Information on statutory sites of nature conservation interest within 10 km of the Site was obtained from:

- Multi Agency Geographical Information for the Countryside (MAGIC) website (http://magic.defra.gov.uk); and
- JNCC website (www.jncc.defra.gov.uk).

Ordnance Survey (OS) and satellite mapping was also used to gain contextual habitat information. To date, a number of ecological studies have been undertaken at the mine, including Extended Phase 1 habitat surveys, landscape and deer management plans. These studies informed the production of landscape and woodland management plans to discharge planning conditions associated with various developments at the mine. It is clear that the mine site holds significant biodiversity interest, both in its valuable semi-natural habitats (including ancient woodland coppice and species-rich calcareous grassland) and their potential to support protected and other noteworthy species of fauna. The studies that have taken place at the mine and have been used to provide general context for this report and they include:

- The Robertsbridge Biodiversity Action Plan (2012);
- The Robertsbridge Deer Management Plan (undated);
- Robertsbridge Extended Phase 1 Habitat Survey (Scott Wilson, October 2005);
- Landscape Management Plan (Landvision, 2011);
- Phase Two Ecology Survey Report (Golder Associates, 2015);
- Arborweald Preliminary Ecological Appraisal (PEA) Report (2019);
- Preliminary Ecological Appraisal (PEA) Report for a Truck park area (Golder Associates, 2020); and
- Surface Water Pollution Risk Assessment for the Discharge of Treated Landfill Leachate from a Proposed Passive Treatment System (SLR, 2021).



# 2.2 Preliminary Ecological Appraisal

Survey methods for this PEA were in accordance with CIEEM (2017) 'Guidelines for Preliminary Ecological Appraisal' (second edition). The Extended Phase 1 Habitat Survey involved Site survey to map all areas of habitat on and up the Site boundary. The survey procedure and habitat plan produced followed the guidance provided in the 'Handbook for Phase 1 Habitat Survey' (JNCC, 2010). Target notes were produced to accompany the Extended Phase 1 Habitat plan where applicable, which identified noteworthy ecological features.

# 2.3 **Protected and Notable Species Assessment**

The suitability of habitats to support protected and notable species was assessed at the same time as the Phase 1 Habitat Survey and any incidental evidence of such species was recorded, where encountered. Species that may be present given the Site context and geographical location are:

- Bats;
- Badger;
- Breeding birds;
- Dormouse;
- Common reptiles (slow worm, grass snake, common lizard); and
- Aquatic fauna such as macro-invertebrates.

# 2.4 Biodiversity Offsetting

As part of the assessment process offsetting metrics were used to quantify habitat losses and potential gains. An offsetting methodology utilising the Department of Environment Food and Rural Affairs (Defra) guidance (Defra, 2019) was applied. This 2019 2.0 version offsetting tool replaced version 1 of the tool. The use of this tool has not yet become mandatory in planning law as the Environment Bill is yet to come into force. However, this method provides a robust tool to measure and address biodiversity impacts.

Using the 2019 DEFRA offsetting metric, prescriptive predetermined scores are assigned to habitat to address their relative condition and distinctiveness. This newer version of the DEFRA tool reduces the subjective input of the ecologist and instead is more reliant on the pre-determined metric scoring. The metric update also considers ecological connectivity of habitat, strategic spatial setting of habitat e.g. habitats as defined within a local plan and also time taken for restoration.

The metric's habitat ratings and scoring is further defined as follows:

- Habitat distinctiveness Ranges from Very Low (0) to V High (8);
- Condition Good (3), Fairly Good, Moderate, Fairly Poor, Poor (1) and N/A Agricultural/Other;
- Connectivity High (1.15), Medium, Low (1) and N/A; and
- Strategic significance High (1.15), medium, low (1).

The main influencers of habitat loss or gain in a numerical sense are habitat distinctiveness and condition. Habitat condition can be ranked from N/A e.g. arable to good. Equally, habitat distinctiveness can be ranked from very low to very high. For example, an arable field will have medium habitat distinctiveness and will be in non-applicable habitat condition. As a worked example, the DEFRA 2.0 tool requires the following information for each habitat type:



- Distinctiveness;
- Condition;
- Ecological Connectivity; and
- Strategic significance.

This method was applied to the Site to quantify net loss or indeed gain of biodiversity.

# 3.0 RESULTS

## 3.1 Desk Study

### 3.1.1 Statutory Designated Sites

Two Sites of Special Scientific Interest (SSSI) occur within 10 km of the Site. Citations are presented verbatim:

"Darwell Wood and the River Line. Darwell Wood consists of a relatively large area of broadleaved woodland deeply dissected by a number of streams which drain into Darwell Reservoir to the north. The site probably represents the best example of hornbeam coppice with oak standards in Sussex. A number of other woodland types are also found which are rare in the national context. A wide range of woodland birds also breed on this site. The River Line is a geologically designated SSSI (situated upstream from the Site). This site comprises a section of river just east of Netherfield in East Sussex which cuts through a lithologically varied sequence of Purbeck Beds, including marine horizons".

A review of the operations likely to affect the special interest of these sites has been undertaken and it is concluded that the development of the Site will not damage the interests of the SSSIs within the desk study area. Both of these SSSI sites are ca. 1.5 km form the Site and there are no ecological pathways between the Site and the SSSI. The River Line SSSI is situated upstream of the Site and Darwell Wood is separated from the Site by the Robertsbridge Gypsum factory works. As such, statutory sites are not considered any further in this report.

### 3.1.2 Non-statutory Designated Sites

The Site is situated outside but within close proximity to the Limekiln Wood Complex local wildlife site (LWS). However, the Site does not support the habitat assemblages for which the LWS is designated. The citation for this site is:

"This area of woodland is dominated by ancient, semi-natural Hornbeam coppice with occasional Oak standards and some mixed coppice of Ash and Hazel and very occasional Sweet Chestnut coppice. Most of the coppice is mature and overshot but some areas were actually being cut at the time of survey. There is very little in the way of a shrub layer, but the ground flora is generally quite species rich and includes a number of ancient woodland indicator species, such as Bluebell (Hyacinthoides non-scriptus), Wood Anemone (Anemone nemorosa), Ramsons (Allium ursinum), Hard Fern (Blechnum spicant), Yellow Archangel (Galeobdolon luteum) and Wood-sorrel (Oxalis acetosella). It is very likely that this wood has an interesting assemblage of bryophytes as many species favour lime rich conditions. A bank of species rich grassland is also present immediately behind the plaster mill. This is composed of an interesting community that includes Yellow-wort (Blackstonia perfoliata), Adder's-tongue Fern (Ophioglossum vulgatum) and Common Spotted Orchid (Dactylorhiza fuchsii)'.

One other LWS is located within 1.5 km of the Site. 'Darwell Reservoir is particularly valuable for birds, as a large number of species use the open water at various times of the year. The neighbouring pond is host to an assortment of invertebrates. Of particular significance is the Downy Emerald Dragonfly and 3 species of nonbiting meniscus midges (Dixella spp.). The meadows boast unimproved grassland where numerous grass and



herb species can be found. These include species restricted to old grassland which has been traditionally managed, such as Pepper-saxifrage (Silaum silaus) and Dyer's Greenweed (Genista tinctoria). The small area of heathland, located in an old guarry, is dominated by Heather (Calluna vulgaris) and has a significant colony of Grizzled Skipper Butterflies and also a colony of Glow-worms. The small woodlands are quite variable. One has been clear felled recently and is now being grazed. Another includes a fine wooded ghyll. A large area of Darwell Wood has been designated a Site of Special Scientific Interest. Most of the woodland outside this boundary consists of Hornbeam coppice and areas of secondary Birch woodland with species rich ghylls. There is also an area of plantation with managed rides which support a significant population of the rare Small Teasel (Dipsascus pitosus) and woodland butterflies such as Pearl-bordered Fritillary, Silver-washed Fritillary and White Admiral.'

However, there are no species or habitat synergy between this LWS and the Site. A review of the operations likely to damage the qualifying interests of these sites has been undertaken and it is concluded that the Site development will not damage the interests of the LWSs within the desk study area. There is a possibility that Site development could provide a positive impact for these LWS through the provision of greater ecological connectivity. As such, non-statutory sites are not considered any further in this report.

#### 3.1.3 **Desk Study Species and Habitats**

Notable species and habitat results were returned within the desk study data. The 2 km desk study data buffer included evidence of ancient woodland, 37 species that are internationally designated and 132 nationally designated species. In addition, 28 species records of invasive or non-native species were provided. A summary of the desk study results is provided in Appendix B and the full results are available on request.

#### 3.2 Habitats

#### 3.2.1 **Semi Improved Grassland**

### **Description and Evaluation**

The Site is exclusively a semi-improved grassland sward (Figure 1 below). The semi-improved neutral grassland across the Site potentially corresponds with MG7 Perennial rye-grass Lolium perenne grasslands.



Whilst other species-rich areas such as woodlands occur at the mine, the development Site lacks any intrinsic biodiversity value.



Figure 1: The Site footprint - Closed Landfill capped with clays and a rye-grass sward.

Outside of the Site footprint to the South and East (Figure 2 below) semi-natural broadleaved woodlands extend to form part of the characteristic South Weald Area of Outstanding Natural Beauty (AONB). Lowland deciduous woodland is listed as a 'Habitat of Principal Importance' under the Natural Environment and Rural Communities Act (2006). Surrounding woodland is designated by Natural England as Ancient semi-natural woodland (Arborweald, 2019).



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Figure 2: The semi-natural woodlands flank parts of the South and East of the Site

Engineered sections of the River Line are noted on the Northern periphery of the Site (Figure 3 below). The River at this location is not subject to any statutory protection. However, upstream of the Site the river is designated as a SSSI on geological rather than biodiversity quality.





Figure 3: The River Line at the North of the Site

#### 3.3 Protected / Notable Species and Habitat Evaluation

No evidence for the presence of any protected, rare, or notable species was recorded within the Site. However, some opportunities for protected species were recorded adjacent to the Site in scrub and woodland, as detailed below.

#### 3.3.1 **Hazel Dormouse**

The Site itself is of negligible value for hazel dormouse (Muscardinus aveilanarius, a Sussex Biodiversity Action Plan (BAP) species. However, dormouse have been recorded in the broader mine area (Golder, 2015). Given the nature of Site proposals, no residual effects to dormouse are expected.

#### 3.3.2 Bats

The scrub and woodland along the southern boundary of the Site may offer bat species foraging and roosting potential. The broader mine area affords a plethora of roosting and foraging habitat for bat species as documented by Golder (2015). All habitat suitable for bats adjacent to the Site will be retained. Nevertheless,



recommendations are set out within Section 4.0 aimed at maintaining any such opportunities for this species group.

#### 3.3.3 **Reptiles**

Site conditions are not suitable for reptiles. The grazed grassland sward and open nature of the Site would preclude reptiles from using the Site. Although species such as common lizard are found in the broader mine area, as documented by Golder (2015), residual effects to common reptiles are not expected to occur as part of the Site development and reptiles are not considered further within this report.

#### 3.3.4 **Aquatic Fauna**

Site proposals have the potential to influence water quality both positively and negatively. Species such as macro-invertebrates will be present in the River Line and the species assemblages can be affected by water quality. In essence, freshwater pollution levels affect macro-invertebrate families differently. Thus, certain families of aquatic invertebrate are most susceptible to pollution than others. These include many families belonging to the mayflies (Ephemeroptera), stoneflies (Plecoptera) and caddisflies (Trichoptera). Conversely, those families that are tolerant of polluted water include families such as the leeches (Hirudinea), worms (Oligochaeta), chironomid midges (Diptera) and the freshwater hog-louse (Isopoda).

#### 3.3.5 Habitat Loss

Use of the DEFRA 2.0 offsetting tool indicates that a baseline score of 1.98 habitat units is present on Site. This is derived from the biodiversity value of 0.6 ha of semi-improved grassland in poor condition that is moderately well ecologically connected. Semi-improved grassland (modified grassland) habitat is classified as being of 'low' distinctiveness in accordance with the Defra 2.0 offsetting tool. This habitat is ubiquitous, and the loss of this habitat type is a Site level effect that can be addressed by the net gain calculations contained within this planning submission.

Using the DEFRA 2.0 metric allows measurable loss and gain calculations to be made. The value of the baseline habitat is 1.98 units. The post development habitat score includes the provision of the following biodiversity offsetting measures:

- 0.4 ha of wetland/reedbed; and
- 0.2 ha of lagoon infrastructure (classified as 'urban bioswale' DEFRA 2.0 for the purpose of this offsetting calculation, low ecological distinctiveness).

This results in a post-development biodiversity habitat score of 2.16 units. This equates to a biodiversity net gain of ca. 9.3 %.

#### 4.0 **COMMITTED MITIGATION**

On the basis of the above information, commitments are provided in this section of the mitigation and enhancement measures that will be required to create biodiversity net gain associated with development of the Site.

#### 4.1.1 **Habitats**

### **Tree Protection**

It is understood that all trees along the Site boundary are to be retained under the proposed plans. To maintain any biodiversity value currently afforded by these trees, development at the Site should avoid root protection



areas, with protective fencing erected around root protection areas to protect trees throughout construction works, in line with standard best practice defined in the British Standard guidance (BS5837:2012<sup>2</sup>).

### 4.1.2 Protected and Notable Species

### Sensitive Lighting

Should external lighting be required at the Site, it is recommended that a suitable lighting strategy is developed, under advice from a suitably qualified ecologist. The lighting strategy will aim to maintain any opportunities within the Site for nocturnal and crepuscular species by using timers, cowls, and hoods to maintain dark skies and avoid illuminating features such as the tree line to the south and east of the Site.

### 4.1.3 Ecological Enhancements – DEFRA 2.0 Biodiversity Offsetting

As previously described, habitat loss/gain calculations have been undertaken to create biodiversity net gain. These measures include the creation of 0.4 ha of wetland/reedbed which is a functional component of the development. Effective operational management of the reedbed for biodiversity value will be a requirement of environmental permitting and will be regulated by the Environment Agency. Further details are provided in the Planning Statement. These measures will ensure that a coherent approach to habitat management across the Site is delivered.

# 5.0 CONCLUSION

## 5.1 **Protected Sites**

A number of statutory and non-statutory sites for nature conservation were identified within the desk study process. However, the Site itself is not covered by any level of statutory protection. The Site is ca.50 m from an LWS, but the Site characteristics are not commensurate with the LWS citation. Given the relative distance between the Site and protected sites identified during the desk study, and the nature of development proposals, residual effects to these sites are considered highly unlikely.

### 5.2 Habitats

Habitats within the Site afford no elevated biodiversity value. Habitat that would be primarily affected by development proposals (i.e. semi-improved grasslands on landfill) are ubiquitous at the Site, local and regional scale.

## 5.3 **Protected Species**

Proposals at the Site do not have the potential to adversely affect protected species.

## 5.4 Biodiversity Net Gain

Measures to enhance the Site through the implementation of the Project including all habitat creation measures is likely to achieve a ca. 9.3 % net gain for biodiversity at the Site level.

<sup>&</sup>lt;sup>2</sup> British Standards Institution (BSI). 2012. Trees in relation to design, demolition and construction – Recommendations (BS 5837:2012)



#### 6.0 REFERENCES

Arborweald - Preliminary Ecological Appraisal (PEA) Report (2019).

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

Golder Associates (2015). Phase Two Ecology Survey Report. Report to British Gypsum.

Golder Associates (2020). Preliminary Ecological Appraisal. Report to British Gypsum.

Joint Nature Conservation Committee (JNCC). 2010. Handbook for Phase 1 habitat survey - A technique for environmental audit.

Landscape Management Plan (Landvision, 2011). Report to British Gypsum.

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The Robertsbridge Biodiversity Action Plan (2012). Report to British Gypsum.

The Robertsbridge Deer Management Plan (undated). Report to British Gypsum.



# Signature Page

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APPENDIX A

# Habitat Drawing



LEGEND

SI

SEMI IMPROVED NEUTRAL GRASSLAND

SITE BOUNDARY (SOURCE: SLR)

REFERENCE(S) BASE DRAWING 01288.00029.19.001 REV D1, DATED DECEMBER 2020, SUPPLIED BY SLR.



BRITISH GYPSUM









APPENDIX B

# Desk Study Raw Data



## Ecological Data Search SxBRC/20/824 - Summary Report

An ecological data search was carried out for land at Robertsbridge on behalf of Freddy Brookes (Golder Associates) on 09/02/2021.

### The following datasets were consulted for this report:

		Requested	Radius/buffer size
Designated sites, habitats & ownershi	Yes	2km	
Protected, designated and invasive sp	Yes	2km	
Summary of results			
Sites and habitats			
Statutory sites	2 SSSIs /	1 AONB	
Non-statutory sites	2 LWS / 2	1 LGS	
Section 41 habitats	2 habitat	S	
Ancient and/or ghyll woodland	Present		
Protected and designated species			
International designations	37 specie	es	477 records
National designations	132 spec	ies	4,657 records
Other designations	265 spec	ies	8,450 records
Total	284 spec	ies	8,733 records
Invasive non-native	28 specie	es	674 records

The report is compiled using data held by Sussex Biodiversity Record Centre (SxBRC) at the time of the request. SxBRC does not hold comprehensive species data for all areas. Even where data are held, a lack of records for a species in a defined geographical area does not necessarily mean that the species does not occur there – the area may simply not have been surveyed.

This summary page may be published. The full report and maps may <u>not</u> be published or otherwise shared.

The data search report is valid until 09/02/2022 for the site named above.

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