

Ref: 1163.02_03_TN_mw_v2

Date: 4 December 2019

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Technical Note: Biodiversity Metric for Land off Sinfin Lane, Barrow-on-Trent

Introduction

In response to a planning application for re-development of Land off Sinfin Lane, Barrow-on-Trent (Ref: 9/2018/1409) Derbyshire Wildlife Trust (DWT) in their capacity as the Biodiversity Planning Officer for work relating to a Service Level Agreement with South Derbyshire District Council have provided a written response (Ref: DWTSOU606). DWT raised concerns regarding ecological issues and provided suggestions as to what was required in order to fully determine the ecological impact of the proposed development. The letter stated that *"Further consideration needs to be given to accurately identifying the impacts of the proposed development through further surveys and the use of the Biodiversity Impact calculator and then providing a suitable mitigation and compensation habitat creation in order to achieve a net gain for biodiversity."* In response, Baker Consultants were commissioned to carry out a Biodiversity Metric Calculation. The calculation was based on the information in the Preliminary Ecological Appraisal¹, which provided a plan of the existing habitats and a Landscape Strategy Plan² prepared by DSA Environment + Design for the proposed development layout. The calculation³ and supporting technical note (Reference 1163.02_03_TN_mw_v2) was prepared to determine the extent to which the proposed mitigation measures contributed to the achievement of biodiversity net gain in compliance with the National Planning Policy Framework and policy BNE3 of the South Derbyshire Local Plan.

Since the completion of the original metric calculations described above, the proposed development has been revised because of viability considerations. The new layout includes revisions to the original landscape plan (see Appendix 1) and this has required the revision of the metric calculation and update of the technical note.

The calculation is provided as a separate spreadsheet because there is no export option on the calculator.

¹ <http://nepubprod.appspot.com/publication/5850908674228224> - Biodiversity Metric 2.0 Calculation Tool Beta Test.xlsm

² Arc Ecology (2018). *Land off Sinfin Lane, Barrow-on-Trent - Ecological Appraisal*. Unpublished Report for Twotwenty Ltd.

³ Landscape Strategy Plan 1086 001A.

⁴ The calculation makes use of the Defra Biodiversity Metric 2.0, which is being trialled prior to becoming a mandatory planning tool enacted through the proposed Environment Bill.

Calculations

The biodiversity metric calculations (provided as a separate spreadsheet) demonstrate a shortfall of 13.48 habitat units after on-site mitigation proposals are accounted for. The previous metric included calculations for hedgerows, but these are now outside of the application boundary. The metric calculation assumes that the existing grassland is in sub-optimal condition because of a lack of grassland management; the fishing lake is in sub-optimal ecological condition because of high fish stocks⁵; the scrub is in moderate ecological condition, and the woodland is relatively immature, but in moderate ecological condition.

The metric calculation is based on the layout of the proposed development, which will include a small amount of retained woodland and a range of new habitats including; neutral grassland, amenity-managed grassland; new woodland with native trees and shrubs containing features such as hibernacula that will be of benefit to amphibians and a new pond. It has been given a high score for distinctiveness because of the intention to make use of aquatic species that are typically associated with aquatic habitats in the Trent valley, and to design the water-body to be suitable for breeding amphibians.

Given the shortfall in habitat units it is necessary to investigate other options beyond the on-site mitigation measures in order to demonstrate a net gain for biodiversity and comply with local and national planning policies. Under such circumstances, if impacts cannot be avoided, reduced or fully mitigated on-site, off-site compensation should be considered. Such compensation should be as close to the development site as is feasible, preferably within the same 'Natural Area'⁶.

One option being considered is an area of land owned by Barrow-upon-Trent Parish Council known as 'Greenacres'. In May 2007, Barrow-upon-Trent Parish Council completed the purchase of the site by using landfill tax funds. The area was bought from the Church Commissioners, and was restored and maintained by Lafarge for five years. The site now belongs to the people of the parish and the Parish Council undertakes the day-to-day maintenance of the area.⁷

An inspection of 'Greenacres' (27 August 2019) identified a lack of grassland management, which appears to be having an adverse impact on the grassland condition. Colonisation by blackthorn *Prunus spinosa* and the dominance of tall grasses has reduced the cover of herbs below 30% across extensive areas of the site. To restore the grassland (see Figure 1 for extent and location) to favourable condition and sustain the long-term future will require routine intervention for a sustained period.

Grazing is unlikely to be feasible because of practical considerations including location and public access. Cutting is a more feasible option, but needs machinery, and the size of the resource is beyond what volunteers can be expected to manage. The grassland area that needs management amounts to approximately 2ha (see Figure 1), and management should involve an early autumn hay cut, with collection of the clippings and disposal off-site or disposal on-site in dedicated composting locations⁸. Such management will, within three to five years, restore the grassland to favourable condition and increase the extent of wildflowers, which will be of benefit to pollinating invertebrates including butterflies and bees. Over a period of 15 years of management the grassland will develop into a high

⁵ Assumption is based on the water turbidity levels and lack of aquatic vegetation suggesting that fish stocks were above sustainable levels of 150kg per hectare. The removal of the fish stocks in November 2018 is too recent to have any impact on the ecological condition.

⁶ Natural Areas are defined as "biogeographic zones which reflect the geological foundation, the natural systems and processes and the wildlife in different parts of England... Biodiversity: The UK Steering Group Report, HMSO, 1995.

⁷ http://www.barrowupontrentparish.co.uk/blog/?page_id=1087

⁸ Specific composting locations below and/or at the edge of dense scrub can provide habitat for invertebrates, small mammals and reptiles

quality Lowland Meadow habitat that will significantly enhance the overall quality of Greenacres. Appendix 2 provides an outline method statement for the proposed grassland management work.

The metric calculations indicate that a programme of mowing will provide a net gain of 17.1 units. The 17.1 units gained off-site compared with the 13.48 units lost on-site provides a net gain of 3.53 habitat units, which represents a 23.2% gain for habitats.

Figure I: Greenacres Grassland Location and Extent



White areas are grassland

Conclusions

Without off-site compensation, the biodiversity metric calculator has identified a shortfall in the biodiversity units if the proposed scheme is developed. Natural England guidelines state that the “metric sits within a decision framework based on the mitigation hierarchy, which informs decision-making where application of the mitigation hierarchy⁹ and good practice principles¹⁰ has concluded that compensation for habitat losses **is justified**”. As the proposed development results in a shortfall, which cannot be mitigated on site, it will be necessary to implement compensatory measures.

⁹ Planning policy explained: <https://www.gov.uk/guidance/national-planning-policy-framework>

¹⁰ CIEEM, CIRIA, IEMA. 2016 Biodiversity Net Gain – Good Practice Principles for Development. https://www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf

For compensation, Natural England guidelines (section 7.1) state that *“Compensation for habitat losses can be provided by creation and by restoration or enhancement of existing habitats. Measures taken to improve existing habitats must provide a significant and demonstrable uplift in distinctiveness and/or condition.”* It is also important to note that Natural England advise against *“trading down”* and expect that habitats that are lost are replaced by habitats that are of similar or equal distinctiveness.

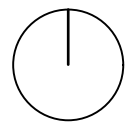
The biodiversity metric calculations demonstrate that a net gain for biodiversity can be achieved by the implementation of suitable off-site compensation scheme in addition to on-site mitigation. The example at Greenacres is based on Barrow-upon-Trent Parish Council adopting a funded programme of grassland management at the site for a period of time that is considered to be appropriate to the compensation requirement.

Page 5

Ref: I163.02_03_TN_mw_v2

Project Title: Land off Sinfin Lane, Barrow-on-Trent

Appendix I: Landscape Plan



A. THE PROPOSED SITE

Sinfin Lane runs northwards from Barrow on Trent at Twyford Road, to the junction of Deep Dale Lane and Moor Lane. The existing site contains a number of large industrial sheds, scrub vegetation with more mature trees along the northern and eastern boundaries and a roughly half hectare fishing lake.

B. SINFIN LANE ENTRANCE

The proposed site access will make use of an existing vehicle entrance.

C. WESTERN BOUNDARY

The existing Category A hedgerow along Sinfin Lane is retained and reinforced with dense native planting to improve the ecological connection along the western edge of the site. Ongoing management would allow this hedgerow to be maintained as a visual barrier to views from the road.

F. SOUTHERN BOUNDARY

Opportunity to add planting to 'soften' existing boundary and provide ecological linkage between Sinfin Lane and the eastern hedge belt.

G. EXISTING INDUSTRIAL BUILDINGS

The three largest existing buildings and site access are retained in the south-west corner of the site.

H. 'INTERNAL' PLANTING

Small spaces within the industrial area available for planting. Typically containing minimum 500mm topsoil and free draining, with groundcover and low shrub planting which is predominantly evergreen (including Vinca, Ilex, Herdera, Viburnum and Rubus). Larger beds to contain feature small fastigate trees and specimen shrubs for visual interest and habitat (including Carpinus spp., Sorbus spp., and Prunus spp., as well as shrubs such as Lonicera pileata and Prunus 'Otto Luyken').

D. EASTERN BOUNDARY PLANTING

The existing vegetation, generally willow, ash and hawthorn, along the eastern boundary is retained, brought under active management, and reinforced with new native hedgerow planting to form a 'hedge belt' to increase screening of the site from the east and south-east and enhance ecological connectivity.

E. RAILWAY LINE BOUNDARY PLANTING

The existing vegetation along the northern boundary is partially retained to maintain the ecological corridor. New planting will enhance the buffer and in time, help screen views of the development from the north. Suitable species include hawthorn, holly and field rose.

J. NEW WETLAND HABITAT

In the north western corner of the site is a new pond designed and managed for important amphibian, including common toad. Steep sides banks and plateaus create ideal habitat conditions. Marginal plants such as floating leaf pondweed, marsh marigold, watercress, water mint and lesser spearwort will not overcrowd the pond and help maintain the ideal habitat conditions. Additional seating around the pond offers a more natural setting in which people can sit.

EXISTING AND
PROPOSED SITE ACCESS

East Midland
AirportCars

Homefields
Kennels and
Cattery

High Voltage Cable and No Build Zone

T533-B1 OAK RETAINED
Part in the site, part in railway property.

T516-B1 Willow RETAINED
Multi-stemmed. Located on the boundary.
Extensively covered with bramble.

High Voltage Cable

EXISTING
WATERCOURSE

	RETAINED TREES
	RETAINED VEGETATION
	REMOVED VEGETATION
	PROPOSED VEGETATION
	NO BUILD ZONE (High Voltage Cable)
	BIN STORAGE AND CYCLE PARKING

NOTES:

1. Initial issue based on Rees Construction Management drawing R0023-001 P12.
2. Engineering drawings to be coordinated so that underground services including cables, pipes etc. avoid areas of proposed planting. Refer to Engineer's information for details.
3. Refer also to ACS tree survey ARB/3834/Y/100.

REVISIONS:

- Initial Issue: 2nd December 2019.

SINFIN LANE, BARROW UPON TRENT

dsa-ed.co.uk
0115 9818 745

LANDSCAPE STRATEGY

1086 004 -

1:500@A1
1:1000@A3

DSA
ENVIRONMENT & DESIGN

0m 10m 20m 50m 100m

Appendix 2: Greenacres Grassland Management

The proposed methods below will require the use of standard agricultural machinery and experienced personnel (agricultural contractor) who is / are familiar with hay making. Such work is not suitable for volunteers because of the extent of the grassland resource. Mowing, collection, tedding (if required) and baling will be carried out with tractor mounted machinery.

If the opportunity to obtain good quality hay is feasible, the contractor will be able to take a hay crop and sell it commercially. If there are any constraints to obtaining a hay crop (from year 3 onwards), such as the presence of too many injurious weeds (docks *Rumex* spp., thistles *Cirsium* spp., ragwort *Senecio jacobaea* and common nettle *Urtica dioica*) or problems with dog faeces, the contractor will inform the parish council so that the appropriate action can take place to enable commercial opportunities to be realised.

Years 1 and 2

1. Cut grassland (areas in white on Figure 1) in September¹¹ when weather conditions are favourable (dry sward and reasonably dry ground).
2. Allow grassland clippings to desiccate then remove by raking or bailing to designated locations on-site for composting. Composting locations will typically be located at the edge of dense scrub or plantation woodland, but away from the lagoon margins or areas of species-rich grassland.
3. Alternatively, the grassland can be cut with a forage harvester with the cut materials being removed immediately after mowing to the composting locations described above.

Years 3 to 15

1. Assuming that the immature scrub growth has been controlled and the sward condition improves, implement a programme of hay-making.
2. Cut grassland in late August to early September after seed-set of black knapweed *Centaurea nigra* has occurred¹².
3. If the grassland is of sufficient quality, leave to dry and take a hay crop. Remove off-site for sale. If the grassland is not of sufficient quality continue to dispose of clippings on-site as stated for years 1 and 2.

¹¹ It may be necessary during years 1 and 2 to cut the grassland with a flail mower because of the sward condition.

¹² Black knapweed seed set is late in the summer and most other flowers will have set seed by that time.