

Assessment of Potentially Functionally Linked Land – Lancaster South Area Action Plan

Summary of Wintering Bird Surveys Dec 2020 to Mar 2021



Highland Brow, Galgate
9th January 2021

For

Lancaster City Council

By

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1 INTRODUCTION

- 1.1 In July 2020 Lancaster City Council adopted a new Local Plan for the district, which contained a number of strategic growth areas including the designation of a “Broad Location for Growth” in South Lancaster, this includes the creation of a new settlement at Bailrigg Garden Village. References in earlier wintering bird survey reports prepared by Greater Manchester Ecology Unit (GMEU) refer to ‘Bailrigg Garden Village’, however they relate to the wider South Lancaster area, although the boundaries of individual compartments have been adjusted and a new compartment 7 added.
- 1.2 The City Council commissioned GMEU to undertake wintering bird surveys of the land that falls within the scope of the Lancaster South Area Action Plan (figure 1), to build the evidence base that will be used to prepare a new Development Plan Document setting out the detailed policies and land allocations for South Lancaster.
- 1.3 The primary objective of the bird surveys is to establish whether any of the land, which may be allocated for development, is functionally linked to the Morecambe Bay and Duddon Estuary Special Protection Area/Ramsar site and the Bowland Fells Special Protection Area (GMEU 2018).
- 1.4 The term ‘functional linkage’ refers to the role or ‘function’ that land or sea beyond the boundary of a European designated site might fulfil in terms of supporting the populations for which the site was designated or classified. Such an area of land or sea is therefore ‘linked’ to the site in question because it provides a (potentially important) role in maintaining or restoring a protected population at favourable conservation status.

Whilst areas beyond a site boundary might serve a function in respect of a designated habitat type, for example by being linked hydrologically to the qualifying habitat, in the context of this report ‘functional linkage’ refers only to land or sea which is linked to a qualifying species (whether an Annex II species for which a SAC has been designated, or a bird species for which a SPA has been classified).

To qualify as ‘functionally linked land’, an area should have been shown to be of substantive importance to the ecology of a qualifying species - that is, if the land were to become unavailable to the qualifying species the lifecycle of the species could be compromised. In practice, to be assessed as functionally linked a site or area should have been shown to support important numbers of qualifying species on a regular basis.

Because there are no established protocols for empirically defining functional linkage, a certain degree of expert opinion is needed when assessing a site or area for functional linkage.

- 1.5 Landscape assessments and wintering bird surveys of compartments one to six, and the north of compartment seven, were previously carried out by GMEU in 2017 and in February/March and October/November 2018, comprising at least three survey visits to each compartment and totalling approximately 92 hours of total survey effort. The results of these surveys are complementary to the current surveys and should be referred to in any overall assessment of the potential of the areas to be functionally linked to designated sites. In addition, GMEU carried out habitat surveys of the areas

concerned in 2017.

1.6 In previous surveys only one of the compartments surveyed (the north of Compartment 6, Forrest Hills) was assessed as having moderate potential to act as land Functionally Linked to the Morecambe Bay and Duddon Estuary SPA. This mostly concerns the northern part of the Forrest Hills compartment, and an area to the north, around Blea Tarn Reservoir (partly outside the compartment), assessed as having moderate potential because of the relatively high numbers of golden plover recorded in and close to these areas. (GMEU 2018).

1.7 Following discussions between Natural England and Lancaster City Council, it was agreed that insufficient survey effort had been carried out of the area to provide the necessary degree of certainty that the areas concerned were not functionally linked.

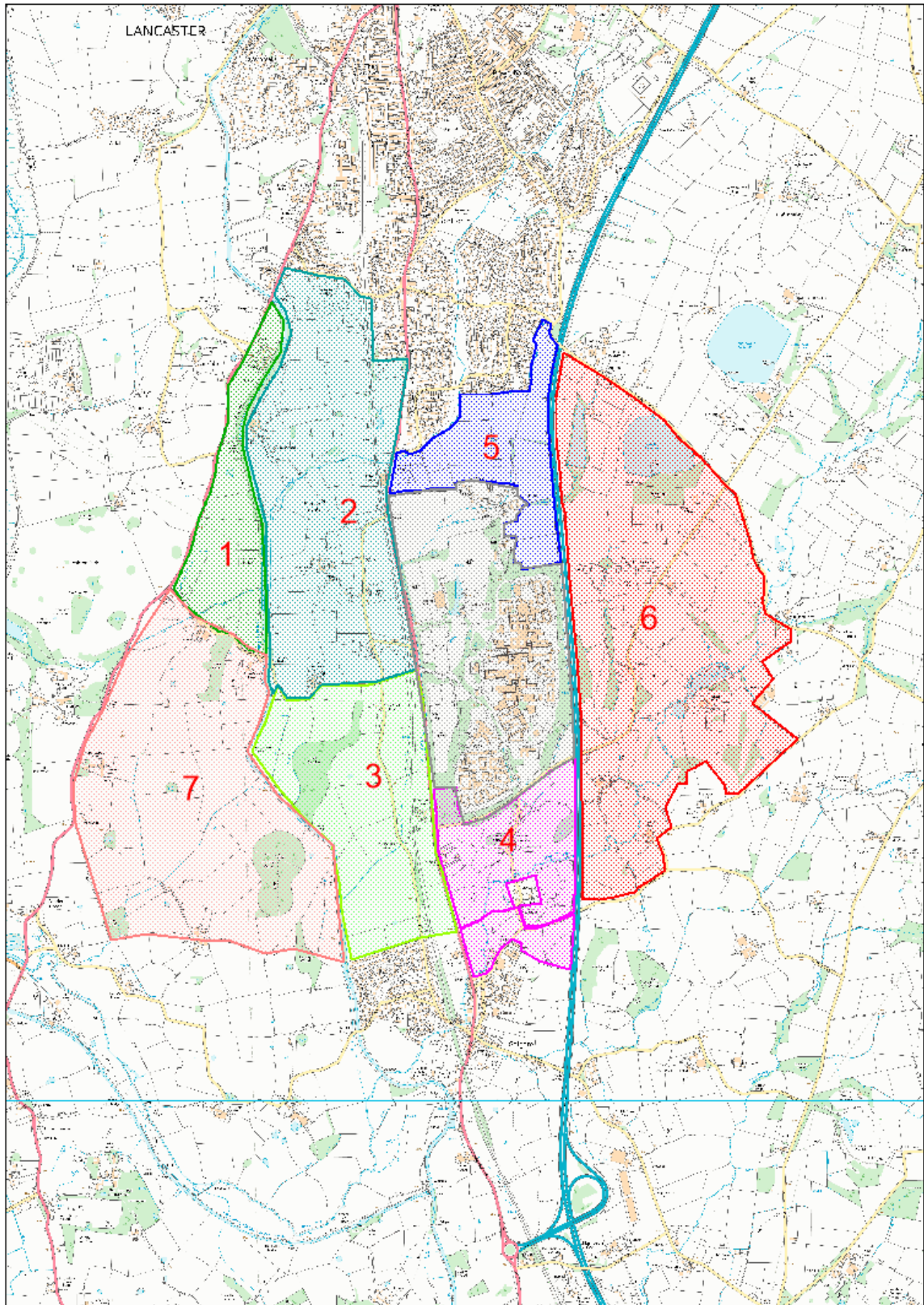
Additional surveys needed to be carried out between December 2020 and March 2021 to assess whether any changes had occurred in the use of the land by SPA qualifying species and to add to the existing evidence base.

Further, the extreme weather conditions experienced in February/March 2018, (sometimes referred to as “The Beast from the East” weather system, involving an unusually prolonged period of very cold weather and strong, cold winds) could potentially have displaced birds which in normal winter conditions would be present in the area.

1.8 Since 2018 further desktop information has been made available, including bird data from the Lancashire Environmental Record Centre, the Fylde Bird Club, the Lancaster and District Birdwatching society.

In addition, the Lancaster City Council Local Plan has been subject to a Habitats Regulations Assessment which has also assessed the area for its potential to be functionally linked to designated sites.

Figure 1 - The proposed area of the Lancaster South “Broad Location for Growth” and numbered survey compartments.



1.9 The Compartment boundaries are shown in figure 1 (page 5)

1. Land to the West of Lancaster Canal
2. Land surrounding Burrow Heights and Whinney Carr
3. South Lancaster
4. Ellel
5. Bailrigg
6. Forrest Hills
7. Land to the south of Tarnwater Lane (west of Lancaster Canal)

Compartment 5 Bailrigg to the north of Lancaster University is currently the subject of a planning application and has been surveyed and assessed by others in relation to this application for development.

2 Methods

2.1 New desktop data was obtained for the area from

- Lancashire Environmental Records Network (LERN)
- The Fylde Bird Club
- The Lancaster and District Birdwatching Society

2.2 Field surveys were led by Stephen Atkins, an experienced ornithologist, who is the Assistant County Bird Recorder for Greater Manchester, assisted by Zoe Barrett and Christopher Marston, both experienced field ecologists who specialise in bird surveys, and Principal Ecologist Derek Richardson. Survey maps were produced by Zoe Barrett.

2.3 The survey methodology employed was the same as in 2018 with a walkover of each compartment and point counts conducted from vantage points giving the best views over the surrounding landscape. The routes taken around the compartments were along public rights of way and minor roads, consequently some areas were not able to be surveyed comprehensively. This limitation was not considered to have significantly influenced the overall conclusions of the surveys.

Each survey visit was of at least five to six hours duration, the first two taking place on 29th December 2020 and the last completed on 31st March 2021.

The full survey schedule is shown in Table 1 below and covers the mid-winter period when most species will be settled on their wintering grounds and the start of return migration when birds will be staging in Lancashire prior to returning to their breeding grounds primarily in Iceland and Scandinavia.

Natural England recommends that comprehensive survey for functional linkage should involve bi-weekly surveys of land. However, in this case

- There is already existing recent survey data available for the areas concerned (except part of compartment 7)
- The landscape and habitat analysis of the areas concerned (GMEU 2017 and 2018) do not indicate that they have high potential to be functionally linked
- There is desk-top information available which supplement field surveys.

Accordingly, survey effort in 2020/2021 was considered to be proportionate and adequate to arrive at an accurate overall assessment of the potential of the area to be functionally linked.

Table 1 – Survey Schedule

Compartment no.	Survey Dates	Survey personnel
1	23/01/2021 and 27/03/2021	Stephen.Atkins and Zoe Barrett
2	23/01/2021 and 27/03/2021	Stephen.Atkins and Zoe Barrett
3	09/01/2021 and 21/03/2021	Stephen.Atkins and Zoe Barrett
4	29/12/2020 and 06/03/2021	Christopher.Marston
5	18/02/2021 and 15/03/2021	Derek Richardson
6	18/02/21, 27/02/2021 and 20/03/2021	Christopher.Marston and Derek Richardson
7	29/12/2020, 13/02/2021, 15/03/2021 and 31/03/2021	Stephen.Atkins, Zoe Barrett and Derek Richardson

In addition to the full compartment surveys listed above, certain areas of the compartments were monitored on other dates throughout the survey period.

- 2.4 Assessment – the compartments have been assessed using the Site Scoring System applied to the data collected during the 2017 and 2018 surveys (GMEU 2018 Table 1 pg 13, reproduced in Appendix 1).

2.5 Limitations

Birds are capable of rapidly changing foraging and refuge behaviour in relation to changing land uses.

In the survey areas, all within 5km of the coastal SPA, birds are in almost constant movement related to changing weather conditions, changes to land use and tidal conditions.

The survey results presented in this report can only record the birds present at the time the surveys were carried out and may not provide a true representation of the long-term use of sites and areas.

However, for the survey areas concerned there have been a number of surveys and assessments, carried out over a number of years, which do provide a high degree of confidence in the overall assessment.

3 Results

3.1 Desktop Data

3.1.1 Data from LERN and the Fylde Bird Club dating back to 2010 concerning the distribution of Pink-footed geese does not indicate that the areas surveyed are of significant importance for Pink-footed geese. All the available records indicate that, outside of the SPA, the areas south of Glasson Dock and around Thurnham Moss are of most value to geese (and swans). It is notable that inland Biological Heritage Sites (BHS) have been designated for wading and water birds associated with the Morecambe Bay SPA, and that these BHS sites lie to the south of the study area, particularly around Pilling Moss.

No significant numbers of geese have been recorded within the areas concerned in this study.

[note – awaiting full desktop records from Lancaster and District Birdwatching]

There are however significant bird records for a 2km grid square encompassing part of the study area, as reported in the HRA of the Lancaster Local Plan, although these records may be associated with Blea Tarn Reservoir.

Compartment 5 is currently the subject of an application for development (Lancaster City Council planning application reference 19/01135/OUT). Recent wintering bird surveys have been undertaken by others to inform this application, and an Appropriate Assessment has been undertaken. The surveys demonstrated that the compartment is not functionally linked; Natural England have accepted the results of this Assessment and have not raised any objections to the application on these grounds.

Parts of Compartment 2 have also been subject to recent planning applications (Lancaster City Council planning application reference 19/00332/OUT). This area was also subject to bird surveys undertaken by others and was not shown to be functionally linked.

It is notable that none of the areas included in this study appear to be visited on a regular basis by local birdwatchers, a possible indication that the areas are not known for their significant bird interest (birdwatchers tend to go where the birds are found).

This data confirms the views of GMEU surveyors, and that of local birdwatchers, that the areas of most value to birds outside of the SPAs are to the south of Glasson Dock to Pilling and to the north, around the Leighton Moss RSPB Reserve / SPA.

3.2 Field Surveys

3.2.1 Habitats

With the exception of compartment 7, the habitats were described in detail, in the previous GMEU reports (GMEU 2017, GMEU 2018).

The habitats and land use are largely unchanged with much of the land consisting of improved grassland closely grazed by sheep, therefore providing little in the way of food resources for Pink-footed Geese, but of some potential use to foraging waders such as Curlews, Golden Plovers and Lapwings. Some fields in compartments 1 and 3 (the same as in 2017/2018) contained maize stubble which in other areas in Lancaster district does attract flocks of Pink-footed Geese (e.g, Aldcliffe in January 2021)

3.2.2 Compartment 7 habitats

This is the largest compartment to the west of the A6 and extends from Tarnwater Lane in the north to Parkside Farm in the south. It is 1.5km across at its widest point between the A558 and the Lancaster Canal. The terrain is undulating rising to 36m asl in the centre of the site where the largest field is estimated at approximately 29ha. The only public rights of way are along the SW and southern boundaries and along the Lancaster Canal which forms the eastern boundary. The habitats and land use are similar in many respects to the adjacent compartments 1, 2 and 3. The predominant land use is sheep grazing and these fields consist typically of very short, uniform sward improved grassland unsuitable for Pink-footed Geese, but used by the above-mentioned wader species. A herd of dairy cows are kept at Parkside Farm. There are four plantation woodlands within the compartment, Crane Wood in the north (45m asl), Old Park Wood (40m asl) in the SE (the largest at approximately 10ha), the northern arm of Foretigg Wood (25m asl also in the SE) and Crow Wood (25m asl) in the SW. The ground flora includes locally frequent bluebell, dog's-mercury, lesser celandine, and wood anemone and these species are also present in the hedgerows which separate the fields.

3.3 Results of Field Surveys

3.3.1 Compartment 1 - Land to the west of Lancaster Canal

The boundary of this compartment has been amended and the fields to the south of Tarnwater Lane, those adjacent to Brantbeck Farm and Crane Wood itself are now included in compartment 7.

In addition to the two main surveys visits on 23/01/21 and 27/03/21, the fields to the north of Tarnwater Lane (west of the canal) were viewed from the lane and from the hilltop adjacent to Crane Wood during surveys of compartment 7 on 29/12/20, 13/02/21 and 31/03/21.

SPA qualifying species observed were small numbers of Lesser Black-backed Gulls (*Larus fuscus*), attracted to supplementary feed put out for the sheep, a pair of Shelduck which could potentially breed in the area, and four Lapwings. Curlew were heard calling overhead on two dates, but none were seen down on the fields. However, although the fields do have the potential to provide foraging areas for the species, given their susceptibility to disturbance and the level of farming activity noted, they are unlikely to be regularly used by significant numbers of qualifying species.

Other priority species (S41 NERC Act) present in small numbers were Tree Sparrows in the gardens at the west end of Tarnwater Lane (possible breeders), House Sparrows, Dunnocks, Song Thrushes and Starlings, all of which are likely to breed in the area. These are not qualifying species.

The fields to the south of Carr Lane and north of Tarnwater Lane are considered unlikely to attract Pink-footed Geese or Whooper Swans, sandwiched between the A588 to the west and the Lancaster Canal to the east and being a maximum of 400m across at the widest point. In addition, a high voltage power line which bisects these fields is likely to deter birds from landing.

The north of the compartment includes two small fields which are adjacent to the A558, one to the south of Pine Close (approximately 4ha) contained maize stubble but is a maximum 100m wide and the other opposite Deep Cutting Farm is even smaller, approximately 1ha.

The assessment of this compartment remains unchanged from 2018 and is scored as 2: Low potential to support wintering birds associated with Morecambe Bay & Duddon Estuary/Bowlands Fells SPAs (see figure 1) and to act as functionally linked land.

Table 2 Species Key

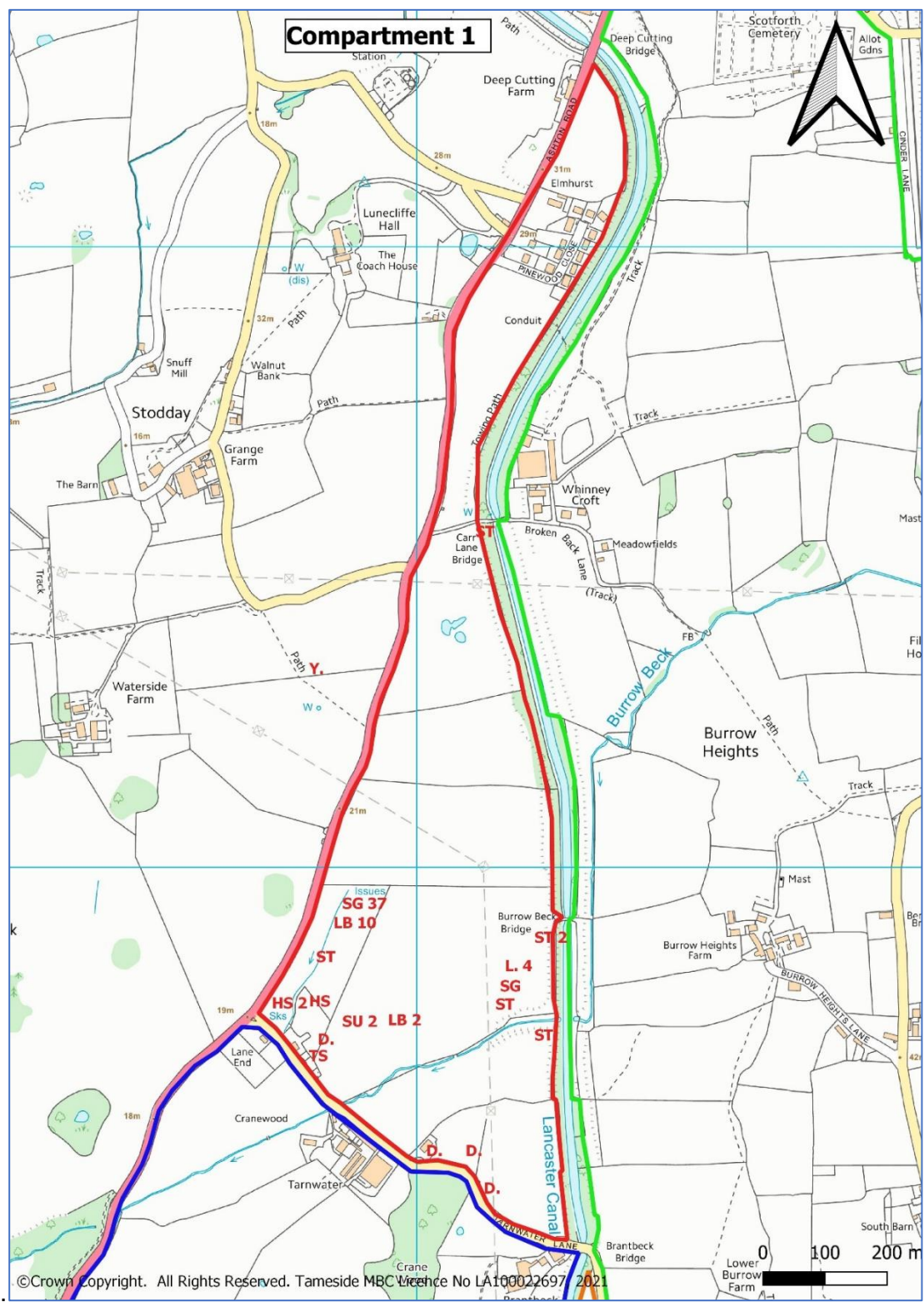
Species code	Species (English name)	Species (scientific name)	Designation
CU	Curlew	<i>Numenius arquata</i>	SPA, S41, Red-listed
D.	Dunnock	<i>Prunella modularis</i>	S41, Amber-listed
GP	Golden Plover	<i>Pluvialis apricaria</i>	SPA, Amber-listed
KF	Kingfisher	<i>Alcedo atthis</i>	Schedule 1 (W&C act)
L.	Lapwing	<i>Vanellus vanellus</i>	SPA/S41, Red-listed
LB	Lesser Black-backed Gull	<i>Larus Fuscus</i>	SPA, Amber-listed
LR	Lesser Redpoll	<i>Carduelis cabaret</i>	S41, Red-listed
ET	Little Egret	<i>Egretta garzetta</i>	SPA
HS	House Sparrow	<i>Passer domesticus</i>	S41, Red-listed
MU	Mediterranean Gull	<i>Larus melanocephalus</i>	Schedule 1 (W&C act) Amber-listed
OC	Oystercatcher	<i>Haemotopus ostralegus</i>	SPA, Amber-listed
PG	Pink-footed Geese	<i>Anser brachyrhynchus</i>	SPA, Amber-listed
RB	Reed Bunting	<i>Emberiza Schoeniclus</i>	S41, Red-listed
S.	Skylark	<i>Alauda arvensis</i>	S41, Red-listed
SG	Starling	<i>Sturnus vulgaris</i>	S41, Red-listed
ST	Song Thrush	<i>Turdus philomelos</i>	S41, Red-listed
SU	Shelduck	<i>Tadorna tadorna</i>	SPA, Amber-listed
TS	Tree Sparrow	<i>Passer montanus</i>	S41, Red-listed

SPA – Morecambe Bay and Duddon Estuary SPA qualifying species

S41 – Section 41 Natural Environment and Rural Communities (NERC) Act 2006
Species of Principal Importance in England

Red-listed and Amber-listed – Birds of Conservation Concern 4 (Eaton et al 2015)

Figure 2 – Compartment 1 SPA Qualifying Species and Priority Species



3.3.2 **Compartment 2 – Land surrounding Burrow Heights and Whinney Carr**

In addition to the two main surveys visits on 23/01/21 and 27/03/21, the fields to the north of Tarnwater Lane (east of the canal) were viewed from the lane and the land around Burrow Heights monitored during surveys of compartment 3 on 09/01/21 and 21/03/21.

The north of the compartment is on the urban fringe of south Lancaster and the eastern boundary separated from Lancaster University by the west coast main railway line and the A6. A flock of 60 Pink-footed Geese viewed from Scotforth Cemetery, flying NE at height at 16:23 hrs on 23/01/21, were almost certainly commuting over the area, and there was no indication that they had been using the compartment.

The most significant sightings were on 09/01/21, the day after heavy snowfall which blanketed the Bowland Fells SPA, whilst the fields in the compartment were clear of snow. 29 Lapwings and a Mediterranean Gull were foraging in the fields between Burrow Heights Farm and the Lancaster Canal with four additional Lapwings in a field to the NE of Whinney Croft. No Lapwings were seen in the compartment on subsequent visits which suggests these birds may have been forced down from the higher ground by the snow but returned once it had cleared.

Small numbers of gulls were foraging in the fields on 09/01/21 comprising 64 Black-headed Gulls, 11 Common Gulls and 10 Herring Gulls.

A Kingfisher (Schedule 1 Wildlife and Countryside Act) flew north along the Lancaster Canal on a single date, north of Brantbeck Bridge and could potentially breed along Burrow Beck or the canal itself. A brown hare (S41 NERC Act) ran up the east bank of the canal into the fields to the south of Whinney Croft.

A single Tree Sparrow (S41 NERC Act) was chirruping in a hedge to the north of South Barn, Burrow Road. None was seen along Burrow Heights Lane this year, but the lane was only surveyed briefly on one date out of consideration for local residents, as this was during the national Covid-19 lockdown. Other priority species (S41 NERC Act) present in small numbers around the compartment were House Sparrows, Dunnocks, Song Thrushes and Starlings, all of which are likely to breed in the area. A small flock of 24 Starlings was foraging in the field to the west of Scotforth cemetery with 67 Redwing and a Kestrel was near Burrow Bridge west of the A6 (the latter two species are not shown on the map.)

Although there is evidence that the fields in the Burrow Heights and Whinney Croft areas may be used by Lapwings when snow is covering the Bowland Fells and possibly the higher land at Forrest Hills, given that less than 50 birds were recorded, the assessment of this compartment remains unchanged from 2018 and is scored as 2: Low potential to support wintering birds associated with Morecambe Bay & Duddon Estuary/Bowlands Fells SPAs (see figure 1) and to act as functionally linked land.

Additionally, an abundance of ancient woodland indicators were seen in the hedgerows and along the canal including dog's-mercury, lords and ladies, opposite-leaved golden saxifrage, wood anemone, and ramsons, as well as lesser celandine.

25 April 2021



3.3.3 Compartment 3 – South Lancaster

In addition to the two main surveys visits on 09/01/21 and 21/03/21, the fields on the western edge of the compartment were viewed from the opposite side of the Lancaster Canal during surveys of compartment 7 on 29/12/20, 13/02/21 and 31/03/21.

As with compartment 2, on 09/01/21, the day after heavy snow, small numbers of Lapwing, 14 in total, were foraging on the improved fields and a flock of 16 flew SE over Tarnwater Lane, near Lower Burrow Farm accompanied by two Golden Plover, which flew south. The maize stubble fields at the southern end of the compartment were frozen and contained few birds apart from a Little Egret. Whilst the remains of the harvested crop could potentially attract Pink-footed Geese, the fields are adjacent to the Highland Brow road, which makes this an unattractive location for the geese, with the furthest point just 350m from the road. In addition, the Lancaster Canal towpath is visible from the fields and used regularly by walkers, and boat traffic on the canal would also cause disturbance to any geese present.

Displaying Lapwings were recorded here in 2018 and were present again on several dates with 3 displaying on 31st March. Three Shelduck were resting in these fields on the same date and could potentially breed in the area (Pyefinch and Golborn 2001).

Fourteen Lapwings were in fields adjacent to Ashton Park Bridge on 13/02/2021.

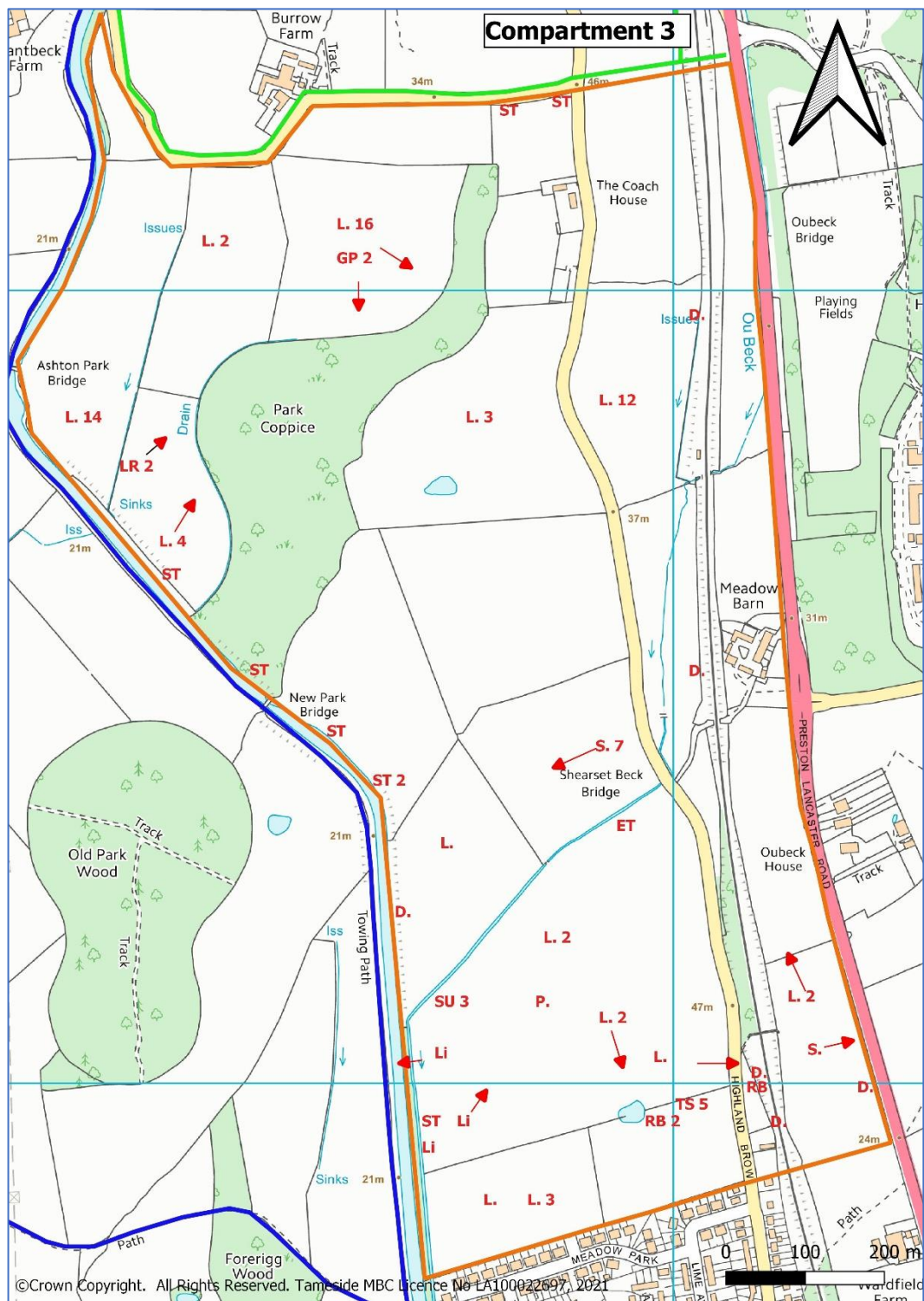
Other priority species (S41) recorded included 5 Tree Sparrows in a hedgerow in the stubble fields adjacent to Highland Brow, two Reed Buntings, a singing Linnet and a Grey Partridge heard calling after sunset in the same area. Five Song Thrushes were singing from the trees along the east side of the Lancaster Canal and three (one singing) were in the hedgerow along Tarnwater Lane, indicating a healthy local population. Seven Skylarks which may have been feeding in the stubble fields flew over near Shearset Beck Bridge. Dunnocks were seen at six locations around the compartment.

The assessment of this Compartment remains unchanged from 2017 and 2018 i.e. overall Score = 2. Low potential to support wintering birds associated with Morecambe Bay & Duddon Estuary/Bowlands Fells SPAs (see figure 1) and to act as functionally linked land.

However, it may be of medium potential for breeding priority species including Lapwing.

Common Toads (*Bufo bufo*) (S41 priority species) were heard calling from the Lancaster Canal at several locations and this is almost certainly a breeding site. The high-level artificial bank on the west side of the canal means that adults will most probably travel overland through compartment 3 on their way to and from the canal and enter the water on the east side. Toadlets will probably move through the compartment as well once they have left the water.

Figure 4 – Compartment 3 SPA Qualifying Species and Priority Species



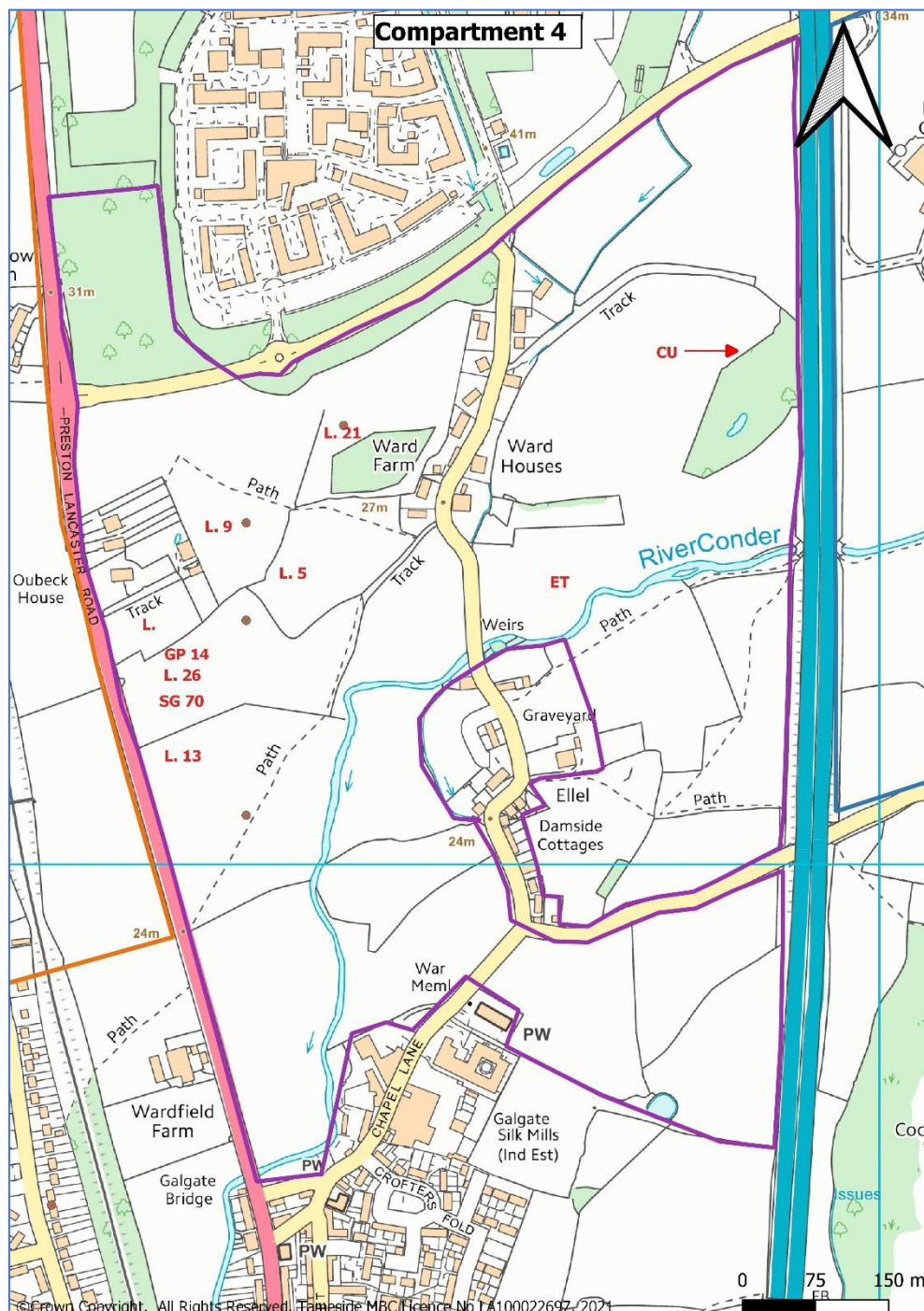
3.3.4 Compartment 4 – Ellel

In addition to the two main surveys visits on 29/12/20 and 06/03/21, the fields were viewed from the eastern end of the West Coast Main Line footbridge, above the A6, on 09/01/21 and 23/03/21. On 9th January, following heavy snowfall the previous day, 75 Lapwings, 14 Golden Plovers and 70 Starlings were foraging in the fields, which were clear of snow, in the area of Ward Farm, west of Chapel Lane and north of the River Conder. Runners and walkers were using the public rights of way across the fields and occasionally flushing the birds which were then resettling nearby. Pink-footed Geese would not tolerate this level of disturbance and are unlikely to make use of these fields. A male Stonechat was in the field between the railway and the A6.

The only SPA qualifying species recorded on the main surveys were a Little Egret flying north, a Curlew flying east and small numbers of gulls in low single figures.

The assessment of compartment 4 remains unchanged from 2018 i.e. overall Score = 2. Low potential to support wintering birds associated with Morecambe Bay & Duddon Estuary/Bowlands Fells SPAs (see figure 1) and to act as functionally linked land.

Figure 5 – Compartment 4 SPA Qualifying Species and Priority Species



3.3.5 Compartment 5 - Bailrigg

Note that this compartment has recently (2019) been surveyed by others in relation to a planning application. It was concluded that the compartment is not functionally linked, a conclusion which has been accepted by Natural England.

The compartment was visited on 18/02/2021 and 15/03/2021. The only birds of interest recorded were on the 15/03/2021 when 7 Lapwings were recorded.

3.3.5 Compartment 6 – Forrest Hills

Compartment 6 was surveyed on the 18/02/2021, 27/02/2021 and 20/03/2021. The compartment boundary has been extended since 2018 to include Blea Tarn Reservoir and the land west of the reservoir to the M6.

A large area of land to the east of Hazelrigg Lane and north of the Forrest Hills Golf Complex is also being surveyed by others (TEP) in relation to the possible development of a solar farm on the land. Preliminary results of these surveys indicate that the land is not used by significant numbers of notable bird species (*TEP, personal communication*).

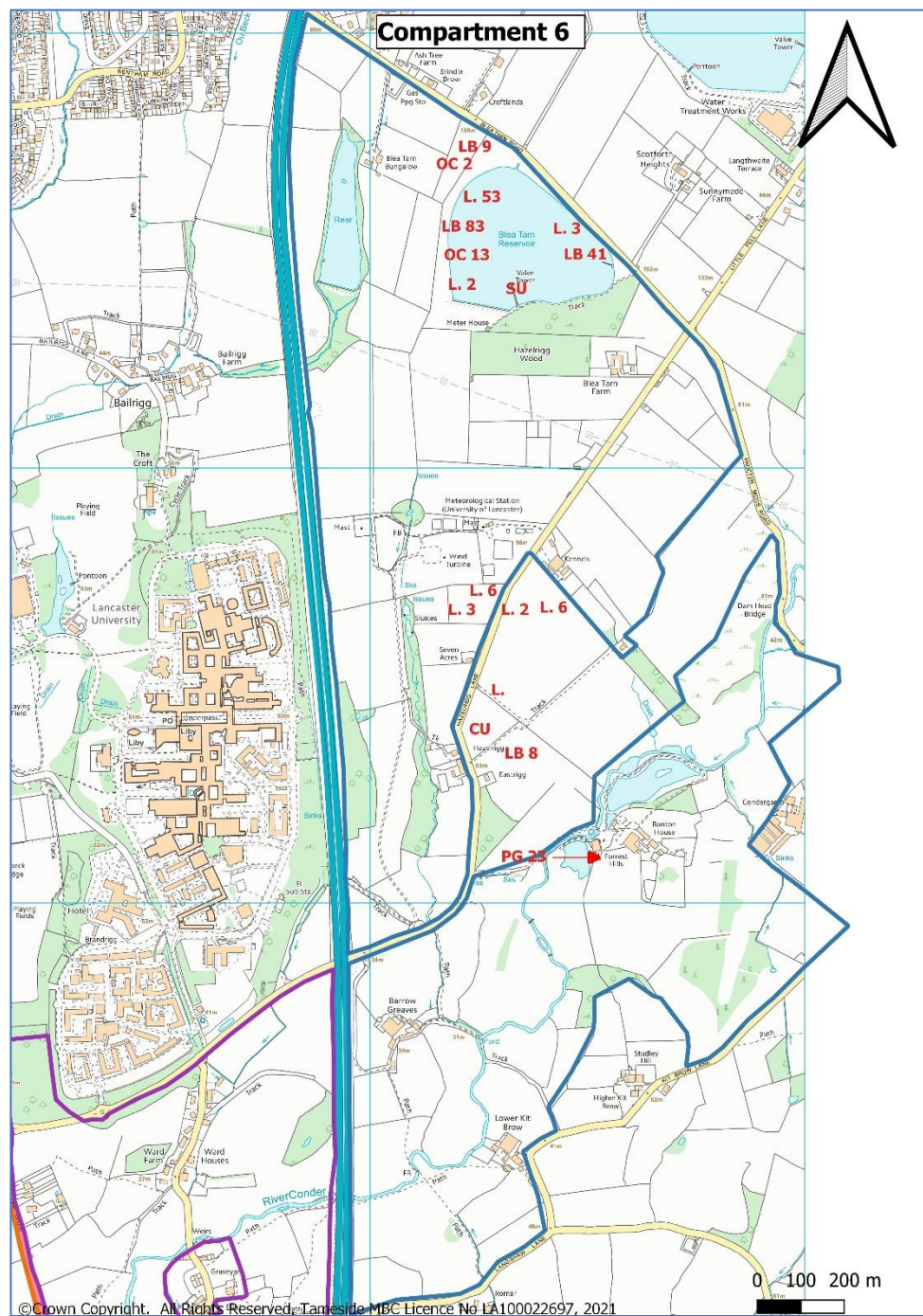
Nevertheless, a few notable species were observed and recorded and are shown on the compartment 6 map.

The only Pink-footed Geese recorded was a flock of 23 which flew east on 27/02/21 near to the Forrest Hills Golf Course. These were flying over the area and not using the compartment.

SPA qualifying species observed were mainly at Blea Tarn Reservoir as follows: 92 Lesser Black-backed Gulls, 55 Lapwings, 15 Oystercatchers and a single Shelduck present on the February visit with few birds observed here on the March surveys, apart from 41 Lesser Black-backed Gulls. Elsewhere in the compartment, eight Lapwings, eight Lesser Black-backed Gulls and a single Curlew were on the fields within the proposed solar farm development. Nine Lapwings were in a field on the opposite side of Hazelrigg Lane, in March.

The results of the 2021 surveys when compared with those from the other compartments would suggest an overall score of 2: Low potential to support wintering birds associated with Morecambe Bay & Duddon Estuary/Bowlands Fells SPAs (see figure 1) and to act as functionally linked land. However, given the presence of Golden Plover, Snipe, Lapwing and Oystercatcher in 2018 and the observations of the latter two species in 2021, the assessment remains as 3: Moderate potential to support overwintering birds associated with Morecambe Bay / Bowland Fells and to act as Functionally Linked Land. This higher potential is associated with the northern part of the compartment around Blea Tarn.

Figure 6 – Compartment 6 SPA Qualifying Species and Priority Species



3.3.6 Compartment 7 – Land to south of Tarnwater Lane (west of Lancaster Canal)

This is a new compartment, not previously surveyed except for the fields to the south of Tarnwater Lane and those adjacent to Brantbeck Farm and Crane Wood which were originally part of compartment 1. Consequently, four visits were carried out in December, February and March totalling 26.5 hours of survey effort.

The area stands out as being the most important compartment for SPA qualifying species, especially Curlew, Lapwing and to a lesser extent Golden Plover. The only Pink-footed Geese seen was a flock of 300 flying over the area in December which were initially obscured from view by Crow Wood (SD464559) and passed almost directly overhead flying NW towards the Lune estuary. The flock may have come from the Thurnham area which lies due south and were probably just flying over the compartment.

A significant sized flock of 431 Lapwings was foraging with three Golden Plovers and 161 Starlings in two fields between Parkside Farm and Old Park Wood on 29/12/2020. The birds were attracted by muck spreading but none were seen here on the three subsequent visits when muck spreading wasn't taking place. However, a flock of 186 Lapwings was feeding in fields north of Heronswood Farm, adjacent to the A588, on 13/02/2021 and 30 were in the field to the south of Tarnwater Lane, which may have joined the former.

28 Curlews were circling low over fields to the SE of Parkside Farm on 13/02/2021, just to the south of the compartment boundary, then landed out of sight. Given the proximity of the estuary at Conder Green (650m to the west/SW at its closest point) the fields within the compartment may well be used by Curlew for feeding.

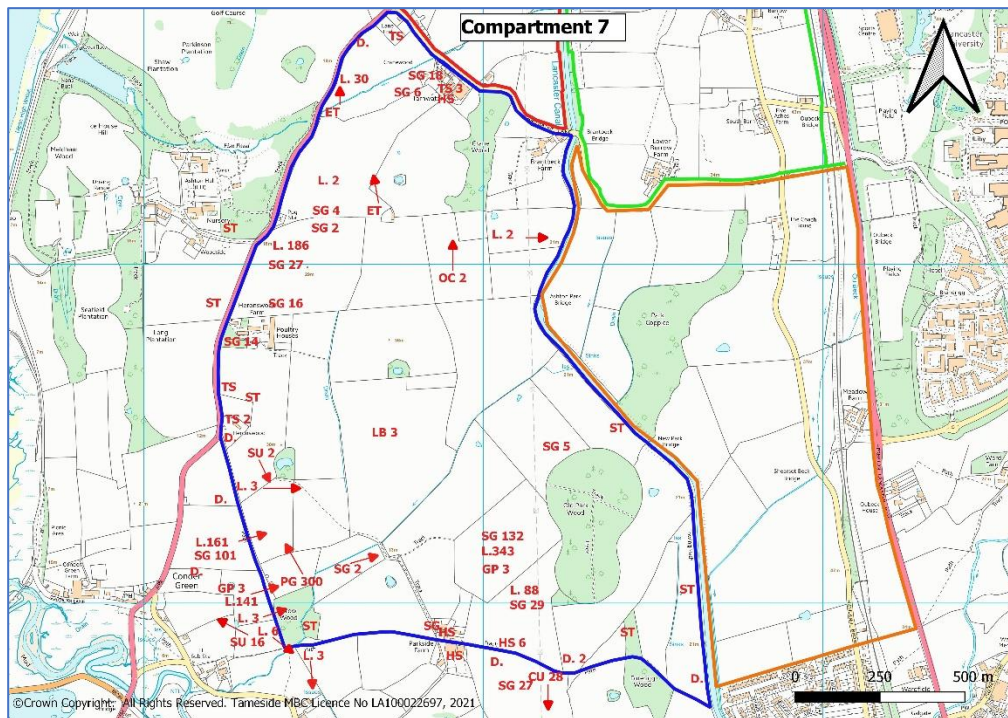
Single Little Egrets were foraging in Burrow Beck between Tarnwater Lane and the A588, and in a beck just outside the compartment to the SW of Crow Wood. A total of eight Snipe were in flight on 13/02/2021 near Crow Wood and Old Park Wood. Shelduck were in flight, 2 SE and 16 NW and a pair of Oystercatcher N on 31/03/2021; there is suitable breeding habitat within the compartment and both species nest inland.

Priority (S41) species recorded during the surveys of compartment 7 were: Brown Hare seen once on 29/12/2020, and several times (possibly more than one individual) on 31/03/2021, in the fields between Heronswood (SD461561) and Crow Wood, Tree Sparrow at Tarnwater hamlet, Lane End and Heronswood, House Sparrow, Dunnock and Song Thrush.

Other species of interest was a Green Sandpiper feeding in a ditch adjacent to the Lancaster Canal, north of New Park Bridge where a bird was seen during surveys in early 2017. A female Goosander flew to its nest cavity in an ash at the southern end of Foregigg Wood and a Raven was by the canal in the vicinity of Ashton Park bridge.

Given the use made of the farmland by the highest numbers of Lapwings and Curlews recorded across all six compartments, compartment 7 is assessed as 3. Moderate potential to support overwintering birds associated with Morecambe Bay & Duddon Estuary/Bowlands Fells SPAs and to act as Functionally Linked Land.

Figure 7 – Compartment 7 SPA Qualifying Species and Priority Species



4 Overall Summary and Discussion

Whilst the surveys carried out between December 2020 and March 2021 have collected a considerable amount of new data from these areas of South Lancaster which, as far as we are aware, normally receive little coverage, the assessments reached following the 2018 surveys (GMEU 2018) remain unchanged.

However, most areas of the new compartment 7 did not receive any coverage in 2018 and the numbers of birds using it in 2020/2021 were significantly higher than the other compartments. Consequently, it has been assessed as having moderate potential to act as land Functionally Linked to the Morecambe Bay and Duddon Estuary SPA.

In addition, the northern part of the Forrest Hills compartment 6, which now includes Blea Tarn Reservoir and the surrounding land, maintains its assessment as having moderate potential because of the relatively high numbers of Golden Plover recorded in and close to the compartment in March 2018. It is recommended that these areas are re-surveyed as part of any future applications for development in the compartments.

Compartments 1, 2, 3 and 4 are considered to have low potential to act as Functionally Linked land but nonetheless do have ecological value and we would recommend that the species recorded during the surveys going back to 2017 are considered when drawing up development plans. There are several Biological Heritage Sites within the compartments including the Lancaster Canal which bisects the area.

Unlike 2018, the winter weather did not have a major impact on the distribution of birds across the South Lancaster area. Except for the survey on January 9th, 2021, when heavy snowfall the preceding day increased the numbers of Lapwings and Golden Plovers using compartments, 2,3 and 4, the weather was cold and dry on the survey days and the ground unfrozen.

Table 2 Summary scores for Compartments Surveyed

Compartment no.	Compartment name	Potential for the Compartment to act as Functionally Linked Land
1	Land to the west of the Lancaster Canal	2 = Low potential
2	Land surrounding Burrow Heights and Whinney Carr	2 = Low potential
3	South Lancaster	2 = Low potential
4	Ellel	2 = Low potential
5	Bailrigg	2 = Low potential
6	Forrest Hills (northern section)	3 = Moderate potential
6	Forrest Hills (southern section)	2 = low potential
7	Land to the south of Tarnwater Lane (west of Lancaster Canal)	3 = Moderate potential

4.1 Recommendations

4.1.2 Further Surveys

Since birds are mobile in their habits and can change site preferences, it is recommended that further site-specific surveys (project level surveys) will be needed to inform any proposals for development in the areas covered by these surveys.

4.1.3 Potential Mitigation, Compensation and Net Gain

The area as a whole is very large and could potentially accommodate mitigation and compensation measures for the impacts of development on birds, should such impacts be identified in future. In addition, the NPPF strongly encourages development to achieve a net gain in biodiversity.

For water and wading birds, land-use improvements of benefit could include –

- The creation of wetter areas of grassland and areas of open standing water, particularly in winter (this could mean maintaining higher water levels in ditches)
- Only using heavy machinery outside of the main bird breeding season
- Checking for nesting birds before undertaking management
- Restricting the use of herbicides
- Managing grazing to avoid harm to nesting birds
- Maintaining hedges so that they are lower than 2m

5 REFERENCES

Wintering Bird Surveys of Sites in Lancaster Under Consideration for Potential Future Development (GMEU 2017)

Assessment of Potentially Functionally Linked Land. Bailrigg Garden Village Lancaster (GMEU 2018)

Birds of Conservation Concern 4 (Eaton et al 2015)
British Birds 108 (708-746)

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APPENDIX 1

Score	Description	Factors influencing overall site score
1	Very low potential to support overwintering birds associated with Morecambe Bay	<ul style="list-style-type: none"> No existing target bird species records (from available desk-top data) No target bird species recorded during field surveys Site further than 5km from the SPA Field size smaller than 4ha Lack of suitable habitats present to support over-wintering birds Lack of suitable habitats on surrounding land to support over-wintering birds Land use hostile to wintering birds Site very likely to be subject to significant disturbance
2	Low potential to support overwintering birds associated with Morecambe Bay	<ul style="list-style-type: none"> No or few existing target bird species records (from available desk-top data) No or few target bird species recorded during field surveys Site further than 4km from the SPA Field size smaller than 5ha Lack of suitable habitats present to support over-wintering birds Lack of suitable habitats on surrounding land to support over-wintering birds Land use unfavourable to wintering birds Site likely to be subject to significant disturbance
3	Medium potential to support overwintering birds associated with Morecambe Bay	<ul style="list-style-type: none"> Some existing target bird species records (from available desk-top data) Some target bird species recorded during field surveys Site further than 3km from the SPA Field size smaller than 6ha Lack of suitable habitats present to support over-wintering birds Lack of suitable habitats on surrounding land to support over-wintering birds Land use neutral for wintering birds Site likely to be subject to some disturbance
4	High potential to support overwintering birds associated with Morecambe Bay	<ul style="list-style-type: none"> Site known to support overwintering bird populations (from available desk-top data) Significant numbers of target bird species recorded during field surveys Further than 2km from the SPA Field size greater than 6ha Open grassland / wet grassland habitats present Surrounding land supports suitable habitats Land use favourable to wintering birds Site unlikely to be subject to significant disturbance
5	Very high potential to support overwintering birds associated with Morecambe Bay	<ul style="list-style-type: none"> Site known to support significant important overwintering bird populations (from available desk-top data) Significant numbers of target bird species recorded during field surveys Within 1km of the SPA Field size greater than 7ha Open grassland / wet grassland habitats present Surrounding land supports suitable habitats Land use very favourable to wintering birds Site very unlikely to be subject to significant disturbance