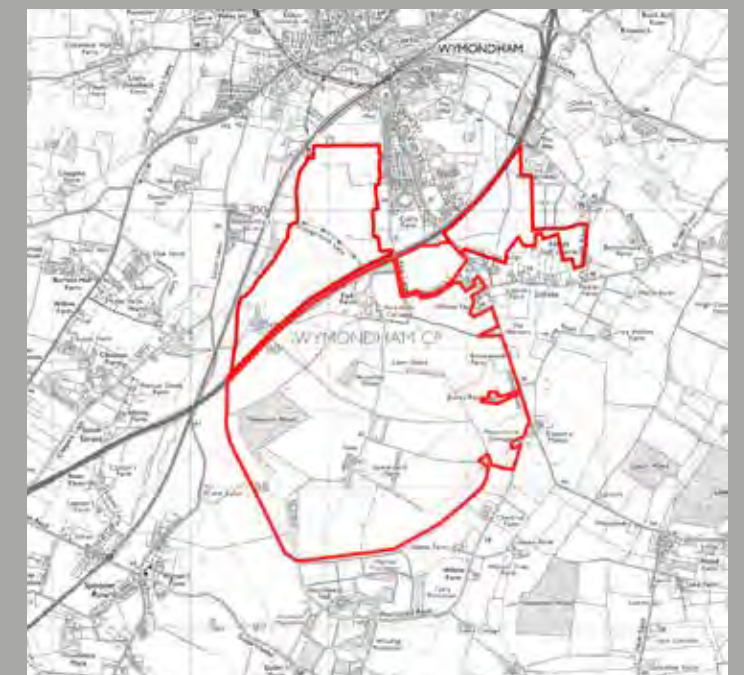



Landscape and Visual Appraisal
(James Blake Associates)

Proposed Silfield Garden Village, Wymondham, Norfolk
LANDSCAPE AND VISUAL APPRAISAL
for Residential Led, Mixed Use Development

on behalf of Orbit Homes and Bowbridge Strategic Land
February 2020



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Document Number: JBA 19/309 - Doc2		Document Reference: LANDSCAPE STATEMENT Proposed Silfield Garden Village, Wymondham, Norfolk 			

EXECUTIVE SUMMARY

Scope

This landscape and visual appraisal (LVA) has been prepared to determine the constraints and opportunities in respect of a potential garden community on land to north and south of the A11 at Silfield, Norfolk.

The LVA has determined the landscape and visual constraints and opportunities regarding the wider site area and its landscape context. The analysis will influence the assessment of the development potential of the wider site area, to inform master planning and the identification of developable areas.

Site Description

The Site comprises an extensive area of landscape to the north and south of the A11 dual carriageway. Whilst the landscape exhibits some of the key local landscape characteristics, there are few defining characteristics that elevate the landscape in general to a 'valued landscape' in NPPF terms. Urban influences such as the Wymondham Industrial Estate detract from the northern edge, and the A11 is a strong urbanising feature. Recreational value is limited to a two public footpath routes, through mainly arable land.

Vegetation on the site is largely limited to the arable land use; field enclosures are defined to a degree by hedgerows however these are fragmented in places, with many of the fields subject to post war intensification and hedgerow removal. Occasional hedgerow trees are present but are not frequent across the site. Several small woodland copses are present within the Site as well as Peaseacre Wood, an area of designated Ancient Woodland. In the wider landscape field boundaries are defined by mature and continuous hedgerows and also by linear belts of trees and woodland.

Landscape Baseline

At the district level (South Norfolk Landscape Character Assessment (2001) the Site straddles three different Landscape Character Areas (LCAs), the Wymondham Settled Farmland Plateau (D1), the Tiffy Tributary Farmland (B2) and the Ashwellthorpe Farmland Plateau (E1). Key characteristics of all of these LCAs include:

- Large scale arable farmlands in large fields with sparse hedgerows and hedgerow trees with some pastoral farmland in the valley;
- Framed and long-range views into adjoining character areas, and towards important landmarks; and
- Elements of vernacular interest.

Visual Baseline

The combination of relatively gentle topography, the elevation and location of the Site, and numerous substantial woodland belts means that the site is well screened from many potential viewpoints. The visual envelope comprises open countryside with scattered settlement made up of Wymondham to the north and smaller villages and hamlets including Silfield and Spooner Row to the south and east. The principal views towards the Site are from the surrounding road network and Public Rights of Way which run through the Site itself

Likely Effects

Effects on landscape character will occur at a site level and its immediate landscape context and have little influence on the character of the wider landscape.

The nature of visual effects is such that the greatest degree of effect will be from locations directly adjacent to the Site.

From the wider countryside, the effects will be much reduced due to the limited visibility, existing context of the settlement edge and mitigation inherent in the proposed development which, over time, will help to integrate the proposed development into the landscape.

Landscape Strategy

The preliminary development and landscape strategy aims to maintain and enhance the existing green infrastructure network and provide a series of proposals for retaining existing green infrastructure as far as possible, and creating new areas of open space that respond to local landscape characteristics such as landform, hydrology, field boundaries, tree belts etc; all physical and enduring features in the landscape.

Consequently, the use of existing landscape components to guide the landscape strategy and subsequent augmentation of these components can create a high-quality environment which respects the character of both the Wymondham urban area and the wider countryside.

Summary

Notwithstanding some degree of landscape and visual impact, development of the Site can come forward based on a sensitively designed mixed-use scheme with only limited landscape and visual effects at a localised level. Such impacts can successfully be avoided or reduced through effective mitigation at the detailed design stage.

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1. INTRODUCTION

1.1 Background

1.1.1 James Blake Associates Ltd. have been instructed by David Lock Associates, on behalf of Orbit Homes and Bowbridge Strategic Land, to undertake a preliminary appraisal of landscape and visual matters in relation to the proposed development of a new settlement of around 6,500 homes on land to the north and south of the A11 at Silfield, Wymondham, Norfolk (referred to as 'the Site').

1.1.2 The report has been prepared to support the representations to the Regulation 18 Greater Norwich Local Plan consultation; and the master planning of Silfield Garden Village.

1.1.3 This appraisal of landscape and visual impacts (LVA) has been undertaken to determine the various landscape and visual constraints and opportunities regarding the wider site area and its context, how these might serve to influence the potential for development in respect of a strategic masterplan, and to influence an inherent landscape strategy as part of that masterplan.

1.2 Site Overview

1.2.1 The Site area is located on the southern edge of Wymondham, occupying land immediately north and south of the A11, adjacent to the existing urban area of Wymondham and to the west and north-west of the existing settlement of Silfield. The Site has direct physical and visual links to the existing settlement edge. The Site is irregular in plan form and comprises several arable field enclosures extending from the urban edge in the east to Bays River in the west.

1.2.2 Additional information and a more detailed description on the physical components, landscape character and visual amenity of the site and study area are set out in later sections of this LVA.

1.2.3 This LVA refers to a broad 'study area' for the purposes of the appraisal process (refer to Figure 1, Site Location and Study Area). The associated study area extends approximately 3km in all directions.

1.3 Methodology and Approach

1.3.1 The appraisal follows the principles of baseline assessment as set out in GLVIA3¹, and focuses on establishing the information relevant to the potential future development of the site. In line with the current guidance, the landscape resource and views are appraised separately.

1.3.2 The report assesses the potential landscape and visual constraints and opportunities of the site and its context, namely:

- The landscape as a resource – by identifying important elements and features within and adjacent to the site; appraising landscape character and its key characteristics; and considering the value attached to the landscape as a whole;
- Views and visual amenity – by identifying the extent of the visibility of the site; representative views as experienced by local residents and visitors to the area; and the existing nature of these views; and

1 ¹Guidelines for Landscape and Visual Impact Assessment - 3rd Edition (GLVIA3). Landscape Institute and IEMA. 2013

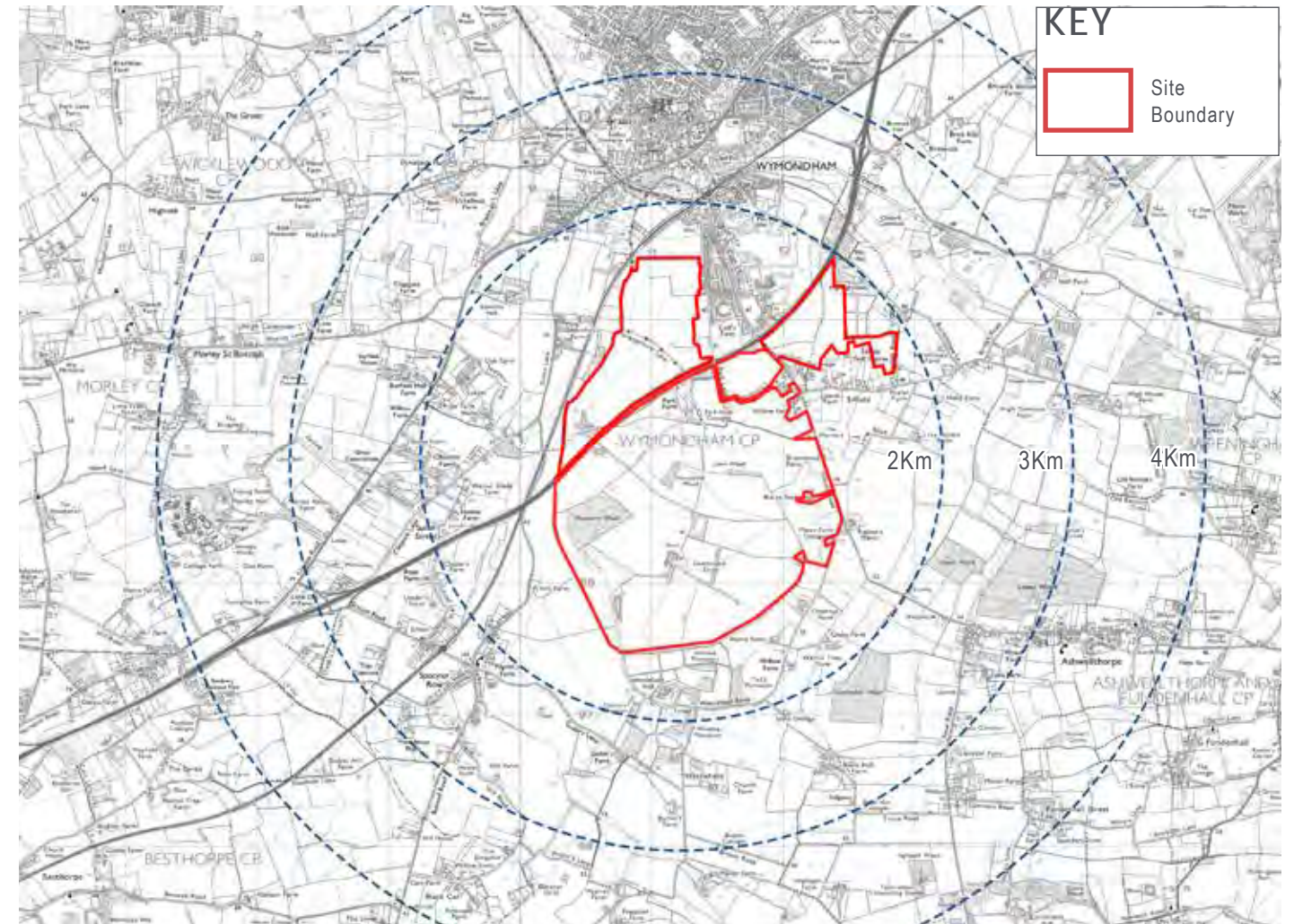


Figure 1: Site Location and Study Area

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- Green Infrastructure – by exploring opportunities for the creation of open space as part of a wider strategic network.

1.3.3 The information was used to inform and develop a landscape-led strategy for residential development with associated green infrastructure and open space. It is envisaged that this strategy will provide an overarching vision and establish design principles for future development that minimise potential landscape and visual effects.

1.3.4 This assessment was informed by a desk study of current planning policy, designations, landscape character (including published landscape character assessments) and green infrastructure strategies as well as aerial/OS mapping. The desk study was supported by field survey, with site visits undertaken on the 7th and 22nd of January 2020.

1. INTRODUCTION Continued.

- 1.3.5 Photographs were taken with a digital camera with a 50mm lens (equivalent focal length) at approximately 1.8 metres in height. These are presented as a series of viewpoints and have been used to inform the LVA (included as Figure 6: Visual Analysis and Figure 7: Viewpoint Photographs 1 to 22). Photographs taken in winter represent the worst case scenario in terms of visual screening; visibility will be lower in summer when deciduous vegetation is in full leaf.
- 1.3.6 Landscape features and elements provide the physical environment for flora and fauna and the associated importance of biodiversity assets. This LVA does not consider the value, susceptibility or importance on ecology and biodiversity, nor does it consider impacts from an ecological stance.
- 1.3.7 Heritage assets such as Scheduled Monuments, Listed Buildings and Conservation Areas all contribute to the overall present day landscape character, context and setting of an area. These aspects have been given consideration within this LVA in terms of physical landscape resources (for example trees and hedgerows) and also landscape character. However, this LVA does not address the historic significance, importance or potential impacts on heritage assets and designations; these assets are assessed in the context of landscape and visual matters only. Heritage matters are addressed separately in the Heritage Statement prepared by CgMs Heritage.
- 1.3.8 Having established the relevant baseline position, the appraisal process then establishes landscape and visual receptors, specifically in response to the nature of the proposed development and identifies constraints and opportunities relevant to the study area. The appraisal then considers the nature of potential impacts and consequently, how these can inform an iterative approach to design.

2. SITE AND IMMEDIATE CONTEXT

2.1 Site Description

2.1.1 The area (approximately 451ha) is irregular in shape and comprises two principal areas: the northern parcel, and southern parcel, on either side of the A11 dual carriageway.

2.1.2 The Site lies outside of the current settlement boundary and in planning terms is classified as 'countryside'. The land use of the Site is predominantly arable, set across regular field enclosures which become slightly smaller in scale within the southern parcel. In the wider landscape, arable land continues to dominate however becomes smaller in scale to the south-east, away from the settlement edge; some small areas of woodland are also present.

2.1.3 Vegetation on the Site is largely limited to the arable land use; field enclosures are defined to a degree by hedgerows however these are fragmented in places, with many of the fields subject to post war intensification and hedgerow removal. Occasional hedgerow trees are present but are not frequent across the site. Several small woodland copses are present within the Site as well as Peaseacre Wood, an area of designated Ancient Woodland. In the wider landscape field boundaries are defined by mature and continuous hedgerows and also by linear belts of trees and woodland.

2.1.4 Public access to the site is limited. A public footpath, PRoW Wymondham FP33 runs through the northern parcel, connecting Park Land in the east to Wymondham Road in the west via the railway line. Within the southern parcel of land a footpath, PRoW Wymondham FP19 (which merges with PRoW Wymondham FP34 beyond Park Farm) crosses the Site east-west linking the to the PRoW within the northern parcel of land via the A11. A public footpath, Wymondham FP21 runs north-south through a sub-parcel of the southern parcel (see paragraph 2.1.19).

Northern Parcel

2.1.5 The northern parcel, which extends to approximately 80ha comprises entirely agricultural land, which at the time of survey was under arable cultivation.

2.1.6 Vegetation is largely limited to the site boundaries with mixed species native hedgerows along the western and eastern boundaries of this parcel comprising species such as *Cornus sanguinea*, *Corylus avellana*, *Crataegus monogyna*, *Prunus spinosa* and *Quercus robur*. There is also an internal hedgerow from the existing field access point from Park Lane marking a historic field boundary.

2.1.7 A small area of mixed broadleaved plantation woodland lies towards the south-eastern corner of this parcel comprising species such as *Acer campestre*, *Corylus avellana* and *Quercus robur*. Further areas of woodland lie towards the south-western corner of the Site, with a mixed use broadleaved plantation and a single species broadleaved plantation comprising *Alnus cordata*.

2.1.8 None of this existing vegetation is subject to Tree Preservation Orders (TPOs).

2.1.9 The land falls gradually to from east to west, falling from approximately 45m AOD along the eastern site boundary with Park Lane, to approximately 40m AOD along the western boundary near the railway line.

2.1.10 Beyond the northern boundary is an earth bund which serves to screen views of Wymondham Industrial Estate.

2.1.11 A wet ditch enters the parcel in the south-western corner from a culvert below the A11. Furthermore, there are two ponds located within this parcel.

Southern Parcel

2.1.12 The southern parcel, which extends to approximately 371ha comprises agricultural land, areas of woodland and a number of existing farm buildings and associated farmsteads at Park Farm and Lower Park Farm.

2.1.13 Hedgerows are more prevalent within this parcel, with many of the existing fields defined by mixed-species boundary hedgerows, some of which are considered to be species rich (refer to Ecology Technical Note prepared by BSG Ecology). The most prominent species are *Acer campestre*, *Carpinus betulus*, *Cornus sanguinea*, *Corylus avellana* and *Ilex aquifolium*. Many of the existing hedgerows are associated with a pattern of wet ditches.

2.1.14 Similarly the northern parcel, the southern parcel incorporates areas of scattered woodland and copses. The largest and most prominent is Peaseacre Wood, an area of designated Ancient Woodland, comprising species such as *Acer campestre*, *Acer pseudoplatanus*, *Corylus avellana*, *Crataegus monogyna*, *Fraxinus excelsior* and *Salix alba*.

2.1.15 Bays River, a headwater stream and tributary of the River Tiffey (itself a tributary of the River Yare) runs for approximately 2km through the whole Site. It flows into the Site at its south-eastern corner and forms the boundaries between a number of arable fields and Peaseacre Wood within the southern parcel before turning abruptly west and joining the Site's western boundary where it continuous to flow north beyond the western boundary of the northern parcel. It leaves the Site within the northern parcel of land to enter the Bays River Meadows South County Wildlife Site.

2.1.16 A drain runs the width of the southern parcel from east-north west. There are also a number of wet ponds within this parcel.

2.1.17 The southern parcel falls from approximately 56m AOD along the eastern boundary with Silfield Road to approximately 40m AOD along the western boundary with Bays River.

2.1.18 Verdon's Lane separates the parcel into two distinct areas although the smaller parcel to the north-east of this parcel is also agricultural land and is broadly similar in character to the wider southern parcel.

2.1.19 A second smaller sub-parcel of approximately 31ha lies to the north-east of Silfield Road and comprises further agricultural land which is bound by existing drains to the north-east. To the south of this parcel lies the Silfield Village Pitch and Put which incorporates substantial tree belts. A public footpath, Wymondham FP21 runs north-south through this sub-parcel.

2.2 Designations

2.2.1 The Site is unconstrained in terms of statutory landscape or ecological designations, however the wider landscape incorporates a number of statutory/non-statutory designations. Those in closest proximity to the Site are described below.

Peaseacre Wood

2.2.2 Peaseacre Wood, which extends to approximately 12ha, lies within the southern parcel of the Site. This is an area of Ancient Replanted Woodland and is thought to remnant woodland from the historical deer park.

Listed Buildings

2. SITE AND IMMEDIATE CONTEXT Continued.

- 2.2.3 Silfield Old Hall (Grade II Listed) lies just outside of the southern parcel of land, to the north of Verdon's Lane. The property dates back to the mid 17th century, with crosswings added in the late 17th century to form a cruciform plan. This building is largely timber-framed, although the ground floors of the wings are of brick. Inside a 17th century staircase and doors survive, and since 1940 the property has been divided into two houses.
- 2.2.4 Mariner's Inn (Grade II Listed) - this former public house was constructed in the early 17th century with a timber-frame partially coated with brick. The south gable wall is of 19th century brick, and there is an attached wing of clay lump. The property is well screened by existing vegetation on all sides. This property lies immediately adjacent to the south-eastern edge of the Site.
- 2.2.5 Chestnut Farmhouse (Grade II Listed) is an early 18th century brick building with a roof of black glazed pantiles. This two storey building has a hipped roof and two chimney stacks. Chestnut Farmhouse lies approximately 150m to the south-east of the southern parcel.
- 2.2.6 Wattlefield Hall incorporates the Grade II Listed house, barn and stables. Wattlefield Hall is a late 18th or early 19th century house, bought by the Wymondham solicitor John Mitchell in 1856 and given a new southeast front. There is also an impressive early 19th century stable court in the classical style to the rear. This barn, forming the north side of a stable court, dates to the late 18th century and is of brick with a roof of black glazed pantiles. These Listed structures lie approximately 315m to the south of the southern parcel.

County Wildlife Sites

- 2.2.7 There are a number of County Wildlife Sites (CWS) within the wider study area. While CWS do not receive statutory protection, they are given some protection through the planning system, with Norfolk Wildlife Trust playing the key role in advising planning authorities, developers and others on their protection. The closest to the Site is the Bays River Meadow CWS which lies adjacent to the western site boundary of the northern parcel of land.

Conservation Areas

- 2.2.8 The historic core of Wymondham is designated as a Conservation Area - an area of special architectural or historic interest. The Conservation Area was first designated in 1974 was reviewed in 1994 and 2001 following which various adjustments were made. Further adjustments were proposed as part of the consultation exercise and subsequently approved by the Council in December 2012.
- 2.2.9 The original Conservation Area incorporates Wymondham Abbey and the historic core of the town, centred around Middleton Street. The area defined in 2001, includes the town's historic core approximately defined to the south by the B1172 and the River Tiffey; to the west by the properties fronting Becketswell Road, Vicar Street to Cock Street, and to the north by Back Lane. In 1994, a new area was designated around The Lizard, an unusual cluster of cottages resting in the southern valley slopes of the River Tiffey.
- 2.2.10 The boundaries of the Conservation Area now extend south beyond the B1172 to the railway line, and to the west to include Becketswell meadow and Cavick House. To the north the boundary includes the development on Reynold's

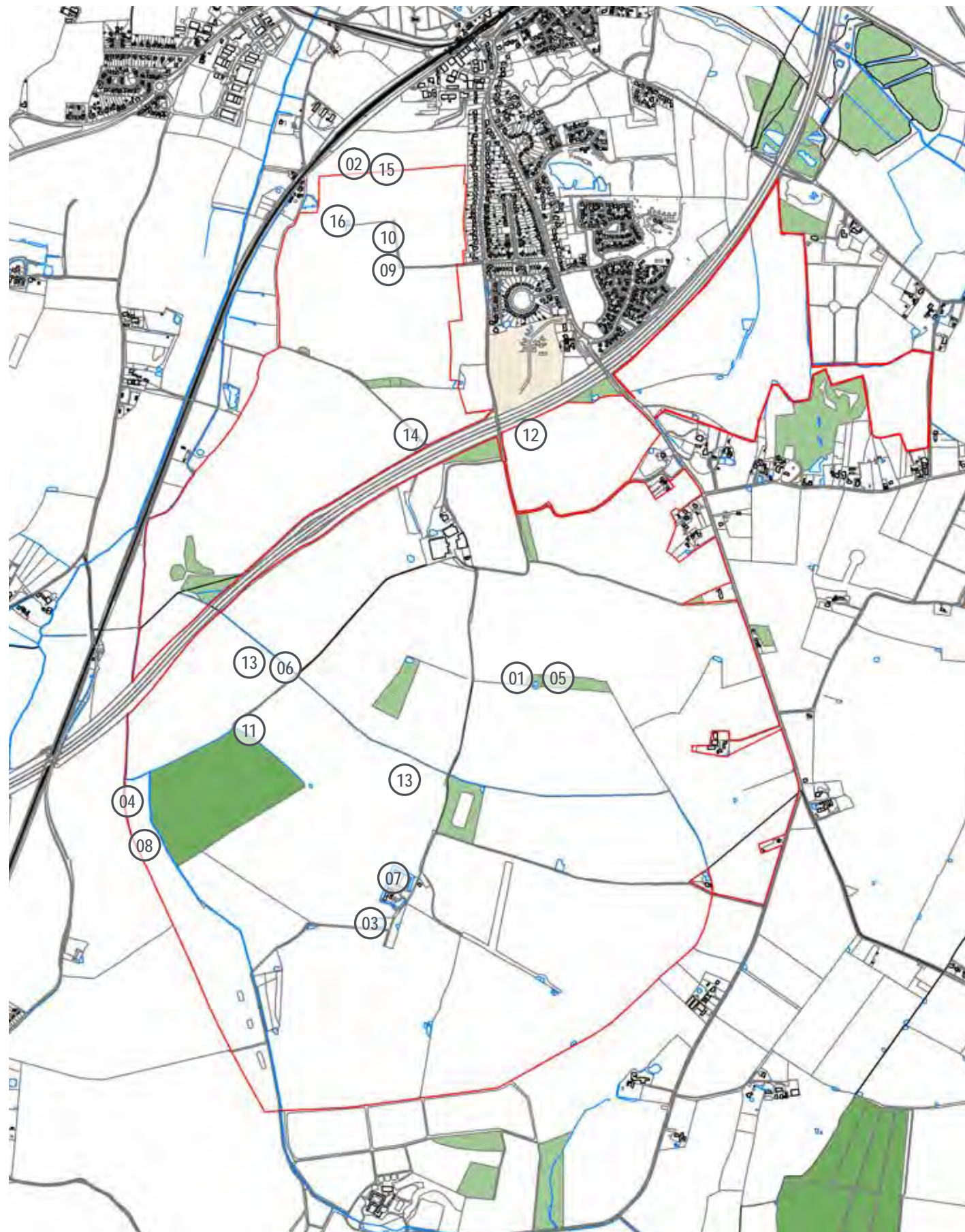


Figure 2: Site Features

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01 Field margins of ecological value



02 Relationship to adjacent land uses



03 Existing pond - potential focal green



04 Spoil heaps - detracting feature in the landscape



05 Desire/lines informal footpath through woods



06 Existing east-west watercourse



07 Heritage features - potential community use



Bays River



Stands of mature oak trees



Mature oak specimen



Existing bund - detracting feature in the landscape



Views to Wymondham Abbey



Visual relationship with Peaseacre Wood



Existing ponds - potential to utilize in drainage strategy



Visual relationship with A11



Linear Green Infrastructure Connectivity

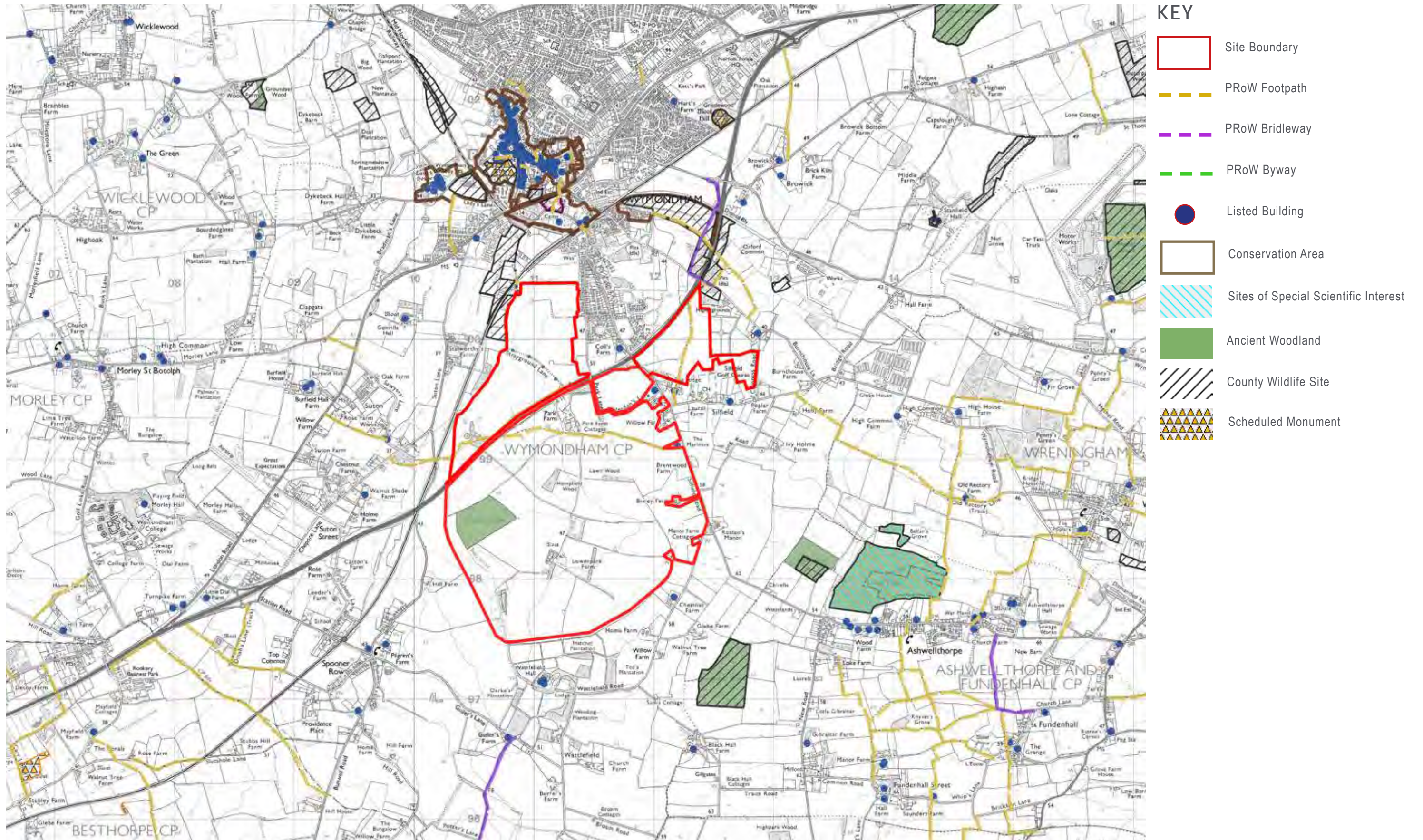


Figure 3: Designations Map. Scale 1:20 000 @ A3.

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3. LANDSCAPE ANALYSIS

3.1 Landscape Character

3.1.1 In accordance with National and Local guidance, this section considers the existing landscape character of the Site and its environs.

3.1.2 The character of the landscape evolves over time as a result of the interaction of human activity and the natural environment (people and place). Factors used to assess landscape character include:

- Physical – geology, land-form, climate, soils, fauna and flora;
- Cultural and Social – land-use, settlement, enclosure & history;
- Aesthetics – colour, texture, pattern, form and perception.

3.1.3 It should be noted that landscape is a continuum and character does not generally change abruptly on the ground. More commonly, the character of the landscape will change gradually and therefore the boundaries between both Landscape Character Types (LCTs) and Landscape Character Areas (LCAs) should be considered to reflect zones of transition.

National

3.1.4 At the national level (Natural England, 2012) the study area lies within the South Norfolk and High Suffolk Clayland (NCA 83).

3.1.5 At the National Level, Wymondham lies within NCA 83: South Norfolk and High Suffolk Claylands. NCA 83 occupies a large area of Central East Anglia which stretches from just below Norwich to the North of the River Gipping. The NCA is dominated by the predominantly flat clay plateau which is incised by several small-scale wooded river valleys with complex slopes which are unexpected for East Anglia.

3.1.6 Key characteristics of the South Norfolk and High Suffolk Claylands (NCA 83) include:

- *‘Large plateau area of chalky glacial till that is generally flat or only gently undulating, but can be locally concave. The edges of the plateau have been dissected by watercourses that form greater slopes, especially along the tributaries of the Waveney.*
- *Views are frequently open, only sometimes confined by hedges and trees, with some woodland present. The small valleys support quite confined landscapes with intimate views.*
- *Chalk bedrock overlain by glacial till, gravels and sands. Heavy, seasonally waterlogged chalky clay soils occur on the plateau, with small areas of better soils at the edges. The valley bottoms contain areas of glacial outwash deposits as well as some areas of deep peat.*
- *Scattered areas of ancient woodland, game copses, shelterbelts, valley floor plantation and carr woodland as well as hedgerow trees provide a treed landscape character, despite much boundary loss.*
- *A mix of remnant medieval ancient countryside, some of it with a decidedly coaxial character, although irregular*

field patterns and large modern amalgamated open fields dominate.

- *Sinuuous field boundaries are formed by deep ditches, some with hedgerows and hedgerow trees.*
- *Extensive areas of arable land dominated by cereals with breakcropping of sugar beet and oilseed rape, and some pastures along valley floors. Intensive pig and poultry production is common.*
- *Remnant parkland, ancient woodlands, commons and greens with a diverse grassland flora. River valleys support areas of ecologically rich unenclosed ‘semi-wild’ fenland and remnant dry heaths dominated by poor dry grassland.*
- *Small slow-flowing rivers and streams and the River Waveney drain the clay plateau. The River Waveney has a relatively large-scale open valley landscape compared with the other river valleys which have narrow valley bottoms. High density of isolated farm ponds in the southern half of the NCA.*
- *Historic features include Palaeolithic archaeology, evidence of Roman enclosures, bronze- age and iron-age activity, remnant medieval and Tudor deer parks, scattered small parkland estates and Second World War airfields. Round-towered Saxo-Norman and medieval churches and 19th-century windmills are prominent historic landscape features.*
- *Large number of isolated moated timber-framed farmhouses and farm buildings with steeply pitched clay-tiled or long-straw thatched roofs. Little flint, some brick (especially in towns).*
- *A dispersed settlement pattern of small nucleated market towns with architectural variety and colour, loosely clustered villages and scattered hamlets. Settlement is often focused around large medieval greens. Many of the market towns have modern extensions.*
- *Some major transport links including the Norwich to London main rail line but infrastructure routes are predominantly an extensive network of narrow lanes and byroads.*
- *The Mendlesham and Tacolneston masts (tall communications masts), wind turbines at Eye airfield and high-tension overhead power lines are prominent modern features in the landscape.’*

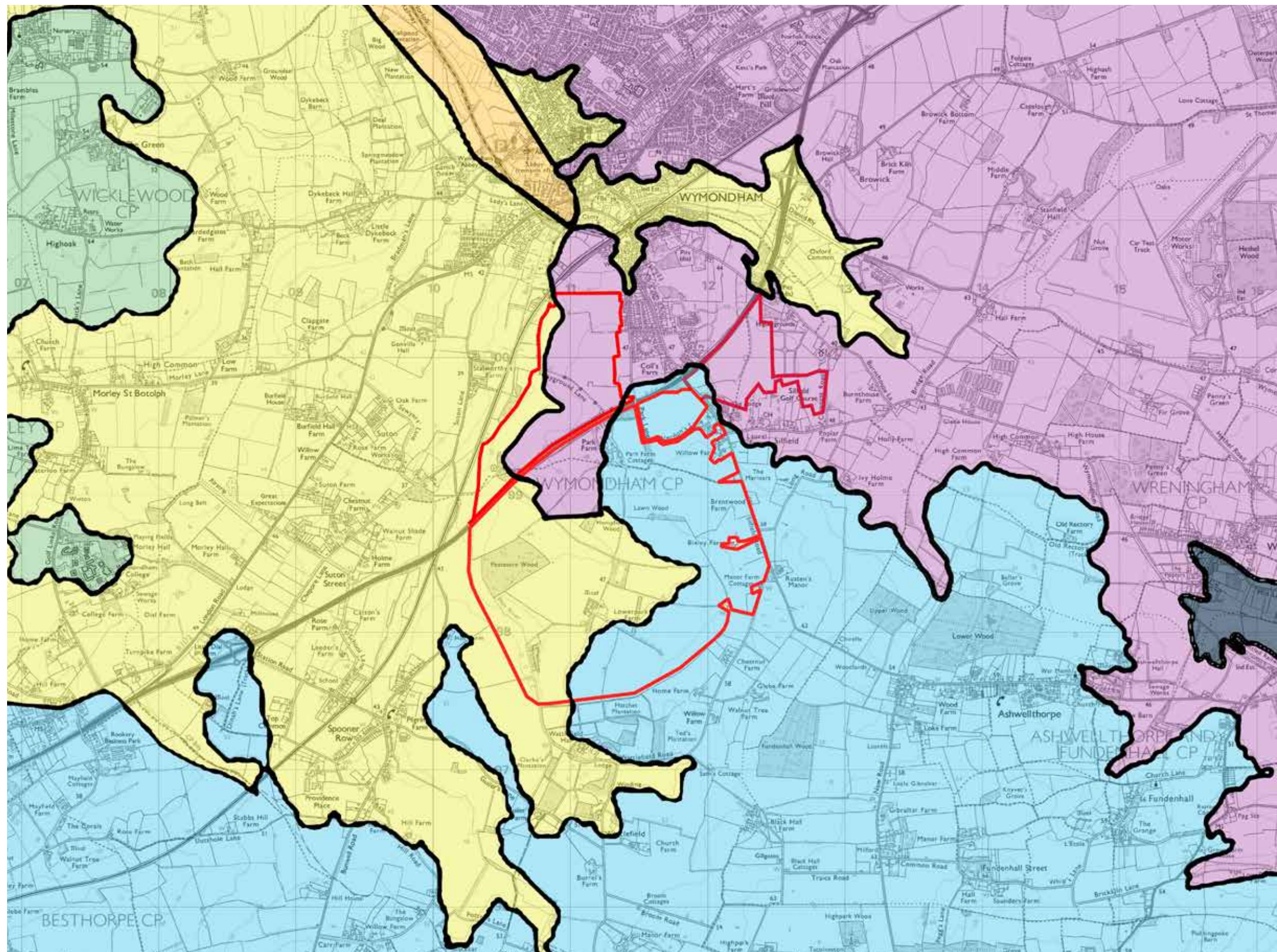
(Natural England, 2012)

District

3.1.7 At the district level (South Norfolk Landscape Character Assessment (2001) the Site straddles three different Landscape Character Areas (LCAs), the Wymondham Settled Farmland Plateau (D1), the Tiffey Tributary Farmland (B2) and the Ashwellthorpe Farmland Plateau (E1).

3.1.8 Key characteristics of the Tiffey Tributary Farmland LCA (B2) include:

- *‘Flat, shelving to gently undulating landscape incised by small hidden tributary streams and their small-scale shallow valleys.*
- *Pleasant rural working landscape of farmland with sparse settlement.*
- *Limited woodland cover creating wooded horizons, but including a number of ecologically important woodlands, some of which are ancient.*



KEY

 Site Boundary

South Norfolk Landscape Character Assessment, 2001



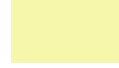



-  LCA A2: Yare/Tiffey Rural River-Valley
-  LCA B1: Tas Tributary Farmland
-  LCA B2: Tiffey Tributary Farmland
-  LCA D1: Wymondham Settled Plateau Farmland
-  LCA E3: Hingham - Mattishall Plateau Farmland
-  LCA E1: Ashwellthorpe Plateau Farmland

Figure 4: Landscape Character. Scale 1:20 000 @ A3.

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3. LANDSCAPE ANALYSIS Continued.

- *Large scale arable farmlands in large fields with sparse hedgerows and hedgerow trees with some pastoral farmland in the valleys.*
- *Framed and long-range views into adjoining Yare/Tiffey Rural River Valleys and towards important landmarks including Wymondham Abbey.*
- *Water bodies of national ecological and historical importance including moated sites and natural lakes, some of which are listed SSSIs or SA Ms.*
- *Sparse settlement comprising villages and isolated dwellings but connected by a dense network of rural lanes.*
- *Elements of vernacular interest including isolated churches, timber-framed buildings, stepped gables and a windmill.*
- *Presence of important transportation links including the A11 which makes the area an important gateway into South Norfolk'.*

3.1.9 Key characteristics of the Wymondham Settled Farmland Plateau LCA (D1) include:

- *'A settled landscape with large edge-of-plateau towns (including market towns and those of more modern origin) and villages plus smaller, nucleated settlements which are dispersed across the plateau.*
- *Large expanse of flat landform with little variation over long distances with strong open horizons -the archetypal 'Norfolk' landscape of popular imagination.*
- *Large scale open arable fields including sugarbeet, cereal and oilseed rape monocultures creating simple, often monotonous, character.*
- *Long views from plateau edge, including to Norwich from the northern plateau edge.*
- *Poor hedgerows generally, which accentuates the openness of the landscape. The resulting wide verges beside roads often contain attractive wildflowers. Some mature hedgerow trees are found, particularly beside roads, which are a distinctive feature. Areas of more intact hedgerow network sometimes occur around settlements.*
- *Sparsely wooded but with occasional woodland blocks, sometimes associated with former parkland areas, creating a more wooded character and wooded horizons in parts of this generally open landscape.*
- *Vernacular buildings particularly brick built, timber framed, and stepped gables. Some isolated churches sometimes hidden by dense screening churchyard vegetation'.*

3.1.10 Key characteristics of the Ashwellthorpe Farmland Plateau LCA (E1) include:

- *'Distinctive flat, elevated landform, above the 50m contour.*
- *A large-scale landscape of both openness and enclosure provided by woodland.*
- *Panoramic views and some framed views along roads.*
- *Predominantly arable farming within large geometric fields.*

- *Mature remnant oak hedgerow trees occur within trimmed hawthorn hedges.*
- *Moats are a feature, sometimes associated with halls and sometimes occurring in isolation.*
- *Linear settlement occurs along roads with some vernacular buildings intermixed with more modern development.*
- *Rural roads have very straight stretches and are often flanked by wide grass verges.*
- *Presence of tall structures, with the prominent mast of Tacolneston transmitting station plus lines of telegraph poles.*
- *An overall peaceful rural character created by the absence of main roads and development'.*

3.2 Landscape Management Guidelines

3.2.1 Key areas of sensitivity identified within the Wymondham Settled Farmland Plateau LCA (D1), as identified within the South Norfolk Landscape Character Assessment, include:

- *loss of vernacular character, particularly as a result of sprawl from the edge of the existing plateau top settlements;*
- *developments that intrude upon the view to important landmarks e.g. Wymondham Abbey or the City of Norwich;*
- *further "opening-up" of the landscape through loss of woodland, hedgerows or hedgerow trees*
- *the potential for settlement coalescence, particularly associated with the vulnerable A11 corridor or B1172 between Wymondham and Hethersett.*

3.2.2 From within the northern parcel of the Site there are views towards Wymondham Abbey, key view corridors should be created where possible in order to retain these views to a key local landmark.

3.2.3 The overall strategy for the Wymondham Settled Plateau Farmland is to maintain its open agricultural landscape character, with its distinct pattern of concentrated settlement on the plateau edge with more dispersed nucleated villages and isolated farm buildings across the plateau top. At the same time there is an opportunity to enhance landscape character through conservation and restoration of features including:

- *restoration of hedgerows and field boundaries, particularly at settlement edges where vegetation could help integrate settlement into the landscape;*
- *woodland management (including former parklands) and, where appropriate, woodland creation to screen intrusive developments and enhance the 'wooded horizon' whilst retaining the positive aspects of openness;*
- *Restoration and enhancement of the landscape adjacent to the A11 corridor.*

3.2.4 New development should (inter-alia):

- *respect the distinctive settlement pattern comprising concentrations of development at plateau edge locations and smaller nucleated village settlements and dispersed buildings across the plateau;*
- *maintain the nucleated clustered character of the settlements and limit edge sprawl out into the adjacent landscape;*

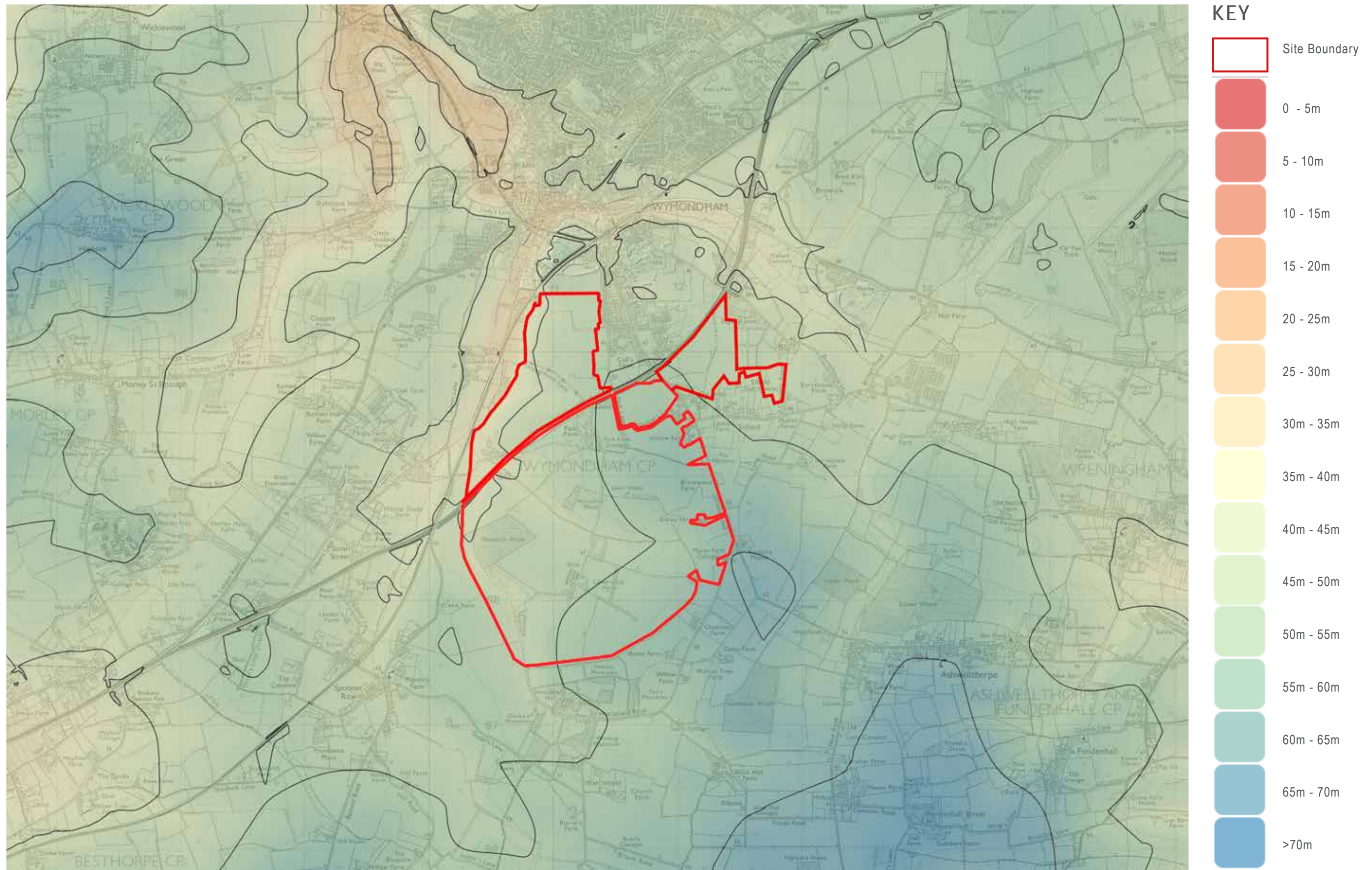


Figure 5: Landform Analysis. Scale 1:20 000 @ A3.

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3. LANDSCAPE ANALYSIS Continued.

well planned infill and edge development may be acceptable;

- consider (cumulative) impact of all tall structures such as masts, energy developments, farm buildings on skyline views and sense of 'openness' and particularly on views to the plateau skyline from the surrounding lower tributary farmland;
- maintain key views from the plateau edge to/from the City of Norwich;
- maintain strategic gaps between settlements, and in particular prevent further growth of Wymondham and/or Hethersett which would lead to coalescence of settlement along the A11 leading to the merger of Wymondham/Hethersett or Hethersett/Norwich.

3.2.5 Similarly, the key areas of sensitivity identified for the Tiffey Farmland LCA, as per the published landscape character assessment, include:

- further hedgerow loss, particularly around settlements, and loss of hedgerow trees leading to a sense of bleakness and loss of the pleasant framed quality of the views;
- introduction of tall elements, in particular large agricultural warehouse buildings, that may disturb the visual balance;
- sensitivity of areas with positive views into surrounding areas, in particular views of landmarks such as Wymondham Abbey;
- presence of important buildings, such as isolated churches, SAMs and other features of vernacular or archaeological interest or their settings which require protection from disturbance or visual intrusion.
- development associated with the A11 road corridor.

3.2.6 The landscape strategy objective is to conserve the character of the working farmed landscape with its sparsely settled character and distant views over open arable fields. Landscape enhancement should include:

- conservation and restoration of remaining hedgerows, particularly around settled areas;
- management of the woodlands to encourage ecological richness and, where appropriate, creation of new woodlands to enhance the framed quality of views;
- management of the tributary corridors to encourage biodiversity;
- enhancement to the A11 corridor to improve the role of the area as a major gateway into South Norfolk.

3.2.7 New development should (inter-alia):

- respect and conserve the rural quality of the small and intricate network of roads;
- consider the setting of the A11 and avoid linear developments associated with this important transportation corridor;

- protect views to landmarks and their settings, in particular Wymondham Abbey, Wicklewood Windmill and the isolated churches and ensure these are not adversely affected by development proposals.

3.3 Settlement Character

3.3.1 The parish of Wymondham is remarkably large, and is thought to be the rare survival of an intact Anglo-Saxon royal or aristocratic estate which, unlike other estates, was never divided up into more numerous smaller units which later became the basis of the parish system. There is a notable absence of church/hall settlements within the parish which is a variant on the typical 'Ancient' countryside settlement type.

3.3.2 The town retains a cohesive historic core, with a designated Conservation Area and large proportion of Listed Buildings dating from the 15th to 19th centuries. The road network and footprint of the town reflects the development of the medieval settlement pattern, and the visual relationship with the important Abbey site remains strong.

3.3.3 Outside of the historic core the overwhelming character of the town is 20th century with development set within large housing estates. Within these areas there is little or no surviving evidence of previous historic landscape features. The Tiffey river valley to the west and south of the town has limited modern housing growth so that the sense of a small historic town in a rural landscape is still largely intact on approach from the north and west. The development of housing and business parks either side of the B1172 approach from the north-east and more recently to the south-west has eroded the rural setting in these areas.

3.3.4 The southern parcel is thought to be the site of a historic deer park, although the deer park is difficult to see as a cohesive whole on the ground due to its isolation. Most of its outer boundary survives in current field boundaries, emphasised by road routes; and survival of the moat.

4. VISUAL ANALYSIS

4.1 General

- 4.1.1 This section provides a description of the nature and extent of the existing views from, towards and between the Site and the surrounding area. It also includes reference to specific locations that will potentially be subject to potential impacts arising from proposed development of the Site.
- 4.1.2 Photographs were taken in January 2020 representing a worst case scenario in terms of the level of screening provided by existing vegetation. Visibility will be lower in summer when deciduous vegetation is in full leaf.
- 4.1.3 Establishing the specific nature of these views provides an understanding of the context and setting of representative viewpoints and the nature of views in terms of distance, angle of view, and seasonal constraints associated with specific visual receptors. The identification of key sensitive receptors and links to the representative viewpoint are carried forward to the appraisal process.

4.2 Visual Envelope

- 4.2.1 The visual envelope is the extent of the area from which the Site and proposed development is likely to be visible (refer to Figure 6).
- 4.2.2 The combination of relatively gentle topography, the elevation and location of the Site, and numerous substantial woodland belts means that the site is well screened from many potential viewpoints.
- 4.2.3 The visual envelope comprises open countryside with scattered settlement made up of Wymondham to the north and smaller villages and hamlets including Silfield and Spooner Row to the east and south. The wider landscape contains an extensive network of Public Rights of Way. The principal views towards the Site are from the surrounding road network and Public Rights of Way which run through the Site itself (see Figure 6: Visual Analysis).
- 4.2.4 The primary visual envelope extends a short distance to the north and south, and approximately 1km to the east and west in all directions. The secondary visual envelope on the other hand extends approximately 4km in all directions.
- 4.2.5 The Site has been split into two distinct areas – the northern and southern parcels. Each viewpoint will be individually assessed against each parcel of land within the development area in order to determine each receptors sensitivities to the proposed development.
- 4.2.6 The proposed development includes significant green infrastructure in the form of woodland planting which will be delivered alongside the garden village. In some instances this will serve to mitigate the impact of the proposed development in the long-term (see Illustrative Masterplan prepared by David Lock Associates).

Views from the Site

- 4.2.7 From within the northern parcel of land there are clear views towards the emerging Birch Grove development to the west of the Site. Looking north there are also clear views towards the towers at Wymondham Abbey. Given the relative elevation of the Site there are clear views looking down towards the A11 from the southern boundary.
- 4.2.8 From within the southern parcel of land there are clear views towards existing residential dwellings along Silfield Road. Looking south-west there are views towards the A11 and a number of other local routes.

Viewpoint 1

- 4.2.9 The existing agricultural access is visible to the right of the view. A mixed species native hedge runs along the length of Park Lane allowing only glimpsed views into the northern parcel. Numerous solitary oak trees are visible along the boundary edge. The existing settlement edge to the west of Park Lane is visible to the right of this view. The southern parcel is not visible from this point.
- 4.2.10 Built development would be clearly visible from this point, although set beyond an area of retained agricultural land, outside of the site boundary. While development will impact on the view, it offers the opportunity to create a positive relationship between the proposed development and existing built development along Park Lane.

Viewpoint 2

- 4.2.11 In this view from Park Lane, along the existing surfaced track in the south-eastern corner of the northern parcel, there are clear views across much of the northern parcel due to a lack of intervening boundary vegetation. Built development would be clearly visible from this point. The southern parcel is screened from view by layers of intervening vegetation within the Site itself and on the embankment of the A11 dual carriageway.

Viewpoint 3

- 4.2.12 In this view from the bridge over the A11 there are glimpsed views into the southern parcel. The north-eastern corner of the southern parcel, which is separated from the remainder of the Site by Verdon's Lane, is glimpsed through a gap in the existing roadside hedgerow. Development would be clearly visible from this point beyond the existing roadside hedgerow, although an area of Public Open Space is proposed which would form the focus of this view. Provided the vegetation is retained and effectively managed, including infill hedgerow planting, impacts on this viewpoint could be partially mitigated. Looking north there are glimpsed views across the northern parcel from this point, although partially screened by existing field boundary vegetation and vegetation on the embankment of the A11 dual carriageway.

Viewpoint 4

- 4.2.13 PRoW Wymondham FP19 runs through the southern parcel of land. From this point, where the footpath meets the existing farm access, there are clear views across most of the southern parcel. Given that the footpath crosses the Site development will be clearly visible from this point and there may be some localized disturbance to the Public Right of Way in the form of temporary closures/disturbance. The alignment of the existing Public Right of Way should be further considered at the detailed design stage. Views towards the northern parcel from this point are screened by existing vegetation on the embankment of the A11 dual carriageway.

Viewpoint 5

- 4.2.14 Viewpoint 5 was taken from PRoW Wymondham FP19, to the east of Viewpoint 4. In this view, looking north, there are clear views across the arable landscape towards the emerging 'Birch Gate' development. The development masterplan retains the PRoW alignment within an area of Public Open Space. Beyond this there will be clear views towards the proposed development. There are some glimpsed, distant views towards the northern parcel of land, although these are largely filtered by existing roadside vegetation.

4. VISUAL ANALYSIS Continued.

Viewpoint 6

- 4.2.15 Beyond Park Farm PRow Wymondham FP19 becomes PRow Wymondham FP34. In this view from the footpath to the west of Park Farm there are clear views across the southern parcel. Peaseacre Wood which lies in the south-western corner of the southern parcel is clearly visible from this point. From this point there will be clear views across the full extent of development within the southern parcel. The alignment of the existing Public Right of Way should be further considered at the detailed design stage. Views towards the northern parcel from this point are screened by existing vegetation on the embankment of the A11 dual carriageway.

Viewpoint 7

- 4.2.16 Verdon's Lane bisects the southern parcel into two distinct areas. Views across the Site from Verdon's Lane are in places partially screened by an existing mixed-species native hedgerow, but with some large gaps. In this view looking north there are clear views across the southern parcel of land and hence any development would be clearly visible. Similar views are afforded to the south above the existing roadside hedgerow. There are some glimpsed, distant views towards the northern parcel of land, although these are largely filtered by existing roadside vegetation.

Viewpoint 8

- 4.2.17 In this view from Silfield Road the southern parcel is at a slight distance, although still clearly visible above the existing roadside hedgerow. The initial masterplan proposes areas of Public Open Space in the south-eastern corner and built form would be seen beyond this. The northern parcel of land is barely discernible beyond layers of intervening vegetation.

Viewpoint 9

- 4.2.18 Viewpoint 9 is representative of users of Wattlefield Road. The existing vegetation means that there are only glimpsed, fleeting views into the southern parcel of land. New development is likely to be visible from this viewpoint and will impact on the nature of the view. Development should seek to improve the vegetated edge of the road and restore the native hedgerow character. The northern parcel of land is not visible from this point beyond layers of intervening vegetation.

Viewpoint 10

- 4.2.19 In this view north-east from Guiler's Lane the Site is at some distance, but Peaseacre Wood is clearly visible in the distance. A new area of woodland planting is proposed to the south-west of the Site as part of the wider strategic green infrastructure network to be delivered alongside the garden village. Prior to the full establishment of the woodland there will be some distant views towards the proposed development within the southern parcel of land which will set beyond areas of Public Open Space along the south-western site boundary. As the woodland becomes fully established this will serve to fully screen views from this point. The northern parcel of land is not visible from this point beyond layers of intervening vegetation.

Viewpoint 11

- 4.2.20 In this view from Wymondham Road the Site is at a slight distance, scattered vegetation along the western boundary of the southern parcel is clearly visible with Peaseacre Wood beyond. Development areas are generally located towards the eastern boundary of Peaseacre Wood and as such will be seen at some distance. The northern parcel

of land is not visible from this point beyond layers of intervening vegetation.

Viewpoint 12

- 4.2.21 Views towards the Site from Sutton Lane vary depending on location, angle and layers of intervening vegetation. From this viewpoint the whole Site is generally well screened by existing vegetation within the Tiffey Valley. The rising land to the east of the northern parcel is visible at some distance with existing residential dwellings along Park Lane beyond. The existing vegetation would seem to obscure much of the Site and therefore much of any future development. Glimpsed views will be possible towards the higher ground within the northern parcel. If new skyline impact trees can be incorporated into the development framework the impact on this viewpoint would be considered to be minimal.

Viewpoint 13

- 4.2.22 Similarly to Viewpoint 12 the Site is generally well screened by existing vegetation within the Tiffey Valley. Any development will be barely discernible from this point given the distance from the Site and strong vegetation cover within the valley.

Viewpoint 14

- 4.2.23 In this view from higher ground to the north-west of the Site, both parcels are barely discernible due to distance and layers of intervening vegetation. Any development will be barely discernible from this point.

Viewpoint 15

- 4.2.24 In this view from Besthorpe Carr, both parcels are barely discernible due to distance and layers of intervening vegetation. Any development will be barely discernible from this point.

Viewpoint 16

- 4.2.25 In this view from the bridge over the A11 on the eastern side of the Site there are some glimpsed views towards the southern parcel of land. New development is unlikely to be visible from this viewpoint beyond an area of proposed Public Open Space. Development should seek to provide a continuous vegetated boundary along the A11. The northern parcel of land is barely discernible beyond existing vegetation on the embankment of the A11.

Viewpoint 17

- 4.2.26 In this view from Silfield Road the Site is at a slight distance, although still clearly visible above the existing roadside hedgerow. The initial masterplan proposes areas of Public Open Space in the south-eastern corner and built form within the southern parcel would be seen beyond this. The northern parcel of land is not visible from this point due to distance and layers of intervening vegetation.

Viewpoint 18

- 4.2.27 This viewpoint was taken from Silfield Road, along the existing access track to Bixley Farm. From this point there are clear views across much of the southern parcel. The initial masterplan proposes areas of Public Open Space in the south-eastern corner and built form within the southern parcel would be seen beyond this. The northern parcel of land is not visible from this point due to distance and layers of intervening vegetation.

4. VISUAL ANALYSIS Continued.

Viewpoint 19

- 4.2.28 In this view from PRow Wymondham FP19 looking south, there are clear views across the arable landscape. The development masterplan retains the PRow alignment within an area of Public Open Space. Beyond this there will be clear views towards the proposed development within the southern parcel. The northern parcel of land is not visible from this point beyond existing vegetation.

Viewpoint 20

- 4.2.29 In this view from PRow Wreningham FP15 there are distant views towards the southern parcel of land. It is likely that proposed development will be glimpsed from the PRow.

Viewpoint 21

- 4.2.30 In this view from higher ground to the north-west of the Site, both parcels are barely discernible due to distance and layers of intervening vegetation. Any development will be barely discernible from this point.

Viewpoint 22

- 4.2.31 From this point on PRow Wymondham FP33 there are clear views across most of the northern parcel and south down the embankment to the A11. Given that the footpath crosses the Site development will be clearly visible from this point and there may be some localized disturbance to the Public Right of Way in the form of temporary closures/disturbance. The alignment of the existing Public Right of Way should be further considered at the detailed design stage.

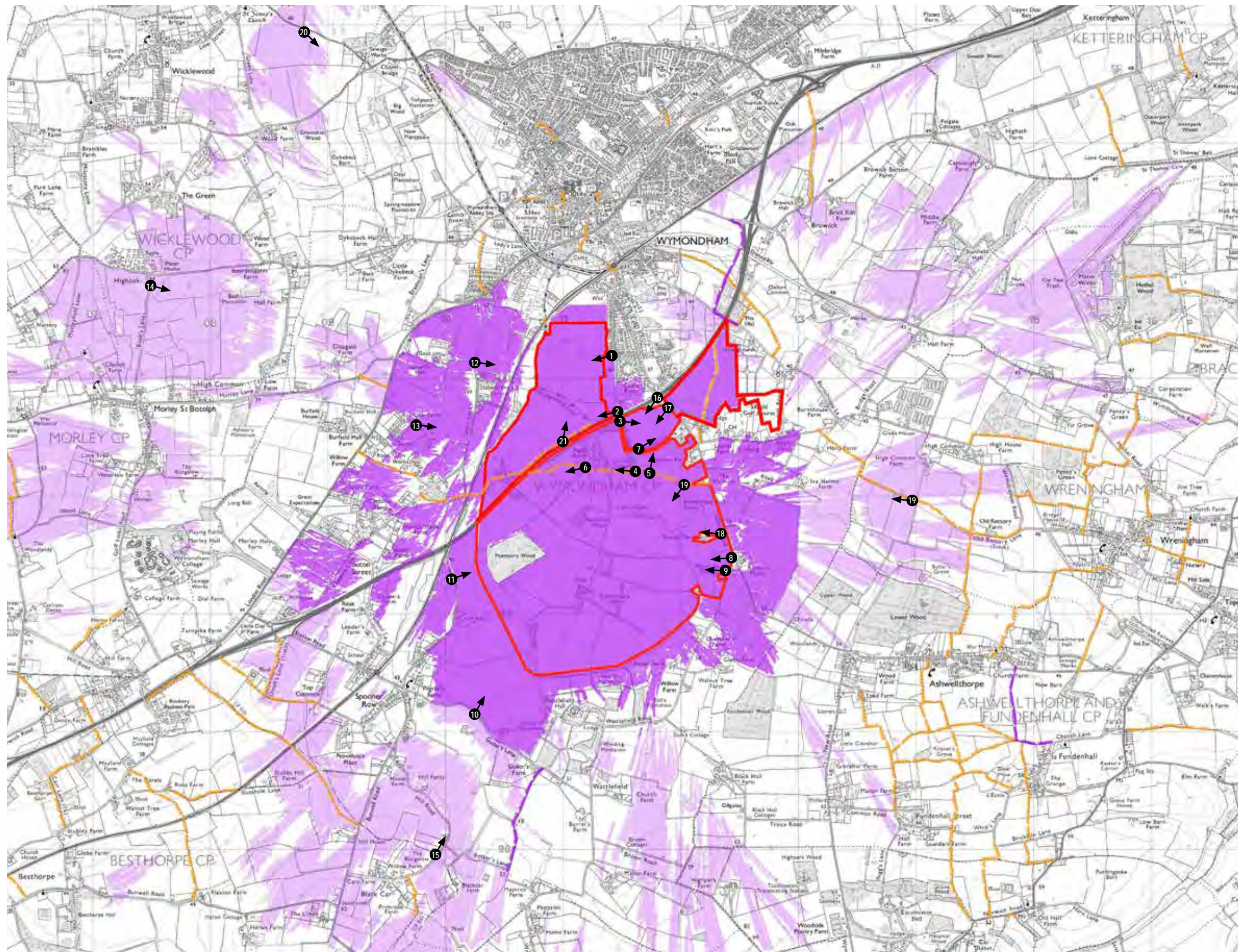
4.3 Visual Receptors

- 4.3.1 The following people have been identified as potential receptors of visual effects of development of the proposed Silfield Garden Village.

- Users of Public Rights of Way
 - Users of Wymondham FP8;
 - Users of Wymondham F19;
 - Users of Wymondham FP34;
 - Users of Wreningham FP15; and
 - Users of Wymondham FP33.
- Users of Roads
 - Users of Park Lane;
 - Users of the A11;
 - Users of Verdon's Lane;

- User of Silfield Road;
- Users of Wattlefield Road;
- Users of Guiler's Lane;
- Users of Wymondham Road;
- Users of Sutton Lane;
- Users of Sawyer's Lane;
- Users of Buck's Lane;
- Users of Besthorpe Carr; and
- Users of Crownthorpe Road.
- Residents of Residential Dwellings
 - Residents of Park Lane;
 - Residents of Silfield Road;
 - Residents of Wattlefield Road; and
 - Residents of Birch Grove.

- 4.3.2 The potential visibility of proposed development is consistent with the character of the local landscape due to the urban fringe influences and presence of existing residential built form across the majority of views; furthermore, views of proposed development can be addressed through appropriate mitigation.



- KEY**
- Site Boundary
 - Primary Visual Envelope
 - Secondary Visual Envelope
 - PRoW Footpath
 - PRoW Bridleway



Figure 6: Visual Analysis and Locations of Representative Views.
 Source: Ordnance Survey Crown Copyright 2015. All rights reserved. License Number 100022432



Viewpoint 1: View south west towards the Site from Park Lane



Viewpoint 2: View south west across the Site from Park Lane



Viewpoint 3: View south east towards the Site from Park Lane



Viewpoint 4: View west across Site from PRoW Wymondham FP19



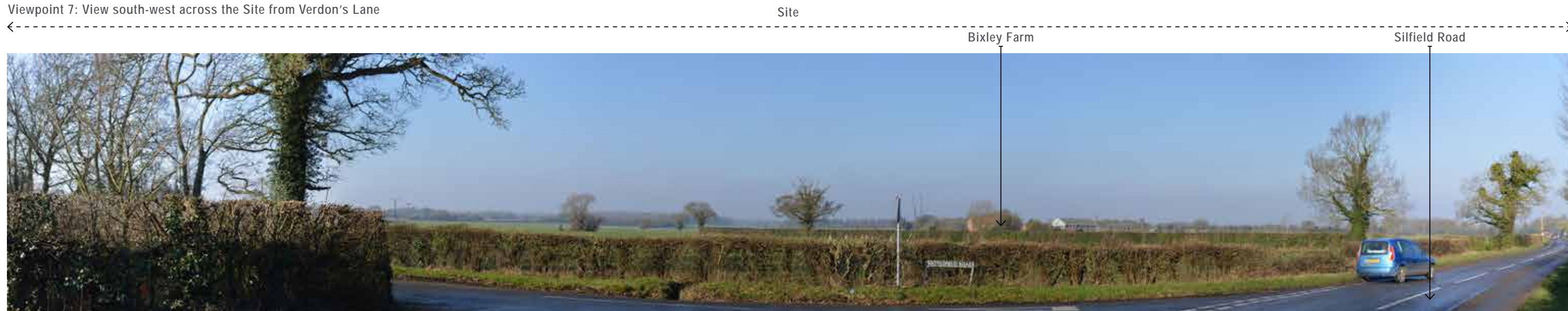
Viewpoint 5: View north across Site from PRoW Wymondham FP19



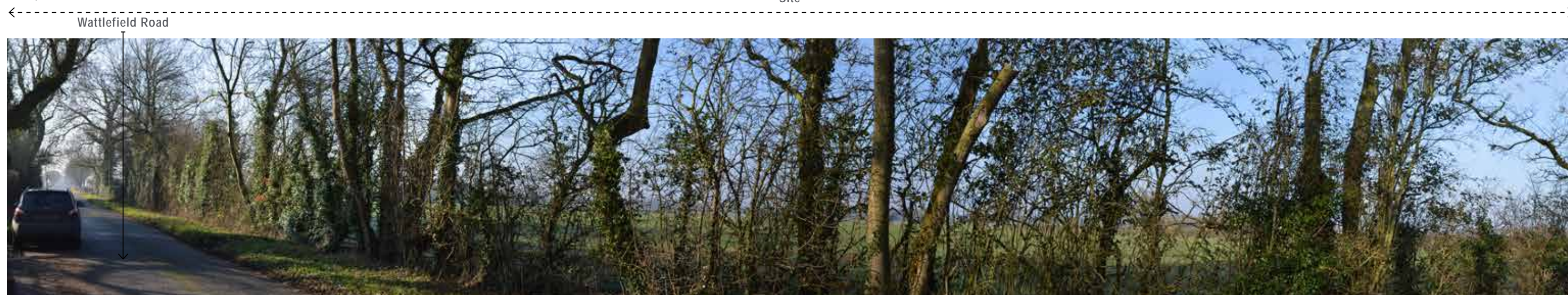
Viewpoint 6: View south-west across Site from PRoW Wymondham FP34



Viewpoint 7: View south-west across the Site from Verdon's Lane



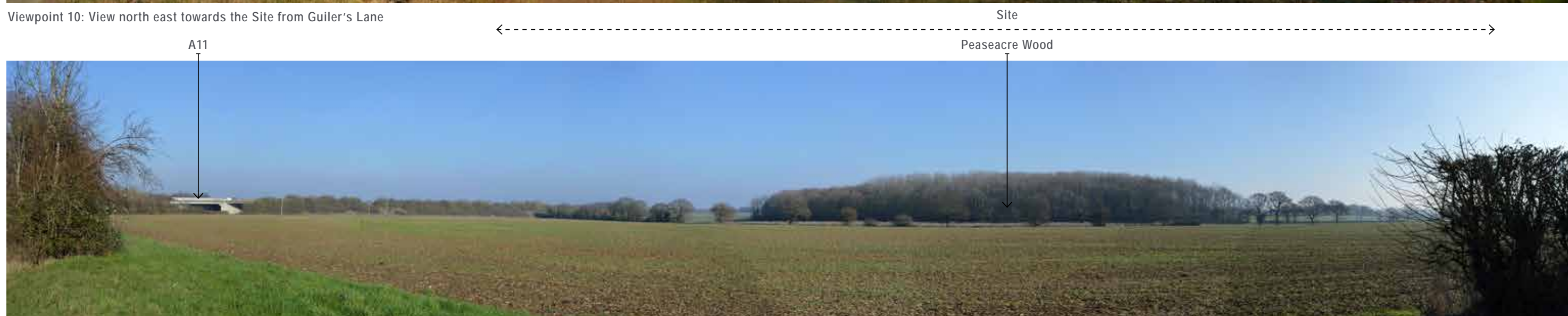
Viewpoint 8: View west towards the Site from Silfield Road



Viewpoint 9: View west towards the Site from Wattlefield Road



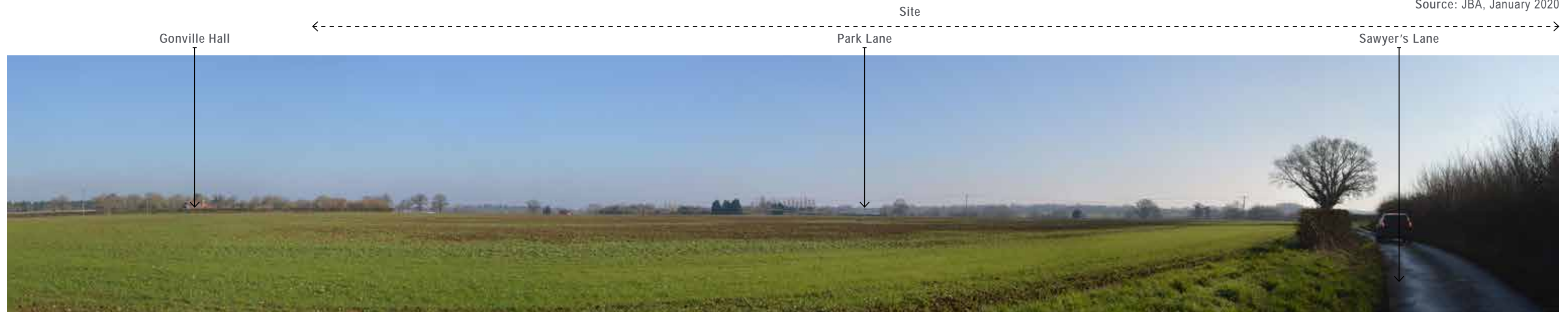
Viewpoint 10: View north east towards the Site from Guiler's Lane



Viewpoint 11: View east towards the Site from Wymondham Road



Viewpoint 12: View east towards the Site from Sutton Lane



Viewpoint 13: View east towards the Site from Sawyer's Lane



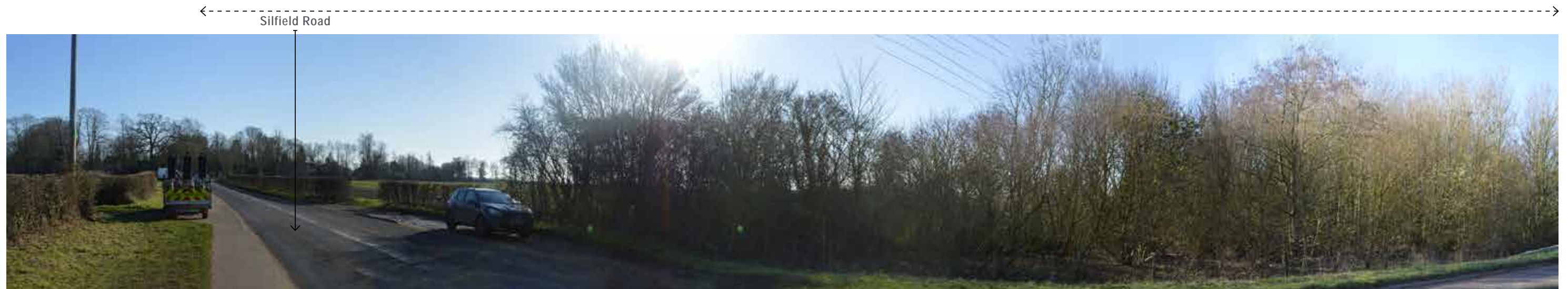
Viewpoint 14: View east towards the Site from Buck's Lane



Viewpoint 15: View north east towards the Site from Besthorpe Carr



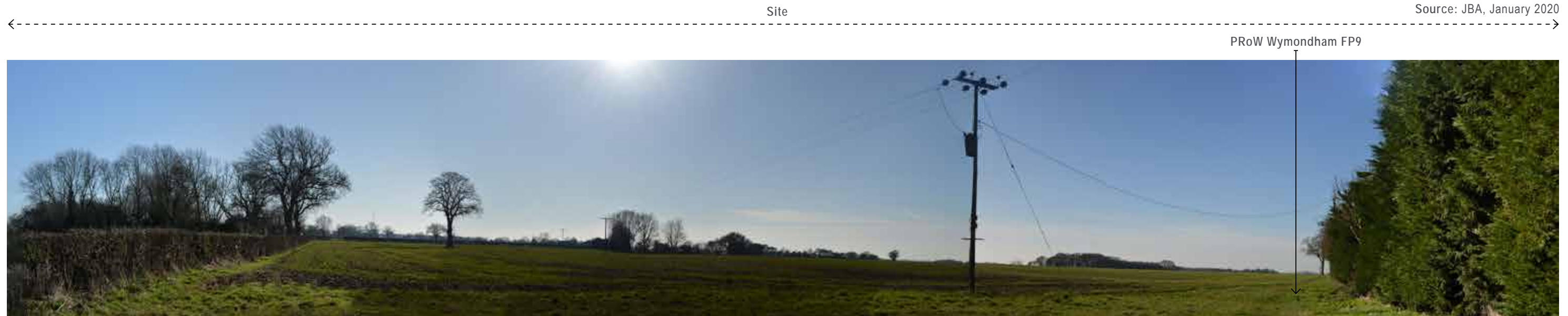
Viewpoint 16: View south-west towards the Site from Silfield Road



Viewpoint 17: View south-west towards the Site from Silfield Road



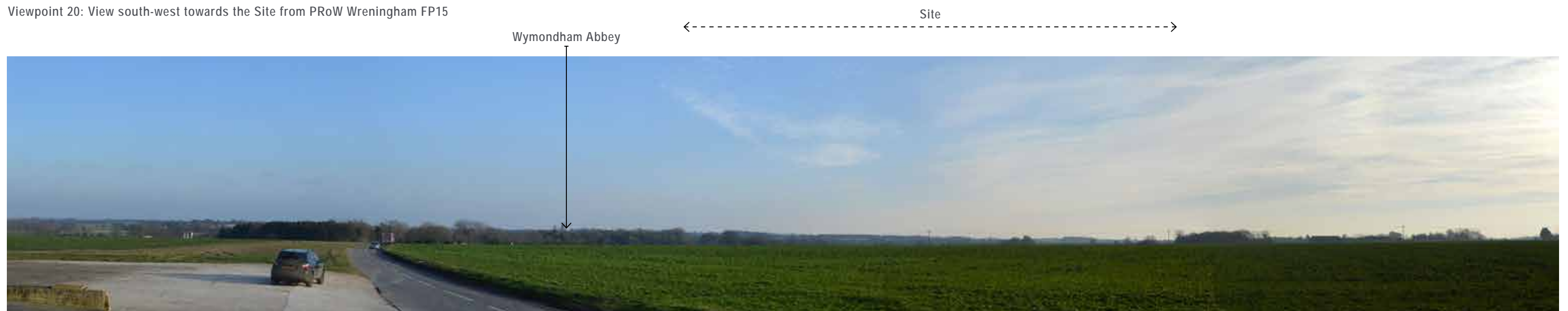
Viewpoint 18: View west across the Site from Silfield Road



Viewpoint 19: View south-west across the Site from PRow Wymondham FP19



Viewpoint 20: View south-west towards the Site from PRow Wreningham FP15



Viewpoint 21: View south-east towards the Site from Crownthorpe Road

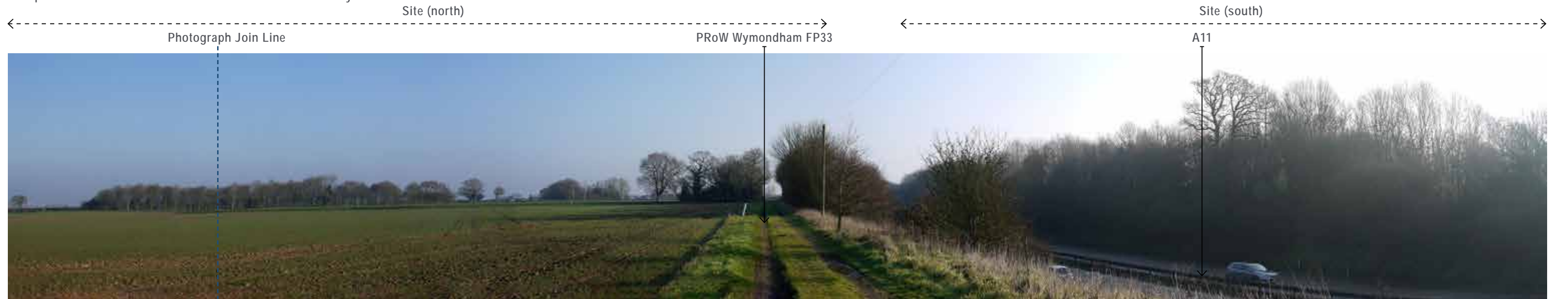
Figure 7: Representative Views.

Source: JBA, January 2020



Viewpoint 22: View north-west across the Site from PRow Wymondham FP33

Site (north)



Viewpoint 22 continued: View north-east across the Site from PRow Wymondham FP33

5. SUMMARY OF CHARACTERISTICS AND OPPORTUNITIES

5.1 Likely Causes of Impact

- 5.1.1 All landscapes have a degree of intrinsic sensitivity, however landscapes contain a range of different components that will respond differently, subject to the type of the development that is being proposed. To inform the analysis of impacts, judgements should be made regarding the nature of changes which arise specifically from the type of development being considered. The following section sets out the likely causes of impacts which would occur in relation to the proposed development incorporating residential, educational, employment and community uses.
- 5.1.2 During the construction phase direct adverse effects to landscape components will result from changes in land cover, vegetation and alterations to the existing topography, for example through excavation for foundations, roads and services. This will occur alongside the provision of temporary infrastructure such as access, site compounds and parking; the storage of materials; erection of temporary fencing/hoardings; the use of operational plant; and general construction works. All are uncharacteristic features of the landscape, but will generally be temporary and short-term.
- 5.1.3 Permanent impacts relate to the built form of residential development, incorporating highways infrastructure, and likely to extend over a series of phases in the longer term. Other built aspects of the masterplan such as the proposed educational facilities and employment land will also give rise to impacts.
- 5.1.4 Positive impacts will relate to formal areas of open space outside of the wider green infrastructure network (such as the proposed sports pitches) and to mitigation integrated into the proposed development (i.e. green infrastructure and strategic landscaping), including retained woodland, trees and hedgerows (as far as possible), open space provision, SUDs, attenuation areas and new planting.

5.2 Characteristics and Opportunities

- 5.2.1 Landscape sensitivities / characteristics and opportunities for potential development, taking into account planning policy context, published landscape character guidance and observations during the site visits are set out below:

Landform

- Land rising to the east of the northern parcel, increasing prominence in views from locations to the west.
- Opportunity to utilise landform to promote views from with the development to the wider landscape, including towards Wymondham Abbey to the north.

Watercourses

- Main watercourses/drainage reflect the landform with the Bays River running through the narrower sections of the valley.
- Numerous other streams/drainage channels flow from the higher ground converging with the rivers
- Connections between the watercourse/drainage network and the green infrastructure network with smaller watercourses generally lined with native hedgerows.

- Opportunity to utilise seasonal floodplains for landscape and ecological diversity as part of the green infrastructure network.

Green Infrastructure

- Comprised largely of field boundary hedgerows, hedgerow trees and linear belts of trees/woodland
- Linear green infrastructure is naturally occurring, extending along some field boundaries and watercourses but also more artificially along the A11 corridor.
- Copses/blocks of woodland are frequent within the Site and across the wider landscape, on both sides of the A11.
- The pattern of green infrastructure shows that some areas are more densely connected and continuous, but other parts have 'gaps/breaks' in the green infrastructure network; enhancing these to create key green infrastructure links/connections can be used to inform the development and landscape strategy

Development Patterns

- Historically the settlement edge of Wymondham has been defined by the railway corridor, however in recent years development has breached this pattern and extended south to reach the A11. This includes both residential and commercial areas, notably the Wymondham Business Park.
- Silfield has developed more organically with scattered development along the main roads. Beyond this, settlement across the area is limited to individual properties/farmsteads scattered across the wider landscape (including infrequent Listed Buildings) and connected by the pattern of local roads; as a consequence there are no obvious 'hubs' of existing settlement to the south of the A11 to build around in terms of destination

Access and Recreation

- A number of existing Public Footpaths pass through the Site, these areas form key access routes between the Site and the wider landscape, as such there is potential to create destinations around these routes and further linkages.

Openness to Public Views

- There are limited public views towards the Site due to vegetation within the valley; public views from the road network tends to be constrained by roadside vegetation but some intermediate distance views exist
- There are opportunities for promoting views towards important vantage points, particularly Wymondham Abbey to the north.

Openness to Private Views

- Existing residential properties along Silfield Road are relatively well contained by green infrastructure and vegetation with limited views westwards into the southern parcel.
- North of the A11, along Park Lane, the linear development faces the northern parcel of land and as such there will be direct views across the northern parcel from these dwellings.
- Individual properties are scattered throughout the wider study area and views will be available from these to a

5. SUMMARY OF CHARACTERISTICS AND OPPORTUNITIES Continued.

greater or lesser degree subject to the immediate context of screening vegetation around the properties; for the majority, views are likely to be to the immediate context only with longer distance views screened by the layers of green infrastructure and changes in landform.

Relationship with Existing Urban Area

- There are direct relationships with the existing urban fringe in parts of the wider site area, including with Wymondham Industrial Estate and Park Lane from within the northern parcel of land. The southern parcel of land has visual links to existing residential development along Silfield Road.
- There are several local roads and/or tracks and associated road junctions which pass through the wider site area.

Scope to Mitigate

- As a greenfield site, there will be an inevitable degree of landscape and visual impact and it is necessary to avoid and reduce this wherever possible.
- There is extensive scope to mitigate landscape and visual impact, much of which relates to the scale of the proposals in themselves. These include: a landscape led approach to shaping the masterplan, avoiding impacts by guiding development away from the most sensitive receptors; and, use of the existing green infrastructure network to guide development and to create a framework for strategic scale landscape proposals.

6. PRELIMINARY DEVELOPMENT AND LANDSCAPE STRATEGY

6.1 Principles

6.1.1 The preliminary development and landscape strategy for the Site has considered landscape components, landscape character and visual amenity. This has drawn on the preliminary landscape and visual appraisal and the early identification of constraints and opportunities. It has also drawn on the opportunities and constraints identified for the study area and therefore addresses the context of the surrounding area. This includes:

- Considering the relationship between the urban fringe of the proposed development and the adjacent countryside;
- Ensuring that landscape is the integrating framework for new development and that the proposed development is well integrated into the surrounding landscape; and
- Applying an overarching green infrastructure strategy throughout the masterplan.

6.1.2 Adopting this approach ensures that the preliminary development and landscape strategy incorporates mitigation as an inherent component of the proposals, intending to avoid or reduce the adverse effects of a development proposal from the outset.

6.1.3 The principles for mitigation measures aim to:

- Conserve and enhance the landscape character of the surrounding landscape;
- Retain as far as possible and enhance existing landscape elements and features;
- Optimise protection and screening for visual receptors; and
- Avoid loss or damage to retained landscape elements and features (consequently also conserving and enhancing ecological fabric).

6.2 Preliminary Development and Landscape Framework

6.2.1 The preliminary development and landscape strategy for the Site area has been informed by reference to the landscape and visual analysis (refer to Figures 4, 5 and 6).

Overview

6.2.2 In the context of the wider landscape around Wymondham, the northern parcel of the Site forms part of a broad transitional area between the open countryside to the south of the A11 and the built up area of Wymondham. Coupled with this is the consistent pattern of the mixed agricultural land uses across the study area and the framework of hedgerow field boundaries and occasional hedgerow tree belts/hedgerow trees. Together this creates a coherent sense of character, but one that gradually changes in response to the adjacent settlement.

6.2.3 Public access to the Site is limited to two public footpaths which pass through the two parcels of land, although the local route, Verdon's Lane, enables some experience of the landscape, albeit in a more transitional capacity. The separation between main settlement areas and sparsity of any kind of clustered settlement pattern combined with the frequency of more isolated dwellings and farmsteads mean that there is little sense of destination across the wider site area.

6.2.4 Considerations of capacity in terms of the proposed development reflects the proximity to the larger settlement of

Wymondham, nearby industrial estates and the urbanising influence of the A11.

6.2.5 The outer extents of the Site retain some capacity for development by due to the strong framework of green infrastructure, however there is still a need to create a 'sensitive' and appropriate design response that creates an appropriate transition and landscaped edge between the development parcels and the adjacent countryside.

6.3 General Design Considerations

6.3.1 General design considerations in relation to landscape and visual matters can be used to shape an appropriate design response in relation to local landscape character and visual amenity. These include:

Development envelope

6.3.2 The development envelope is the area identified within which the built form and infrastructure will sit; it is a constraint on the scale and spatial extents of the built elements of the masterplan.

6.3.3 The development envelope will be defined by a series of smaller parcels, each responding to the landscape constraints and opportunities such as the need to retain existing vegetation structure of hedgerows, hedgerow trees and tree/woodland belts.

6.3.4 The development parcels also have the opportunity to shape connectivity across the wider site area and its integration with the surrounding landscape context. As such, existing rights of way have been retained in their current alignments as far as possible.

6.3.5 In order to minimise effects on landscape character and improve settlement setting, the eastern edge of built development should not extend right up to existing field boundaries, but some linear green space (most likely associated with access lanes to the frontages of properties) should be retained where possible.

Existing and proposed green infrastructure

6.3.6 Analysis of the existing green infrastructure network has identified a series of strategic green infrastructure links. In response to this analysis the development parcels have been shaped by the existing field pattern, including their enclosure by hedgerows, tree belts and woodlands. This ensures that the existing vegetation, and the scale and pattern of the landscape, is integrated into the layout and that existing green infrastructure across the site is largely retained.

6.3.7 The masterplan will work with the existing scale and pattern of the local landscape character by creating a series of smaller development parcels which together form the overall development envelope. These create a layout which retains as much existing green infrastructure as possible, works within the capacity of the landscape and adds a natural permeability to the overall massing the wider development envelope.

6.3.8 Retained green infrastructure will be reinforced and enhanced through additional landscaping and improved management; the aims of which will consider location, function and also biodiversity objectives. The approach includes consideration of 'stand offs' to woodlands, trees and hedgerows which will help to avoid potential impacts on the root protection zones of these elements, helping to ensure they are retained in the long term.

6.3.9 Notwithstanding the results of any detailed arboricultural surveys, to ensure the protection of existing strategic vegetation the a buffer of at least 15m should be provided to the perimeter of Peaseacre Wood, but ideally

6. PRELIMINARY DEVELOPMENT AND LANDSCAPE STRATEGY Continued.

increasing in width to approximately 25m to allow for understorey planting and mown footpaths. The woodland buffer should not just be a stand-off distance but should instead create a suitable woodland edge transition zone to minimise the pressure on the woodland itself. Similarly, existing hedgerows should be safeguarded with a minimum 5m buffer, with a 10-15m zone to ensure the protection of mature hedgerow trees. Existing mature oak trees should be incorporated into areas of Public Open Space or 'Pocket Parks' as much as possible.

6.3.10 There will inevitably be some limited losses of vegetation across the Site however, overall, these losses will be balanced with extensive areas of new landscape planting and ecological enhancement areas. This will include a tree lined 'green link / boulevard' along the principal access with skyline trees and areas of open space / amenity areas, which will provide a green corridor through the development, breaking up the built form in views from the wider landscape.

6.3.11 The strategy for existing and proposed green infrastructure will provide an immediate landscape structure which mitigates potential landscape impacts and will help to reduce or eliminate visual impacts.

Public access

6.3.12 Whilst the Site is subject to limited public access in the form of existing public footpaths, there is a substantial opportunity to create new connections through a range of different links. These will be focussed on promoting a variety of uses including walking and cycling and draws on potential destinations in the wider landscape.

6.3.13 There may be opportunities to utilise Peaseacre Wood for educational and recreational use, subject to managed access.

Landscape and detailed design

6.3.14 The detailed design stages can be tailored to include a high quality landscape scheme, including both public open space and private green space.

6.3.15 Areas of private garden space and the internal street scene have the capacity to include street and garden trees, as will parts of the public realm in the educational and employment areas of the masterplan. Over time these will contribute to the green infrastructure framework across the site, enhancing the character and integration of the Site with the surrounding landscape context, and providing screening in views from higher ground to the west.

6.3.16 At detailed design the selection of species for trees and woodland will refer to native species and as well as those present in the context of the local landscape character.

Summary

6.3.17 Together these principles place a particular emphasis on green infrastructure across the site (including strategic landscape planting and open spaces) and the role that landscape characteristics and green infrastructure have in determining an appropriate boundary to the settlement edge.

6.3.18 The aims and principles can be taken forward through an iterative approach to inform an evolving design process at an increasing level of detail through the planning process.

6.3.19 It is considered that, with an appropriate approach to mitigation and the implementation of a robust landscape and green infrastructure strategy, a residential masterplan on the site will be well contained both physically and visually and will show clear defensible boundaries.

7. SUMMARY AND CONCLUSION

7.1 Summary

7.1.1 This landscape and visual appraisal (LVA) has been prepared to determine the constraints and opportunities in respect of a potential garden community on land to north and south of the A11 at Silfield, Norfolk. The LVA has addressed the following landscape resources and visual receptors:

- Landscape character, including physical landscape features and elements; and
- Views and visual amenity experienced by residents, recreational users (including visitors and tourists) and road users.

7.1.2 The LVA has determined the landscape and visual constraints and opportunities regarding the wider site area and its landscape context. The analysis will influence the assessment of the development potential of the wider site area, to inform master planning and the identification of developable areas.

7.1.3 The Site comprises an extensive area of landscape to the north and south of the A11 dual carriageway. Whilst the landscape exhibits some of the key local landscape characteristics, there are few defining characteristics that elevate the landscape in general and many of the fields have been subject to post war intensification and hedgerow removal. Urban influences, such as the A11 and the Wymondham Industrial Estate detract from the overall sense of place and tranquillity, and recreational value is limited to a single footpath route through both parcels.

7.1.4 Effects on landscape character will occur at a site level and its immediate landscape context and have little influence on the character of the wider landscape.

7.1.5 The nature of visual effects is such that the greatest degree of effect will be from locations directly adjacent to the site; from the wider countryside, the effects will be much reduced due to the limited visibility, existing context of the settlement edge and mitigation inherent in the proposed development which, over time, will help to integrate the proposed development into the landscape.

7.1.6 The preliminary development and landscape strategy aims to maintain and enhance the existing green infrastructure network and provide a series of proposals for existing and green infrastructure and open space that respond to local landscape characteristics such as landform, hydrology, field boundaries, tree belts etc; all physical and enduring features in the landscape.

7.1.7 Consequently, the use of existing landscape components to guide the landscape strategy and subsequent augmentation of these components can create a high-quality environment which respects the character of both the Wymondham urban area and the wider countryside.

7.2 Summary of Characteristics and Opportunities

7.2.1 The report identifies the key constraints and opportunities present on the site and surrounding landscape with the analysis, in the context of the specific nature of the type of development being considered, informing the inherent proposals for landscape mitigation.

7.2.2 These over-arching principles set the framework for the areas which are proposed for development. Each of these can be subject to a greater level of detail regarding masterplanning to identify additional detailed considerations through the planning process.

7.3 Conclusion

7.3.1 Notwithstanding some degree of landscape and visual impact, development of the Site can come forward based on a sensitively designed mixed-use scheme with only limited landscape and visual effects at a localised level. Such impacts can successfully be avoided or reduced through effective mitigation at the detailed design stage.

Noise Baseline Technical Report (AECOM)

Silfield Garden Village

Noise Baseline Technical Report

13 March 2020

Quality information

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Executive Summary

Based on available noise data for the site and acoustic reports produced for a site to further to the west and north of the A11, it is considered that there would be no overriding constraints to the proposed development as shown in Drawing No SIL001-021 with respect to acoustic conditions provided that certain acoustic mitigation measures are incorporated within the scheme. These measures could include provision of an acoustic barrier along the site boundary where residential properties are proposed, and provision of a suitable façade design for the residences.

1. Introduction

This report reviews the information available in the public domain with regards to noise and vibration at the site as shown in drawing No SIL001-024 (appended). This includes publicly available noise mapping data and baseline noise and vibration monitoring reports carried out for relevant local planning applications.

The assessment seeks to identify the potential noise and vibration related issues associated with the development including relevant national, regional and local policies which would need to be taken into consideration and concludes with a summary of constraints, risks and opportunities for the site and recommendations for possible further assessment and mitigation measures that may be required.

2. Noise Policy Guidelines

National Policy

National Planning Policy Framework (NPPF) - 2019

The aim of the NPPF in terms of noise and vibration is to prevent both “new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of..... noise pollution...” (paragraph 170).

Section 15 of the NPPF is concerned with protecting the natural environment, including the matters that should be considered for planning decisions in relation to ground conditions and pollution. This includes ensuring “that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- Mitigate and reduce to a minimum other adverse impacts resulting from noise from new development and avoid noise giving rise to significant adverse impacts on health and quality of life; and
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.” (Paragraph 180).

These policies must be applied in the context of Government policy on sustainable development.

Noise Policy Statement for England (NPSE) - 2010

The NPSE seeks to clarify the underlying principles and aims in existing policy documents, legislation and guidance that relate to noise. The statement applies to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise.

The NPSE sets out the long-term vision of the government’s noise policy, which is to “promote good health and a good quality of life through the effective management of noise within the context of policy on sustainable development”.

This long-term vision is supported by three aims:

- “Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvements of health and quality of life.”

The ‘Explanatory Note’ within the NPSE provides further guidance on defining ‘significant adverse effects’ and ‘adverse effects’ using the concepts:

- No Observed Effect Level (NOEL) - the level below which no effect can be detected. Below this level no detectable effect on health and quality of life due to noise can be established;

- Lowest Observable Adverse Effect Level (LOAEL) - the level above which adverse effects on health and quality of life can be detected; and
- Significant Observed Adverse Effect Level (SOAEL) - the level above which significant adverse effects on health and quality of life occur.

With reference to the SOAEL, the NPSE states:

“It is recognised that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.”

For situations where noise levels are between the LOAEL and SOAEL, all reasonable steps should be taken to mitigate and minimise the effects. However, this does not mean that such adverse effects cannot occur.

Planning Practice Guidance - 2019

The Planning Practice Guidance (PPG) “advises on how planning can manage potential noise impacts in new development” and provides guidelines that are designed to assist with the implementation of the NPPF.

The PPG states that local planning authorities should take account of the acoustic environment and in doing so consider:

- “whether or not a significant adverse effect is occurring or likely to occur;
- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.”

Factors to be considered in determining whether noise is a concern are identified including the absolute noise level of the source, the existing ambient noise climate, time of day, frequency of occurrence, duration, character of the noise and cumulative effects.

Local Planning Policy

South Norfolk Local Plan - Development Management Policies Document (2015)

The Development Management Policies Document (DMPD) includes the following;

Policy DM 3.13 Amenity, noise and quality of life

(1) Development should ensure a reasonable standard of amenity reflecting the character of the local area. In all cases particular regard will be paid to avoiding:

- a. Overlooking and loss of private residential amenity space
- b. Loss of day light, overshadowing and overbearing impact
- c. Introduction of incompatible neighbouring uses in terms of noise, odour, vibration, air, dusts, insects, artificial light pollution and other such nuisances.

Planning permission will be refused where proposed development would lead to an excessive or unreasonable impact on existing neighbouring occupants and the amenity of the area or a poor level of amenity for new occupiers.

(2) In considering applications which may result in an increase in noise exposure, account will be taken of the operational needs of the proposed and neighbouring businesses, the character and function of the area including background noise levels at different times of day and night and the need to protect areas of rural tranquillity.

(3) Development will not be permitted where the proposed development would generate noise or artificial light which would be significantly detrimental to the amenity of nearby residents or the occupants of other noise sensitive uses. Proportionate mitigating measures including limiting conditions will be used to reduce the potential noise or artificial light impact to an appropriate level whenever practical to do so.

Joint Core Strategy for Broadland, Norwich and South Norfolk (Adopted March 2011, amendments adopted January 2014)

The Joint Core Strategy (JCS) sets out the long-term vision and objectives for the area, including strategic policies for steering and shaping development. Whilst it does not specifically mention noise, Policy 1: Addressing climate change and protecting environmental assets, notes that;

“The environmental assets of the area will be protected, maintained, restored and enhanced and the benefits for residents and visitors improved.

Development and investment will seek to expand and link valuable open space and areas of biodiversity importance to create green networks. Where there is no conflict with biodiversity objectives, the quiet enjoyment and use of the natural environment will be encouraged and all proposals should seek to increase public access to the countryside”.

Other Relevant Guidance

World Health Organisation Community Noise Guidelines (1999)

The World Health Organisation (WHO) ‘Community Noise Guidelines’ recommend external daytime and evening environmental noise limits and internal night-time limits to avoid sleep disturbance.

British Standard 8233:2014

BS 8233 ‘Sound Insulation and Noise Reduction for Buildings - Code of Practice’ provides criteria for the assessment of internal noise levels for various uses including dwellings and commercial properties. It also provides recommendations for external amenity areas such as gardens and balconies.

Professional Practice Guidance: Planning and Noise (2017)

The Institute of Acoustics, the Association of Noise Consultants, and the Chartered Institute of Environmental Health have jointly produced Professional Practice Guidance (ProPG) which focusses on noise-sensitive development. The ProPG has been produced to provide acoustics practitioners with guidance on a recommended approach to the management of noise within the planning system in England. ProPG provides planning guidance for the consideration of new residential development that will be exposed predominantly to airborne noise from transport sources. The document provides advice on how guidance within BS 8233:2014 and WHO Guidelines for Community Noise may be applied to improve in the consistency and quality of plan-making and decision-taking in relation to acoustic matters.

Supplementary Document 2 ‘Good Acoustic Design’ which accompanies the main ProPG document provides a hierarchy of noise management measures that Local Planning Authorities should encourage, including the following, in descending order of preference:

- i. Maximising the spatial separation of noise source(s) and receptor(s).
- ii. Investigating the necessity and feasibility of reducing existing noise levels and relocating existing noise sources.
- iii. Using existing topography and existing structures (that are likely to last the expected life of the noise-sensitive scheme) to screen the proposed development site from significant sources of noise.
- iv. Incorporating noise barriers as part of the scheme to screen the proposed development site from significant sources of noise.
- v. Using the layout of the scheme to reduce noise propagation across the site.

- vi. Using the orientation of buildings to reduce the noise exposure of noise-sensitive rooms.
- vii. Using the building envelope to mitigate noise to acceptable levels.

3. Existing and Future Noise Environment

The noise environment at the site is influenced by traffic sources, in particular from the A11 trunk road, but also from traffic on Silfield Road and Sutton Lane and train noise from the rail line to the west. The rail line runs between Cambridge and Norwich.

No information is available in respect of future noise levels but in order for traffic noise levels from the A11 to increase by 3dBA would require two-way traffic flows to double. It is considered that such an increase of traffic on the A11 is unlikely in the short term so noise from the A11 will remain similar to current levels.

It is understood any scheme to develop the site would involve creation of a new junction off the A11 and entail creation of new roads through the site. The impact of these changes to the road network are not considered in this constraints review but would require consideration in the layout of the site for any future planning application.

4. Baseline Noise Levels

A noise survey was undertaken close to the site area in November 2010 to inform a planning application for a site to the north of the A11 and either side of Silfield Road¹. Measurements were made at two locations: P1 (approximately 19m from the A11 and to the east of Silfield Road) and P2 (approximately 16m from the A11 and to the west of Silfield Road). The measured noise levels were reported as follows:

Table 1. A11 Noise Levels

	Daytime	Night-time	
	L _{Aeq,16hr}	L _{Aeq,8hr}	L _{Amax}
P1	74dB	66dB	80dB
P2	80dB	74dB	88dB

Further measurements were undertaken for a planning application (Reference 2012-0371 – Land to the east and west of Rightup Lane). Noise levels close to the A11 were typically 78dB L_{Aeq,T} and 82 to 92dB L_{Amax}. Noise levels were also reported at 25m from the rail line due to individual train pass-bys. These are as follows:

Table 2. Train Noise Levels

Train Class	Time	Number	SEL dBA at 25m
158	1025-1602	13	78.5
170 (decelerating)	1053-1550	6	72
170 (accelerating)	1115-1618	6	79.6
Freight	1619	1	88

Noise data for the A11 is also available from a publicly accessible website <http://www.extrium.co.uk/noiseviewer.html>.

Figure 1 presents the current daytime L_{Aeq} noise levels and Figure 2 the night-time L_{Aeq} noise levels.

¹ Land North of the A11 at Park Farm, Silfield Road. Up to 500 dwellings. Developer: Pelham Holdings Ltd. South Norfolk District Council planning application reference number: 2011/0505.

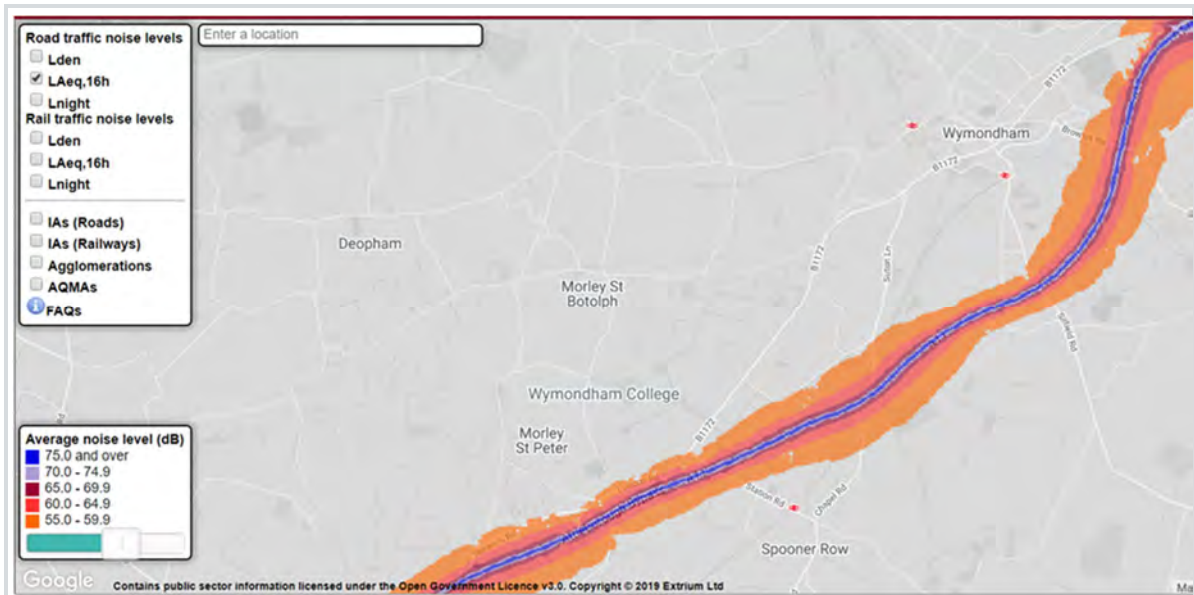


Figure 1. Daytime Noise Levels



Figure 2. Night-time Noise Levels

5. Noise Criteria

British Standard (BS) 8233:2014 'Guidance on sound insulation and noise reduction for buildings' provides recommended criteria for internal ambient noise levels when rooms are unoccupied, dependent on their intended use. Table 3 presents the desirable internal noise levels that should not be exceeded in new residential developments.

Table 3. Target indoor ambient noise levels (BS 8233)

Activity	Location	Daytime (07:00 to 23:00)	Night-time (23:00 to 07:00)
Residential			
Resting	Living room	35 dB $L_{Aeq,T}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16h}$	30 dB $L_{Aeq,8h}$

Regular individual noise events at night have the potential to disturb the sleep of inhabitants in dwellings. BS 8233 states that: "A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night".

The World Health Organisation (WHO) Guidelines for Community Noise provides guidance on noise levels for single noise events that may cause sleep disturbance by stating: "To avoid sleep disturbance, indoor guideline values for bedrooms are 45 dB L_{Amax} for single sound events".

Furthermore the Professional Planning Guidance: Planning and Noise (ProPG) states that "In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night".

BS 8233 also provides recommendations for noise levels in external amenity areas. For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

6. Opportunities and Risk

Road Traffic Noise

Noise levels along the A11 are very high. To achieve acceptable internal noise levels in dwellings would require sound reduction of up to 45dBA if constructed within 16m of the road. Whilst this would be achievable with high performance double or secondary glazing, mechanical ventilation would be likely to be required. Daytime noise levels would need to be around 60dB L_{Aeq} for thermal double glazing (4-16-4) and non-acoustic trickle vents to provide a suitable level of sound reduction. This level of noise currently extends approximately 140m into the site.

Noise levels with windows open would be unacceptable for anything but short term 'purge' ventilation. Based on a typical sound reduction of 10-15dB through a partially open window, it would not be possible to rely on open windows for ventilation or cooling purposes where external noise levels exceed around 47dB L_{Aeq} during the day and 42dB L_{Aeq} /57dB L_{Amax} at night (although some relaxation of this may be acceptable if overheating only occurs for limited periods).

The following Table considers a living room in a typical brick built dwelling with standard punched windows.

Table 4. Preliminary Facade Requirements

Glazing type	Glazing Configuration (glass/airgap/glass)(mm)	Ventilation	Maximum external noise level	Approximate Distance from A11
Standard double glazing (Rw 31dB)	4/16/4	Non acoustic trickle vent	60dB L_{Aeq}	140m
Standard double glazing (Rw 31dB)	4/16/4	Acoustic trickle vent	65dB L_{Aeq}	60m
Moderate performance glazing (Rw 38dB)	6/16/6.8 (lam)	Mechanical ventilation	70dB L_{Aeq}	30m
High performance (Rw 41dB)	6/16/10.8 (lam)	Acoustic trickle vent	70dB L_{Aeq}	30m

The distance of 140m in the Table above is taken from the online noise map where the 60dBA noise contour is approx. at the junction of Swallow Drive and Robin Grove. Closer to Silfield Road where the A11 is in the deepest part of the cutting the 60dBA contour is approx. 100m from the A11. At the other end of the site the 60dBA contour is approx. 180m from the A11, where Wymondham Road is crossed by the railway.

The 55dBA contour extends 200-400m into the site. This is the noise recommended as the upper guideline level for external residential amenity. A 3 metre barrier at 15m from the A11 should provide sound reduction of around 14dBA at 30m from the A11 at ground level. A 3 metre barrier should therefore just reduce levels down to the upper guideline level. The foregoing assumes flat ground. Where the A11 is in a cutting, the 3m barrier would provide more benefit, approx. 20dBA sound reduction assuming the cutting is around 3 metres deep, i.e. if the A11 is 3 metres below the site ground level.

This amount of sound reduction would mean the glazing and ventilation requirements of the dwellings at 30m from the A11 is reduced to standard glazing and vents (at ground level). The same 3m barrier would provide 8dBA sound reduction at 4 metres above ground level (bedroom window height). It should therefore be possible for the bedrooms to have standard double glazing but they would need acoustic trickle vents.

All of the above assumes windows remain closed and ventilation is via trickle vents only. If windows need to be opened for additional ventilation e.g. for cooling, internal noise levels would be exceeded.

It is worth highlighting the hierarchy of noise management highlighted in the ProPG guidance which lists façade design as the least preferred measure for mitigation. Other methods of noise management should be given priority.

Careful consideration should be given to site layout and orientation of buildings. Preference should be given to locating least noise sensitive buildings close to the A11. Consideration should also be given to using buildings as noise barriers where possible. It should be noted, any gaps between buildings will reduce the effectiveness of this approach.

Building layouts can be designed so that the less sensitive rooms are on the noisiest façade. This can include bathrooms, corridors, stair and lift cores. Kitchens should not normally be considered to be non-noise sensitive, particularly if they lead to a living area.

Given the hierarchy of mitigation in ProPG, it would be considered good acoustic practise to introduce the acoustic barrier which will result in reduced noise levels across the site, rather than relying on facade treatment alone. From Figure 1 above, the 55dBA noise contour extends between approximately 200m and 400m in to the site. Beyond this distance, ambient levels would be acceptable for external amenity areas. Some form of acoustic barrier would be required to reduce the noise levels for areas closer to the A11. This could comprise a solid timber or concrete barrier or an earth bund. Initially a barrier of around 3 metres is recommended. An earth bund may be preferable from aesthetic view point but would require a larger footprint than a fence or wall. There are a number of proprietary 'green barriers' which would require a smaller footprint yet still be visually less obtrusive.

Having reviewed a report submitted to discharge planning conditions² in respect of the residential development further to the east which spans Silfield Road to the north of the A11 (Ref 2011/0505/O and 2015/1649), the local planning authority will require an acoustic barrier along the site boundary with the A11 where residential properties are proposed as is indicated in the most recent masterplan.

Train Noise

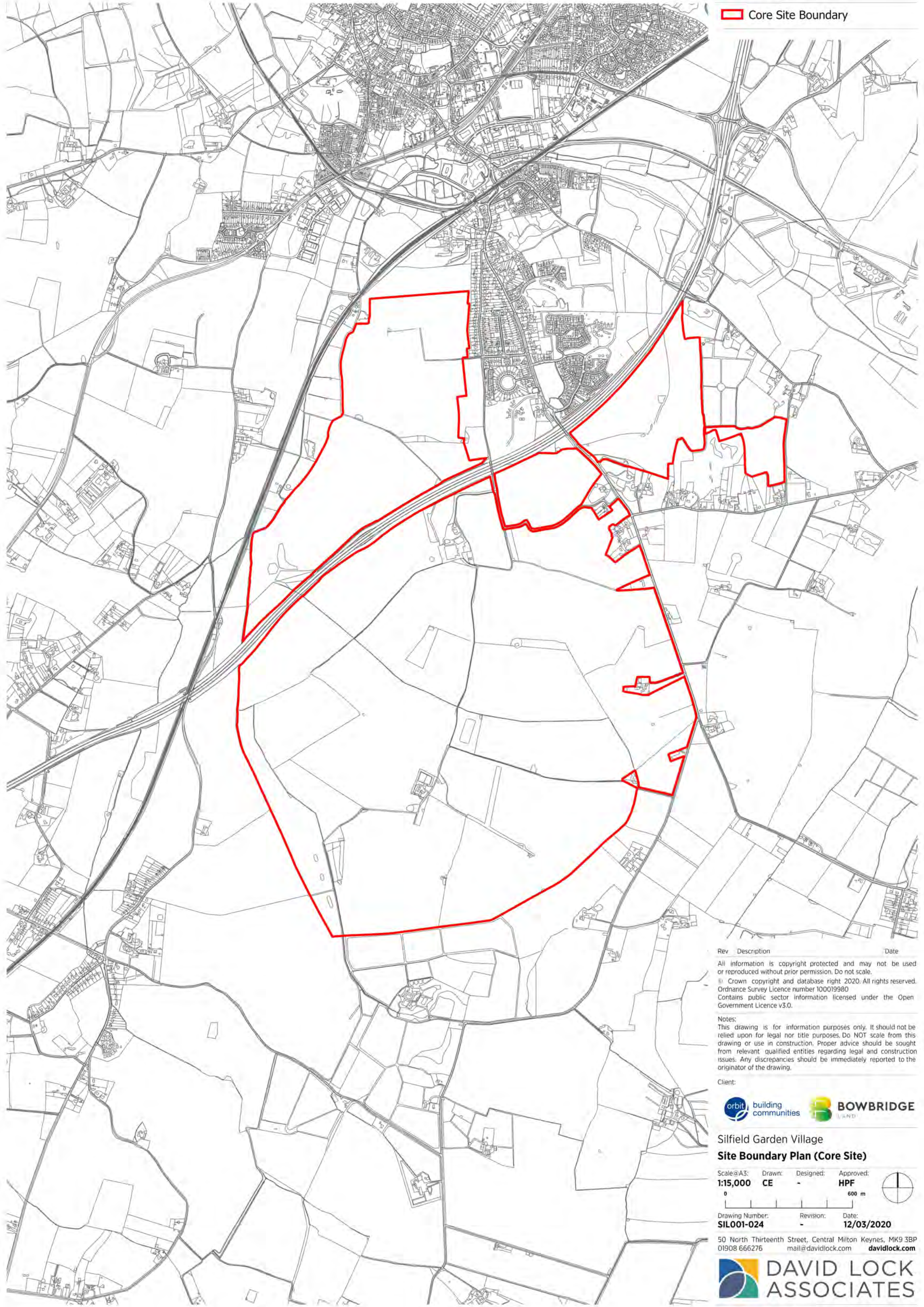
Based on the measured SEL noise at 25m from the rail line, the calculated LAeq,6hr noise level is 50dB within the site boundary. This should not result in any adverse noise impacts and acceptable internal noise levels should be readily achievable. However, the existing baseline information does not provide the L_{Amax} noise levels due to train pass-bys and these would still need to be considered for sleep disturbance.

7. Conclusion

² Report No 70016945, Land North of the A11, Wymondham, Noise Assessment – WSP June 2016

A combination of acoustic barriers along the A11, consideration of site layout and building orientation should result in acceptable acoustic conditions for the site. This could be assessed further with noise modelling of the masterplan.

Core Site Boundary



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Silfield Garden Village
Site Boundary Plan (Core Site)

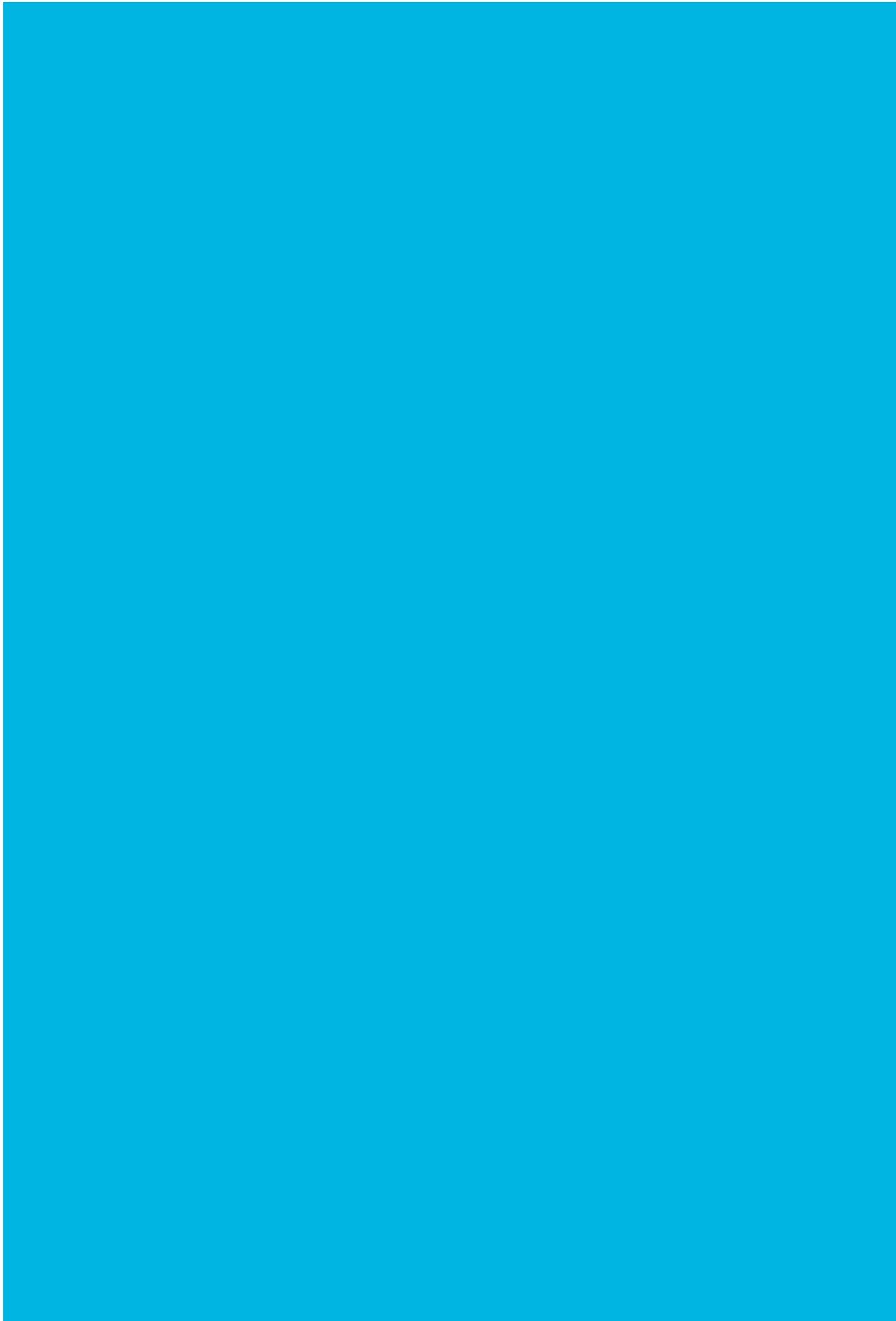
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Preliminary Ecological Appraisal
(BSG Ecology)

**Silfield Garden Village,
Wymondham, Norfolk**

Preliminary Ecological Appraisal

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1 Summary

This Preliminary Ecological Appraisal (PEA) Report aims to present the results of gathering information through a desk study and extended Phase 1 survey and the carrying out of a preliminary impact assessment of the proposed site of a new settlement to be called Silfield Garden Village. The impact assessment, including identifying opportunities for mitigation and enhancement and a proposed programme of detailed survey work, was based on an Illustrative Masterplan for the proposed development. This ecology work was undertaken to support the promotion of the scheme into the emerging Local Plan.

A data request was made to the Norfolk Biodiversity Information Service in November 2019 and an extended Phase 1 habitat survey was carried out on 31 October and 1 November 2019.

The locations of the wildlife sites, habitats and species (including potential locations of species based on habitat features) identified through the desk study and field survey have been matched to the proposed land uses in the Illustrative Masterplan to identify where potential impacts might occur in the absence of mitigation. Potential mitigation actions have been identified, either to avoid the impact or reduce the extent of impact. Actions to enhance habitats or populations of species are separate to mitigation and are described in this PEA Report.

The Site is predominantly arable land which is of low ecological value and there are no designated sites of wildlife value within its boundary. There are some localised habitat features of value including a large number of ponds, semi-natural deciduous woodland and species rich hedgerows.

The Illustrative Masterplan has been designed to locate the built development predominately within the existing arable fields, the areas of lowest biodiversity value across the Site, and most semi-natural features have been avoided. There are considerable areas of greenspace proposed as part of the development that provides mitigation for the minor losses of grassland and plantation woodland and considerable enhancement of the future biodiversity value of the Site.

It is recommended that further, more detailed, information is gathered on some habitats and species groups by further field survey in order to better understand the ecological value of the Site, to assess potential impacts and to design mitigation and enhancement measures. Those surveys could be appropriately carried out as part of the actions undertaken before an outline planning application is submitted.

It is recommended that as further information on habitats and species is gathered through field survey then the ecological assessment of the proposed development should be updated. Similarly, as the detail of the proposed development progresses toward outline application stage then the ecological assessment should be updated.

As part of the work toward the outline planning application, it is recommended that a biodiversity net gain calculation is undertaken in order to establish the extent to which 10% biodiversity net gain is achieved. With the proposed development occurring primarily on arable land of low biodiversity value and the Illustrative Masterplan identifying considerable areas of greenspace to accompany the development, a 10% net gain on-Site is considered feasible.

The conclusions of this PEA Report are that:

- The Site of the proposed Silfield Garden Village is predominantly arable land which is of low ecological value and there are no designated sites of wildlife value within its boundary. There are some localised habitat features of value including a large number of ponds, semi-natural deciduous woodland and species rich hedgerows.
- An Illustrative Masterplan of the proposed development has been prepared to support the submission of the development as an allocation in the Local Plan. Given the layout of the built development and the extensive greenspace proposed in that Illustrative Masterplan and the knowledge of the Site gained through the desk study, field survey and assessment contained within this PEA Report, it is considered that habitat and species features (biodiversity) do not impose a constraint on the allocation of the Site in the Local Plan.

2 Introduction

Background to commission

- 2.1 BSG Ecology was contracted by Orbit Group and Bowbridge Land to prepare a Preliminary Ecological Appraisal (PEA) Report for the proposed new settlement to be called Silfield Garden Village based upon a desk study and extended Phase 1 survey that it had carried out in the second half of 2019.
- 2.2 This PEA Report has been prepared to inform the promotion of the scheme into the emerging Local Plan. The local planning authority is South Norfolk Council.

Site description

- 2.3 The proposed Silfield Garden Village development occupies approximately 451 ha of land that predominantly is in arable cropping, immediately to the South of the town of Wymondham, South Norfolk. It is located around 13 km south-east of central Norwich and straddles the A11 within easy reach of two railway stations at Wymondham and Spooner Row.
- 2.4 The historic market town of Wymondham is located to the north and includes significant residential development as well as small industrial areas and a 12th century Benedictine abbey. The wider context of the Site is of agricultural land use with scattered smaller settlements and hamlets, namely; Silfield, Wattlesford, Spooner Row, and Sutton, which ring the Site in a clockwise direction. There are also occasional woods, copses, and hedgerows.
- 2.5 The local soils and geology consists of a clay plateau with deep deposits of seasonally waterlogged chalky glacial till over cretaceous chalk bedrock and river valleys which contain glacial outwash deposits and peat. There are remnants of the medieval landscape however many field systems have undergone 20th century amalgamation. Numerous ponds are a relic of the former importance of dairy farming in the area.
- 2.6 The land that is the subject of this PEA Report consists of large, amalgamated, arable fields with a network woods, small copses, hedgerows and abundant ponds. Park Farm is an active farmyard and Lower Park Farm is a redundant moated site containing traditional farm buildings. Historic research has identified the location as the site of a mediaeval deer park.

Aims of the Report

- 2.7 The purpose of this Report is to:
- Review and summarise the designated sites and biological records returned by the desk study.
 - Present the findings of the extended Phase 1 habitat survey.
 - Classify the habitats present and evaluate those habitats and species records.
 - Provide an early indication of potential impacts of the development based on the indicative layout provided in the Illustrative Masterplan.
 - Identify opportunities for habitat and species enhancement.
 - Make recommendations with regard to further information gathering.
 - Outline the legislative and / or policy protection afforded to any habitats or species of importance likely to be associated with the proposed development.

3 Methods

The area subject to study

- 3.1 The area of land that is the subject of this PEA Report, of the desk study and of the field survey is that illustrated in Appendix 1 and encompasses approximately 420 ha of land. It is that area of land that is referred to the 'Site' in this PEA Report.
- 3.2 The area of land that is included in the Illustrative Masterplan is illustrated in Appendix 2. That area of land is approximately 451 ha. An additional parcel of land was added to the proposed development (in the north-east corner, south of the A11) after the desk study, field survey and ecological appraisal were conducted. As a consequence this additional parcel of land has not been assessed in this PEA Report.

Desk study

- 3.3 A desk study was carried out which included a data search to determine the presence of any protected / notable species records or designated non-statutory sites of conservation value (such as Local Wildlife Sites) within the Site or within a 2 km buffer projected from the boundary of the Site. Norfolk Biological Information Service (NBIS) was contacted to supply this information, which was received on 05 November 2019.
- 3.4 Aerial photographs and mapping (Google Maps and OS Maps, accessed from 18 November 2019 and throughout the project) of the Site and its surroundings were reviewed to identify ponds within 250 m of the Site and assist in the characterisation of buildings and habitats within the Site.
- 3.5 The MAGIC website (<https://magic.defra.gov.uk>) that provides geographic information about the natural environment from across Government was consulted for the presence of international statutory designated sites within 5 km, national statutory designated sites and European Protected Licences (EPSL) granted within 2 km of the Site and for previously classified habitats within and adjacent to the Site.

Field survey

- 3.6 An extended Phase 1 habitat survey of the Site was undertaken on 31 October and 1 November 2019 by Lewis Saunders Ecologist at BSG Ecology. The vegetation and land use types present within the Site were classified with reference to the standard JNCC Phase 1 methodology (JNCC, 2010).
- 3.7 The survey was also extended to include an assessment of the potential of the habitats present to support protected species. In addition during the Site visit any signs of protected species that were observed were recorded. In particular each pond on Site was visited in order to assess its potential to support great crested newts *Triturus cristatus* (referred to as GCN).

Interpretation

- 3.8 In this report the habitats found during the survey have been described and interpreted as to their potential to support protected species.
- 3.9 A GCN Habitat Suitability Index (referred to as an HSI) has been calculated for each of the ponds present on Site according to a methodology published by Oldham *et al.* (2000). An HSI is a helpful measure of evaluating habitat quality for GCN. It is a numerical index between 0 and 1 where 0 indicates unsuitable habitat and 1 indicates optimal habitat. Its calculation is based on 10 individual suitability indices, all of which are factors thought to affect great crested newt presence.

Ecological Appraisal

- 3.10 The approach to ecological appraisal was based on the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM) in the document *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017).

Limitations to methods

- 3.11 The survey was a walkover of a very large site spread over two days, therefore a complete inventory of the species and features present on the Site was not possible. The time spent on Site was considered long enough to assess accurately the potential of the Site to support protected species and to evaluate the habitats.

Personnel Involved

- 3.12 The survey work and reporting was completed by Lewis Saunders, Ecologist at BSG Ecology. Lewis is an experienced botanist and has four years' professional ecology experience. Further details of his experience and qualifications can be found at https://www.bsg-ecology.com/portfolio_page/lewis-saunders-senior-ecologist-cambridge/.
- 3.13 The report has been technically reviewed by Dr Roger Buisson, Associate Director at BSG Ecology. Roger has over 30 years' professional ecology experience. Further details of his experience and qualifications can be found at https://www.bsg-ecology.com/portfolio_page/roger-buisson-director-of-ecology-cambridge/.

4 Results and Interpretation

Desk study

Ponds and watercourses

- 4.1 Use of the MAGIC website indicated that there was a total of twenty-two ponds within the Site. It also indicated that there were two minor watercourses within the Site: The Bays River, which ran through the western part of the Site in a north-south direction and a further un-named watercourse which crossed the centre of the Site from east to west.
- 4.2 The surrounding landscape contained a further eighteen ponds within 250 m of the Site boundary and minor watercourses including drains and streams.

Desk study - designated sites and habitats

- 4.3 Within the 2 km desk study area there was a total of two statutory designated sites including one local nature reserve (LNR) (Toll's Meadow LNR, Wymondham) and one site of special scientific interest (SSSI) (Lower Wood, Ashwellthorpe SSSI). In addition there was a total of fifteen designated county wildlife sites (CWS) within the same 2 km desk study area including Toll's Meadow. None of the designated sites was within the boundary of the Site.

Statutory designated sites

- 4.4 The two statutory designated site within the 2km desk study area were Lower Wood, Ashwellthorpe; SSSI (1.4 km due south-east of the Site at its closest point) and Toll's Meadow, Wymondham LNR (625 m due north of the Site at its closest point).
- Lower Wood, Ashwellthorpe SSSI is a 36 ha ancient woodland located on a poorly drained chalky boulder clay plateau. The wood is predominantly coppice with standards and supports a large proportion of semi-natural stands. The major woodland type is plateau alderwood - a nationally rare stand type. A large number of tree and shrub species are associated with this stand-type, including pedunculate oak *Quercus robur*, ash *Fraxinus excelsior* and hornbeam *Carpinus betula*, and coppiced hazel *Corylus avellana*, field maple *Acer campestre* and willow *Salix caprea*. The field layer is dominated by dog's mercury *Mercurialis perennis*. A number of uncommon species are present, including herb paris *Paris quadrifolia*, wood spurge *Euphorbia amygdaloides*, early purple orchid *Orchis mascula*, common twayblade *Listera ovata*, ransoms *Allium ursinum*, water avens *Geum rivale* and woodruff *Galium odoratum*.
 - Toll's Meadow LNR. The features of this LNR are described in Table 1 below based on the citation for the overlapping designation as CWS - CWS 2131 Toll's Meadow & Friarscroft.

Non-statutory designated sites and habitats

- 4.5 Use of the MAGIC website indicated that five areas of woodland within the Site were included within the priority habitat inventory as deciduous woodland and that one area was registered as Ancient Woodland. The website indicated that W10 Peasacre Wood (12.4 ha) in the west of the Site was Ancient Woodland. A further four smaller areas were also included within the priority habitats inventory (woodlands W7, W9, W11 and W15).
- 4.6 The NBIS data return provided information about 15 CWS that were within the 2 km search area. None of the CWS were within the Site boundary. Table 2 lists each of these CWS and includes information about their distance from the boundary of the Site and describes their interest features.
- 4.7 Two of the CWS identified in the data return are adjacent to the Site - Bays River Meadows South CWS and Railway Pond CWS and one is close to the Site but separated from it by the railway: Bays River Meadow North CWS. The sites presented in Table 1 are listed in order of proximity to the Site.

Table 1: CWS within 2 km of the Site boundary

CWS Number and name	Area (ha)	Distance and direction from the Site boundary (m).	Description
208 Railway Pond	0.1 ha	Less than 10 m due West. Good connectivity with Site.	This is a moderate sized mesotrophic pond with varied aquatic and marginal vegetation. The pond supports abundant water milfoil (<i>Myriophyllum</i> spp.) and pondweed (<i>Potamogeton</i> spp.) together with frequent duckweed (<i>Lemna</i> sp.) and Canadian pondweed (<i>Elodea canadensis</i>). The pond is surrounded by semi-natural woodland.
209 Bays River Meadows South	3.6 ha	Less than 10 m due West. Good connectivity with Site.	This site consists of a mosaic of wet basic and neutral grasslands and swamp. Swamp areas are dominated by either pond-sedge (<i>Carex</i> sp.) with abundant water mint (<i>Mentha aquatica</i>) or by reed (<i>Phragmites australis</i>) with frequent meadowsweet (<i>Filipendula ulmaria</i>). The site is bordered by an old hedgerow to the east.
210 Bays River Meadow North	9.8 ha	70 m due Northwest. Railway may act as a barrier to dispersal.	A narrow, river valley wetland mosaic, divided into a series of discrete compartments enclosed by tall hedgerows. The Bays River flows northwards and bisects the site which slopes inwards towards it. The site is predominantly unmanaged. The site is separated from CWS 209 Bays River Meadows (South) to the southeast by the Norwich-Thetford rail-line. Rank tall-herb fen, with scattered hawthorn (<i>Crataegus monogyna</i>) and grey willow (<i>Salix cinerea</i>) scrub, occupies a large proportion of the site west of the river.
59 Upper Wood	3 ha	600 m due East. Limited barriers to dispersal.	This is an ancient woodland site situated near to Ashwellthorpe Lower Wood SSSI. It is now largely an area of conifer plantation although a small remnant of the original coppice woodland remains to the south. The canopy here consists mainly of oak (<i>Quercus robur</i>) with occasional alder (<i>Alnus glutinosa</i>), especially to the north. Beneath this is a well developed coppice layer of hornbeam (<i>Carpinus betulus</i>). Moving westwards the canopy becomes dominated by ash (<i>Fraxinus excelsior</i>) and field maple (<i>Acer campestre</i>) with suckering elm towards the southern margins of the wood. The southernmost tip of woodland is now a poplar (<i>Populus</i> sp.) plantation. The ground flora of the broad-leaved area is dominated by dog's mercury (<i>Mercurialis perennis</i>) and bluebell (<i>Hyacinthoides non-scripta</i>) with less frequent water avens (<i>Geum rivale</i>), early-purple orchid (<i>Orchis mascula</i>), ground-ivy (<i>Glechoma hederacea</i>) and primrose (<i>Primula vulgaris</i>).
2131 Toll's Meadow & Friarscroft	2.8 ha	613 m due North. Multiple barriers to dispersal.	Toll's Meadow, a designated Local Nature Reserve (LNR), is situated on both sides of the River Tiffey, which bisects the site from east to west. The river channel supports water-plantain (<i>Alisma plantago aquatica</i>) while the banks support great willowherb (<i>Epilobium hirsutum</i>), common reed (<i>Phragmites australis</i>), hemp

CWS Number and name	Area (ha)	Distance and direction from the Site boundary (m).	Description
			agrimony (<i>Eupatorium cannabinum</i>) and meadowsweet (<i>Filipendula ulmaria</i>). The main part of the site, south of the river, is an area of species-rich marshy grassland and fen-meadow with upwelling flushes in places, bisected by a public right of way.
58 Fundenhall Wood	17.7 ha	769 m due Southeast. Limited barriers to dispersal.	Fundenhall is an ancient woodland site on a boulder clay plateau overlain by sandy loam. The wood contains entirely semi-natural stands and has many similarities with the nearby Ashwellthorpe Lower and Hethel woods. The structure is coppice with standards and there is a wide range of stand types present including the uncommon plateau alderwood. The ground flora is diverse and includes a number of locally rare and uncommon species. The ground flora on the heaviest soils under the plateau alderwood is dominated by dog's mercury (<i>Mercurialis perennis</i>) and other species of interest include herb paris (<i>Paris quadrifolia</i>) enchanter's nightshade (<i>Circaea lutetiana</i>) and wood avens (<i>Geum rivale</i>). Ramsons (<i>Allium ursinum</i>) is locally dominant and forms an extensive, virtually pure cover. The lighter soils are dominated by bramble (<i>Rubus fruticosus</i>) and bluebell (<i>Endymion non-scriptus</i>) with honey suckle (<i>Lonicera periclymenum</i>), wood sorrel (<i>Oxalis acetosella</i>) and primrose (<i>Primula vulgaris</i>).
215 Wymondham Marshes	4.3 ha	800 m due North. Multiple barriers to dispersal.	This site is an area of marshy grassland crossed by dykes which support pure swamp vegetation. The site is surrounded by hedgerows. The grassland is subject to flooding in places and has a sward dominated by neutral grasses such as Yorkshire fog (<i>Holcus lanatus</i>) together with rushes such as jointed rush (<i>Juncus articulatus</i>) and sedges (<i>Carex spp.</i>). Forbs are abundant and include marsh bird's-foot trefoil (<i>Lotus uliginosum</i>), creeping buttercup (<i>Ranunculus repens</i>), meadowsweet (<i>Filipendula ulmaria</i>) and water mint (<i>Mentha aquatica</i>).
213 Wymondham Abbey Meadows	41 ha	890 m due North. Multiple barriers to dispersal.	This site comprises dry neutral grassland around the remains of Wymondham Abbey which exist as low mounds with a few exposed walls. The ground slopes southwards towards a small eutrophic stream. The site is cattle grazed. Much of the turf is tightly grazed and dominated by common bent (<i>Agrostis capillaris</i>) with rye-grass (<i>Lolium perenne</i>), cock's-foot (<i>Dactylis glomerata</i>) and timothy (<i>Phleum pratense</i>).
2218 Silfield Newt Reserve	6.1 ha	950 m due Northeast. Some barriers to dispersal.	Five connected fields with ponds, grassland, scattered scrub and hedges. At least part of the site was once mineral workings and as mitigation for the Wymondham bypass, the site was set aside as a nature reserve, largely to support great crested newts <i>Triturus cristatus</i> and water voles <i>Arvicola amphibius</i> . The

CWS Number and name	Area (ha)	Distance and direction from the Site boundary (m).	Description
			grassland is mostly dry and acidic; Yorkshire fog <i>Holcus lanatus</i> is dominant and species in the grassland include abundant yarrow <i>Achillea millefolium</i> , ribwort plantain <i>Plantago lanceolata</i> , knapweed <i>Centurea nigra</i> , and lesser stitchwort <i>Stellaria graminea</i> .
211 The Lizard & Wade's Pit	17.4 ha	1,426 m due Northeast. Multiple barriers to dispersal.	This recently extended CWS south-east of Wymondham comprises namely marshy grassland (with patches of fen), an area of acid grassland, a disused railway embankment and a 'leg' of broad-leaved woodland and gravelly scrub stretching out from the south-east corner. The River Tiffey runs east to west through the northern stretch of the site, and the whole area is dissected by several large ditches and areas of standing water. The meadows south of the river comprise mainly neutral grassland sloping to wet fen areas and damp hollows.
216 Tiffey Meadow North	3.3 ha	1,480 m due North. Multiple barriers to dispersal.	This site is a remnant of marshy grassland situated adjacent to a disused railway. The majority of the site is improved pasture with a sward dominated by rye-grass <i>Lolium perenne</i> with occasional Yorkshire fog <i>Holcus lanatus</i> and crested dog's-tail <i>Cynosurus cristatus</i> .
212 Tiffey Meadow South	2.7 ha	1,480 m due North. Multiple barriers to dispersal.	This site is a remnant of marshy grassland situated adjacent to a disused railway line. The majority of the site is improved grassland dominated by rye-grass with occasional Yorkshire fog and crested dog's-tail.
201 Breakers Yard Meadow	1.1 ha	1,600 m due East. Multiple barriers to dispersal.	This site consists largely of improved grassland with small pockets of semi-improved, wet grassland. The site is grazed by sheep although there is an area of tall and unmanaged fen-type vegetation. The marshy grassland pockets contain abundant jointed rush (<i>Juncus articulatus</i>) and greater pond-sedge (<i>Carex riparia</i>) with frequent soft rush (<i>Juncus effusus</i>) and hard rush (<i>Juncus inflexus</i>).
214 Moot Hill	1.8 ha	1,758 m due Northeast. Multiple barriers to dispersal.	This site consists of a raised mound of semi-natural woodland surrounded by a moat. Elm (<i>Ulmus sp.</i>) forms approximately half of the canopy, the rest being ash (<i>Fraxinus excelsior</i>) and oak (<i>Quercus robur</i>) with sycamore (<i>Acer pseudoplatanus</i>). Horse-chestnut (<i>Aesculus hippocastanum</i>) and field maple (<i>Acer campestre</i>) are occasionally present.
156 Big Wood Meadow	5.9 ha	1,886 m due Northwest. Multiple barriers to dispersal.	This site consists of three distinct fields of undulating marshy grassland of moderate species diversity with species rich ditches. Tall well-formed hedges surround the site and within it there are a few small areas of scrub.

Field survey - habitats

4.8 In terms of habitats the Site consisted predominantly of large arable fields with a scattering of small woodlands and copses of both plantation and semi-natural origin and a relatively sparse network of hedgerows, however some of these hedges were species rich and of varied structure. There were

a number of small watercourses and ditches including the Bays River in the west. Ponds were a notable feature of the landscape and twenty two were found to be extant during the survey. Buildings and hardstanding were associated with both Park Farm and Lower Park Farm.

- 4.9 The habitats identified are mapped on Figure 1. That Figure also includes the feature (fields, woods, ponds etc.) reference numbers that are referred to below.

Arable

- 4.10 Large arable fields were the dominant land-use within the survey area. At the time of survey the majority of the fields south of the A11 (Fields 5-19) were either recently cultivated with bare ground (F5, F6, F7, F8, F9, F10, F12, and F14) or contained crops of parsley *Petroselinum crispum* (F11, F13, F15, F17 and F19). Two fields contained stubble from a crop which had not been cultivated (F16 and F18). The fields north of the A11 (Fields 1-4) were either recently cultivated with bare ground (part of F4) or contained an autumn sown crop of oilseed rape *Brassica napus*. The fields north of the A11 were noted as having an arable weed flora whereas the fields south were not noted to support many arable weeds. The arable plants encountered in the north included field pennycress *Thlaspi arvense* (very abundant), common poppy *Papaver rhoeas*, hedge mustard *Sisymbrium officinale*, wild radish *Rhaphanus raphanistrum* ssp. *raphanistrum*, wild pansy *Viola tricolor*, field pansy *Viola arvensis*, and cut-leaved dead-nettle *Lamium hybridum*. The fields were typically bordered by hedgerows, ditches, or watercourses. In places field margins of grassland were present of around 6 m width.

- 4.11 Photos 1 and 2 depict typical arable cropping within the Site.

Grasslands

- 4.12 Grassland of any type was very limited in area and highly fragmentary occurring as small patches or strips throughout the Site. This included amenity grassland around Park Farm, improved grassland around Lower Park Farm and in field corners and semi-improved field margins.
- 4.13 Most of the grassland on Site was of low ecological value consisting of temporary grassland strips and field corners. G6 probably has greatest value acting as a buffer to the adjacent watercourse from agricultural inputs. The most ecologically valuable and floristically interesting grasslands were G1, G2 and G5 however the condition of the sward in G2 and G5 was compromised by frequent use and heavy wear as vehicle trackways and footpaths.
- 4.14 Appendix 5 provides a brief species list for each of the grasslands. Photos 4-7 depict the range of grasslands within the Site.

Amenity grassland

- 4.15 Amenity grassland was found around the garden of Park Farm. It was closely managed by mowing and consisted of perennial rye-grass predominantly.

Improved grassland

- 4.16 Improved grassland was found in two areas in the south of the Site. One area was located immediately to the south of Park Farm around P18 and another area was found at the southern end of F9. This grassland was also species poor and consisted of dominant perennial rye-grass with some cock's-foot.

Poor semi-improved grassland

- 4.17 Poor semi-improved grassland was found in a block to the east of the farm buildings at Park Farm (G4) and in a long narrow strip, probably designed as a watercourse buffer through the centre of the Site (G6). Grasses included red fescue, cock's-foot and false-oat grass.

Semi improved grassland

- 4.18 Good quality semi-improved grassland was limited to two narrow strips containing farm tracks / footpaths and a single field corner. G1 was located in the corner of a large arable field and was probably sown with a mixture of grasses and wildflowers including red fescue and black knapweed. To the east a farm track ran beside the A11 (G2) which included red fescue, cock's-foot, common cat's ear and autumn hawkbit. One further strip of semi-improved grassland was located along a public footpath and that also included red fescue and cock's-foot with some common agrimony and ribwort plantain.

Table 2: Summary evaluation of the grasslands on Site

Reference	Size (ha)	Description
G1	0.6	Semi-improved grassland.
G2	0.6	Semi-improved grassland.
G3	2.0	Amenity grassland.
G4	0.6	Poor semi-improved grassland.
G5	0.5	Semi-improved grassland
G6	1.0	Poor semi-improved grassland.
G7	0.6	Improved grassland
G8	1.0	Improved grassland

Woodlands and copses

- 4.19 Small woodlands and copses were a characteristic feature of the Site and were somewhat varied in character, age and species composition. There were a total of fifteen larger woodlands and copses including Peaseacre Wood, Hempfield Wood and Lawn Wood as well as numerous small copses, many of which contained a central pond. A significant proportion was broadleaved semi-natural woodland including the largest Peaseacre Wood and all of the smaller copses. The remainder of the woodland was often planted and was dominated by either mixed broadleaved trees or mixed broadleaved and coniferous species.
- 4.20 The woodlands found throughout the Site are of ecological value through providing a network of habitat in combination with the hedgerows. The semi-natural broadleaved woodlands were of particular value as a priority habitat type under the NERC Act 2006. Additionally Peasacre Wood had further value as an ancient woodland retaining some of its original species composition and ground flora.
- 4.21 The larger woodlands are mapped on Figure 1 and each has a reference number that is used in the descriptions below. The copses fringing the ponds are described as one below under semi-natural woodland since this was universally their character. Photos 7-12 show the range of woodlands present on the Site.
- 4.22 Appendix 4 provides a plant species list for each woodland.

Semi-natural broadleaved woodland

- 4.23 Semi-natural woodland was found in three of the larger woods including W7 (Lawn Wood), W10 (Peaseacre Wood) and W11 (Lower Park Farm moat). Peaseacre Wood was the largest woodland on Site and an ancient woodland dominated by ash with some field maple and an understorey of hazel. Dog's mercury was a constituent of the ground flora. Lawn Wood (W7) was also semi-natural in character and was dominated by oak with an understorey of hawthorn. The moat at Lower Park farm had a small area of woodland (W11) dominated by ash adjacent to it.
- 4.24 Many of the ponds throughout the Site were surrounded by trees and shrubs which, through absence of management, had come to resemble semi-natural woodland. Typically the trees found in these situations were oak, field maple, ash and sometimes other species including elm and hazel. Interesting ground flora was sometimes present including wood false-brome, dog's mercury and greater stitchwort.

Mixed broadleaved plantation woodland

- 4.25 Mixed broadleaved plantation woodland was the most widespread woodland type on the Site and was found in seven areas including; W1, W2a, W3, W4, W5, W6, W9, and W13. The patches were typically small in area ranging from 0.5 - 2.0 ha. A wide range of trees had been planted including field maple, hornbeam, sweet chestnut, oak, ash, bird cherry and beech. Most stands were judged to be around 20-30 years old. The majority were considered likely to have been planted for the purposes of enhancing the environment of the farm and may have been funded by environmental grants. The main purpose of W9 appeared to be as an area for rearing pheasant - the central clearing was planted with a variety of millet.

Single species broadleaved plantation woodland

- 4.26 There was one area of single species broadleaved plantation woodland on the Site. W2b was planted entirely with Italian alder *Alnus cordata*. The Site was wet, adjacent to the A11, and the plantation was judged to have been around 20-30 years old. It was surrounded by a relict hedged boundary which contained dog's mercury.

Mixed broadleaved / coniferous plantation woodland

- 4.27 Mixed broadleaved/ coniferous plantation woodland was found in four stands on the Site including; W8, W12, W14, and W15. The range of broadleaved trees was similar to those listed under mixed broadleaved plantation woodland above. The coniferous trees utilised tended to vary between stands. W8 (Hempfield Wood) included larch *Larix sp.* and sitka spruce *Picea sitchensis* as its coniferous species whereas W12 and W14 contained a variety of cypress *Cupressus sp.* and W15 contained Scot's pine *Pinus sylvestris*. Most stands were also considered to be around 20-30 years although Hempfield Wood appeared to be an older, more established plantation woodland used for rearing pheasants.

Table 2: Summary evaluation of the woodlands on Site

Reference.	Size (ha)	Description
W1	0.5	Mixed broadleaved plantation woodland
W2a	0.7	Mixed broadleaved plantation woodland.
W2b	1.0	Single species broadleaved plantation woodland
W3	2.0	Mixed broadleaved plantation woodland.
W4	0.8	Mixed broadleaved plantation woodland.
W5	0.5	Mixed broadleaved plantation woodland.
W6	0.5	Mixed broadleaved plantation woodland.
W7	1.1	Semi-natural broadleaved woodland.
W8	1.8	Mixed coniferous/ broadleaved plantation woodland
W9	1.8	Mixed broadleaved plantation woodland
W10	13.2	semi-natural broadleaved woodland (Ancient woodland)
W11	0.2	Semi-natural broadleaved woodland
W12	0.5	Mixed coniferous/broadleaved plantation woodland.
W13	0.6	Mixed coniferous/broadleaved plantation woodland
W14	0.6	Mixed coniferous/broadleaved plantation woodland
W15	1.3	Mixed coniferous/broadleaved plantation woodland.

Hedgerows and scattered trees

- 4.28 Although the arable fields were large, with hedgerow removal and field amalgamation having taken place in the past, hedges were still present along a proportion of field boundaries both around the edges of the Site, along road boundaries and internal to the Site. Many of the hedges internal to the Site were carefully managed by cutting to a height of around 2-3 metres but others particularly around the boundaries of the Site were tall and unmanaged. Standard trees, sometimes showing evidence of pollarding, were frequent both along boundaries and sometimes within fields.

- 4.29 Around a half of the hedgerows were considered species rich and half of the hedgerows considered species poor according to the Defra criteria of consisting of five or more woody species. Sixteen hedgerows were considered species rich and 17 were considered species poor. All the hedgerows would be considered priority habitat under the NERC Act as any native hedgerow is included even when it consists of only one species. Some hedgerows on the Site may qualify as important hedgerows under the Hedgerow Regulations 1998. Species rich hedgerows may well qualify as such under biological or historical criteria.
- 4.30 The hedgerows are mapped on Figure 1 and each has a reference number that is used in the descriptions below.
- 4.31 In terms of the species richness of each hedge, Appendix 3 provides a woody plant species (i.e. trees and shrubs) list for each hedgerow.

Species-poor hedgerows

- 4.32 Species poor hedgerows on the Site were considered to have fewer than 5 woody species recorded along their length. They were typically dominated by hawthorn and/or blackthorn and occasionally with some field maple or dogwood.

Species-rich hedgerows

- 4.33 Species rich hedgerows on the Site had between 5 and 17 woody species along their entire length. More species rich hedges included a greater frequency of field maple and dogwood as well as hawthorn and blackthorn. Species which indicated the more species rich hedges included hornbeam, hazel, elm, holly, willow, and spindle.

Hedgerow and scattered trees

- 4.34 Hedgerows across the Site of both species rich and species poor types frequently contained standard trees. These were almost exclusively oak but just occasionally were ash. The historic species rich boundaries in the Northwest and South also contained pollarded oaks.

Table 2: Summary evaluation of the hedgerows on Site

Reference	Length (m)	Woody species	Species rich/ Species poor.
H1	1,815	12	Species rich
H2	343	5	Species rich
H3	400	4	Species poor
H4	100	2	Species poor
H5	100	1	Species poor
H6	270	6	Species rich
H7	270	9	Species rich
H8	430	9	Species rich
H9	156	6	Species rich
H10	510	9	Species rich
H11	169	6	Species rich
H12	365	6	Species rich
H13	166	3	Species poor
H14	168	3	Species poor
H15	180	1	Species poor
H16	307	1	Species poor
H17	582	1	Species poor
H18	715	1	Species poor
H19	636	8	Species rich
H20	173	<5	Species poor
H21	128	<5	Species poor
H22	157	5	Species poor

Reference	Length (m)	Woody species	Species rich/ Species poor.
H23	157	5	Species rich
H24	415	7	Species rich
H25	200	12	Species rich.
H26	230	1	Species poor
H27	155	5	Species rich
H28	411	3	Species poor
H29	280	3	Species poor
H30	228	<5	Species poor
H31	281	>5	Species rich
H32	1,680	17	Species rich
H33	183	2	Species poor

Watercourses and ponds

Ponds

- 4.35 Ponds were found throughout the Site and will be discussed further under the section on Great Crested Newt Habitat Suitability Index below as they are likely to provide suitable habitat for this protected species.

Watercourses

- 4.36 Two minor watercourses were present within the Site. Bays River, a headwater stream and tributary of the River Tiffey, itself a tributary of the River Yare, runs for a total of around 2 km through the Site. It flows into the Site at its south-east corner and forms the boundaries between F11 and F10, F9 and F10 and F10 and Peaseacre Wood before turning abruptly west and joining the Site's western boundary where it continues to flow north. It leaves the Site to enter the Bays River Meadows South CWS.
- 4.37 A drain runs the width of the Site from circa TM12169820 to TM10459913 forming the boundaries between F13 and F14, F13 and F16, F8 and F6 and F7 and F5. It passes under the A11 and finishes in a minor drain in W2.

Buildings and hard-standing

- 4.38 The built environment within the Site was represented only by Park Farm in the North and Lower Park Farm to the South. Park Farm remains an occupied dwelling and active farmyard whereas Lower Park Farm was undergoing extensive renovations at the time of survey.

Park Farm

- 4.39 Park Farm contained active farm building used for storing machinery and harvested crops.

Lower Park Farm

- 4.40 Park Farm contained the historic remains of farm buildings enclosed within a moat. The building had undergone recent renovations.

Protected species

- 4.41 A summary of the species, their protection and conservation status and the number of records received from NBIS is included as Appendix 7.

Vascular plants

- 4.42 The 2 km desk search returned records for protected plant species including mossy stonecrop *Crassula tillea*, small-flowered catchfly *Silene gallica*, and Bird's-nest orchid *Neottia nidus-avis*. None of these records were within the Site.
- 4.43 The large size of the Site and the presence of some semi-natural habitats, including ancient woodland, means that it is possible that protected plant species could be present within the Site.

Invertebrates

- 4.44 A range of NERC Act Section 41 invertebrate records were returned for the 2 km area surrounding the Site but not from within the Site. These included more than twenty moth species, mostly caught by light trapping in the urban area of Wymondham. There were also eight records of notable water beetle species from ponds on the Silfield Newt Reserve CWS and records of Section 41 bee species.
- 4.45 Due to the presence of biodiverse habitats such as ancient woodland, species rich hedgerows and ponds within the Site there is a likelihood that important invertebrates species will be present within the Site boundary.

Amphibians

Great crested newt

- 4.46 The data search returned a total of one hundred recent records of GCN from the 2 km search area surrounding the Site. Most records were concentrated in the Silfield Newt Reserve CWS to the east of the Site with a scatter of records around Ashwellthorpe to the east. Connectivity between the Site and Silfield Newt Reserve CWS was present in the form of a coarse grassland and woodland strip along the embankment of the A11. Two GCN records were identified less than 50 m from the Site boundary from a pond at TM118998 in 2008. The pond has connectivity to the rest of the Site via habitats beside the A11. A further GCN record was identified at TM10379986 Stalworthy Manor Farm in 2013 around 300 m from the Site boundary. Although a railway line cuts across this area there was otherwise good habitat connectivity via grassland habitats along the valley of the Bays River.
- 4.47 A total of twenty-two ponds were identified within the Site boundary and these were surveyed in order to calculate a GCN HSI score for each pond.
- 4.48 A total of five ponds had an HSI considered 'Good'. A further ten had an HSI considered 'average'. Finally a total of seven had an HSI considered 'below average' or 'poor'. The HSI score and pond suitability are summarised in Table 3 below and the results are detailed in full in Appendix 6.
- 4.49 The widespread occurrence of GCN records with a high concentration at the Silfield Newt Reserve CWS to the east combined with the suitability of the numerous ponds present on the Site means that there is a high likelihood of GCN being present on the Site.

Table 3: Ponds on Site, HSI score and suitability for GCN

Pond reference	HSI Score	Pond suitability
1	0.71	Good
2	0.69	Average
3	0.67	Average
4	0.63	Average
5	0.64	Average
6	0.74	Good
7	0.73	Good
8	0.74	Good
9	0.48	Poor
10	0.61	Average

Pond reference	HSI Score	Pond suitability
11	0.48	Poor
12	0.51	Average
13	0.46	Poor
14	0.51	Below average
15	0.68	Average
16	0.72	Average
17	0.60	Average
18	0.79	Good
19	0.57	Below average
20	0.57	Below average
21	0.65	Average
22	0.49	Poor

Other amphibians

- 4.50 The data search returned ten recent records of smooth newt *Lissotriton vulgaris* from within 2 km of the survey Site, namely from the Silfield Newt Reserve CWS and Moot Hill CWS. There were also similar numbers of recent records for both common toad *Bufo bufo* and common frog *Rana temporaria*. These records were from the Silfield Newt Reserve CWS as well from around Ashwellthorpe, Sutton and from within Wymondham.
- 4.51 The widespread presence of common amphibians as indicated by the data search suggests that they are highly likely to be present within the Site due to the presence of suitable breeding ponds.

Reptiles

- 4.52 A total thirteen recent records of reptiles, including grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* were returned by the records search. These were mostly located to the east in the area of the Silfield Newt Reserve CWS, The Lizard & Wade's Pit CWS and Moot Hill CWS.
- 4.53 Suitable habitat exists on Site for common reptile species and it is likely that they are present on Site however the populations might not be especially large due to the fragmented nature of the habitat. Their presence may be reinforced from more suitable habitat adjacent to the Site such as from The River Bay Meadows CWS.

Birds

- 4.54 More than twenty protected bird species have been recorded from the 2 km search area around the Site including grey partridge *Perdix perdix*, turtle dove *Streptopelia turtur*, barn owl *Tyto alba*, skylark *Alauda arvensis* and yellowhammer *Emberiza citrinella*. These bird species are either Birds of Conservation Concern (BoCC) Red List or Wildlife and Countryside Act Schedule 1 listed species that breed on farmed habitats.
- 4.55 The Site provides varied habitats for birds including ancient woodland, hedgerows and field margins which may be utilised by a wide range of common and declining species for feeding, roosting or nesting.

Brown hare

- 4.56 There have been more than twenty records returned for brown hare *Lepus europeaus* from within the 2 km search area showing the species to be widespread and common in the surrounding countryside. A single record was located in the centre of the Site, the remainder were from outside the Site.

Badger

- 4.57 The records search returned six recent records for Eurasian badger *Meles meles* and these were located both to the east in the area of Ashwellthorpe and the A11 and to the west in the area of Sutton.
- 4.58 During the field survey three small setts were discovered. Two setts of one hole each were found in both Hempfield Wood and in the hedgerow along the southern boundary of the Site. A sett of two holes was found on the southern edge of Peaseacre Wood. Badgers are evidently present within the Site however a main sett was not found.

Water Vole

- 4.59 A large total of ninety eight recent records of water vole *Arvicola amphibius* were returned by the data search. These were mostly located close to the centre of Wymondham and originating from Toll's Meadow LNR/CWS. A further scattering of records was located to the east of the Site around the Silfield Newt Reserve CWS.
- 4.60 Although no evidence of water voles was observed during the survey there were several watercourses which were suitable for water vole including the Bays River located in the west of the Site and the drain which crossed the Site. Given the presence of water vole to the north of the Site it is highly likely that water voles are present.

Otter

- 4.61 The data search returned five recent records for Otter *Lutra Lutra* from the River Tiffey to the North of the Site.
- 4.62 The watercourses present within the Site are not of sufficient size to support a fish population that is likely to attract resident otters. Any otters present are likely to be passing through only.

Bats

- 4.63 The data search returned recent records for ten identified bat species including western barbastelle *Barbastella barbastellus*, serotine *Eptesicus serotinus*, whiskered/Brandt's bat *Myotis mystacinus/brandtii*, Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri* noctule bat *Nyctalus noctula*, Nathusius's pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*.
- 4.64 No direct evidence of bats was found during the survey however some of the trees and buildings within the Site have the potential to support roosting bats. No trees with roost features with high potential were discovered during the survey however some trees with medium potential were observed. Mature willows with peeling bark plates were present in Peaseacre Wood and mature oaks with ivy and sometimes peeling bark were present on some boundaries.
- 4.65 The set of buildings located at Lower Park Farm has high potential to support roosting bats. The buildings have undergone recent renovations however they currently retain openings that would permit the entry and exit of bats. The Park Farm buildings, which were in active use, were considered to have low bat potential.

European hedgehog

- 4.66 A total of 126 records of hedgehog *Erinaceus europaeus* were returned from within 2 km of the Site. Many of these were located in gardens, especially in Wymondham. Several records were located along the eastern margins of the Site.
- 4.67 This species is very likely to be present within the Site.

Limitations of the Results

- 4.68 The area of land that was appraised for the desk study and included in the field survey is that illustrated in Appendix 1 and encompasses approximately 420 ha of land. The area of land that is included in the Illustrative Masterplan is illustrated in Appendix 2 and encompasses approximately 451 ha. The additional parcel of land to the north-east and south of the A11 was not included in those studies.
- 4.69 The data held by NBIS will largely be limited to locations that are accessible to natural history recorders such as publicly owned land, rights of way and nature reserves whereas the Site is private farmland with limited access.
- 4.70 The results of the field survey are limited mainly by the time of year of the Site visit. This was outside of the optimal survey season for taxa groups such as plants and invertebrates.

5 Potential Impacts

The approach to identifying potential impacts

- 5.1 The proposed Silfield Garden Village is at an early stage in its planning with an Illustrative Masterplan having been prepared that informs the consideration of the potential impacts of the proposed development described in this section of the report.
- 5.2 The locations of the wildlife sites, habitats and species (including potential locations of species based on habitat features) identified in the earlier sections of this report have been matched to the proposed land uses in the Illustrative Masterplan to identify where potential impacts might occur in the absence of mitigation. Where mitigation actions have been identified, either to avoid the impact or reduce the extent of impact, then those actions are included in this section. Actions to enhance habitats or populations of species are separate to mitigation and are described in the section 'Opportunities for Enhancement'.
- 5.3 The features identified as being the primary ecological constraints and for which actions can be identified at this early stage of the planning for the proposed development are:
- i. The presence of a large number and wide geographical spread of ponds with qualities that make them suitable for great crested newt. Some of those ponds are close to an area that is already known to support a high population of great crested newts – the Silfield Newt Reserve County Wildlife Site.
 - ii. The presence of species rich hedges that would be classified as 'important' hedges under the Hedgerow Regulations, in particular those that mark the boundary of the former deer park.
 - iii. The presence of an ancient woodland within the Site.
- 5.4 There are a number of potential types of impact that are common to most large residential developments and relevant to this proposal in South Norfolk. Such impacts can be avoided or reduced in extent by good design in the planning of a new settlement. These potential types of impact include:
- Direct, permanent loss of habitat under the footprint of buildings or infrastructure such as roads.
 - Temporary loss of habitat during the construction process such as areas used for materials storage.
 - Direct, permanent degradation of habitat through increased public access to sensitive locations.
 - Indirect, permanent degradation of habitat through increased air pollution generated by increased traffic.
 - Killing or injury of species during the construction process as vegetation is cleared and earth moved.
 - Reduction in populations of species through disturbance displacing them from otherwise suitable habitats.
- 5.5 Targeted species surveys have not been carried out at this stage in the development of the proposal but sufficient information has been gathered to envisage potential impacts on certain species or species groups and that information has been included below. Such targeted surveys are more appropriately carried out when greater detail has been worked up on the proposed development but before an outline application is submitted. Suggestions for such targeted surveys are included in the section 'Recommendations'.
- 5.6 The sub-sections below are ordered in the same way as the results of the desk study and field survey above.

Designated Sites

- 5.7 No designated sites lie within the boundary of the Site and hence none will be directly lost under the footprint of the built form of the development (houses or infrastructure).
- 5.8 There are three CWS which lie close (less than 100 m) from the Site boundary. All three are located to the northwest of the Site and there is the potential for some impact to occur in the limited circumstances that are described below in the sub-sections about these sites.

Railway Pond CWS

- 5.9 Railway Pond is less than 10 m to the west of the Site boundary. It is separated from the built form of the development by a broad area of open space and sports pitches. Within that open space it is proposed to locate a number of flood attenuation features (SuDS). There is the potential for trespass to occur from the open space and sports pitches but this can be mitigated with suitable fencing and signage. There is the potential for the construction and operation of the SuDS to alter the hydrology of the pond but this can be avoided with suitable design and location of the SuDS.

Bays River Meadows North & South CWSs

- 5.10 Bays River Meadows South CWS and the Bays River Meadow North CWS are found in the shallow river valley to the west of the Site with the Bays River Meadow North CWS being separated by the railway line. Both CWS are distanced from the built form of the development by a broad area of open space and sports pitches. Within that open space it is proposed to locate a number of flood attenuation features (SuDS). There is the potential for trespass to occur from the open space and sports pitches but this can be mitigated with suitable fencing and signage. There is the potential for the construction and operation of the SuDS to alter the hydrology of the Bays River but this can be avoided with suitable design and location of the SuDS.

Habitats

Ponds

- 5.11 The Illustrative Masterplan has been designed to retain all twenty two of the ponds that are within the Site with the layout and form of the built development avoiding all the ponds. As a result none will be directly lost under the footprint of the built form of the development.
- 5.12 Many of the ponds lie in close proximity to areas that will be developed and there is the potential for indirect adverse impacts. Such potential impacts include increased access to the ponds by people and pets potentially damaging the habitat and threatening the populations of animals such as GCN. Some ponds may be left more isolated as a result of existing habitat linkages along natural features such as hedgerows that might be severed by the proposed road network. Ponds which lie in close proximity to roads may potentially suffer a decline in water quality due to pollution run-off.
- 5.13 These impacts could be reduced firstly by improving the condition of many of the ponds where they have become silted and rarely hold water with the aim to restore them to being functional waterbodies. Access to a proportion of the ponds by residents could be discouraged by the planting of dense, thorny vegetation such as blackthorn around the ponds. This would also reduce access by dogs but not discourage cats. The number and extent of the severage of habitat links between ponds should be reduced as far as possible through the design of the road network with the width of breaks in hedges minimised and animal underpasses provided below the roads where severage is unavoidable. Water run-off from the roads should not be directed into any pond but should be contained by an appropriate urban drainage network that has oil and silt traps and the flows directed towards the SuDS before discharge in to natural receiving watercourses.

Watercourses

- 5.14 The Bays River on the western side of the Site is outside of the built form of the proposed development and as a result direct impacts on it are avoided. There is the potential for the construction and operation of the SuDS to alter the hydrology of the Bays River but this can be

avoided with suitable design and operation of the SuDS. The Bays River lies within, or on the outside boundary of, an extensive area of informal public open space that stretches from north to south along the western side of the Site and this presents significant opportunities to enhance the river that are described below.

- 5.15 The drain which crosses the Site from east to west runs adjacent to, and through, areas of residential and employment use. Direct impacts can be avoided by not building over and culverting the watercourse except for short stretches where there are road crossings. Any unavoidable culverting can be mitigated by improving the adjacent stretches of watercourse by improving its bed structure and sinuosity and with marginal planting.

Arable

- 5.16 The large majority of the land to be developed within the Site consists of arable fields and of the habitats present on Site the arable land is of the lowest biodiversity value. The location of the proposed garden village on land which is predominantly arable has avoided alternative locations with greater areas of biodiverse habitats. There are some areas of arable land outside of the built form of the development which are to be converted to open space. This is an enhancement.

Grasslands

- 5.17 Some small existing areas of grassland will be lost as part of the proposed built form of the development. This includes small areas of semi-improved grassland (G2 and G5), poor semi-improved grassland (G4) and a larger area of amenity grassland (G3) at Park Farm. There are considerable areas of grassland that are created from arable land within the open spaces and this more than offsets the loss of grassland under the footprint of the built development.

Woodlands and copses

- 5.18 The form of the built development has avoided the ancient woodland Peaseacre Wood, all of the semi-natural broadleaved woodland and all of the other existing areas of plantation woodland with the exception of W4 and a small part of W14. W4 is an even-aged mixed broadleaved plantation woodland on the south side of the A11 which will be completely lost to residential development. W14 is a plantation woodland in the south of the Site and a small part of this is lost to the road infrastructure.
- 5.19 The retained areas of woodland will have the potential for indirect impacts reduced by placing a buffer around them in which ground works will not occur and will be protected during the construction phase by appropriate fencing. The potential for indirect impacts to the retained ancient woodland Peaseacre Wood will be further reduced by placing a 50 m buffer around it and the potential for impacts on its ground flora as a result of recreational access mitigated through restricting access.

Hedgerow and scattered trees

- 5.20 Direct impact on the majority of the length of hedgerows across the Site had been avoided. The impact that might occur takes two forms: Complete / partial removal for residential development and the creation of relatively narrow breaks as a result of the layout of the roads.
- 5.21 There is also the potential for a proportion of the trees found scattered within hedgerows and in fields to be lost.
- 5.22 The detailed description of potential impacts below is divided in to species-rich hedgerows (five or more 5 woody species) and species poor hedgerows (less than five woody species).

Species-rich hedgerows

- 5.23 Impact on the longest and the most species rich boundary hedgerows (H1 & H32), which are considered to be the boundaries of the medieval park, has been avoided.

- 5.24 There is the potential for loss or damage to some species rich hedgerows. H19 in the east of the Site will have ~75% of its length removed as a result of residential and road development. A total of five other species rich hedgerows will have breaks created in them by access roads (H7, H8, H10, H18, & H31). The potential impact on hedgerows should be reduced by minimising so far as possible the length of hedgerow which is removed.

Species-poor hedgerows

- 5.25 Among the species poor hedges on Site there are four locations where hedges will have breaks created in them by access roads (H4, H17, H18 & H30). The potential impact on hedgerows should be reduced by minimising so far as possible the length of hedgerow which is removed.

Buildings and hard-standing

Park Farm

- 5.26 The future of the buildings of Park Farm is at present undecided. If demolished this loss would need to be mitigated with respect to bat roosting potential (see below).

Lower Park Farm

- 5.27 It appears that the buildings of Lower Park Farm will be retained and that there shall be no loss of this habitat.

Protected species

Vascular plants

- 5.28 The areas that are most likely to support important plant populations are the semi-natural habitats such as the ancient woodland and the layout of the built development avoids such areas. The potential for indirect impacts on the ground flora (e.g. trampling through access) can be mitigated as described under woodland above.

Invertebrates

- 5.29 The areas that are most likely to support important invertebrate populations are the semi-natural habitats such as the ancient woodland and the layout of the built development avoids such areas.

Great crested newts and other amphibians

- 5.30 Direct impact on any potential GCN breeding pond has been avoided through the layout of the built development. This also avoids impact on the breeding habitat of other amphibians.

- 5.31 As described under ponds, indirect impacts to amphibian breeding sites can include damage to the habitat by access, predation by pets, severance of linkages to other ponds and a decline in water quality through road run-off. The mitigation actions for these potential indirect impacts are described under ponds. There is also the potential for the loss of terrestrial feeding habitat but as the majority of the proposed development occurs over arable land that is poor feeding habitat this effect is small and this loss and the loss of small areas of grassland and plantation woodland are mitigated for by the extensive creation of greenspace.

Reptiles

- 5.32 Direct impact on the large majority of potential reptile habitat has been avoided through the layout of the built development.

- 5.33 In a similar manner to the amphibians above there is the potential for indirect impacts on reptile populations from disturbance, predation and the fragmentation of habitats but this is mitigated for in a similar manner through the extensive creation of greenspace.

Birds

- 5.34 The size of the potential impact on bird populations differs significantly between those birds which favour woodland type habitats and those which favour farmland, particularly arable, habitats.
- 5.35 Since most woody vegetation (woodland, hedgerows and scattered trees) on the Site will be retained any impacts on birds which favour woodland type habitats will be limited. There is the potential for increased disturbance from people which can be mitigated by guiding people away from sensitive areas and the potential for predation from household cats for which little effective mitigation is available.
- 5.36 The arable habitats on Site will all be lost to the proposed built development or converted to other habitats such as grassland, woodland and wetland (i.e. SuDS). Bird species that depend on open arable habitats will no longer find the Site suitable and consequently there is a large potential impact on such bird populations within the Site. Mitigation for such farmland bird species would, where possible, have to take place off-Site within neighbouring farmland areas.

Brown hare

- 5.37 Brown hare is a predominantly farmland species and its arable habitats will be lost to the proposed development. Some grassland habitats suitable for brown hare will remain and additional grassland habitat created but this species is sensitive to disturbance by people and dogs and it is likely to be displaced from any grassland habitat. As for farmland bird species, mitigation for brown hare would, where possible, have to take place off-Site within neighbouring farmland areas.

Badger

- 5.38 Direct impacts on badger breeding sites have been avoided through the layout of the built development. There is the potential for direct impact on badgers through killing or injury as they cross the new roads within and connecting to the proposed development. This can be mitigated by the construction of underpasses where new roads are known to cross existing badger routes.
- 5.39 There is the potential for indirect impacts on badger populations through loss of grassland feeding habitat but this is mitigated for by the creation of grassland in the proposed open space. There is the potential for indirect impacts on badger populations through the fragmentation of territories and the severance of routes that give access to feeding areas. The underpasses proposed above to avoid road deaths will also avoid such severance from feeding areas.

Water vole

- 5.40 Direct impact on potential water vole habitat along the Bays River has been avoided through the layout of the built development that is all located away from this watercourse. There is the potential for some limited direct loss of potential water vole habitat along the watercourse which runs east to west across the Site. This can be avoided by the bridges constructed for the access roads that cross the watercourse to be of open span construction rather than built over culverts.
- 5.41 Indirect impacts such as the potential for increased disturbance of water vole can be mitigated since the Bays River will be retained within a large area of open space and there is the scope to direct people away from the river banks that have the potential to support water vole through the design of the path and cycle way network.

Bats

- 5.42 Direct impact on potential bat roosts in the Lower Park Farm buildings is avoided by the retention of these buildings. Any direct impact on potential bat roosts in the Park Farm buildings is currently unknown. Any direct impact on potential bat roosts in trees is currently unknown but is not expected to be more than minimal since the areas of woodland lost to the development are all modern plantations with relatively young trees that would not be expected to have cavities and other features that would support roosting bats. The European Protected Species licencing

procedure will require any loss of identified bat roosts to be mitigated by replacement roost creation.

- 5.43 Potential indirect impact on bats relate primarily to artificial lighting, severance of commuting routes and the loss of foraging habitat. The potential adverse effect of artificial lighting can be mitigated by good lighting design, particularly avoiding light falling on to potential roost sites. The potential adverse effect of severance of commuting routes can be mitigated by minimising so far as possible the length of hedgerow which is removed to enable the road network to pass through existing hedgerows. The potential adverse effect of the loss of foraging habitats is avoided by locating the built development across the arable fields that are poor foraging habitats for bats. The potential effect of the loss of arable land and the loss of small areas of grassland and plantation woodland are mitigated for by the extensive creation of greenspace.

6 Opportunities for Enhancement

- 6.1 The evaluation of the results of the desk study and field survey and the initial impact assessment has identified a number of potential opportunities for enhancement that can be included within the planning of the proposed new settlement. Where those enhancements relate to the broad scale layout of the proposed development they have already been included within the Illustrative Masterplan. For those enhancements that are at a finer scale or are carried out through detailed design and management then there is the opportunity to include them in the planning that takes place in the preparation of the outline planning application.
- 6.2 The sub-sections below describing opportunities for enhancement are ordered in the same way as the results of the desk study and field survey and impact assessment above.

Designated Sites

- 6.3 There is the potential for all three CWS that are close to the Site to be enhanced by improving their quality through additional habitat management.

Habitats

Ponds

- 6.4 There are opportunities to enhance both the existing ponds on the Site and to enhance the network of ponds across the Site. Many of the existing ponds have become silted and shaded and some rarely hold water. Restorative management could be undertaken. The network of ponds across the Site could be enhanced by creating more ponds at strategic locations and also by creating additional high quality terrestrial habitat which links the ponds together. This would enhance the movement of animals such as amphibians between the ponds.

Watercourses

- 6.5 The Bays River in the west of the Site is currently a highly artificial channel which is both straight, even profiled, and lacking in natural features. There is great scope to return the Bays River to a more natural state which would provide significant benefits for biodiversity. This would be achieved by sensitively and appropriately re-engineering lost natural features which might include meanders and shallower and more varied bank profiles and would be carried out where both banks of the watercourse are within the proposed development.

Grasslands

- 6.6 There is a large opportunity for ecological enhancement through grassland creation and management at the Site over and above the offsetting of the loss of small areas of grassland under the footprint of the built development.
- 6.7 There are extensive areas of open space proposed along the western boundary, centred on the Bays River, and also along the southern boundary that have the potential to become ecologically valuable grassland. Grassland creation should aim for a diverse mixture of grasses and herbs typical of the surrounding area and appropriate to the soils and conditions present on Site. Subsequent management should also aim to maintain a diverse assemblage of grassland species across the grassland area.

Woodlands and copses

- 6.8 There is a significant opportunity to enhance the network of woodland habitats throughout the Site. By bringing all of the existing woodland in the Site under good management and creating new woody habitat and habitat linkages (including hedgerows) between existing woodland blocks then the Site can be significantly enhanced compared to the existing conditions. Good woodland

management might include the re-establishment of coppicing, particularly in the ancient woodland. Coppicing would need to be accompanied by deer management (fencing and / or culling) for it to be successful. Any new woodland planting which takes place should use locally sourced, disease free stocks, appropriate to the area.

Hedgerow and scattered trees

- 6.9 New hedgerows should be planned strategically to link existing areas of woody habitat to maximise their benefit and be planted as species rich hedgerows using the range of shrubs already found in species rich hedgerows within the Site. Planting stock should be locally sourced, disease free and appropriate to the area.

Protected Species

Great crested newts and other amphibians

- 6.10 Enhancement for great crested newts and other amphibians would include creating new ponds surrounded by suitable terrestrial habitat, the improvement of the suitability of the existing ponds and the linking together of the new ponds and the existing ponds with suitable habitat.

Reptiles

- 6.11 Suitable enhancement for reptiles would include the management of grassland within the open spaces in a way which creates conditions beneficial to reptile populations.

Birds

- 6.12 The plantation woodlands are relatively young and lack natural cavities for nesting birds and could be enhanced through the erection of nest boxes of various designs suited to the range of bird species nesting in the area.

Badger

- 6.13 There is the potential to create suitable feeding grounds for badger within the open spaces around the proposed development.

Water vole

- 6.14 Both the Bays River and the east west running watercourse on Site could be re-designed in a way that increases their naturalness (variation in bed substrate and level, increased sinuosity, leaky dams, marginal planting etc.) that would considerably improve habitat for water vole as well as a range of other riparian (bankside) and aquatic species.

Bats

- 6.15 The plantation woodlands are relatively young and lack natural cavities for roosting bats and could be enhanced through the erection of roost boxes of various designs suited to the range of bat species present in the area. The conversion of arable land to grassland and the naturalisation of the watercourses will both enhance the foraging opportunities for bats.

7 Recommendations

- 7.1 The recommendations in this PEA Report are divided in to four categories relating to information gathering, assessment, mitigation and enhancement. Where relevant, timescales are suggested that relate to a future outline planning application process.

Information gathering

- 7.2 It is recommended that further, more detailed, information is gathered on some habitats and species groups by further field survey in order to better understand the ecological value of the Site, to assess potential impacts and to design mitigation and enhancement measures.

Habitats

- 7.3 It is recommended that habitat surveys of the ancient woodland (W10), the priority habitat deciduous woodlands (W7 & W11) and the species rich hedgerows are carried out. This would most appropriately be carried out to inform an outline planning application.

Woodland

- 7.4 The surveys of the woodlands should concentrate on collecting quadrat data in order to relate the habitat to the National Vegetation Classification and to understand better the quality and value of the vegetation including its ground flora, the latter which will be potentially vulnerable to the adverse impacts of recreational access.

Hedgerows

- 7.5 Those hedgerows which were found to be species rich are considered potentially to qualify as important hedgerows under the Hedgerow Regulations 1997. Further survey will be needed to verify this. The hedgerow surveys should concentrate on collecting information which will allow for a determination to be made as to whether any one hedgerow falls within the definition of an important hedgerow under the Hedgerow Regulations 1997.

Protected species

- 7.6 It is recommended that surveys for certain protected species are carried out with the timing of those surveys being dependent upon the species.

Great crested newt

- 7.7 The Site contains a large number of ponds and nearby there are known GCN populations. It is not known to what extent the on-Site ponds support GCN and, based on their location, if any on-Site GCN occupied ponds form part of the same meta-population as that in the Silfield Newt Reserve CWS. Alternatively any on-Site GCN population might form part of one or more additional meta-populations. Understanding this is important to assessing impacts on GCN and, if required, designing appropriate mitigation. This would most appropriately be carried out to inform an outline planning application.

Reptiles

- 7.8 The presence of any reptile populations on-Site should be identified by a targeted survey of the most suitable habitat. This would most appropriately be carried out to inform an outline planning application.

Farmland birds

- 7.9 A survey to understand the population of arable habitat dependent farmland birds present on the Site should be carried out. The survey method applied would seek to identify both the range of species present and to estimate their populations. This would most appropriately be carried out to inform an outline planning application.

Badger

- 7.10 A badger survey should be undertaken in order to identify the locations of any nearby main setts (requiring access to immediately adjacent land given that no main sett has been identified on-Site) and to estimate territory configuration, including an understanding of the relationship between the setts on-Site and feeding areas. This would most appropriately be carried out to inform an outline planning application.

Water vole

- 7.11 The presence of any water vole populations on-Site should be identified by a targeted survey of the watercourses. This would most appropriately be carried out to inform an outline planning application.

Bats

- 7.12 An understanding of the population of bats present on-Site and of how they use the site for roosting, commuting and foraging should be established by field survey. This would encompass:
- Establishing presence / absence of bats using either of the two sets of farm buildings as a roost (emergence and / or internal inspection survey).
 - A ground level assessment of those trees that are old enough to have developed potential roost features followed up by an aerial inspection or emergence survey(s) as appropriate.
 - A combination of transect surveys and static detectors to estimate the nature and scale of commuting and foraging activity.
- 7.13 This would most appropriately be carried out to inform an outline planning application.

Assessment

Habitats and species

- 7.14 As the further information on habitats and species is gathered through field survey, as described above, then the assessment contained in this PEA Report should be updated. Similarly, as the detail of the proposed development progresses toward outline application stage then the assessment contained in this PEA Report should be updated.

Biodiversity net gain

- 7.15 Delivering biodiversity net gain will become an increasingly important part of the development planning process as the Government's Environment Bill passes through its Parliamentary stages and, after Royal Assent, makes the delivery of a 10% biodiversity net gain mandatory.
- 7.16 As part of the work toward the outline planning application, it is recommended that a biodiversity net gain calculation is undertaken in order to establish the extent to which 10% biodiversity net gain is achieved. With the proposed development occurring primarily on arable land of low biodiversity value and the Illustrative Masterplan identifying considerable areas of greenspace to accompany the development, a 10% net gain on-Site is considered feasible.

Mitigation

- 7.17 It is recommended that the package of mitigation measures for habitats and species detailed above is included within the proposed development. As the further information on habitats and species is gathered through field survey, as described above, then the mitigation proposals contained in this PEA Report should be updated.

Enhancement

- 7.18 It is recommended that the package of enhancement measures for habitats and species detailed above is included within the proposed development. As the further information on habitats and species is gathered through field survey, as described above, then the enhancement proposals contained in this PEA Report should be updated.

8 Conclusions

- 8.1 The Site of the proposed Silfield Garden Village is predominantly arable land which is of low ecological value and there are no designated sites of wildlife value within its boundary. There are some localised habitat features of value including a large number of ponds, semi-natural deciduous woodland and species rich hedgerows.
- 8.2 An Illustrative Masterplan of the proposed development has been prepared to support the submission of the development as an allocation in the Local Plan. Given the layout of the built development and the extensive greenspace proposed in that Illustrative Masterplan and the knowledge of the Site gained through the desk study, field survey and assessment contained within this PEA Report, it is considered that habitat and species features (biodiversity) do not impose a constraint on the allocation of the Site in the Local Plan.

9 References

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

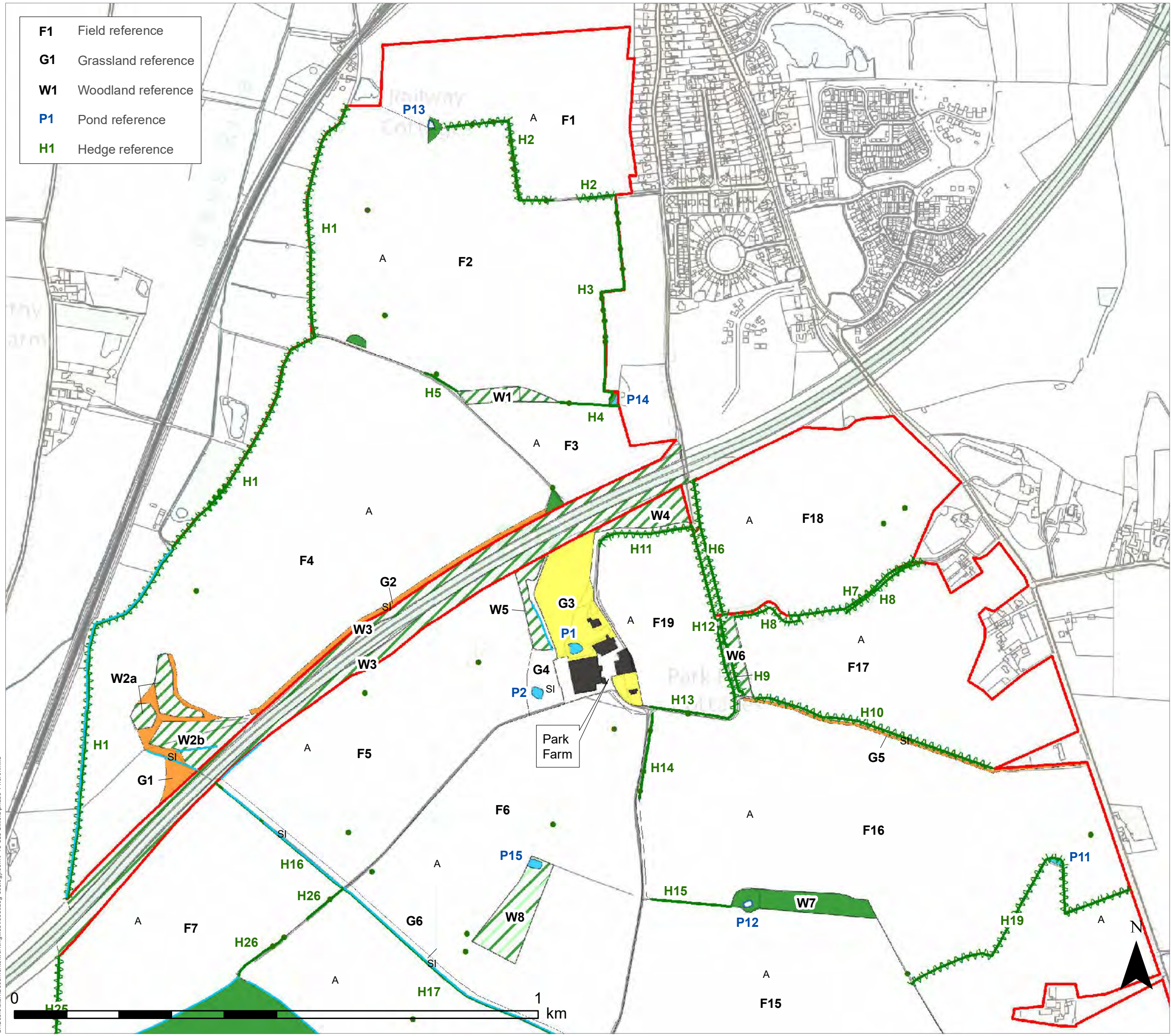
JNCC (2010). *Handbook for Phase 1 Habitat Survey*. JNCC, Peterborough.

Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10: 143-155.

10 Figures

Figure 1a: Phase 1 Habitat Plan (north of site)

Figure 1b: Phase 1 Habitat Plan (south of site)



- F1** Field reference
- G1** Grassland reference
- W1** Woodland reference
- P1** Pond reference
- H1** Hedge reference

- LEGEND**
- Site boundary
 - Broadleaved tree
 - Ditch / running water
 - ~ Species-rich intact hedge
 - Species-poor intact hedge
 - A Amenity grassland
 - A Arable
 - Broadleaved plantation woodland
 - Broadleaved semi-natural woodland
 - Building
 - Mixed plantation woodland
 - SI Poor semi-improved grassland
 - SI Semi-improved neutral grassland
 - Pond
 - Pond (dry)

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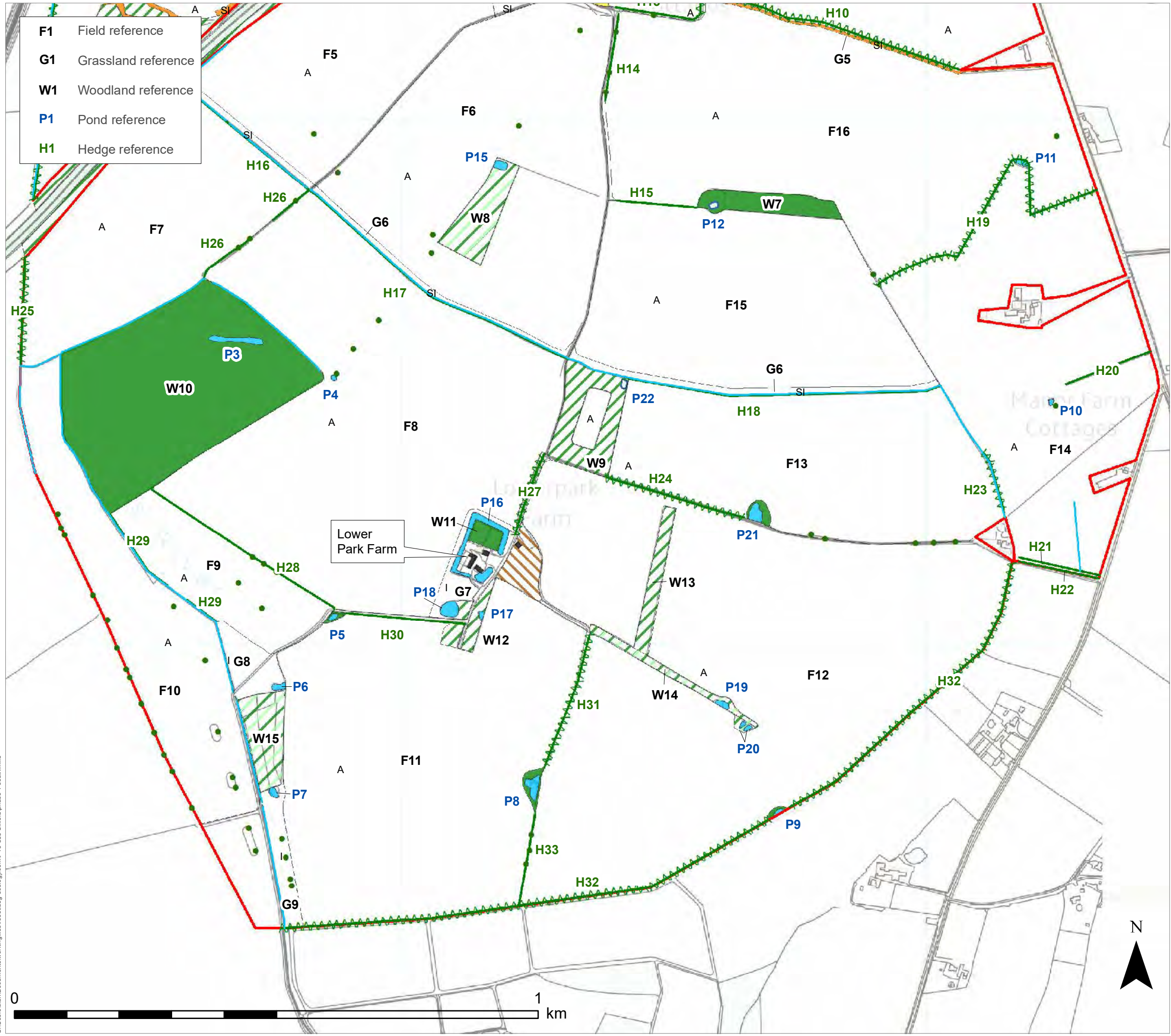
PROJECT TITLE
SILFIELD GARDEN VILLAGE

DRAWING TITLE
Figure 1a: Phase 1 Habitat Plan (north of site)

DATE: 05/12/2019 CHECKED: CW SCALE: 1:7,000
DRAWN: COH APPROVED: RB VERSION: 1.3

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Sources: BSG Ecology survey data

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- F1 Field reference
- G1 Grassland reference
- W1 Woodland reference
- P1 Pond reference
- H1 Hedge reference

- LEGEND**
- Site boundary
 - Broadleaved tree
 - Ditch / running water
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 - Species-poor intact hedge
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 - A Arable
 - Broadleaved plantation woodland
 - Broadleaved semi-natural woodland
 - Building
 - I Improved grassland
 - Mixed plantation woodland
 - SI Poor semi-improved grassland
 - SI Semi-improved neutral grassland
 - Pond
 - Pond (dry)
 - Tall ruderal

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PROJECT TITLE
SILFIELD GARDEN VILLAGE

DRAWING TITLE
Figure 1b: Phase 1 Habitat Plan (south of site)

DATE: 05/12/2019 CHECKED: CW SCALE: 1:7,000
DRAWN: COH APPROVED: RB VERSION: 1.3

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11 Site Photographs



Photo 1: Arable cropping (Parsley), Field 11



Photo 2: Arable cropping (oilseed rape), Field 4



Photo 3: Amenity grassland, Park Farm



Photo 4: Poor semi-improved grass margin, Field 4



Photo 5: Poor semi-improved grassland, Field 5



Photo 6: Semi-improved grassland, Field 4



Photo 7: Semi-natural ancient woodland, Peaseacre Wood.



Photo 8: Mixed broadleaved plantation woodland, W2a



Photo 9: Single sp. broadleaved plantation woodland, W2b



Photo 10: Mixed broadleaved/ coniferous plantation woodland, W12



Photo 11: Mixed broadleaved plantation woodland, W9



Photo 12: Mixed broadleaved plantation woodland, W9



Photo 13: Species poor hawthorn hedge, H16



Photo 14: Spp. rich hedge on southern boundary, H32



Photo 15: Spp. rich hedge with trees on the NW boundary, H1



Photo 16: Spp. rich closely managed hedgerows, Park Lane (H12 &H6).



Photo 17: Bays River, North of the A11



Photo 18: Watercourse crossing under the main farm track.



Photo 19: Oak pollard with medium bat roost potential, H25



Photo 20: Old oak with high bat roost potential, Peaseacre Wood.



Photo 21: Buildings, Park Farm, Low bat potential



Photo 22: Building, Lower Park Farm, high bat potential.

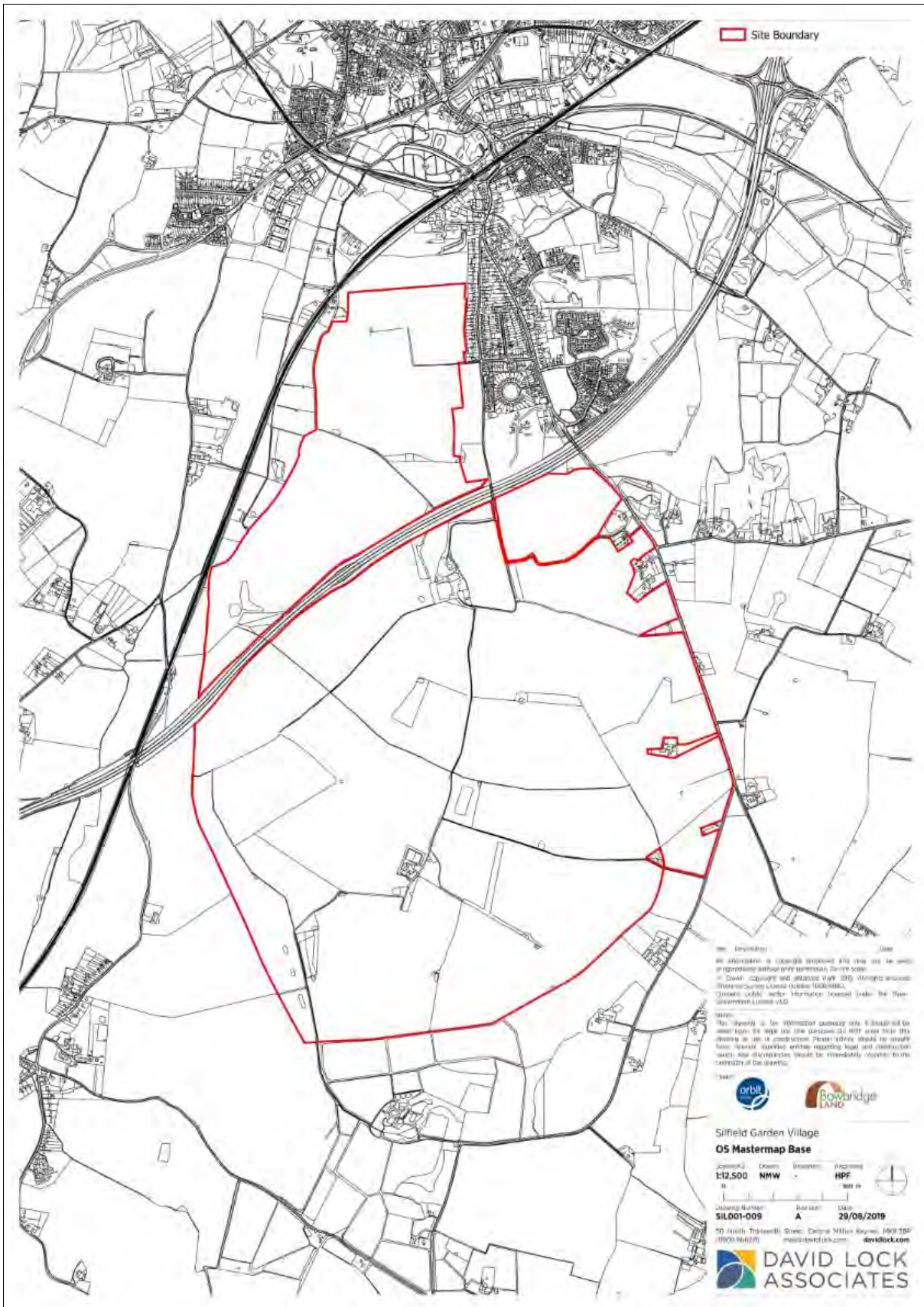


Photo 23: Building, Lower Park Farm, high bat potential.

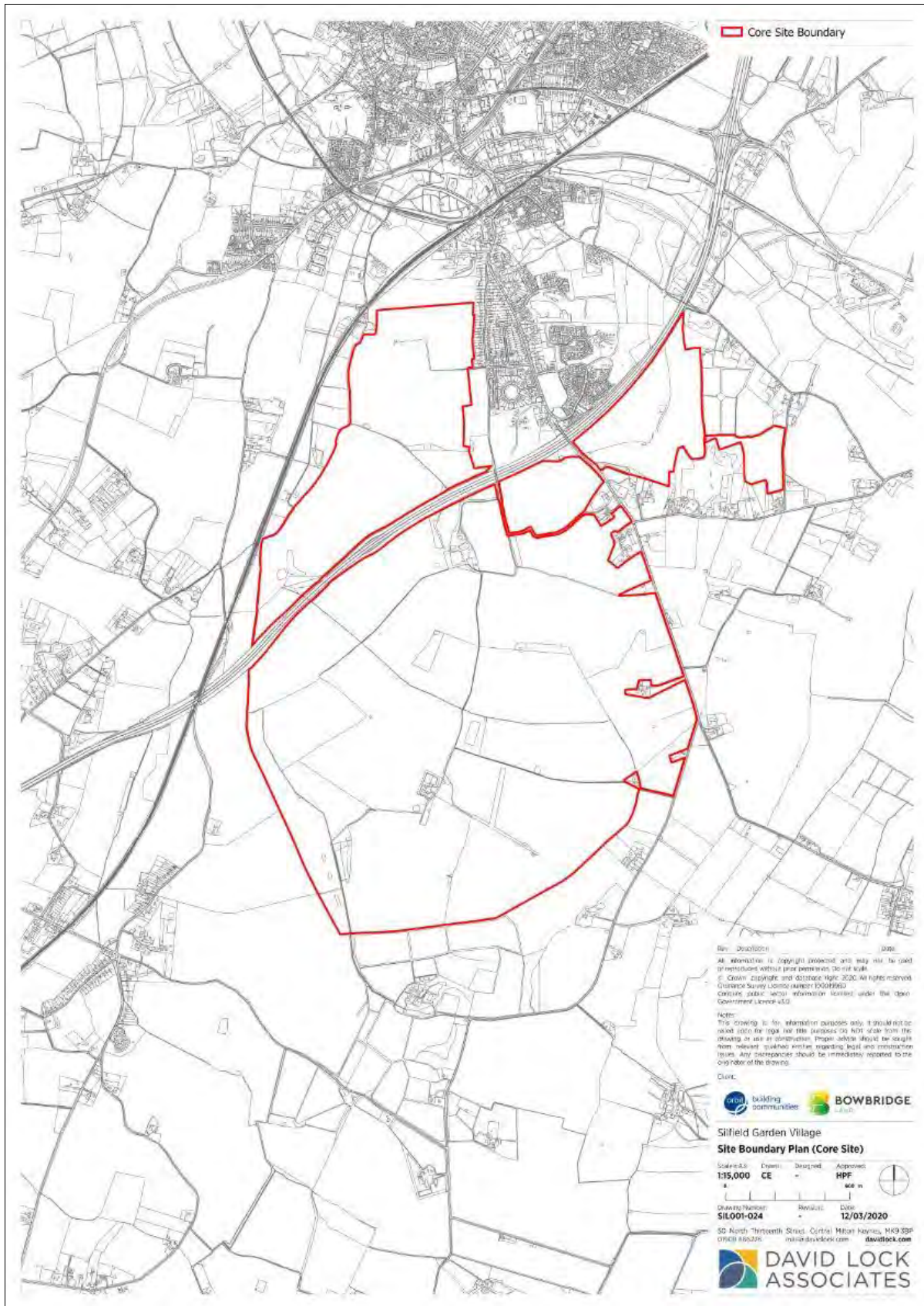


Photo 24: Building, Lower Park Farm, low bat potential.

Appendix 1: Area of land that is the subject of this PEA Report



Appendix 2: Area of land that is included in the Illustrative Masterplan



Appendix 3: Hedgerow botanical records

The hedgerow reference numbers are identified on Figure 1.

Reference	Length (m)	Woody species	Notable ground flora	Notes
H1	1,815	Acer campestre Acer pseudoplatanus Carpinus betulus Corylus avellana Cornus sanguineus Crateagus mongyna Prunus spinosa Rosa canina agg. Eunonymus europaeus Fraxinus excelsior Quercus robur Ulmus minor aggregate Number of species: 12	Humulus lupulus Tammus communis Brachypodium sylvaticum	Species rich hedge forms Eastern boundary of the Site North of the A11. Presumed to be part of the the historic boundary of the former deer park. Contained old oak pollards. Would have been continuous with H25 before construction of the A11.
H2	343	Cornus sanguinea Corylus avellana Crateagus monogyna Prunus spinosa Quercus robur Number of species: 5		Spp. rich hedge with standard oaks formed part of the boundary between F1 and F2.
H3	400	Carpinus betulus Corylus avellana Crateagus monogyna Quercus robur Number of species: 4		Spp poor hedge with standard oaks formed part of the boundary of F2.
H4	100	Corylus avellana Quercus robur Number of species: 2	Mercurialis perennis	Spp hedge formed part of the boundary between F2 and F3.
H5	100	Crateagus monogyna Number of species: 1		Isolated section of spp. poor hedge beside Strayground Lane.
H6 Park Lane	270	Acer campestre Carpinus betulus Cornus sanguineus Corylus avellana Ilex aquifolium Ulmus agg. Number of species: 6	Hedera helix	Spp rich, well managed hedge beside public road.
H7 Vernons Lane	270	Acer campestre Carpinus betulus Cornus sanguineus Corylus avellana Crateagus monogyna Eunonymus europaeus Ilex aquifolium Prunus spinosa Ulmus agg. Number of species: 9		Spp. rich, regularly cut, but gappy hedge by public road.

Reference	Length (m)	Woody species	Notable ground flora	Notes
H8 Vernons Lane	430	Acer campestre Carpinus betulus Cornus sanguineus Corylus avellana Crateagus monogyna Eunonymus europaeus Ilex aquifolium Prunus spinosa Ulmus agg. Number of species: 9	Polypodium vulgare	Spp. rich, regularly cut, but gappy hedge by public road.
H9 Park Lane	156	Acer campestre Carpinus betulus Cornus sanguineus Corylus avellana Ilex aquifolium Ulmus agg. Number of species: 6		Spp. rich, regularly cut, but gappy hedge by public road.
H10	510	Acer campestre Cornus sanguineus Corylus avellana Crateagus monogyna Fraxinus excelsior Ilex aquifolium Quercus robur Prunus spinosa Rosa canina aggregate Number of species: 9	Hedera helix	Spp. rich managed hedge with standard oaks beside a PRow between F17 and F16.
H11 Beside drive to Park Farm	169	Acer campestre Carpinus betulus Cornus sanguineus Corylus avellana Ilex aquifolium Ulmus agg. Number of species: 6		Spp. rich hedge managed hedge formed the North boundary of F19.
H12	365	Acer campestre Carpinus betulus Cornus sanguineus Corylus avellana Ilex aquifolium Ulmus agg. Number of species: 6		Spp. rich managed hedge beside a public road. Forms West boundary of F19.
H13	166	Crateagus monogyna Fraxinus excelsior Quercus robur Number of species: 3		Spp. poor hawthorn hedge with standard oaks/ash. Formed the Southern boundary of F19.
H14	168	Acer campestre Crateagus monogyna Prunus spinosa Number of species: 3		Spp. poor section next to the main farm track.
H15	180	Crateagus monogyna Number of species: 1		Spp. poor pure hawthorn hedge.
H16	307	Crateagus monogyna Number of species: 1		Spp. poor pure hawthorn hedge
H17	582	Crateagus monogyna Number of species: 1		Spp. poor pure hawthorn hedge
H18	715	Crateagus monogyna Number of species: 1		Spp. poor pure hawthorn hedge

Reference	Length (m)	Woody species	Notable ground flora	Notes
H19	636	Acer campestre A Cornus sanguinea O Corylus avellana F Crateagus monogyna F Fraxinus excelsior O Ilex aquifolium O Prunus spinosa O Ulmus procera O Number of species: 8		Spp. rich tall hedge outside of the Eastern boundary of the historic deer park.
H20	173	Number of species: <5		Isolated fragment of Spp. poor hedge
H21	128	Number of species: <5		Isolated fragment of Spp. poor hedge
H22	157	Number of species: <5		Isolated fragment of Spp. poor hedge
H23	157	Number of species: <5		Isolated fragment of Spp. poor hedge
H24	415	Acer campestre Cornus sanguinea Corylus avellana Crateagus monogyna Eunonymus europaeus Prunus avium Hedera helix Number of species: 7		Species-rich managed hedge with ditch beside farm track called Slovenwood Lane.
H25	200	Acer campestre Acer pseudoplatanus Carpinus betulus Corylus avellana Cornus sanguinea Crateagus mongyna Prunus spinosa Rosa agg. Eunonymus europaeus Fraxinus excelsior Quercus robur Ulmus minor aggregate Number of species: 12		Species rich hedge presumed to be part of the historic boundary of the former deer park. Contained old oak pollards. Would have been continuous with hedge 1 before construction of the A11.
H26	230	Crateagus monogyna Number of species: 1		Spp poor gappy hedge beside farm track and F7 and F8.
H27	155	Acer campestre Acer platanoides Prunus cerasifera Crateagus monogyna Ilex aquifolium Number of species: 5		Spp. rich tall hedge beside main farm track. Different spp. composition with several species clearly of planted amenity origin.
H28	411	Crateagus monogyna Prunus spinosa Quercus robur Number of species: 3		Spp. poor managed hedge with a ditch a numerous oaks in its southern half.
H29	280	Crateagus monogyna Prunus spinosa Quercus robur Number of species: 3		Spp poor managed hedge with gaps.
H30	228	Number of species: <5		Spp. poor managed hedge beside farm track.

Reference	Length (m)	Woody species	Notable ground flora	Notes
H31	281	Number of species: >5		Spp rich hedge forming part of the boundary between F11 and F12
H32	1,680	Cornus sanguinea Crateagus monogyna Eunonymus europaeus Corylus avellana Prunus spinosa Acer campestre Rosa canina Carpinus betulus Quercus robur Ulmus sp. Viburnum opulus Sambucus nigra Ilex aquifolium Fraxinus excelsior Salix cinerea Salix caprea Acer pseudoplatanus Number of species: 17	Mercurialis perennis	Very Spp. rich hedge forming a long sweeping arc at the Southern boundary of the Site. Presumed to be part of the boundary of the historic deer park Set upon a bank and ditch. Old pollard oaks were present.
H33	183	Crateagus monogyna Quercus robur Number of species 2		Spp. poor hawthorn hedge with standard oaks forming part of the boundary between F11 and F12.

Appendix 4: Woodland botanical records

The woodland reference numbers are identified on Figure 1.

Reference.	Size (ha)	Woody species	Notable ground flora	Notes
W1	0.5	Acer campestre Corylus avellana Quercus robur	Mercurialis perennis	Mixed broadleaved plantation woodland with relict boundary hedge.
W2a	0.7	Acer campestre Alnus glutinosa Betula pendula Cornus sanguinea Prunus avium Ligustrum ovalifolium Quercus robur Populus tremula		Mixed broadleaved plantation woodland. Probably planted as part of a grant scheme. Circa 20 years old.
W2b	1.0	Alnus cordata	Mercurialis perennis	Single species broadleaved plantation woodland next to the A11 on wet ground. Circa 20-30 years old. Surrounded by an old hedges boundary.
W3 A11	2.0	Acer campestre Alnus cordata Crateagus monogyna Prunus spinosa Rosa canina Quercus robur Viburnum opulus		Mixed broadleaved plantation woodland on the embankments of the A11 which bisects the Site.
W4	0.8	Castanea sativa Crateagus monogyna Ilex aquifolium Prunus avium Quercus robur		Mixed broadleaved plantation woodland. Probably planted as part of a grant scheme. Circa 20 years old.
W5	0.5	Acer campestre Corylus avellana Prunus avium Fagus sylvatica Fraxinua excelsior Quercus robur Tilia sp.		Mixed broadleaved plantation woodland. Probably planted as part of a grant scheme. Circa 20-30 years old.
W6	0.5	Corylus avellana Fraxinus excelsior Prunus avium		Mixed broadleaved plantation woodland. Probably planted as part of a grant scheme. Circa 20 years old.
W7 Lawn Wood	1.1	Quercus robur Crateagus monogyna		Semi-natural broadleaved woodland.
W8 Hempfield Wood	1.8	Castanea sativa Sambucus nigra Quercus robur Larix sp. Picea sitchensis	Glechoma hederacea Urtica dioica	Mixed coniferous/ broadleaved plantation woodland used for rearing pheasants.

Reference.	Size (ha)	Woody species	Notable ground flora	Notes
W9	1.8	Carpinus betulus D/A Quercus robur		Mixed broadleaved plantation woodland used for rearing pheasants. Mainly planted with <i>Carpinus betulus</i> with some <i>Quercus robur</i> . Game cover planted in central clearing.
W10 Peaseacre Wood	13.2	<i>Acer campestre</i> <i>Acer pseudoplatanus</i> <i>Corylus avellana</i> <i>Crateagus monogyna</i> <i>Fraxinus excelsior</i> <i>Salix alba</i>	<i>Mercurialis perennis</i> <i>Brachypodium sylvaticum</i> <i>Rubus fruticosus</i> <i>Glechoma hederacea</i> <i>Alliaria petiolata</i>	The largest woodland block on Site. Registered Ancient woodland. Predominantly semi-natural broadleaved with little evidence of replanting with conifers. Canopy dominated by <i>Fraxinus excelsior</i> with some <i>Acer campestre</i> and a coppice layer of <i>Corylus avellana</i> .
W11 Moat	0.2	<i>Acer campestre</i> O <i>Corylus avellana</i> O <i>Fraxinus excelsior</i> D <i>Salix sp.</i> O		Semi-natural broadleaved woodland from natural regeneration located within the moat at Lower Park Farm. Dominated by <i>Fraxinus excelsior</i> with smaller quantities of other broadleaves.
W12	0.5	<i>Acer campestre</i> <i>Quercus robur</i> <i>Acer pseudoplatanus</i> <i>Cupressus sp.</i>		Mixed broadleaved/ conifer plantation woodland.
W13	0.6	<i>Quercus robur</i> <i>Crateagus monogyna</i>		Mixed broadleaved plantation woodland strip. Less than 20 years old. Relict hedged boundary along one side.
W14	0.6	<i>Acer campestre</i> <i>Quercus robur</i> <i>Cupressus sp.</i>		Mixed broadleaved/conifer plantation woodland .Less than 20 years old. Relict hedged boundary along one side.
W15	1.3	<i>Quercus robur</i> <i>Fraxinus excelsior</i> <i>Cupressus sp.</i>		Mixed broadleaved/conifer plantation woodland. Partial internal felling and replanting.

Appendix 5: Grassland botanical records

The grassland reference numbers are identified on Figure 1.

Reference.	Size (ha)	Species	Notes
G1	0.6	<i>Festuca rubra</i> <i>Arrhenatherum elatius</i> <i>Dactylis glomerata</i> <i>Centaurea nigra</i> <i>Senecio erucifolius</i> <i>Plantago major</i> <i>Galium verum</i> <i>Achillea millefolium</i> <i>Sanguisorba minor</i> <i>Rumex acetosa</i>	Semi-improved grassland. Set aside field corner sown with a mix of grasses and herbs.
G2	0.6	<i>Festuca rubra</i> <i>Dactylis glomerata</i> <i>Hypochaeris radicata</i> <i>Scorzoneroides autumnalis</i> <i>Anthriscus sylvestris</i> <i>Plantago lanceolata</i>	Semi-improved grassland. A 6m wide strip following the boundary above the A11 and containing the farm access track. A reasonable range of SI grasses and herbs.
G3	2.0	<i>Lolium perenne</i> <i>Trifolium repens</i> <i>Ranunculus repens</i>	Amenity grassland. Closely mown and managed grassland around the garden of Park Farm.
G4	0.6	<i>Arrhenatherum elatius</i> <i>Dactylis glomerata</i> <i>Holcus lanatus</i> <i>Lolium perenne</i> <i>Agrostis stolonifera</i> <i>Anthriscus sylvestris</i> <i>Lamium album</i> <i>Urtica dioica</i> <i>Glechoma hederacea</i> <i>Cirsium arvense</i>	Poor semi-improved grassland. Relatively species poor with strong ruderal species encroachment.
G5	0.5	<i>Festuca rubra</i> <i>Dactylis glomerata</i> <i>Achillea millefolium</i> <i>Plantago lanceolata</i> <i>Agrimonia eupatorium</i> <i>Linaria vulgaris</i>	Semi-improved grassland with a reasonable range of herbs along a public footpath/ track.
G6	1.0	<i>Festuca rubra</i> <i>Schedonorus arundinacea</i> <i>Heracleum sphondylium</i>	Poor semi-improved grassland. A species poor grassland strip 6m wide running between a watercourse and F6, F6, and F15. Probably designed to buffer the watercourse.
G7	0.6	<i>Lolium perenne</i> <i>Dactylis glomerata</i>	An area of species poor grassland close to Lower Park Farm
G8	1.0	<i>Lolium perenne</i> <i>Dactylis glomerata</i>	An area of species poor grassland at Southern end of F9

Appendix 6: Great crested newt Habitat Suitability Indices per pond

POND 1 TM11269932	
Suitability Index	Score
Map location	1.00
Surface area	0.80
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	0.33
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.71
Pond suitability	Good



POND 2-TM11199924	
Suitability Index	Score
Map location	1.00
Surface area	0.65
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	0.89
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.69
Pond suitability	Average



POND 3-TM10749855	
Suitability Index	Score
Map location	1.00
Surface area	1.00
Desiccation rate	0.90
Water quality	0.33
Shade	1.00
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.31
Mean HSI Score	0.67
Pond suitability	Average



POND 4-TM10879850	
Suitability Index	Score
Map location	1.00
Surface area	0.10
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.36
Mean HSI Score	0.63
Pond suitability	Average



POND 5 TM10879805	
Suitability Index	Score
Map location	1.00
Surface area	0.55
Desiccation rate	1.00
Water quality	0.67
Shade	0.30
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.64
Pond suitability	Average



POND 6- TM10769793	
Suitability Index	Score
Map location	1.00
Surface area	0.45
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.33
Mean HSI Score	0.67
Pond suitability	Good



POND 7- TM10759771	
Suitability Index	Score
Map location	1.00
Surface area	0.45
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.33
Mean HSI Score	0.73
Pond suitability	Good

POND 8- TM11259772	
Suitability Index	Score
Map location	1.00
Surface area	1.00
Desiccation rate	1.00
Water quality	0.67
Shade	0.70
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.74
Pond suitability	Good



POND 9- TM11719767	
Suitability Index	Score
Map location	1.00
Surface area	0.10
Desiccation rate	0.50
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.48
Pond suitability	Poor



POND 10- TM 12239 98460	
Suitability Index	Score
Map location	1.00
Surface area	0.10
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.51
Mean HSI Score	0.61
Pond suitability	Average



POND 11- TM 12183 98917	
Suitability Index	Score
Map location	1.00
Surface area	0.10
Desiccation rate	0.50
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.48
Pond suitability	Poor



POND 12- TM 11597 98846	
Suitability Index	Score
Map location	1.00
Surface area	0.40
Desiccation rate	0.10
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.31
Mean HSI Score	0.51
Pond suitability	Below average



POND 13- TG 10994 00316	
Suitability Index	Score
Map location	1.00
Surface area	0.30
Desiccation rate	0.10
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.46
Pond suitability	Poor



POND 14- TM 11342 99805	
Suitability Index	Score
Map location	1.00
Surface area	0.90
Desiccation rate	0.10
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	0.95
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.51
Pond suitability	Below average



POND 15- TM 11184 98927	
Suitability Index	Score
Map location	1.00
Surface area	0.75
Desiccation rate	0.90
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.51
Mean HSI Score	0.68
Pond suitability	Average



POND 16- TM 11121 98193	
Suitability Index	Score
Map location	1.00
Surface area	0.80
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.33
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.36
Mean HSI Score	0.72
Pond suitability	Good.



POND 17- TM 11150 98057	
Suitability Index	Score
Map location	1.00
Surface area	0.35
Desiccation rate	0.90
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.33
Mean HSI Score	0.60
Pond suitability	Average



POND 18- TM 11097 98061	
Suitability Index	Score
Map location	1.00
Surface area	0.35
Desiccation rate	0.90
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.33
Mean HSI Score	0.60
Pond suitability	Average



POND 19-TM 11618 97885	
Suitability Index	Score
Map location	1.00
Surface area	0.55
Desiccation rate	0.50
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.57
Pond suitability	Below average



POND 20- TM 11659 97843	
Suitability Index	Score
Map location	1.00
Surface area	0.50
Desiccation rate	0.50
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.31
Mean HSI Score	0.57
Pond suitability	Below average



POND 21- TM11659823	
Suitability Index	Score
Map location	1.00
Surface area	1.00
Desiccation rate	0.90
Water quality	0.67
Shade	0.40
Waterfowl	0.67
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.33
Macrophyte cover (%)	0.36
Mean HSI Score	0.65
Pond suitability	Average



POND 22- TM11429849	
Suitability Index	Score
Map location	1.00
Surface area	0.30
Desiccation rate	0.10
Water quality	0.67
Shade	0.20
Waterfowl	1.00
Fish population	1.00
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.31
Mean HSI Score	0.49
Pond suitability	Poor



Appendix 7: Summary of biological records provided by NBIS

Common Name	Scientific Name	Taxon Group	Number of Records	Designation
Bird's-nest Orchid	<i>Neottia nidus-avis</i>	flowering plant	1	CITESB, NRPI, RLENG.VU, RLGB.Lr(NT), WO8i
Mossy Stonecrop	<i>Crassula tillaea</i>	flowering plant	1	NRPI, NS-excludes
Small-flowered Catchfly	<i>Silene gallica</i>	flowering plant	1	FEP7/2, NRPI, NS-excludes, RLENG.EN, RLGB.EN, ScotBL, Sect.41, Sect.42, UKBAP
Scarce Emerald Damselfly	<i>Lestes dryas</i>	insect - dragonfly (Odonata)	1	RLGB.Lr(NT)
Semi-aquatic bugs	<i>Hebrus (Hebrus) pusillus</i>	insect - true bug (Hemiptera)	1	Nb
Gyrinus natator	<i>Gyrinus natator</i>	insect - beetle (Coleoptera)	1	RLGB.RE
Halipus (Liaphlus) mucronatus	<i>Halipus (Liaphlus) mucronatus</i>	insect - beetle (Coleoptera)	1	Na, NS-excludes
Enochrus nigrinus	<i>Enochrus nigrinus</i>	insect - beetle (Coleoptera)	2	Breck_Special, RLGB.Lr(NT)
Enochrus quadripunctatus	<i>Enochrus quadripunctatus</i>	insect - beetle (Coleoptera)	2	Breck_Special, NS-excludes, ScotBL
Black Oil-beetle	<i>Meloe proscarabaeus</i>	insect - beetle (Coleoptera)	1	Sect.41, Sect.42, UKBAP
Black-headed Cardinal Beetle	<i>Pyrochroa coccinea</i>	insect - beetle (Coleoptera)	1	Nb
Ghost Moth	<i>Hepialus humuli</i>	insect - moth	12	ScotBL, Sect.41, Sect.42, UKBAP
White Admiral	<i>Limenitis camilla</i>	insect - butterfly	2	RLGB.VU, Sect.41, Sect.42, UKBAP
White-letter Hairstreak	<i>Satyrrium w-album</i>	insect - butterfly	1	RLGB.EN, Sect.41, Sect.42, UKBAP, WCA5/9.5a
Small Blue	<i>Cupido minimus</i>	insect - butterfly	1	FEP7/2, RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.5a, WO5
Bulrush Veneer	<i>Calamotropha paludella</i>	insect - moth	1	Nb
Oak Hook-tip	<i>Watsonalla binaria</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Blood-vein	<i>Timandra comae</i>	insect - moth	2	ScotBL, Sect.41, Sect.42, UKBAP
Oblique Striped	<i>Phibalapteryx virgata</i>	insect - moth	1	Breck_Special
Shaded Broad-bar	<i>Scotopteryx chenopodiata</i>	insect - moth	7	ScotBL, Sect.41, Sect.42, UKBAP
Small Phoenix	<i>Ecliptopera silaceata</i>	insect - moth	4	ScotBL, Sect.41, Sect.42, UKBAP
Latticed Heath	<i>Chiasmia clathrata</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Dusky Thorn	<i>Ennomos fuscantaria</i>	insect - moth	8	Sect.41, Sect.42, UKBAP
Brindled Beauty	<i>Lycia hirtaria</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Buff Ermine	<i>Spilosoma lutea</i>	insect - moth	11	ScotBL, Sect.41, Sect.42, UKBAP
White Ermine	<i>Spilosoma lubricipeda</i>	insect - moth	10	ScotBL, Sect.41, Sect.42, UKBAP

Common Name	Scientific Name	Taxon Group	Number of Records	Designation
Cinnabar	<i>Tyria jacobaeae</i>	insect - moth	7	ScotBL, Sect.41, Sect.42, UKBAP
Knot Grass	<i>Acronicta rumicis</i>	insect - moth	2	ScotBL, Sect.41, Sect.42, UKBAP
Mouse Moth	<i>Amphipyra tragopoginis</i>	insect - moth	3	ScotBL, Sect.41, Sect.42, UKBAP
Sprawler	<i>Asteroscopus sphinx</i>	insect - moth	6	Sect.41, Sect.42, UKBAP
Green-brindled Crescent	<i>Allophyes oxyacanthae</i>	insect - moth	4	ScotBL, Sect.41, Sect.42, UKBAP
Mottled Rustic	<i>Caradrina morpheus</i>	insect - moth	5	ScotBL, Sect.41, Sect.42, UKBAP
Rustic	<i>Hoplodrina blanda</i>	insect - moth	7	ScotBL, Sect.41, Sect.42, UKBAP
Crescent	<i>Helotropha leucostigma</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Rosy Rustic	<i>Hydraecia micacea</i>	insect - moth	2	ScotBL, Sect.41, Sect.42, UKBAP
Large Wainscot	<i>Rhizedra lutosa</i>	insect - moth	2	ScotBL, Sect.41, Sect.42, UKBAP
Large Nutmeg	<i>Apamea anceps</i>	insect - moth	4	ScotBL, Sect.41, Sect.42, UKBAP
Sallow	<i>Cirrhia icteritia</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Beaded Chestnut	<i>Agrochola lychnidis</i>	insect - moth	2	ScotBL, Sect.41, Sect.42, UKBAP
Brown-spot Pinion	<i>Agrochola litura</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Minor Shoulder-knot	<i>Brachylochia viminalis</i>	insect - moth	2	ScotBL, Sect.41, Sect.42, UKBAP
Dark Brocade	<i>Mniotype adusta</i>	insect - moth	1	ScotBL, Sect.41, Sect.42, UKBAP
Powdered Quaker	<i>Orthosia gracilis</i>	insect - moth	3	ScotBL, Sect.41, Sect.42, UKBAP
Dot Moth	<i>Melanchra persicariae</i>	insect - moth	10	ScotBL, Sect.41, Sect.42, UKBAP
Small Square-spot	<i>Diarsia rubi</i>	insect - moth	6	ScotBL, Sect.41, Sect.42, UKBAP
Triglyphus primus	<i>Triglyphus primus</i>	insect - true fly (Diptera)	1	N, NS-excludes
Swollen-thighed Blood Bee	<i>Sphecodes crassus</i>	insect - hymenopteran	1	Nb
Dolichovespula (Dolichovespula) media	<i>Dolichovespula (Dolichovespula) media</i>	insect - hymenopteran	1	Na
Large Garden (Ruderal) Bumblebee	<i>Bombus ruderatus</i>	insect - hymenopteran	1	FEP7/2, Nb, Sect.41, Sect.42, UKBAP
Smooth Newt	<i>Lissotriton vulgaris</i>	amphibian	10	Bern3, WCA5/9.5a, WO5
Great Crested Newt	<i>Triturus cristatus</i>	amphibian	100	Bern2, FEP7/2, HabRegs2, HSD2p, HSD4, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Common Toad	<i>Bufo bufo</i>	amphibian	13	Bern3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.5a
Common Frog	<i>Rana temporaria</i>	amphibian	13	Bern3, HSD5, WCA5/9.5a
Common Lizard	<i>Zootoca vivipara</i>	reptile	2	Bern3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.1k/l, WCA5/9.5a, WO5
Slow-worm	<i>Anguis fragilis</i>	reptile	3	Bern3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.1k/l, WCA5/9.5a
Grass Snake	<i>Natrix helvetica</i>	reptile	8	Bern3, Sect.41, Sect.42, UKBAP, WCA5/9.1k/l, WCA5/9.5a

Common Name	Scientific Name	Taxon Group	Number of Records	Designation
Bewick's Swan	<i>Cygnus columbianus</i> subsp. <i>bewickii</i>	bird	3	BAmb, BD1, Bern2, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, Sect.42, UKBAP, WCA1i, WO1i
Bewick's Swan	<i>Cygnus columbianus</i> subsp. <i>bewickii</i>	bird	1	BAmb, BD1, Bern2, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i, WO1i
Whooper Swan	<i>Cygnus cygnus</i>	bird	1	BAmb, BD1, Bern2, CMS_A2, CMS_AEWA-A2, FEP7/2, ScotBL, WCA1i, WO1i
Pink-footed Goose	<i>Anser brachyrhynchus</i>	bird	1	BAmb, BD2.2, CMS_A2, CMS_AEWA-A2
Little Egret	<i>Egretta garzetta</i>	bird	7	BD1, Bern2, CITESA, CMS_AEWA-A2
Great White Egret	<i>Ardea alba</i>	bird	1	Bern2, CITESA, CMS_AEWA-A2
Grey Heron	<i>Ardea cinerea</i>	bird	1	CMS_AEWA-A2, WO1i
Grey Partridge	<i>Perdix perdix</i>	bird	1	BD2.1, BRed, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Quail	<i>Coturnix coturnix</i>	bird	3	BAmb, BD2.2, WCA1i, WO1i
Red Kite	<i>Milvus milvus</i>	bird	3	BD1, CITESA, CMS_A2, FEP7/2, RLGLB.NT, ScotBL, WCA1i
Milvus milvus subsp. <i>milvus</i>	<i>Milvus milvus</i> subsp. <i>milvus</i>	bird	8	BD1, CITESA, CMS_A2, FEP7/2, RLGLB.NT, ScotBL, WCA1i
Marsh Harrier	<i>Circus aeruginosus</i>	bird	1	BAmb, BD1, CITESA, CMS_A2, FEP7/2, ScotBL, WCA1i, WO1i
Sparrowhawk	<i>Accipiter nisus</i>	bird	2	CITESA, CMS_A2, WO1i
Buzzard	<i>Buteo buteo</i>	bird	13	CITESA, CMS_A2, WO1i
Rough-legged Buzzard	<i>Buteo lagopus</i>	bird	2	CITESA, CMS_A2
Hobby	<i>Falco subbuteo</i>	bird	7	Bern2, CITESA, CMS_A2, ScotBL, WCA1i
Peregrine	<i>Falco peregrinus</i>	bird	4	BD1, Bern2, CITESA, CMS_A2, ScotBL, WCA1i, WO1i
Golden Plover	<i>Pluvialis apricaria</i>	bird	2	BD1, BD2.2, CMS_A2, CMS_AEWA-A2, FEP7/2, ScotBL, Sect.42, WO1ii
Snipe	<i>Gallinago gallinago</i>	bird	1	BAmb, BD2.1, CMS_A2, CMS_AEWA-A2, FEP7/2
Woodcock	<i>Scolopax rusticola</i>	bird	2	BD2.1, BRed, CMS_A2, CMS_AEWA-A2, ScotBL
Lesser Black-backed Gull	<i>Larus fuscus</i>	bird	1	BAmb, BD2.2, CMS_AEWA-A2
Yellow-legged Gull	<i>Larus michahellis</i>	bird	3	BAmb
Stock Dove	<i>Columba oenas</i>	bird	2	BAmb, BD2.2
Turtle Dove	<i>Streptopelia turtur</i>	bird	13	BD2.2, BRed, CITESA, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP, WO1i
Cuckoo	<i>Cuculus canorus</i>	bird	3	BRed, ScotBL, Sect.41, Sect.42, UKBAP
Barn Owl	<i>Tyto alba</i>	bird	35	Bern2, CITESA, FEP7/2, ScotBL, WCA1i, WO1i
Little Owl	<i>Athene noctua</i>	bird	11	Bern2, CITESA
Tawny Owl	<i>Strix aluco</i>	bird	8	BAmb, Bern2, CITESA
Long-eared Owl	<i>Asio otus</i>	bird	1	Bern2, CITESA, WO1i

Common Name	Scientific Name	Taxon Group	Number of Records	Designation
Short-eared Owl	<i>Asio flammeus</i>	bird	2	BAmb, BD1, Bern2, CITESA, FEP7/2, ScotBL, WO1i
Swift	<i>Apus apus</i>	bird	34	BAmb, ScotBL
Kingfisher	<i>Alcedo atthis</i>	bird	31	BAmb, BD1, Bern2, FEP7/2, ScotBL, WCA1i, WO1i
Wryneck	<i>Jynx torquilla</i>	bird	1	Bern2, ScotBL, UKBAP, WCA1i
Green Woodpecker	<i>Picus viridis</i>	bird	9	Bern2
Great Spotted Woodpecker	<i>Dendrocopos major</i>	bird	3	Bern2
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	bird	7	Bern2, BRed, FEP7/2
Willow Warbler	<i>Phylloscopus trochilus</i>	bird	1	BAmb
Woodlark	<i>Lullula arborea</i>	bird	1	BD1, Breck_Special, FEP7/2, Sect.41, Sect.42, UKBAP, WCA1i
Skylark	<i>Alauda arvensis</i>	bird	17	BD2.2, BRed, FEP7/2, ScotBL, Sect.41
Swallow	<i>Hirundo rustica</i>	bird	1	Bern2
House Martin	<i>Delichon urbicum</i>	bird	1	BAmb, Bern2
Meadow Pipit	<i>Anthus pratensis</i>	bird	1	BAmb, Bern2
Grey Wagtail	<i>Motacilla cinerea</i>	bird	16	Bern2, BRed
Pied Wagtail	<i>Motacilla alba</i>	bird	4	Bern2
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	bird	3	Bern2
Waxwing	<i>Bombycilla garrulus</i>	bird	22	Bern2
Wren	<i>Troglodytes troglodytes</i>	bird	2	Bern2
Dunnock	<i>Prunella modularis</i>	bird	1	BAmb, Bern2
Robin	<i>Erithacus rubecula</i>	bird	1	Bern2
Black Redstart	<i>Phoenicurus ochruros</i>	bird	5	Bern2, BRed, WCA1i
Ring Ouzel	<i>Turdus torquatus</i>	bird	2	Bern2, BRed, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP, WO1i
Fieldfare	<i>Turdus pilaris</i>	bird	7	BD2.2, BRed, WCA1i, WO1i
Song Thrush	<i>Turdus philomelos</i>	bird	28	BD2.2, BRed, FEP7/2, ScotBL
Redwing	<i>Turdus iliacus</i>	bird	1	BD2.2, BRed, ScotBL, WCA1i
Mistle Thrush	<i>Turdus viscivorus</i>	bird	2	BD2.2, BRed
Spotted Flycatcher	<i>Muscicapa striata</i>	bird	5	Bern2, BRed, CMS_A2, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Pied Flycatcher	<i>Ficedula hypoleuca</i>	bird	1	BRed, CMS_A2, Sect.42, WO1i
Firecrest	<i>Regulus ignicapilla</i>	bird	3	Bern2, WCA1i, WO1i
Blue Tit	<i>Cyanistes caeruleus</i>	bird	1	Bern2
Great Tit	<i>Parus major</i>	bird	1	Bern2
Coal Tit	<i>Parus ater</i>	bird	1	Bern2
Marsh Tit	<i>Poecile palustris</i>	bird	3	Bern2, BRed
Nuthatch	<i>Sitta europaea</i>	bird	3	Bern2

Common Name	Scientific Name	Taxon Group	Number of Records	Designation
Treecreeper	<i>Certhia familiaris</i>	bird	1	Bern2
Great Grey Shrike	<i>Lanius excubitor</i>	bird	2	Bern2
Starling	<i>Sturnus vulgaris</i>	bird	6	BD2.2, BRed, FEP7/2
House Sparrow	<i>Passer domesticus</i>	bird	13	BRed, ScotBL, Sect.41, Sect.42, UKBAP
Tree Sparrow	<i>Passer montanus</i>	bird	3	BRed, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Lesser Redpoll	<i>Acanthis cabaret</i>	bird	1	BRed, ScotBL, Sect.41, Sect.42, UKBAP
Greenfinch	<i>Chloris chloris</i>	bird	2	Bern2
Goldfinch	<i>Carduelis carduelis</i>	bird	3	Bern2
Common Crossbill	<i>Loxia curvirostra</i>	bird	3	Bern2, WCA1i, WO1i
Bullfinch	<i>Pyrrhula pyrrhula</i>	bird	13	BAmb, FEP7/2, ScotBL
Yellowhammer	<i>Emberiza citrinella</i>	bird	9	Bern2, BRed, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Reed Bunting	<i>Emberiza schoeniclus</i>	bird	1	BAmb, Bern2, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal	126	Bern3, ScotBL, Sect.41, Sect.42, UKBAP
Bats	Chiroptera	terrestrial mammal	1	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD2p, HSD4, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Western Barbastelle	<i>Barbastella barbastellus</i>	terrestrial mammal	45	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD2p, HSD4, RLGLB.NT, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Serotine	<i>Eptesicus serotinus</i>	terrestrial mammal	15	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Unidentified Bat	<i>Myotis</i>	terrestrial mammal	1	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD2p, HSD4, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Whiskered/Brandt's Bat	<i>Myotis mystacinus/brandtii</i>	terrestrial mammal	4	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Daubenton's Bat	<i>Myotis daubentonii</i>	terrestrial mammal	26	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Natterer's Bat	<i>Myotis nattereri</i>	terrestrial mammal	28	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Noctule Bat	<i>Nyctalus noctula</i>	terrestrial mammal	25	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a

Common Name	Scientific Name	Taxon Group	Number of Records	Designation
Pipistrelle Bat species	Pipistrellus	terrestrial mammal	1	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Pipistrelle	Pipistrellus pipistrellus sensu lato	terrestrial mammal	151	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, Sect.42, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Nathusius's Pipistrelle	Pipistrellus nathusii	terrestrial mammal	1	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, ScotBL, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Common Pipistrelle	Pipistrellus pipistrellus sensu stricto	terrestrial mammal	1	CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, Sect.42, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Soprano Pipistrelle	Pipistrellus pygmaeus	terrestrial mammal	127	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Long-eared Bat species	Plecotus	terrestrial mammal	1	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Brown Long-eared Bat	Plecotus auritus	terrestrial mammal	45	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
European Otter	Lutra lutra	terrestrial mammal	5	Bern2, CITESA, FEP7/2, HabRegs2, HSD2p, HSD4, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Eurasian Badger	Meles meles	terrestrial mammal	8	Bern3, PBA, WO5
European Water Vole	Arvicola amphibius	terrestrial mammal	98	FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c
Brown Hare	Lepus europaeus	terrestrial mammal	27	FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP

Appendix 8: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

National Planning Policy Framework (England)

- 11.1 The Government revised the National Planning Policy Framework (NPPF) on 19 February 2019. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.
- 11.2 The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged.' At paragraph 8c) the planning system's environmental objective refers to 'protecting and enhancing our natural, built and historic environment' and to 'helping to improve biodiversity'
- 11.3 In conserving and enhancing the natural environment, the NPPF (Paragraph 170) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:
- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
 - Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
 - Minimising impacts on and providing net gains in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
 - Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.
- 11.4 In respect of protected sites, at paragraph 171, the NPPF requires local planning authorities to distinguish, at the plan level, '...between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'
- 11.5 Paragraph 174 refers to how plans should aim to protect and enhance biodiversity. 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 [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation 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.'
- 11.6 Paragraph 175 advises that, when determining planning applications, '...local planning authorities should apply the following principles:
- a. 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;

- b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c. 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; and
- d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

- 11.7 In paragraph 176, the following should be given the same protection as habitats sites¹:
- i. potential Special Protection Areas and possible Special Areas of Conservation
 - ii. listed or proposed Ramsar sites; and
 - iii. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'
- 11.8 In paragraph 177 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site'.
- 11.9 In paragraph 178, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.
- 11.10 In paragraph 180 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and , in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

- 11.11 Paragraph 98 of Government Circular 06/2005 advises that "the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."
- 11.12 Paragraph 99 of Government Circular 06/2005² advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed

¹ Habitats sites are defined in the glossary as 'Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.'

² ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted”.

Standing Advice (GOV.UK - England only)

- 11.13 The GOV.UK website provides information regarding protected species and sites in relation to development proposals: ‘Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.’ GOV.UK advises that ‘some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.’
- 11.14 The standing advice (originally from Natural England and now held and updated on GOV.UK³) provides advice to planners on deciding if there is a ‘reasonable likelihood’ of protected species being present. It also provides advice on survey and mitigation requirements.
- 11.15 When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: ‘The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee...it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.’

Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)

- 11.16 The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.
- 11.17 The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the ‘Biodiversity Duty.’
- 11.18 Guidance for public authorities on implementing the Biodiversity Duty⁴ has been published by Defra. One of the key messages in this document is that ‘conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.’ In England the administration of the planning system and licensing schemes are highlighted as having a ‘profound influence on biodiversity conservation.’ Local authorities are required to take measures to “promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that ‘the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.’
- 11.19 In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework⁵, which

³ <https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals#standing-advice-for-protected-species>

⁴ Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (<http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf>)

⁵ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (<http://jncc.defra.gov.uk/page-6189>)

covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.

- 11.20 In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

European protected species (Animals)

- 11.21 The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.
- 11.22 “European protected species” (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:
- a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
 - b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
 - c. deliberately disturb wild animals of any such species
 - d. deliberately take or destroy the eggs of such an animal, or
 - e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place
- 11.23 For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—
- a. to impair their ability—
 - i. to survive, to breed or reproduce, or to rear or nurture their young, or
 - ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - b. to affect significantly the local distribution or abundance of the species to which they belong.
- 11.24 Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:
- a. The proposal is necessary ‘to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’
 - b. ‘There is no satisfactory alternative’
 - c. The proposals ‘will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Definition of breeding sites and resting places

- 11.25 Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The

European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.⁶ Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that ‘The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.’ Further the guidance states: ‘It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.’

Competent authorities

- 11.26 Under Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended) a “competent authority” includes “any Minister of the Crown..., government department, statutory undertaker, public body of any description or person holding a public office.
- 11.27 In accordance with Regulation 9, “a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the [Habitats and Birds] Directives. This means for instance that when considering development proposals a competent authority should consider whether EPS or European Protected Sites are to be affected by those works and, if so, must show that they have given consideration as to whether derogation requirements can be met.

Birds

- 11.28 All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.
- 11.29 The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, ‘Birds Directive’⁷) (Regulation 10 (3)) requires that the objective is the ‘preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive...’ Regulation 10 (7) states: ‘In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements’.
- 11.30 In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: ‘So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).’

⁶ Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.

⁷ 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

Badger

- 11.31 Badger is protected under the Protection of Badgers Act 1992. It is not permitted to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as “a structure or place, which displays signs indicating current use by a badger”.
- 11.32 ODPM Circular 06/2005⁸ provides further guidance on statutory obligations towards badger within the planning system. Of particular note is paragraph 124, which states that “The likelihood of disturbing a badger sett, or adversely affecting badgers’ foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions.”
- 11.33 Natural England provides Standing Advice⁹, which is capable of being a material consideration in planning decisions. Natural England recommends mitigation to avoid impacts on badger setts, which includes maintaining or creating new foraging areas and maintaining or creating access (commuting routes) between setts and foraging/watering areas.

Reptiles

- 11.34 All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as “European Protected species” under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).
- 11.35 All six native species of reptile are included as ‘species of principal importance’ for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.
- 11.36 Current Natural England Guidelines for Developers¹⁰ states that ‘where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.’ Further the guidance states: ‘Normally prohibited activities may not be illegal if ‘the act was the incidental result of a lawful operation and could not reasonably have been avoided’. Natural England ‘would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.’
- 11.37 The Natural England Guidelines for Developers state that ‘planning must incorporate two aims where reptiles are present:
- To protect reptiles from any harm that might arise during development work;
 - To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.’

Water vole

- 11.38 Water vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using, or disturb voles while they are using such a place.

⁸ ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

⁹ <http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/specieslinks.aspx>

¹⁰ English Nature, 2004. *Reptiles: guidelines for developers*. English Nature, Peterborough. <https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006>

Water vole is listed as a Species of Principal Importance under the provisions of the NERC Act 2006 in England and under the provisions of the Environment (Wales) Act 2016.

Wild mammals in general

- 11.39 The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows.

Invasive non-native species

- 11.40 An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment.
- 11.41 Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to release, or to allow to escape into the wild, any animal which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state or is listed under Schedule 9 of the Act.
- 11.42 It is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Hedgerows

- 11.43 Article 10 of the Habitats Directive¹¹ requires that 'Member States shall endeavour...to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure...or their function as stepping stones...are essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).
- 11.44 The aim of the Hedgerow Regulations 1997¹², according to guidance produced by the Department of the Environment¹³, is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.
- 11.45 The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

¹¹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

¹² Statutory Instrument 1997 No. 1160 – The Hedgerow Regulations 1997. HMSO: London

¹³ The Hedgerow Regulations 1997: a guide to the law and good practice, HMSO: London

Silfiled Preliminary Connectivity
Strategy (AECOM)

Silfield Garden Village

Silfield Preliminary Connectivity Strategy

March 2020

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Executive
Summary

01

1. Executive Summary

Orbit Homes are leading the promotion of a major new residential led, mixed use, strategic garden village development on land at Silfield in Norfolk, with a view for it to be included in the Greater Norwich Local Plan (GNLP). Orbit Homes are working with others including Bowbridge Strategic Land to promote the site.

The site covers some 451 hectares of agricultural land and is located to the south of Wymondham and 15 kilometres south-west of Norwich. The site is situated to the north and south of the A11. The site is located such that it is a natural southern extension to the existing and planned residential areas of Wymondham.

This land has potential to provide up to 6,500 new dwellings, a secondary school, three primary schools, 15ha of employment land and three local centres. Access to the site is proposed from a new grade separated junction on the A11 and secondary access points from Silfield Road. This proposed garden village offers a new sustainable community to be created along with local services, infrastructure and employment. The proposed development has been designed to build in sustainable movements from the outset and includes specific measures to actively prioritise active and sustainable travel over car travel. The site is well positioned to provide large scale delivery of homes with high quality transport links to key employment locations such as Norwich, Cambridge, and London.

The site has opportunities to connect into the already established sustainable transport network of bus routes, rail services and the active travel network in Wymondham, with the edge of the site located 1km from Wymondham town centre which includes a bus interchange and a mainline railway station. The established bus interchange at Market Cross is proposed to be upgraded to a mobility hub as part of planned proposals for bus corridor improvements between Wymondham and Sprowston and a Clean Transport Priority Corridor between Wymondham and Norwich City Centre. The railway station is 800 metres walking and cycling distance from the site and offers hourly access to mainline services throughout the UK. Proposals to upgrade Wymondham station to provide direct interchange with bus services and enhanced accessibility within the station have been identified by Norfolk County Council. The proposed Garden Village has the opportunity to provide connections focussing on integrating with the established sustainable transport network and would ultimately support the continued enhancement and upgrade to these existing facilities. Given the links to sustainable modes of transport, the use of the private car should not be the first mode of choice for residents of the development therefore limiting the impact of the development the local highway network. Sustainable travel will be promoted through the design of the proposed development site and also through the implementation of a Travel Plan.

The proposed development site is essential for the delivery of strategic planned growth in Norfolk. The delivery of the proposed development site would deliver a new A11 junction and in turn the delivery of the new infrastructure is essential to facilitate this development.

The impact of the development on the highway network suggests that there would be a total of 3,419 two-way vehicular trips and 3,423 two-way vehicular trips in the AM and PM peak hours respectively. When distributed onto the network, the majority of vehicular trips will be using the A11 northeast (61% and 55%), and the A11 southwest (20% and 22%). This does not account for the potential for mode share shift to sustainable travel modes.

The site straddles the A11 and a new A11 Junction is proposed. This will provide direct vehicular access to the strategic road network, connecting with Norwich to the north and Cambridge to the south. The new Junction will also relieve pressure on the Town Centre and existing transport links in southern Wymondham, allowing the promotion of sustainable transport modes on the more urban routes into the Town Centre.

A review has been undertaken on the indicative A11 junction previously prepared by Peter Brett Associates (PBA) (now part of Stantec), which identifies that a new grade separated junction would be acceptable in terms of proposed location based on design requirement. Highway England state that it would appear from the information provided that there is sufficient space to meet these standards, and that therefore in principle, Highways England consider an acceptable design could be developed. A high level merge diverge analysis has been undertaken, based on current available traffic data on the A11, and this indicates that the quantum of development deliverable within the Plan Period (up to 2038) at SGV of at least 3,700 dwelling, along with all employment and education elements of the development, could be accommodated on site based on the proposed A11 junction design.

The new junction on the A11 has the potential to provide benefits to the local highway network in Wymondham, as it is anticipated that a proportion of people residing to the south of the railway bridge, would use this new junction to access the A11, and therefore would not need to use the local highway network in Wymondham to access the A11. Whilst sustainable transport would be promoted for local trips from Silfield Garden Village, the development would be expected to attract residual car trips through the following junctions in Wymondham.

In addition to delivering excellent sustainable transport improvements, SGV would, subject to further modelling, provide a range of local highway improvements, which may include:

- B1172 London Road / Harts Farm Road / Station Road / Avenue Road - signalised junction
- Station Road / Ayton Road Junction - Priority T Junction
- Silfield Road / Station Road / Rightup Lane roundabout
- B1135 / B1172 Harts Farm Road / Falconers Close four-arm roundabout
- B1135 Tuttle Lane East / Norwich Road / B1172 Norwich Common / B1135 four-arm roundabout
- Spinks Lane / B1135 / A11

The junctions listed above would need to be examined as part of further studies so that any net impacts can be addressed, although overall, a net reduction in trips would be expected in most cases, through the provision of a new A11 Junction.

Given the uncertainty over future traffic levels and travel patterns, and to avoid a 'predict and provide approach', a more sustainable 'monitor and manage' approach is proposed whereby the scope and design of any mitigation measures in and around the A11 junction, and any mitigation required at any other local junctions, would be agreed based on the pattern of traffic and travel movements in place at the time. Funding arrangements for any such measures will be built into the Silfield Garden Village viability model and S106 agreement with any planning approval should the site be consented. What is certain is that the proposed development can deliver an access strategy which allows for a substantial sustainable garden village development at Silfield.

A Transport Assessment would be required to assess the full impacts of the proposed development as part of the planning application process.

As such it is considered that the proposed development site is deliverable and a suitable 'reasonable alternative site' for a new settlement in the GNLP. It has the potential to be an accessible site by all modes and offers a sustainable site that connects to nearby facilities and amenities and to key employment centres in Wymondham and beyond.

Introduction

02

2. Introduction

Orbit Homes are leading the promotion of a major new residential led, mixed use, strategic garden village development on land at Silfield in Norfolk, with a view for it to be included in the Greater Norwich Local Plan (GNLP). Orbit Homes are working with others including Bowbridge Strategic Land to promote the site.

AECOM have been appointed to carry out a preliminary connectivity strategy in relation to the potential development of 451 hectares of land at Silfield, Norfolk. It is intended that this Report is submitted in support of the proposed allocation as part of the Local Plan Call for Sites Regulation 18 consultation process, to help illustrate that the proposed development is deliverable in terms of transport.

Through working on previous projects within Wymondham and the surrounding area, AECOM has gained extensive local knowledge and experience on the current and potential future transport local highway and sustainable transport networks which has been used within this report. All information sources used in this report are publicly available.

2.1 Site Location

The proposed garden village covers some 451 hectares of agricultural land and is located to the south of Wymondham and 15 kilometres south-west of Norwich. The site is situated to the north and south of the A11. The A11, which forms part of the Strategic Road Network (SRN) maintained by Highways England, links Norwich with the A14 and M11.

The principal vehicular access is to be provided from the A11 in the form of a new grade separated interchange providing direct access to the development and linking to Silfield Road. Other access points will also be from Silfield Road.

Silfield Road which provides the site boundary to the east and Park Lane which is partly located through the site in a north-south direction, both traverse the A11 using bridges.

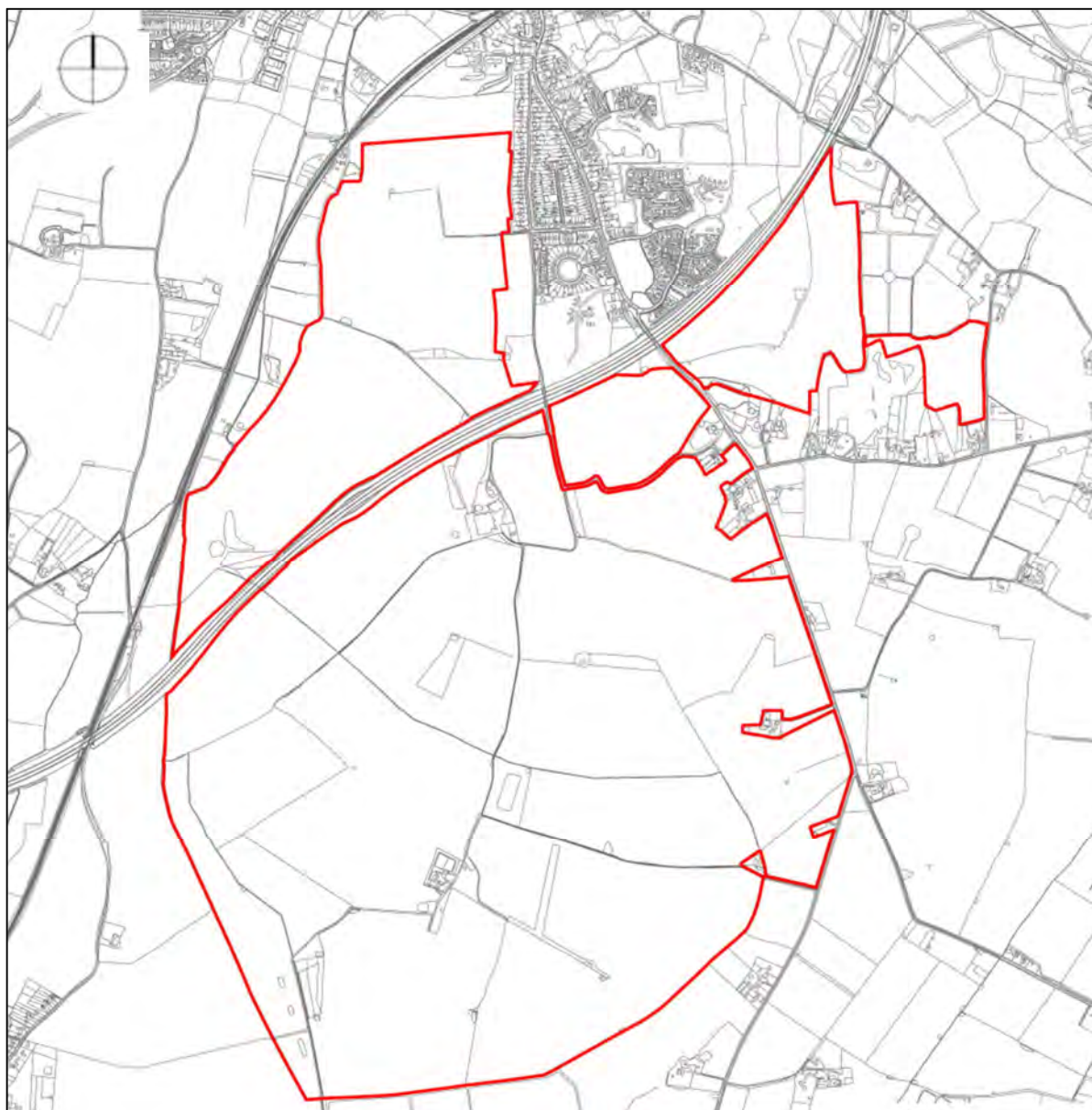
The northern boundary to the site is defined by existing residential developments whilst the Norwich to Cambridge railway line, Bays River and further agricultural land form the western boundary of the site. Wymondham railway station which is situated on the Norwich to Cambridge line is located some 400 metres from the northern edge of the site.

Further agricultural land is located along the southern boundary with Silfield Road providing the boundary to the east for most of the site, especially to the south of the A11, whilst to the north of the A11, existing residential development bounds the site to the east.

The core site boundary, illustrating the site location is illustrated on Figure 1 below and included in Appendix A.

The site location offers a sustainable location with close links to Wymondham as well as key employment allocations at Browick Road in Wymondham, Norwich Research Park and Hethel, as well as Attleborough and Snetterton.

Figure 1. Core Site Boundary



Source: David Lock Associates – Site Boundary Plan (Core Site) – Drawing Number SIL001-024

2.2 Development Overview

The proposed development has been designed to provide a sustainable mix of uses, promote walkable neighbourhoods and the encourage self-containment, which in turn creates a sustainable development.

The masterplan for the proposed development is shown in Appendix B and includes:

- Up to 6,500 dwellings.
- A secondary school on the northern edge of the site and three primary schools distributed throughout the site.
- Mixed use – circa 4 ha for retail / community / employment – to be accommodated in a number of local centres.
- 15 ha of B1 / B2 uses concentrated around the A11 grade separated junction. This includes a net zero carbon tech hub for small scale employment uses which would be focussed on land adjacent to the new junction on the A11 creating a gateway feature.

- A grade separated junction on the A11 to provide direct vehicular access from the strategic road network to both the northern and southern part of the development. A primary vehicular route will be provided through the site, from the A11 junction onto the local road network (Silfield Road). This ensures good access onto the strategic road network from the site and for developments in the surrounding area, located south of the railway bridge.
- Two vehicular accesses to the local road network, both connecting to Silfield Road to the east. The southern access is the main access onto Silfield Road. The design of the site accesses would be defined following preparation of a Transport Assessment at planning submission stage, once capacity requirements are fully quantified.
- A dedicated public transport access onto Park Lane from the northern part of the development. This would also serve as an emergency access only.

This proposed garden village offers a new sustainable community to be created along with local services, infrastructure and employment, therefore reducing the need to travel through self-containment. The proposed development has been designed to build in sustainable movements from the outset and include specific measures to actively prioritise active and sustainable travel over car travel. The proposed development has been designed to connect to the current and future sustainable travel networks in Wymondham, and beyond to Norwich, promoting and encouraging sustainable travel movements both within the development and to the wider area. A key underlying principle in the emerging design is achieving a netzero carbon development, in which sustainable travel movements is a key element of this.

2.3 Relevant Consented Residential Developments

There are two consented residential developments located close to the site, which are considered relevant to the proposed development. Both of these are situated on the southern edge of Wymondham. They are both located to the south-east of the railway station, to the north of the A11. These consented developments are referred to within this report and are as follows:

- Land North of the A11 at Park Farm, Silfield Road. Up to 500 dwellings. Developer: Pelham Holdings Ltd. South Norfolk District Council planning application reference number: 2011/0505.¹
- Land to the East and West of Rightup Lane. Up to 730 dwellings, care home, retail and primary school. Developer: Endurance Estates Strategic Land Ltd. South Norfolk District Council planning application reference number: 2012/0371².

Both the Pelham Holdings and Endurance Estates developments are subject to the same two Section 106 agreements dated 6th February 2014, and an agreement variation dated 17th May 2017.

One agreement relates to highways works in the vicinity of the railway bridge (The Bridge Agreement). This agreement refers to two highways schemes: a signalling scheme and a tunnelling scheme. The signalling scheme refers to the signalisation of the Silfield Road / Station Road mini-roundabout, while the tunnelling scheme refers to the provision of a cycleway / footway subway under the railway line adjacent to Station Road.

The trigger for the signalling scheme is no more than 121 dwellings on Site A (Pelham) and no more than 153 dwellings on the Hopkins Land nor more than 25 dwellings on the remainder of Site B (Endurance). The trigger for the tunnelling scheme is no more than 750 dwellings.

The other agreement includes off-site highway works proposed (the Main Agreement). This agreement refers to five highways schemes:

- Cycle and Pedestrian Links re. Silfield Road North (Similar scheme implemented)
- Cycle and Pedestrian Works on Site B Frontage (implemented)
- London Road / Station Road Junction Works (not implemented)

¹ Land North of the A11 at Park Farm, Silfield Road. Up to 500 dwellings. Developer: Pelham Holdings Ltd. South Norfolk District Council planning application reference number: 2011/0505.

² Land to the East and West of Rightup Lane. Up to 730 dwellings, care home, retail and primary school. Developer: Endurance Estates Strategic Land Ltd. South Norfolk District Council planning application reference number: 2012/0371.

- Cycle and Pedestrian Works on Silfield Road South (Similar scheme implemented)
- Lizard Links (not implemented)

The above schemes will change the surrounding area in terms of junction operation, and also provide improvements to the sustainable transport network, along Silfield Road, which provides a benefit to the proposed Silfield Garden Village development.

2.4 Report Structure

The remaining sections of this report are set out as follows:

- Section Three reviews relevant policy documents to understand the likely impacts that policy may have on proposed development;
- Section Four sets out the relevant existing conditions in and around the site and provides a review of the existing highway network and forecast junction operation.
- Section Five discusses the sustainable transport network, including the existing and future facilities for pedestrians, cyclists and public transport users, identifying opportunities for the proposed development
- Section Six sets out the potential trips generated by the proposed development, by all modes as well as the forecast vehicular distribution on the local highway network;
- Section Seven sets out the development proposal, including the masterplan vision, sustainable transport movement strategy, public transport strategy and details of the new A11 junction indicative junction design and local highway operation.
- Section Eight provides a summary and conclusion for the report.

Policy, Context and
Opportunities

03

3. Policies, Context and Opportunities

This section provides a review of documents to establish what, if any, changes are proposed to the local transport networks which need to be considered for this proposed development and how the site could possibly impact upon on them or provide benefits and opportunities for the proposed development.

3.1 Review of the Strategic Transport and Relevant Planning Documents

3.1.1 The Strategic Road Network and the Delivery of Sustainable Development (Circular 02/2013), September 2013, Department for Transport³

- This document sets out the way in which the Highways Agency (now Highways England) will engage with communities and the development industry to deliver sustainable development and thus economic growth, whilst safeguarding the primary function and purpose of the strategic road network (SRN). It is to be read by any involved in any development proposal which may result in any traffic or other impact on the SRN. It provides information on plan making, development management, access to the SRN, environmental impact and the physical impact of development on the SRN. The key paragraphs to note, which fall under the 'Access to the Strategic Road Network' are set out below:
 - "37. The creation of new accesses to the strategic road network can impact on its ability to fulfil the function of facilitating the safe and effective movement of goods and people in support of economic growth by compromising traffic movement and flow.
 - 38. In delivering economic growth at local level, it is essential that the wider economic needs of the country are not compromised. New accesses to busy, high speed strategic roads lead to more weaving and turning manoeuvres, which in turn create additional risk to safety and reduce the reliability of journeys, resulting in a negative impact on overall national economic activity and performance.
 - 39. Where appropriate, proposals for the creation of new junctions or direct means of access may be identified and developed at the Plan-making stage in circumstances where it can be established that such new infrastructure is essential for the delivery of strategic planned growth.
 - 40. Where the strategic growth test cannot be met there will be no additional junctions with, or direct means of access to, motorways and other routes of near motorway standard other than for the provision of signed roadside facilities for road users (see Annex B), maintenance compounds and, exceptionally, major transport interchanges."
- The proposed development, including the new A11 interchange, must demonstrate that they are essential for the delivery of strategic planned growth in Norfolk and Cambridge., in order for the growth test to be satisfied.

3.1.2 The Strategic Road Network Planning for the Future, September 2015, Highways England⁴

- This document describes the approach Highways England take to engaging in the planning system and the issues they look at when considering draft planning documents and planning applications. It offers advice on the information they would like to see included in a planning proposal and outlines the support they can offer.

³ The Strategic Road Network and the Delivery of Sustainable Development (Circular 02/2013), September 2013, Department for Transport.

⁴ The Strategic Road Network: Planning for the Future, September 2015, Highways England.

3.1.3 Highways England Delivery Plan 2015-2020, 2015, Highways England⁵

- The plan shows how Highways England will achieve the government's objectives and long term vision for the SRN.
- The only deliverable on the A11 is a Feasibility Study for A47 / A11 Thickthorn Junction.

3.1.4 Highways England Strategic Road Network Initial Report 2017⁶

- This document includes a section on developing the network for the future. Here, it proposes a new classification of A-road distinct from all-purpose trunk roads, called Expressways. Expressways are defined as 'motorway performance achieved by upgrading A-roads and enhancing with technology' and the indicative map shows the A11 as a planned expressway.

3.1.5 Highways England website⁷

- There is a major road project regarding upgrading the A47 / A11 Thickthorn junction. The junction is where the A11 and A47 cross on the southern outskirts of Norwich. The A47 / A11 Thickthorn junction is situated approximately 10km north east of the proposed site.
- The scheme is committed and will help relieve congestion at Thickthorn junction by providing two new free flowing link roads that will connect the A47 (east) with the A11 (south), routing traffic away from the roundabout. The timeline provided is: 2020 – Development Consent Order submitted; 2021 – Start of works; and 2023 – Open for traffic.

3.1.6 East West Rail - Connecting Oxford-Cambridge⁸

- The East West Rail link is a proposed rail route connecting Norfolk / Suffolk with Oxford via Cambridge and Bedford. Delivery is underway on the western section (Oxford to Bedford), while options are being developed for the Preferred Route alignment of the central section (Bedford to Cambridge). A document titled 'Eastern Section Prospectus for Growth' (January 2019) by the East West Rail Consortium provides information on the economic benefits for East Anglia of providing East West Rail towards Norwich.
- Wymondham rail station is on the eastern section of the line and would benefit from new connections to Bedford and Oxford with East West Rail. Therefore, East-West Rail would help make rail travel more attractive for journeys beyond Cambridge for both residents and workers at the proposed development.

3.1.7 Norfolk Rail Prospectus (January 2013)⁹

- The Norfolk Rail Prospectus sets out what is required to make sure that rail can serve the needs and expectations of passengers, and to ensure that it continues to support Norfolk's economy and helps deliver the housing and jobs required. The current prospectus is from January 2013, and identifies the following key priorities regarding rail services or station facilities at Wymondham:
 - Regular clock-face ½ hourly services;
 - Extension of services to Stansted; (Completed as of 2020)

⁵ Highways England Delivery Plan 2015-2020, 2015, Highways England.

⁶ Highways England's Strategic Road Network Initial Report, 2017, Highways England

⁷ <https://highwaysengland.co.uk/projects/a47-thickthorn-junction/>

⁸ <https://eastwestrail.co.uk>

⁹ Norfolk Rail Prospectus, 2013, Norfolk County Council

- Faster journey times: routine journey times between Norwich and Cambridge to be 70 minutes;
- Maintain quality of rolling stock: (Rolling stock upgraded as of 2020)
- Improvements to stations - Provide step free access to the Cambridge-bound platform at Wymondham; and
- Electrification in the medium term.

3.1.8 Draft Norfolk Rail Prospectus 2020¹⁰

- A draft prospectus, published in 2020, identifies the following key priorities regarding rail services or station facilities at Wymondham:
 - Half hourly frequency or at a minimum rescheduling the Norwich to Nottingham services on the half-hour to allow regular clock-face ½ hourly services with a change at Ely;
 - Faster journey times: routine journey times between Norwich and Cambridge to be 70 minutes;
 - Improvements to stations - Provide step free access to the Cambridge-bound platform at Wymondham;
 - Electrification in the medium term;
 - New passenger services between Cambridge and Oxford (East West Rail); and
 - Dereham to Wymondham mainstream passenger line in the longer term.
- These improvements, if implemented, would make rail travel more attractive for both residents and workers at the proposed development and contribute towards a mode shift away from the private car.

3.1.9 Norfolk Local Transport Plan 2011-2026¹¹

- The local transport plan describes Norfolk County Council's (NCC) strategy and policy framework for transport and is used as a guide for investment priorities.
- Norfolk's Transport Vision: A transport system that allows residents and visitors a range of low carbon options to meet their transport needs and attracts and retains business investment in the county.
- Six strategic aims underpin the vision, they are: maintaining and managing the highway network; delivering sustainable growth; enhancing strategic connections; reducing emissions; improving road safety; and improving accessibility.
- The document states that 'On the Norwich to Cambridge line, we will work with partners to achieve a regular, clock-face half-hourly service and extension of the service to Stansted'. This would be of benefit to the proposed development site.
- NCC is in the process of refreshing the local transport plan so that it covers the period 2020-2036.

3.1.10 Draft Greater Norwich Local Plan (GNLP) (2020)¹²

- The GNLP is being produced by Broadland District Council, Norwich City Council and South Norfolk Council working together with Norfolk County Council through the Greater Norwich Development Partnership, with the aim to produce a plan which will help to meet local housing and economic growth needs, whilst also protecting and enhancing the environment.

¹⁰ Draft Norfolk Rail Prospectus, 2020, Norfolk County Council

¹¹ Norfolk Local Transport Plan 2011-2026, April 2011, Norfolk County Council

¹² Greater Norwich Local Plan Draft Strategy, 2020, Greater Norwich Development Partnership.

- The document states that "No new settlement is proposed at this time as a significant proportion of the allocated sites are strategic scale commitments of 1,000 homes plus and the establishment of any new settlement is likely to take a long time." and "The longer-term development of a new settlement could be a suitable option in the future. This should be considered in the next review of this plan."
- Within the 'Easton Assessment Booklet' for GNLP, it states that the "A11 corridor is more suitable for development. 2010"

3.1.11 Transforming Cities Bid (2019)¹³

- NCC, in partnership with Norwich City Council, Broadland District Council and South Norfolk Council, has made an application to the Department for Transport (DfT) as part of the Transforming Cities Fund through Transport for Norwich.
- On the 28th November 2019, detailed proposals were submitted to the DfT for an extensive programme of further schemes designed to transform travel in Greater Norwich.
- Those of most relevance to the site include: Thickthorn Park & Ride expansion, improved access at Wymondham railway station including step free access to the Cambridge-bound platform, creation of mobility hub facilities at Wymondham railway station and Wymondham Market Cross (town centre), and improvements to the Wymondham-Sprowston transport corridor which will allow for high frequency services to Norwich, Norwich Research Park (NRP), Norfolk and Norwich University Hospital (NNUH) and the University of East Anglia (UEA).

3.1.12 Wymondham Area Action Plan, October 2015, South Norfolk District Council¹⁴

- The site is partly within the boundary of the Wymondham Area Action Plan, and outside the development boundary (but borders it on Park Lane). A Neighbourhood Green Infrastructure Corridor crosses the site.

3.1.13 Wymondham Market Town Network Improvement Strategy¹⁵

- NCC have agreed a programme of studies looking at the transport impacts of growth in market towns, including a study on Wymondham. The scope of the study consists of understanding current transport problems and issues, understanding the future situation (growth proposals and their impacts on transport) and developing an implementation plan. The study is currently in progress.

3.2 A Key Strategic Growth Location

The proposed development is essential for the delivery of strategic planned growth in Norfolk and Cambridge. The delivery of the proposed development site is dependent on a new A11 interchange and in turn the delivery of the new infrastructure is essential to facilitate this development.

- The site sits at a key point within the Cambridge – Norwich Tech Corridor – recognised in the GNLP Draft Strategy as an 'increasingly important axis linking to two other nationally significant growth corridors...'. A Garden Village scale development in this location has the potential to support the corridor's economic growth objectives and reinforce the local area as a key destination on the corridor by creating an economic and innovation hub aligned with the agri-tech and energy sectors as well as helping to meet the long-term housing needs of the Greater Norwich Area. Within the Corridor, the proposed site is located on unconstrained land benefiting from excellent strategic transport connections, situated adjacent to the A11 providing direct links to Norwich and Cambridge. It lies to the south of Wymondham and is directly accessible to Wymondham railway station. Wymondham is the largest settlement in the GNLP area outside

¹³ Norwich Transforming Cities Fund: Strategic Outline Business Case, November 2019, Transport for Norwich & Norfolk County Council.

¹⁴ Wymondham Area Action Plan, October 2015, South Norfolk District Council.

¹⁵ Wymondham Market Town Network Improvement Strategy, 2020, Norfolk County Council.

Norwich, and is already a focus for growth and investment and therefore the proposed site benefits from good links to existing amenities and employment facilities which can be supplemented by the provision of a full range of services as part of the development of the site.

- Strategic development at the proposed site would help maximise and support the investment that has already been made in the improvements to the A11 and the investment earmarked for the railway station. As part of the Norwich City Deal, there is a requirement to significantly increase jobs across the Greater Norwich area and the Tech Corridor is a focus for a significant proportion of these jobs. Hethel is identified as a key economic hub in the Greater Norwich Local Plan as is the Browick Interchange at Wymondham. There is an increasing ambition to ensure housing growth can align spatially with and support this economic growth - particularly along the 'corridor' - to maximise the growth potential of this key axis.
- The GNLP Draft Strategy aims to direct growth according to the settlement hierarchy, and seeks to focus growth in locations with 'best access to jobs, services and existing and planned infrastructure in and around the Norwich urban area and the Cambridge Norwich Tech Corridor' (para 164). The draft Local Plan also reinforces that the A11 is a 'focus for growth', and Wymondham as the largest settlement outside of the Norwich urban area, being primarily situated in the Cambridge - Norwich Tech corridor, is therefore well positioned for delivering strategic growth. This is further reflected in the Transforming Cities funding bid which included a mobility hub at Wymondham railway station as a priority project for funding.
- As part of the current Regulation 18 consultation, the future potential for a new settlement has been identified and the site has been acknowledged as a reasonable alternative site for a new settlement. Given the locational context above - Wymondham's position in the settlement hierarchy; the A11/rail corridor as a focus for growth; and the important and expanding role of the Cambridge-Norwich Tech Corridor and its growth requirements - the proposed development site is uniquely / ideally positioned to complement these already-expressed growth objectives. Delivering residential-led development year on year at Silfield, supported by integrated infrastructure investment, will help establish a tangible long term 'growth hub' for the region.

Existing Conditions

04

4. Existing Conditions

4.1 Introduction

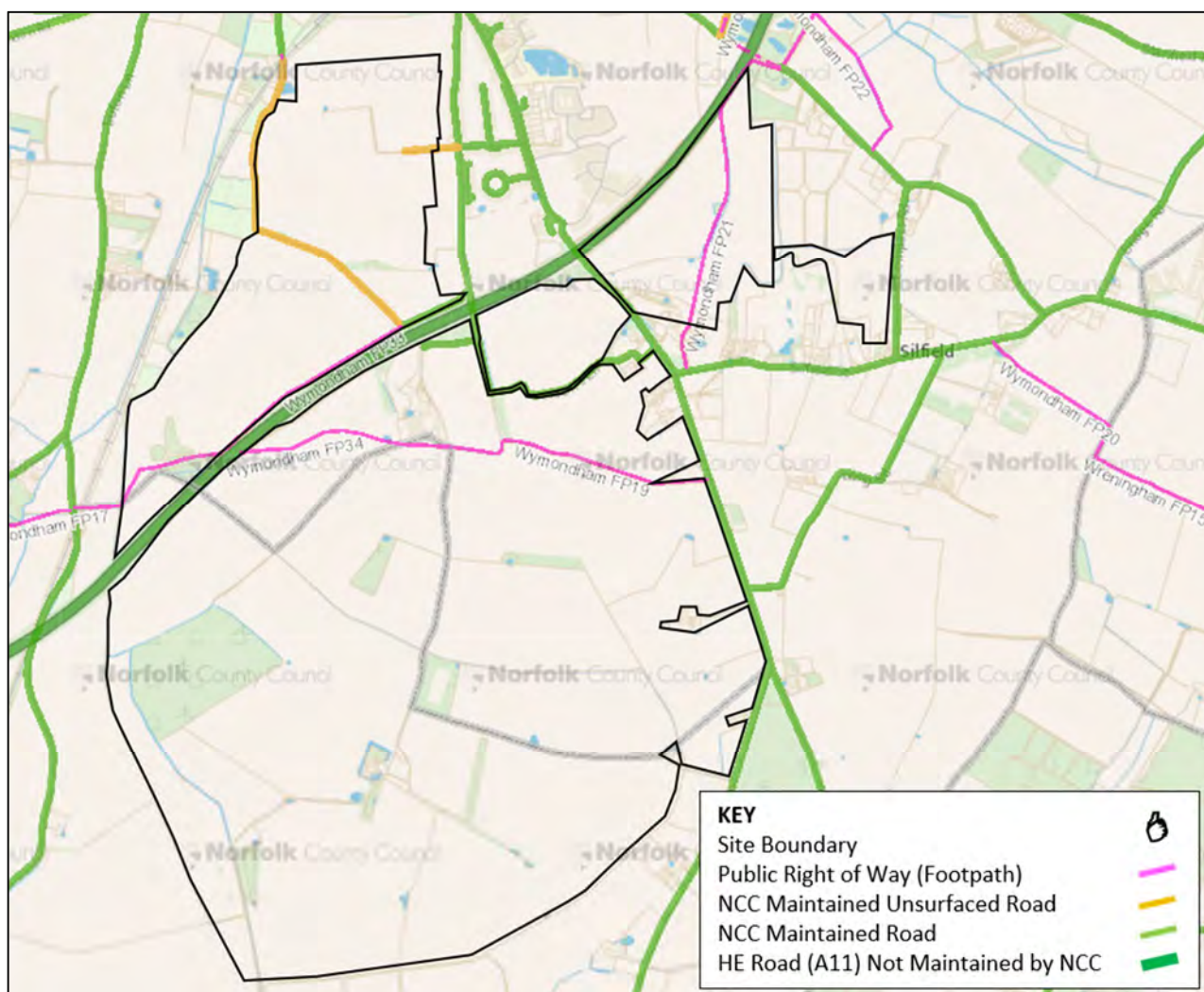
This section sets out the existing conditions within the site and the surrounding area. This section then reviews the highway network, including the roads adjacent to the site, and the junctions likely to be impacted upon by the proposed development, and their current and forecast operation

4.2 Existing Conditions

A summary of the existing conditions at the site and in the surrounding area which are of relevance to the proposed development is shown in Figure 2 overleaf, and included in Appendix C.

The existing public footpaths and NCC maintained roads within the site and in the vicinity of the site are shown in **Figure 3** below.

Figure 3. Existing Public Footpaths and NCC Maintained Roads



Source: Norfolk County Council Definitive Map¹⁶

The above figure illustrates the following public footpaths and NCC maintained roads within the site, which offer opportunities for the proposed development to connect with the surrounding area. These are listed below:

- Footpaths within the site:
 - Wymondham FP17 & Wymondham FP33, connecting Wymondham Road with Park Lane, immediately to the north of the A11.
 - Wymondham FP19 & Wymondham FP34, from Silfield Road and terminating at the A11 (not a through route).
- NCC Maintained Roads within the site:
 - Off Park Lane immediately to the north of the A11 bridge for approximately 250m.
 - Off Park Lane immediately to the south of the A11 bridge for approximately 150m.
- NCC Maintained Unsurfaced Roads within the site:
 - Off Park Lane, opposite Green Lane for approximately 200m.
 - Between Park Lane and Stayground Lane.

¹⁶ Norfolk County Council Definitive Map (<http://maps.norfolk.gov.uk/highways/>)

4.3 Highway Network

The key existing routes for access to the proposed development site are detailed below:

- A11 – This road is a National Speed Limit dual carriageway that traverses east-west through the site. There is no access to it from the site. The nearest junctions are at Browick Road to the northeast, or B1172 London Road to the southwest.
- Silfield Road – This north-south road forms the eastern boundary of the site. It is two-way with centre line markings and is approximately 6.0m wide. Along the built up areas of Silfield Road to the North, due to the urban nature, the speed limit is 30 mph, however further to the south, heading away from Wyndham the posted speed limit increases to 60mph.
- Wattlefield Road – This road forms part of the south eastern boundary. It is a single track road and is approximately 3.6m wide.

The roads within the site are detailed below:

- Park Lane – This north-south road within the site is approximately 5.5m wide at northern end, and 3.6m at the southern end at its junction with Verdon's Lane. It is 30mph at the northern end and is National Speed Limit at its southern end. It bridges the A11 and continues beyond the site boundary to the north connecting to Silfield Road.
- Verdon's Lane – This east-west single track road connects Park Lane with Silfield Road and has a 7.5T weight limit.
- Unnamed Lane – This is an unsealed single track road through the northern part of the site from Park Lane in the east to a level crossing to the north.

From reviewing Crash Map¹⁷, only one serious accident has occurred in last 5 years on roads through or adjacent to the site, and therefore highway safety is not considered a constraint. A further detailed analysis of accident data would need to be undertaken as part of any future Transport Assessment prepared for the proposed development site.

Google Maps Traffic has been used to provide a snapshot of the current operation of the local highway network in vicinity of the site, within the middle of the standard road network AM and PM peak hours of 08:00-09:00 and 17:00-18:00, on a typical neutral weekday (Wednesday). Images of the peak hours are presented in Figure 4 and Figure 5 below.

¹⁷ Crash Map (<https://www.crashmap.co.uk/>)

Figure 4. Google Maps Traffic Excerpt - AM Peak Hour (Wednesday 08:30 hours)



Source: © Google18

Figure 5. Google Maps Traffic Excerpt - PM Peak Hour (Wednesday 17:30 hours)



Source: © Google Maps

¹⁸ Google Maps (<https://www.google.com/maps/>)

These figures show that:

- The A11 is free flowing in both the AM and PM peak hours in both directions.
- Silfield Road is free flowing in both the AM and PM peak hours in both directions, with the exception of the approach to the Station Road / Silfield Road / Rightup Lane mini-roundabout in the AM peak hour which is slower moving.
- Traffic is slow moving on the approaches to the B1172 London Road / Harts Farm Road / Avenue Road / Station road signalised crossroads in both the AM and PM peak hours.
- Traffic is slow moving on the Ayton Road arm of the Station Road / Ayton Road T-junction in both the AM and PM peak hours.

Detailed junction modelling to ascertain the baseline highway network operation would be undertaken as the development progresses.

4.4 Junction Review

In advance of any detailed junction modelling for the local junctions in Wymondham, a summary of the operation of junctions local to the site has been undertaken based on;

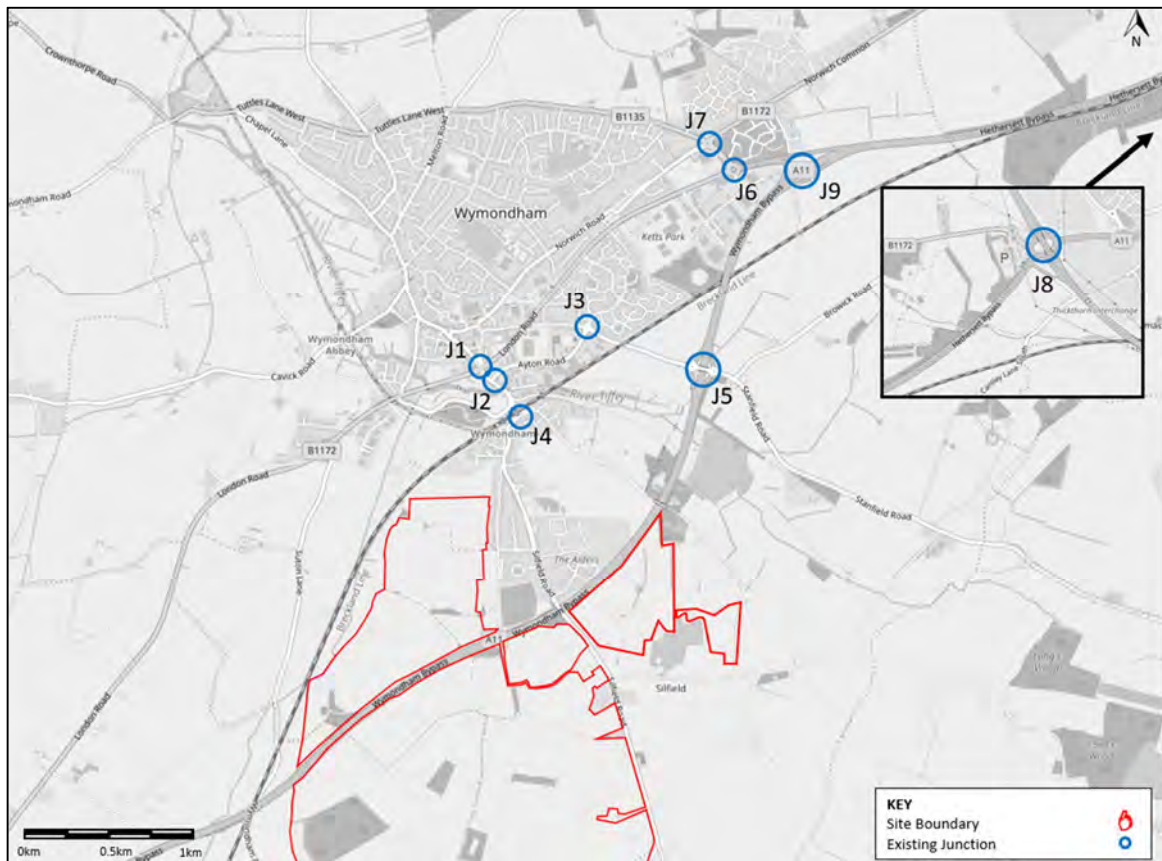
- The Transport Assessment Addendum from 'Land to the East and West of Rightup Lane' (further details provided in section 1), a consented development, located near to the proposed development site;
- The Transport Assessment from ' Land Between London Road And Sutton Lane London Road Wymondham Norfolk (2014/2495)¹⁹ for the outline application for up to 375 dwellings and associated infrastructure, new cemetery and 1.2 ha of land for neighbourhood centre comprising A1, A2, A3, A4, A5, and/or B1 and/or D1 uses', located to the north-west of the proposed development site; and
- From AECOM's experience and knowledge from other work previously undertaken in the local area.

The below section provides an overview of junctions that are likely to have the greatest impact by the proposed development traffic.

Figure 6 below illustrates the locations of the junctions that have been reviewed.

¹⁹ Land Between London Road And Sutton Lane London Road Wymondham Norfolk. up to 375 dwellings and associated infrastructure, new cemetery and 1.2 ha of land for neighbourhood centre comprising A1, A2, A3, A4, A5, and/or B1 and/or D1 uses. South Norfolk District Council planning application reference number: 2014/2495.

Figure 6. Junction Locations



The 'Land to the East and West of Rightup Lane' consented development Transport Assessment Addendum assessed the junction for a future year of 2021, with their development, with associated committed development traffic, and also the other consented development 'Land to the East and West of Rightup Lane', to understand the future forecast junction operation. This source has been used to understand predicted junction operation for junctions one to five set out below.

1 B1172 London Road / Harts Farm Road / Station Road / Avenue Road - Signalised Crossroads

The 2021 junction modelling results indicate that the existing junction would operate over capacity in the AM peak hour, on a number of approaches. The PM peak hour was forecast to operate just under maximum theoretical capacity,

Within the 'Land to the East and West of Rightup Lane' Transport Assessment Addendum, a mitigation scheme was proposed. The proposed scheme includes widening of the London Road and Harts Farm Road approaches to provide short dedicated left turn lanes and widening of the Station Road approach to increase the storage capacity on this approach. It is understood that this mitigation scheme has not yet been implemented, but forms part of the S106 for both consented developments (further details on triggers for implementation is provided in Section 1).

The mitigation scheme results have been extracted from the Transport Assessment Addendum and are provided in Figure 7 below.

Figure 7. Mitigation Scheme Results Extract

Table 4.2.9: 2021 Base + Committed + Endurance + Pelham – LINSIG Results – With Mitigation

Arm/ Movement	AM Peak 2021 Base + Committed + Development – Sensitivity Test		PM Peak 2021 Base + Committed + Development – Sensitivity Test	
	DoS (%) [*]	MMQ [*]	DoS (%) [*]	MMQ [*]
Avenue Road - left ahead	88.7	9	82.3	11
Avenue Road - right	51.0	3	43.4	5
Harts Farm Road - left ahead	72.0	7	81.4	14
Harts Farm Road - right	81.1	6	76.6	7
Station Road	88.4	16	83.1	14
London Road (w) – left ahead	88.4	12	81.0	14
London Road (w) - right	68.2	5	75.8	7

^{*} DoS (%) – Maximum Percentage Degree of Saturation ; MMQ – Mean Maximum Queue

Source: (2012/0371 Land to the East and West of Rightup Lane – Transport Assessment Addendum 2012)

As shown above, the mitigation scheme improves the junction operation, and would result in the junction operating with spare capacity in 2021.

The above results illustrate that in 2021, it is forecast that there would be some spare capacity for the proposed Silfield Garden Village development trips, if the development was to be operational in 2021. Further analysis of this is provided later in this report.

2 Station Road / Ayton Road Junction - Priority T Junction

From the ‘Land to the East and West of Rightup Lane’ Transport Assessment Addendum, the junction modelling results indicate that, for the future year of 2021 there would be some spare capacity for the proposed Silfield Garden Village development trips, based on the existing junction layout. Further analysis of this is in relation to the proposed development is provided later in the report.

The modelling results for the existing junction layout have been extracted from the Transport Assessment Addendum and are provided in Figure 8 below.

Figure 8. Existing Scheme Results Extract

Table 4.3.6 – 2021 Base + Committed + Pelham Traffic Flows – PICADY Analysis Results

Arm/ Movement	AM Peak 2021 Base + Committed + Endurance + Pelham		PM Peak 2021 Base + Committed + Endurance + Pelham	
	Max RFC [*]	Max Queue	Max RFC [*]	Max Queue
Ayton Road – left	0.170	1	0.456	1
Ayton Road – right	0.307	1	0.528	1
Station Road (s)	0.798	8	0.531	2

^{*} Max RFC – Maximum Ratio of Flow to Capacity

Source (2012/0371 Land to the East and West of Rightup Lan – Transport Assessment Addendum 2012)

3 Ayton / Browick Road Roundabout - Roundabout

From the ‘Land to the East and West of Rightup Lane’ Transport Assessment Addendum, the junction modelling results indicate that, in the future year of 2021, there would be significant spare capacity for the proposed Silfield Garden Village development trips, based on the existing junction layout. Further analysis of this is in relation to the proposed development is provided later in this report.

The modelling results for the existing junction layout have been extracted from the Transport Assessment Addendum and are provided in Figure 9 below.

Figure 9. Existing Scheme Results Extract

Table 4.4.5 – 2021 Base + Committed + Endurance + Pelham Traffic Flows – ARCADY Analysis Results

Arm/ Movement	AM Peak 2021 Base + Committed + Endurance + Pelham		PM Peak 2021 Base + Committed + Endurance + Pelham	
	Max RFC *	Max Queue	Max RFC *	Max Queue
Blackthorn Road	0.197	1	0.069	1
Browick Road (s)	0.199	1	0.262	1
Ayton Road	0.199	1	0.225	1
Browick Road (n)	0.091	1	0.119	1

* Max RFC – Maximum Ratio of Flow to Capacity

Source (2012/0371 Land to the East and West of Rightup Lane – Transport Assessment Addendum 2012)

4 Silfield Road / Station Road / Rightup Lane - Mini Roundabout

From the ‘Land to the East and West of Rightup Lane’ Transport Assessment Addendum, the junction modelling results indicate that, in the future year of 2021, the junction is forecast to operate over capacity in the AM and PM peak hour, on a number of approaches.

Within the Transport Assessment Addendum, the consented development proposed a mitigation scheme that would mitigate the impact of the development proposals (as well as the other consented development) which forms part of the S106 for both consented developments. The proposal involves signalisation of the mini roundabout.

The mitigation scheme results have been extracted from the Transport Assessment Addendum and are provided in Figure 10 below.

Figure 10. Mitigation Scheme Results Extract

Table 4.5.6 – 2021 Base + Committed + Endurance + Pelham Traffic Flows – LINSIG Analysis Results – With Mitigation

Arm/ Movement	AM Peak 2021 Base + Committed + Endurance + Pelham		PM Peak 2021 Base + Committed + Endurance + Pelham	
	DoS (%) *	MMQ *	DoS (%) *	MMQ *
Station Road	88.2	17	87.3	22
Rightup Lane	85.1	11	84.6	6
Silfield Road	88.3	23	84.4	13

* DoS (%) – Maximum Percentage Degree of Saturation ; MMQ – Mean Maximum Queue

Source (2012/0371 Land to the East and West of Rightup Lane – Transport Assessment Addendum 2012)

As shown above, the mitigation scheme is forecast to improve the capacity of the junction, and would result in the junction operating with spare capacity. Further analysis of this is in relation to the proposed development is provided later in this report.

5 A11 / Stanfield Road / Browick Road - Dumbbell Roundabout

From the ‘Land to the East and West of Rightup Lane’ Transport Assessment Addendum, the junction modelling results indicate that, in the future year of 2021, the junction is forecast to operate with some spare capacity for the proposed Silfield Garden Village development trips, based on the existing junction layout. The modelling results are provided in Figure 11 below.

Figure 11. Existing Results Extract

Table 4.6.5 – 2021 Base + Committed + Endurance + Pelham Traffic Flows – ARCADY Results

Junction	Arm/ Movement	AM Peak 2021 Base + Committed + Endurance + Pelham		PM Peak 2021 Base + Committed + Endurance + Pelham	
		Max RFC *	Max Queue	Max RFC *	Max Queue
A11/ Stanfield Road/ Browick Road (East junction)	Bridge	0.277		0.183	
	A11 North Entry	0.363		0.189	
	Stanfield Road	0.259		0.404	
A11/ Stanfield Road/ Browick Road (West junction)	Browick Road	0.308		0.261	
	Bridge	0.259		0.383	
	A11 South Entry	0.163		0.142	

* Max RFC – Maximum Ratio of Flow to Capacity

Source (2012/0371 Land to the East and West of Rightup Lane – Transport Assessment Addendum 2012)

6 B1135 / B1172 Harts Farm Road / Falconers Close - Four-Arm Roundabout

From knowledge of the roundabout, it is understood that issues experienced at this junction relate to blocking back problems from the adjacent B1135 Tuttlés Lane East / Norwich Road / B1172 Norwich Common / B1135 four-arm junction and also the proximity to the Waitrose exit impacts on the effectiveness of operation at times. This junction in isolation is not predicted to suffer capacity problems in the near future and the recent improvements at the B1135 Tuttlés Lane East / Norwich Road / B1172 Norwich Common / B1135 four-arm roundabout have alleviated problems. This will be discussed later in this report.

7 B1135 Tuttlés Lane East / Norwich Road / B1172 Norwich Common / B1135 - Four-Arm roundabout

This junction was identified for improvement as part of recent residential developments in Wymondham. NCC have implemented a capacity improvement scheme to cater for current consented growth in Wymondham. Partial signalisation of the junction was proposed as part of a consented development’s Transport Assessment, however, the Highway Authority decided not to proceed with this option due to deliverability.

The current junction is known to be operating with spare capacity in the peak hours, however there is significant development being brought forward to the North of Wymondham which could use this spare capacity. There is potential that this roundabout will require improvements, with the addition of proposed development trips, though this would be dependent on the future traffic patterns in Wymondham bearing in mind the proposed sustainable network improvements. This will be discussed later in this report.

8 A11 / A47 Thickthorn Interchange

Whilst this junction has long been acknowledged as a constraint to traffic growth, a committed improvement scheme has been identified for implementation by local consented developments. These are being progressed through discussions with the highway and planning authorities. Furthermore, this junction has been identified for improvement as part of a £15.1 billion investment to improve journeys on England’s major A roads and motorways. A Highways England scheme to upgrade the junction to provide free-flow links in both directions between the southwestern arm of the A11 south and the south eastern arm of the A47 is being progressed through the Development Consent Order (DCO) process. The proposals for improvements to the Thickthorn Interchange are at an advanced stage with work to improve the junction likely to start in 2020/2021. The proposals are designed to cater for a 30% increase in traffic up to 2036. The junction will therefore be able to cater with the traffic associated with the proposed Silfield Garden Village development.

9 Spinks Lane / B1135 / A11 Roundabout

From reviewing a Transport Assessment associated with the ‘2014/2495 Outline application for up to 375 dwellings and associated infrastructure, new cemetery and 1.2 ha of land for neighbourhood centre comprising A1, A2, A3, A4, A5, and/or B1 and/or D1 uses’ on Land Between London Road And Suton Lane London Road in Wymondham, situated to the north west of the proposed development site. The modelling undertaken, for a 2023 future year indicates that this junction is forecast to operate with spare capacity.

As sustainable travel in and around Wymondham is enhanced and further promoted, this could result in a reduction in car usage with a shift to sustainable travel on the local highway network. The above summary of the highway network does not consider changes in travel behaviour or a lower car driver mode share.

Sustainable
Transport
Opportunities

05

5. Sustainable Transport Opportunities

5.1 Introduction

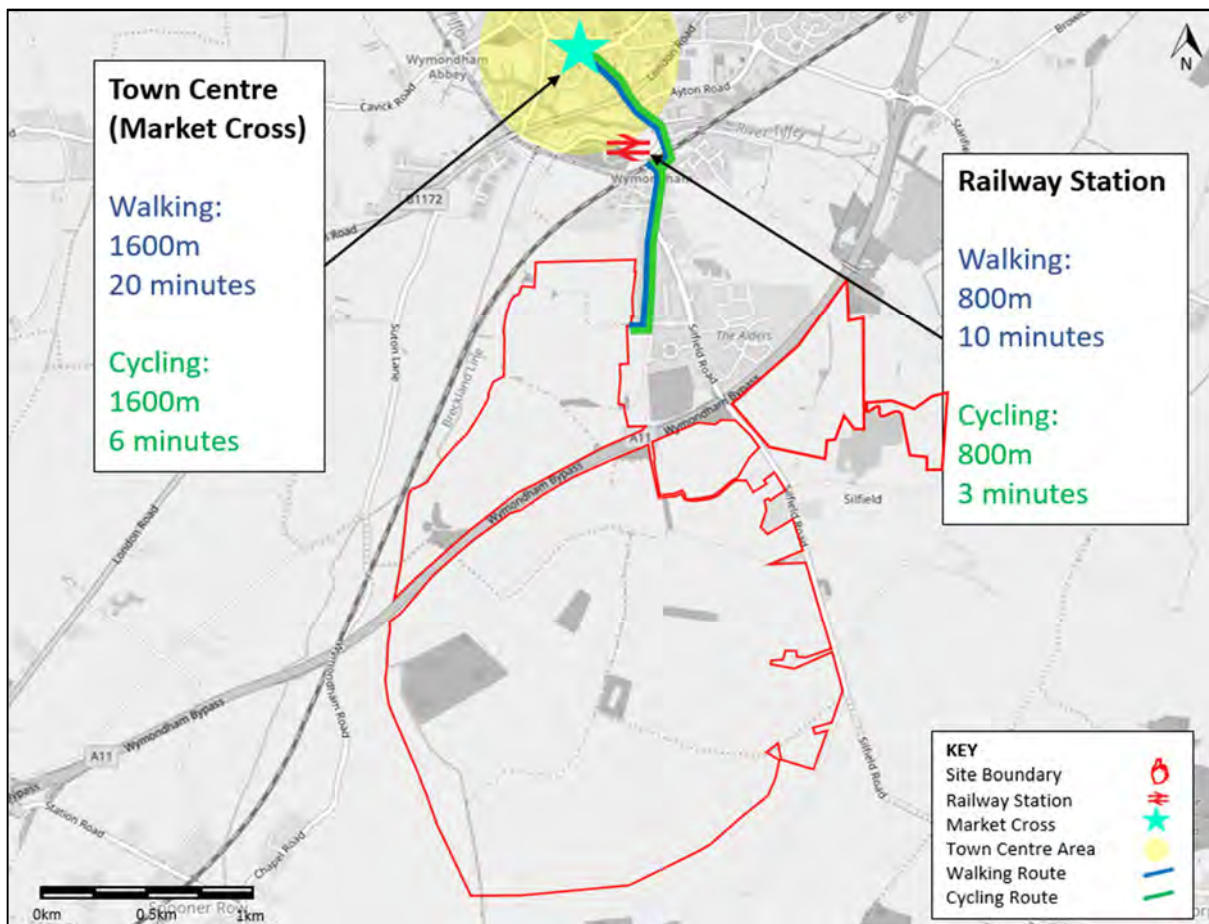
This section sets out a review of the sustainable transport network in the vicinity of the site and discusses how accessible the site is without recourse to the private car. It also identifies opportunities relating to sustainable transport for the proposed development site.

Constraint and opportunity plans are attached in Appendix D.

5.2 Walking and Cycling

Figure 12 below illustrates the location of the site in relation to the town centre and the railway station, along with the walking and cycling times to undertake the journey between the two locations. The walking and cycling distance and times represent the fastest journey times along established routes between Park Lane (the most northern proposed pedestrian and cycle access), located to the north-east of the development site and Wymondham town centre and railway station. The times and distance have been derived through the use of Google route planning software available on Google Maps.

Figure 12. Connectivity to Wymondham Town Centre and Railway Station



The above figure illustrates that the town centre is highly accessible by those travelling by bicycle and for those walking, with journey times of approximately six minutes for those cycling and 20 minutes for those walking. The railway station is situated closer to the site, therefore walking and cycling times are lower. For those travelling by bicycle a journey time of 4 minutes is anticipated and for those walking, a journey time of approximately 11 minutes. The proposed Mobility Hubs at both of these locations, as part of the Transforming Cities Bid, provides a significant opportunity for the proposed development to provide high level walking and cycling facilities to connect into these mobility hubs.

A shared pedestrian and cycleway facility is provided along Silfield Road from the railway bridge and currently terminates to the North of the A11 overbridge. A footway continues out of Wymondham along the proposed site frontage but terminates before reaching the village of Silfield. There is an opportunity for the shared pedestrian and cycle facility to be extended along the proposed site frontage on Silfield Road, creating a continuous pedestrian and cycle connection from the site, into Wymondham. Along Silfield Road, to assist in ensuring that safety remains a key priority of the proposed development and creating a more attractive walking and cycle environment, the existing 30 mph zone could be extended south along the frontage to the site. This would also be beneficial for pedestrians and cyclists travelling between the site and the existing and proposed facilities and amenities to the north of the proposed development site.

Stayground Lane to the north of the site currently provides an additional access into Wymondham from the proposed development site. This route could be promoted as a pedestrian and cycle connection into Wymondham as it would connect into the existing pedestrian and cycle facilities on London Road, and onwards to Hethersett and Norwich, via the Norwich Pedalways network²⁰.

As Park Lane is situated to the east of the site, there is an opportunity to create a main pedestrian and cycle route on Park Lane to link in to the existing pedestrian and cycle network in Wymondham, and onwards to Norwich, via the Norwich Pedalways network. Park Lane provides direct connectivity to Wymondham railway station and the town centre and is therefore an essential connection to Wymondham.

A new three metre wide shared footway / cycleway subway is proposed to be delivered as part of S106 obligations for the consented residential developments, as set out in Section 1. It would be located immediately to the west of the existing Station Road underpass and it would allow for the widening of Station Road with the removal of the existing footway. This improvement will provide a more attractive walking environment for access into Wymondham. This facility will further enhance the pedestrian and cycle connectivity from the site to the railway station and Wymondham town centre, connecting to the existing and proposed sustainable transport network. It is understood that these works are imminent.

5.3 Bus

There are a number of bus stops located within 400 metres of the site boundary, which is the recommended maximum walking distance to a bus stop. The nearest bus stop is located on Park Lane, which is within a short walk of the site. At present no bus stops are provided within the site or on the site frontage to Silfield Road. Wymondham is well served by a number of services over the course of the day, of which some are frequent.

Wymondham Town Centre (Market Cross) is one kilometre from the most northern part of the site and is well served by frequent bus services. These bus services currently provide access to a number of surrounding locations and to Norwich and beyond. As part of the Transforming Cities bid the Market Cross is a proposed Mobility Hub, offering a multi-modal hub for improved sustainable travel options. In addition, there are also improvements proposed to the Wymondham – Sprowston transport corridor, which would improve the attractiveness of bus travel. Wymondham – Norwich city centre is a proposed designated Clean Transport Priority Route and will allow for seven to eight buses per hour via both Thickthorn and NRP / NNUH / UEA, which are key local employment sites. There could be an opportunity for the proposed development, to connect to this Clean Transport Priority Route. These proposals increase the sustainable transport offering in the vicinity of the proposed site, illustrating the potential for the site to become integrated with the bus network. The proposed development should seek to provide sustainable travel connections to the Market Cross to connect into the wider sustainable transport network.

The services closest to the site and serving Wymondham town centre are summarised in Table 1 below.

Table 1. Bus Services Serving the Nearest Bus Stops to the Development Site

Nearest Bus Stop	Service	Route Description	Weekday	Saturday	Sunday	Operator
Park Lane	9	Wymondham – NNUH	4 per day	No Service	No Service	H Semmence & Co.
Wymondham Town Centre	14/15/15A	Wymondham – Norwich – Dussindale Drive	Every 15 minutes	Every 15 minutes	No Service	First

²⁰ Pedalways (<https://www.norwich.gov.uk/info/20396/cycling/1312/pedalways>)

Nearest Bus Stop	Service	Route Description	Weekday	Saturday	Sunday	Operator
Wymondham Town Centre	13/A/B/C	Attleborough – Norwich - Spixworth	Every 30 minutes	Every 30 minutes	Every 60 minutes	First
Wymondham Town Centre	6	Watton – Norwich	Every 60 minutes	Every 60 minutes	No Service	Konectbus
Wymondham Town Centre	13	Easton College - Watton	1 per day	No Service	No Service	Konectbus
Wymondham Town Centre	805	Wreningham – Wymondham	1 per day	No Service	No Service	H Semmence & Co.
Wymondham Town Centre	806	Bawburgh – Wymondham	1 per day	No Service	No Service	H Semmence & Co.
Ashwellthorpe	37A	East Harling - Norwich	2 per day	No Service	No Service	Konectbus

Source: Traveline South East²¹

The above table demonstrates that there are a number of services serving Wymondham town centre. There is potential for these services to be extended to serve the site to encourage trips to be made by bus, therefore reducing the impact of the development on the local highway network. In addition as sustainable travel is becoming increasingly important in Norfolk, as a result of peak hour traffic congestion, it is likely that as Wymondham develops and grows, the number of bus services will increase, as will service frequency, further enhancing the bus network.

As part of the consented developments, 'Land North of the A11 at Park Farm, Silfield Road' and 'Land to the East and West of Rightup Lane', there are proposed plans for a bus route to run through these sites, in a north south direction, from Right Up Lane to Silfield Road. There could be an opportunity for bus services to be extended through the consented development sites, as well as the proposed development site, such as the First Network Norwich Green Line Norwich – Wymondham Services 14/15/15A or the Konectbus NNUH – Wymondham Service 9.

The First Network Norwich Turquoise Line Norwich – Attleborough Services 13/13A/13B/13C currently use London Road to and from Wymondham, therefore there could be an opportunity that some of these bus services could divert use the A11 to serve the proposed development, with a direct service from the site to Norwich, via the A11.

5.4 Rail

There are two accessible railway stations in the vicinity of the proposed development site; Wymondham and Spooner Row.

Wymondham railway station is located approximately 400 metres north of the site and can be easily accessed by footway or road. There are 90 car parking spaces available, as well as 28 cycle parking spaces.

The station is situated on the Breckland Line, linking to Norwich to the east and Ely to the west, from which trains carry on to London, Stansted Airport via Cambridge or Liverpool via Peterborough and Manchester. The station has pay phones and a café, however access for those with disabilities to Platform 2 (westbound) is limited as no step free access is provided.

Services from the station generally run every hour in either direction, however throughout the day there are additional services so that in some hours there are two trains in each direction²². Services currently operate between 05:45 and 23:59 hours. The site would increase the demand for the rail service, therefore there could be potential for increased rail services stopping at Wymondham to two per hour in each direction, this is however dependant on the rail operator and the feasibility of increasing the service. Travel by train is an attractive alternative especially for journeys to Norwich and Cambridge for those residing at the proposed development, therefore reducing the reliance on the private car.

²¹ Traveline East Anglia (<http://www.travelineeastanglia.org.uk/>)

²² National Rail Enquires (<https://www.nationalrail.co.uk/stations/WMD/details.html>)

Currently Wymondham railway station does not have a bus stop directly serving it and step free access is not available for Ely bound trains. However, as part of the Transforming Cities bid, Wymondham railway station is proposed to be a Mobility Hub, which will improve the sustainable transport offering at this location, with buses proposed to serve the station forecourt. In addition, the bid proposes new step-free access to Ely bound platform, improving the accessibility of the railway station.

Spooner Row railway station is 1.2 kilometres from the edge of the site, and currently is a halt station. It currently offers limited services (2 per day), therefore the main focus of the development will be on connections to Wymondham railway station. There is however an opportunity to provide pedestrian / cycle connectivity to this railway station from the south of the site, primarily for the southern areas of the site, which would offer an alternative railway station to Wymondham. If there is significant demand at this station, there may be an opportunity that additional rail services, in the peak hours, could be offered.

5.5 Summary

A review of the sustainable transport network illustrates that the site is well situated for a variety of different transport modes, with the edge of the site located 1km from Wymondham town centre which includes a bus interchange. The railway station, Town Centre and associated Mobility Hubs are within walking and cycling distance of the site. There are significant opportunities for the proposed development to connect into the existing and proposed sustainable transport network in Wymondham, therefore encouraging and promoting sustainable travel.

Strategic Transport
Appraisal

06

6. Strategic Transport Appraisal

6.1 Introduction

This section reviews the potential trips generated by the proposed development, by all modes as well as the forecast vehicular distribution on the local highway network.

6.2 Trip Generation

To understand the potential impact of the development on the local highway network and to identify the multi-modal trips for the proposed development, the Trip Rate Information Computer System (TRICS) database has been used. TRICS is an interactive database consisting of a large number of survey records of developments across a number of industries and uses. The software is used by the transport planning industry to predict transport impacts of new developments and to calculate the potential for the trip generation. A copy of the TRICS data is included in Appendix E.

6.2.1 Vehicular Trip Generation

6.2.1.1 Residential Vehicular Trip Generation

A review of the TRICS²³ database has identified vehicular trip rates for similarly located residential developments. It was decided to use trip rates from two residential developments also located in South Norfolk District, with surveys undertaken in 2019, which are:

- Round House Way (984 dwellings)
- Queens Hill (1,817 dwellings)

It is important to note that these existing residential sites are of a smaller scale to that being proposed with fewer facilities and amenities on site, therefore may not fully consider the levels of internalisation that could be achieved at the proposed development site, albeit the trip rates used do allow for some level of internalisation. The garden village model and provision of co-located employment, primary schools and a secondary school, along with a local centre, could however support a greater level of internalisation.

The resulting vehicular trip rates, for the standard road network peak hours of 0800 to 0900 hours and 1700 to 1800 hours and daily, are set out in Table 2 below.

Table 2. Residential Vehicular Trip Rates

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
Residential	0.110	0.318	0.428	0.311	0.141	0.452	1.811	1.838	3.649

Application of the trip rates set out above, to the maximum proposed development dwelling quantum of 6,500, results in the development generating the number of vehicular trips as set out in Table 3 below.

Table 3. Residential Trip Generation

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
Residential	715	2,067	2,782	2,022	917	2,938	11,772	11,947	23,719

²³ Trip Rate Information Computer System (TRICS) 7.6.4.

6.2.1.2 Employment Vehicular Trip Generation

A review of the TRICS database has identified vehicular trip rates for similarly located B1 Employment and B2 employment developments. The resulting vehicular trip rates are set out in Table 4 below.

Table 4. Employment Trip Rates

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
B1	1.828	0.220	2.048	0.274	1.343	1.617	6.502	6.602	13.104
B2	0.657	0.280	0.937	0.279	0.489	0.768	4.087	4.124	8.211

Application of the trip rates set out above to the proposed development B1 Employment area of 20,000m² and B2 Employment area of 40,000m², results in this element of the development generating the number of vehicular as set out in Table 5 below.

Table 5. Employment Trip Generation

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
B1	366	44	410	55	269	323	1,300	1,320	2,621
B2	263	112	375	112	196	307	1,635	1,650	3,284
Total	629	156	785	167	465	630	2,935	2,970	5,905

6.2.1.3 Education Vehicular Trip Generation

A review of the TRICS database has identified vehicular trip rates for similarly located Primary and Secondary Schools. The resulting vehicular trip rates are set out in Table 6 below.

Table 6. Education Trip Rates

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
Primary School	0.319	0.203	0.522	0.027	0.033	0.060	0.831	0.791	1.622
Secondary School	0.150	0.135	0.285	0.026	0.019	0.045	0.504	0.487	0.991

In order to apply the trip rates as set out above to pupil numbers, the maximum pupil numbers needed to be calculated. It was assumed that there would be three schools with 2 forms each per year (7) with 30 pupils per class for the primary school, and 6 forms per year (5) with 30 pupils per class for the secondary school. Therefore, the proposed development would expect a maximum of 1,260 primary school pupils and 900 secondary school pupils.

Application of the trip rates set out above to these calculated pupil numbers results in the development generating the number of education vehicular trips as set out in Table 7 below.

Table 7. Education Trip Generation

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
Primary School	402	256	658	34	42	76	1,047	997	2,044
Secondary School	135	122	257	23	17	41	454	438	892

It is assumed that the majority of education-related trips are linked with employment and residential trips and are already on the local road network or either allowed for within the employment and residential trips proposed for the site. Therefore, to avoid double-counting of trips, these trips have not been included in the total external vehicular trips, that have been distributed onto the local highway network. In addition a proportion of these trips will also be internal to the site.

6.2.2 Internal Trips

To account for internal trips, there has been a reduction applied to journey to work trips, both to and from the site. This has been calculated from the 2011 Census data for MSOA South Norfolk 007 (in which the proposed site resides). For journey to work trips residing on site, 3.9% of trips would be internal to the site, and for journey to work trips, residing off site, 4.8% of trips would be internal to the site. Therefore, a reduction of 3.9% has been applied to the residential trips, and a reduction of 4.8% has been applied to the B1 and B2 trips.

As previously mentioned, due to the nature of the proposed large settlement with colocation of employment and residential development on site, greater internalisation would be expected to occur. However for the purposes of this assessment it has been based on existing patterns of travel to and from work and employment destinations, allowing for a worst case assessment.

6.2.3 External Trips

The resulting vehicular trip generation external to the site is shown in Table 8 below.

Table 8. External Vehicular Trip Generation

Land Use	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
Residential	687	1,986	2,672	1,942	880	2,822	11,308	11,477	22,785
B1	348	42	390	52	256	308	1,238	1,257	2,495
B2	250	107	357	106	186	292	1,557	1,571	3,127
Total	1,285	2,134	3,419	2,100	1,322	3,423	14,103	14,304	28,407

6.2.4 Mode Shares

The vehicular trip rates that have been used were derived from 2019 surveys, in TRICS, at large sites that are situated closer to Norwich City (Queens Hills and Roundhouse Way), than the proposed development site, where there is currently better access to sustainable travel options. The car driver mode share for the sites included was 59%. From reviewing the 2011 census mode share for the area in which the site resides in (MSOA South Norfolk 007), the average car driver mode share, for employment and residential is 76%. This indicates that an allowance of approximately 17% has been taken for mode shift from car driver to other travel modes by using the chosen trip rates.

The 59% car driver mode share from TRICS has been used, whilst the trips for remaining modes have been calculated by applying the mode split for non car driver modes from the 2011 census data for the MSOA within which the site sits. The below multimodal trips, therefore has an element of mode shift to sustainable modes.

The resulting mode shares, applicable to the proposed development site, are set out in Table 9 below.

Table 9. Extrapolated Mode Share - Census 2011 Mode Share (South Norfolk 007) & TRICS

Mode	Resident Mode Share %	Work Mode Share %
Work mainly at or from home	0%	0%
Underground, metro, light rail or tram	0%	0%
Train	3%	1%
Bus, minibus or coach	10%	4%
Taxi	0%	1%
Motorcycle, scooter or moped	2%	3%
Driving a car or van (from Trics data)	59%	59%
Passenger in a car or van	7%	7%
Bicycle	7%	7%
On foot	12%	12%
Other method of travel to work	0%	0%
Total	100%	100%

This highlights that there is potential for reducing car driver mode share in and around Wymondham for existing and future trips, through the provision and promotion of sustainable travel modes, to encourage similar car driver mode shares to that achieved at developments situated closer to Norwich with greater access to sustainable travel options.

With the increasing levels of traffic congestion in Norwich and in Wymondham, along with the ongoing investment in sustainable transport infrastructure locally, including the subway under the railway line for pedestrians and cyclists and the Transforming Cities proposals, it is anticipated that this will encourage mode shift from car use to sustainable travel modes in Wymondham for existing and future trips. NCC's current Travel Plan targets for Wymondham are a 15% reduction in car driver (single occupancy) trips, and therefore this would be an aspiration for the proposed development to strive to achieve, given the sites sustainable connectivity to Wymondham and the surrounding area.

Given the existing and proposed future links to sustainable modes of transport, the use of the private car should not be the first mode of choice for residents of the development therefore limiting the impact of the development on nearby the local highway network.

6.2.4.1 Mixed Use Vehicular Trip generation

For the purpose of this assessment, the mixed use aspect of the proposed development such as retail and community facilities are assumed to be internal and ancillary uses. Therefore it has been assumed that no vehicular trips will occur on the local highway network and trips to these uses will predominantly be internal sustainable trips.

6.2.5 Multimodal Trip Generation

The multimodal trip generation has been calculated by extrapolating the external vehicular trip generation in Table 8, though using the mode share for other modes in Table 9 relevant to the appropriate land use. This enables the trip generation for the other modes to be derived.

The resulting multimodal trip generation external to the site is shown in Table 10 below.

Table 10. External Multimodal Trip Generation

Mode	AM			PM			Daily		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
Work mainly at or from home	0	0	0	0	0	0	0	0	0
Underground, metro, light rail or tram	2	3	5	3	2	5	21	22	43
Train	45	101	146	99	52	150	609	618	1,227
Bus, minibus or coach	150	331	481	325	171	496	2,011	2,041	4,052
Taxi	12	15	28	15	12	27	113	115	229
Motorcycle, scooter or moped	58	81	139	80	56	137	568	576	1,145
Driving a car or van	1,285	2,134	3,419	2,100	1,322	3,423	14,103	14,304	28,407
Passenger in a car or van	184	268	452	264	182	446	1,850	1,876	3,727
Bicycle	169	247	415	243	167	410	1,702	1,726	3,428
On foot	276	441	716	434	280	714	2,949	2,991	5,939
Other method of travel to work	7	12	19	12	7	19	78	79	157
Total	2,188	3,633	5,820	3,575	2,251	5,826	24,005	24,348	48,352

6.3 Vehicular Trip Distribution

The external vehicular trips, set out on Table 10 have been distributed and assigned onto the highway network as follows:

- Vehicular trips have been assigned on to the local transport network based upon a distribution derived from Census 2011 Journey to Work data. MSOA South Norfolk 007 was chosen as the location from which journey to work data would be analysed. This MSOA was chosen, as it was the MSOA in which the proposed site, and the majority of Wymondham are located within.
- Google Maps route planning tool was used to determine the fastest route to each MSOA in a typical weekday peak hour.
- All vehicular trips will enter and exit the development from one of two junctions – the proposed access on the A11 or the proposed access on Silfield Road and therefore been distributed and assigned to and from this point.

Whilst the methodology is deemed appropriate, there are some points worth noting, as set out below:

- Trips have been distributed based on the existing fastest route as illustrated on the Google Maps route planning tool. In reality people may take different routes and may not necessarily use the fastest.
- It has been assumed that trip distribution is based on the existing distribution in MSOA South Norfolk 007. However, the size, location, and use of the proposed development site may mean that the actual distribution is considerably different to the existing distribution.
- No further distribution adjustments have been made for future scenarios as a result of any potential changes in the performance of the local highway network due to increases in sustainable travel options and a change in travel behaviour, or additional proposed developments.

A review of the Census 2011 Journey to Work Origin Destination data suggests that, of the vehicular trips, some 53% would be required to travel northeast towards Norwich. This is also the desire line for which sustainable transport choices such as bus, rail, cycle and ride, car sharing, and cycling are strongest.

Further to this some 18% of all trips to work remain within the South Norfolk 007 MSOA and so car driver trips should be limited given the accessibility of the area by foot, cycle and bus.

The resulting distribution is shown in Table 11 and in Figure 13 and Figure 14 below.

Table 11. Journey to Work Distribution

Road Distributed Onto	Journey To Work %	
	Residing in the Proposed Site	Working at the Proposed Site
A11 Northeast	61%	55%
A11 Southwest	20%	22%
Silfield Road Northwest	7%	6%
Silfield Road Southeast	7%	11%
Internal Site Trips	4%	5%
Total	100%*	100%*

*Rounding errors are present

Figure 13. Journey to Work Distribution (Residing in the Proposed Development)

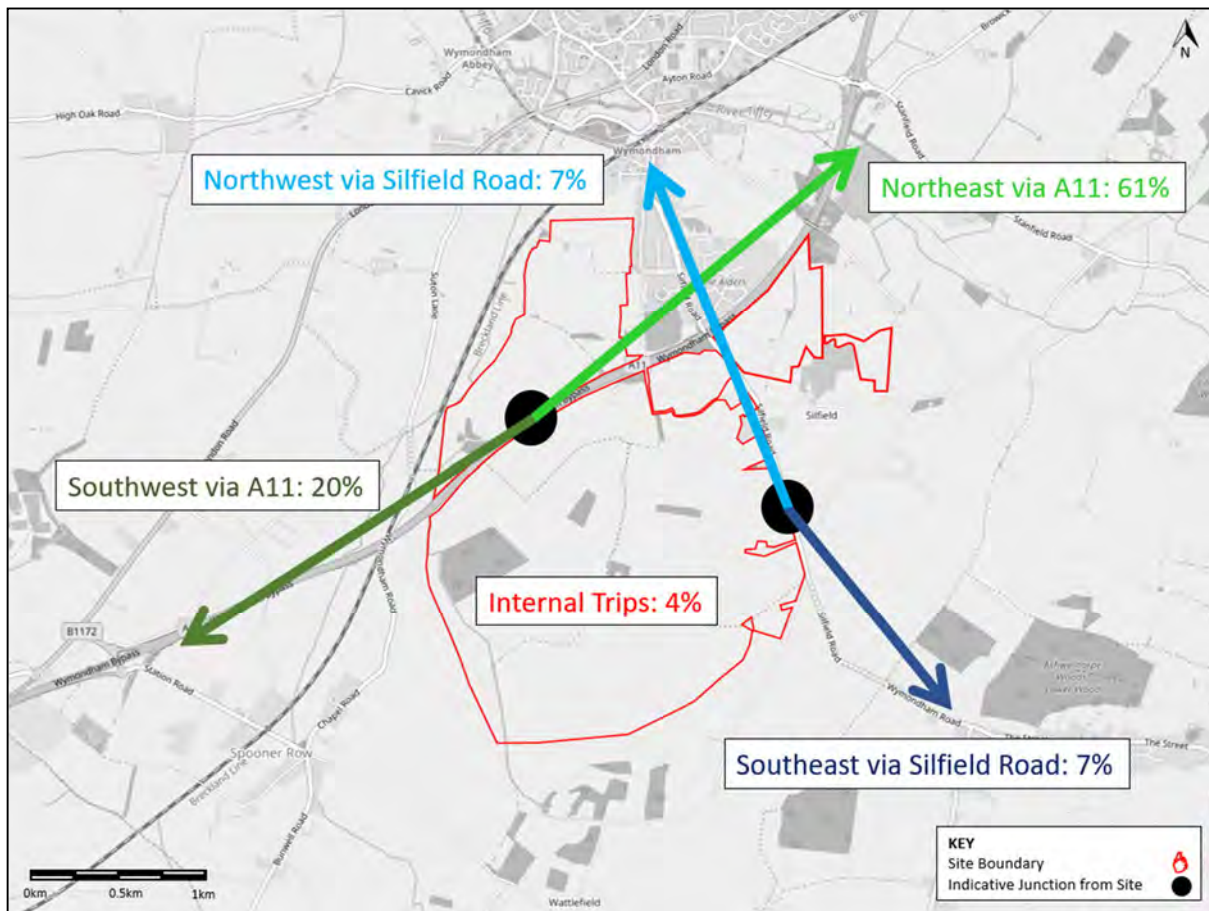
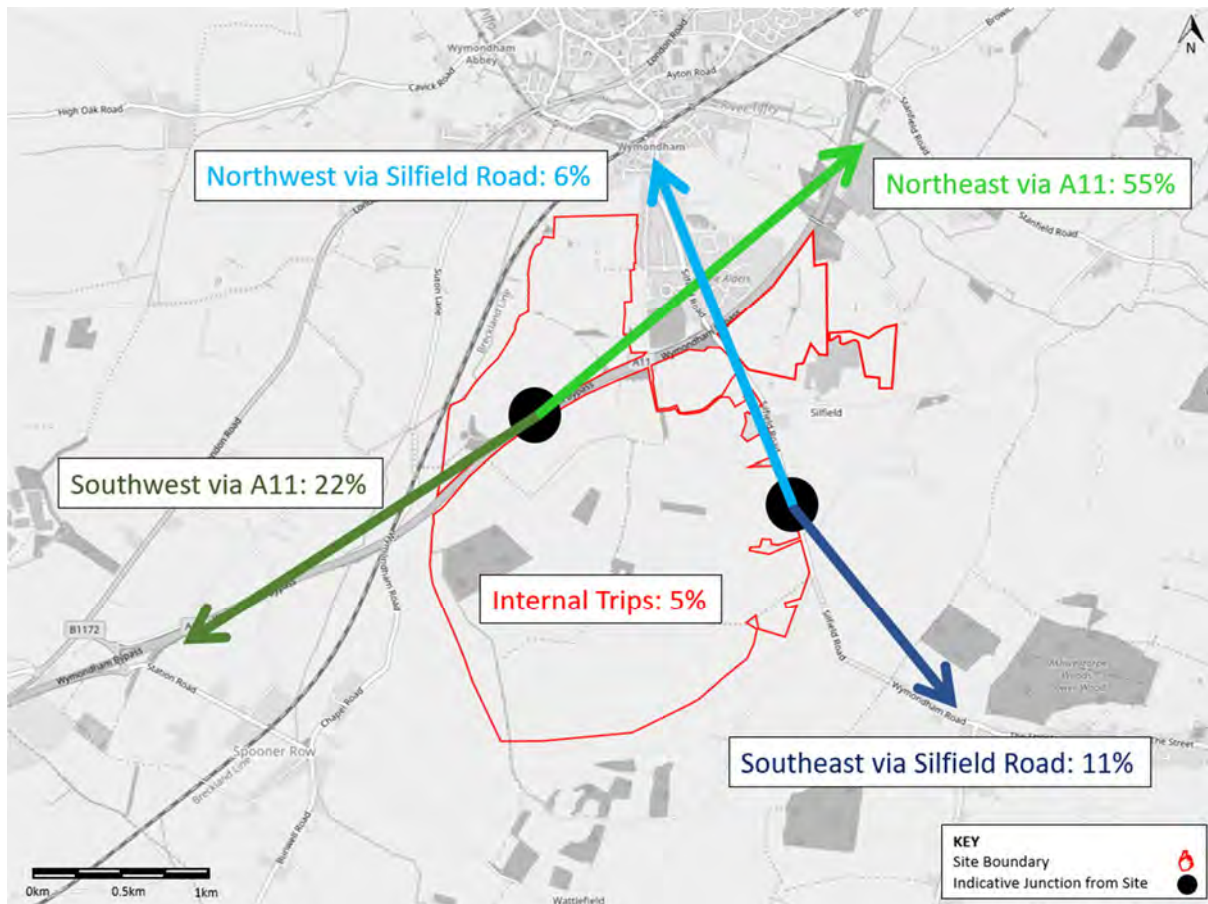


Figure 14. Journey to Work Distribution (Working at the Proposed Development)



The resulting number of vehicular trips along each route is outlined in Table 12 below.

Table 12. Journey to Work Distribution

Road Distributed Onto	AM Peak Trips Inbound	AM Peak Trips Outbound	PM Peak Trips Inbound	PM Peak Trips Outbound
A11 Northeast	784	1,352	1,329	817
A11 Southwest	284	449	442	287
Silfield Road Northwest	92	161	159	97
Silfield Road Southeast	125	172	170	121
Total	1,285	2,134	2,100	1,322

The majority of development vehicular trips are predicted to use the proposed new A11 interchange; 2,869 two-way trips in the AM peak hour and 2,876 two-way trips in the PM peak hour. This equates to approximately 84% of development trips using the new A11 interchange, with the remaining 16% using the local road network.

For traffic movements to Wymondham town centre, the most likely route for these development trips would be via Station Road, and not via the new A11 junction. The majority of the trips forecast to use the new A11 junction would be travelling north and south along the A11 rather than to access Wymondham.

Total proposed development vehicular trips been distributed onto the local highway network within Wymondham, as per the above approach, in the AM and PM peak hours. Traffic flow diagrams are included in Appendix F, for the AM and PM peak hours.

The assessment undertaken allows for a worst case assessment, based on the information and data currently available. It is therefore appreciated that there would be some scope for further refinement of the trip generation

/ distribution methodology, i.e. potential further allowance for mode shift in the future development trips, allowance for greater internalisation of trips (between residential, employment and education) which will reduce travel by car, and the proposed developments focus on sustainability and a walkable neighbourhood; further information on the reasons for further potential refinement, is set out below;

- Increase in sustainable travel in Wymondham due to provision in the sustainable travel network (resulting in a reduction in background traffic on the local highway network), for example improvements to the railway station, potential for the site to connect into the BRT route to Norwich to name a few.
- Promotion of sustainable travel and managing car movements, through a package of transport measures aiming to achieve a lower car driver mode share, through the design of the development and opportunities to connect and enhance the sustainable travel network in Wymondham. Also through implementation of a Travel Plan on site, to focus investment on reducing car driver mode share, and monitoring car driver levels.
- Greater internalisation of trips within the development, through creating a local neighbourhood, with co located employment, education and residential, which is part of the garden village design.

Sustainable
Transport Strategy

07

7. Sustainable Transport Strategy

7.1 Introduction

This section of the report provides a review of the proposed development, the sustainable transport movement strategy and sets out the potential public transport strategy. It also provides details of the new A11 junction indicative junction design and local highway operation.

7.2 Overview of Masterplan

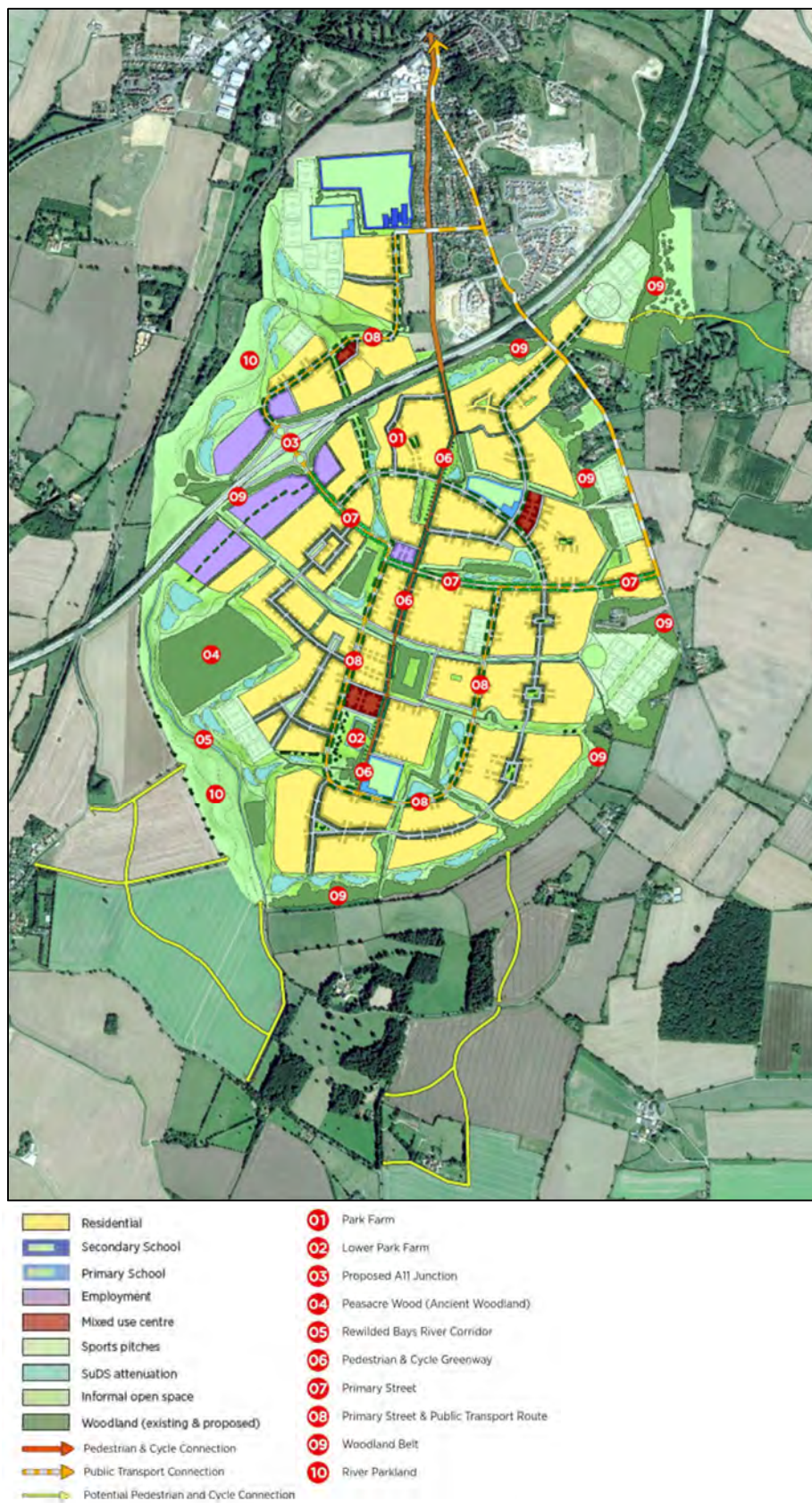
The masterplan for the proposed development is shown in Figure 15 overleaf and in Appendix B.

A summary of the proposed development is set out below:

- A grade separated junction on the A11 provides a direct vehicular access from the SRN, connecting into both the northern and southern part of the development. A primary vehicular route will be provided through the site, from the A11 junction onto the local road network (Silfield Road). This ensures good access onto the strategic road network from the site and for developments in the surrounding area, located south of the railway bridge.
- Two vehicular accesses to the local road network, both connecting to Silfield Road to the east. The southern access is the main access onto Silfield Road. The design of the site accesses would be defined following preparation of a Transport Assessment at planning submission stage, once capacity requirements are fully quantified.
- A dedicated public transport access onto Park Lane from the northern part of the development., which prioritises bus travel. This would also serve as an emergency access only.
- A secondary school on the northern edge of the site and three primary schools distributed throughout the site.
- Employment areas concentrated around the A11 grade separated junction. This includes a net zero carbon tech hub for small scale employment uses which would be focussed on land adjacent to the new junction on the A11 creating a gateway feature.
- Mixed use – circa 4 ha for retail / community / employment – to be accommodated in a number of local centres.
- Throughout the site, woodland, openspace and sports pitches are proposed, creating and encouraging an active community.

This proposed garden village offers a sustainable development whereby a whole new sustainable community can be created along with local services, infrastructure and employment, reducing the need to travel through self-containment. The proposed development has been designed to build in sustainable movements from the outset and include specific measures to actively prioritise and promote active and sustainable travel over car travel. The proposed development has been designed to connect to the current and future sustainable travel networks in Wymondham, and beyond to Norwich, promoting and encouraging sustainable travel both within the development and to the wider area. A key underlying principle in the emerging design is achieving a carbon neutral development, in which sustainable travel movements and a walkable neighbourhood is a key element of this.

Figure 15. Illustrative Framework Masterplan



Source: David Lock Associates. Illustrative Masterplan (Core Site). Drawing Number – SIL001-025

7.3 Sustainable Movement Strategy

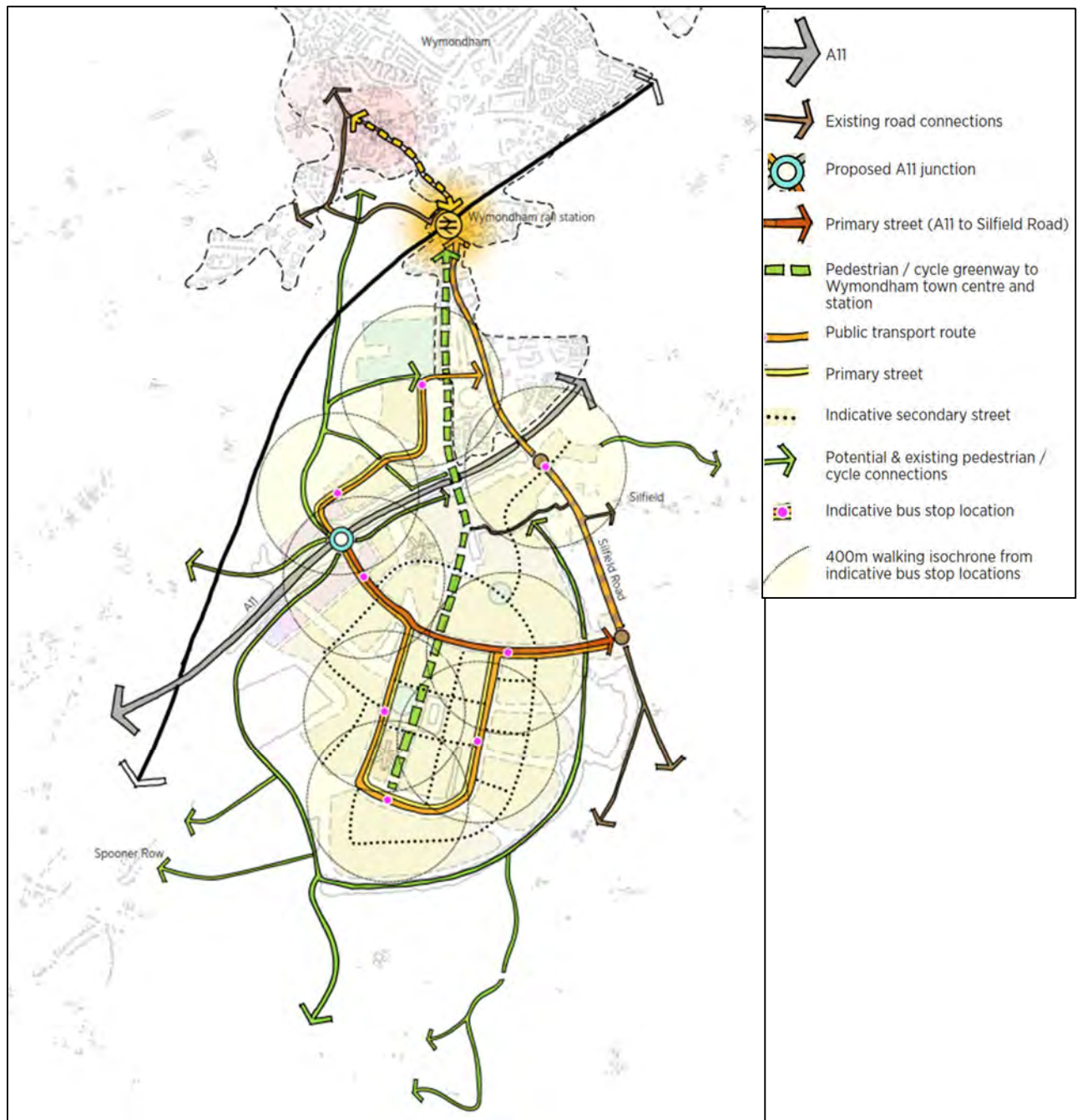
7.3.1 Pedestrian and Cycle Strategy

In addition to the masterplan, an illustrative sustainable movement strategy has been prepared. Creating active and sustainable travel is a key element of the development proposals, in order to create a development which is not reliant of the car to travel within the site and also to the wider area. The strategy is shown in Figure 16 overleaf and in Appendix G and includes the pedestrian and cycle element of the strategy, which is set out below. The public transport element is set out in further detail later in this section. The pedestrian and cycle strategy for the site is as follows:

- A north-south 'Green way' through the centre of the development for pedestrians and cyclists, along the alignment of Park Lane and using the existing bridge over the A11. This provides a key route for connectivity within the site and northwards to Wymondham. It will enable direct connection into the facilities on Silfield Road, and also future connections to the proposed subway, under the railway line, connecting into the wider Wymondham network. The location of this 'green way' has been designed to create a central spine through the site, on a key desire line, whereby minor footways can connect with relative ease. This will encourage sustainable travel, rather than car use both within the site and to the wider local area.
- A dedicated pedestrian and cycle route is proposed along the public transport corridor, providing additional connectivity within the site and to the wider pedestrian and cycle network.
- An integrated pedestrian and cycle path network throughout the site, providing walking and cycling permeability and connectivity within the site, to promote internalisation as well as sustainable travel internally.
- A potential pedestrian and cycle link to Spooner Row station from the south of the site, to provide an additional option to access the rail network to reduce the reliance on the private car.
- The proposed site has two pedestrian and cycle connections over the A11, providing connectivity between the two parcels of land that are bisected by the A11. One new crossing is proposed as part of the development, with a pedestrian and cycle facility proposed as part of the new A11 grade separated interchange. The existing Park Lane bridge, whereby improvements to this would likely be required to improve the pedestrian and cycle facilities to create a 'Green way' and make this route as an attractive alternative compared to travel by car.
- Existing Public Rights of Way and NCC maintained roads, including the route to the town centre via level crossing and Stayground Way, will be retained or diverted where possible.
- A number of pedestrian and cycle connections to connect into the surrounding area, some that are existing and other that are newly proposed.

The development would be required to implement a Travel Plan for all aspects of the proposed development, to encourage sustainable travel within the site, and to the surrounding area. The above strategy will assist in promoting sustainable travel for site users.

Figure 16. Illustrative Sustainable Transport Movement Strategy



Source: David Lock Associates. Connectivity Framework. Drawing Number – SIL001-023

7.3.2 Public Transport Strategy

In addition, a proposed Public Transport Plan is provided overleaf in Figure 17 included in Appendix H, which shows the various potential bus routes and potential public transport options that could be implemented at the proposed development site, to encourage and promote bus based travel.

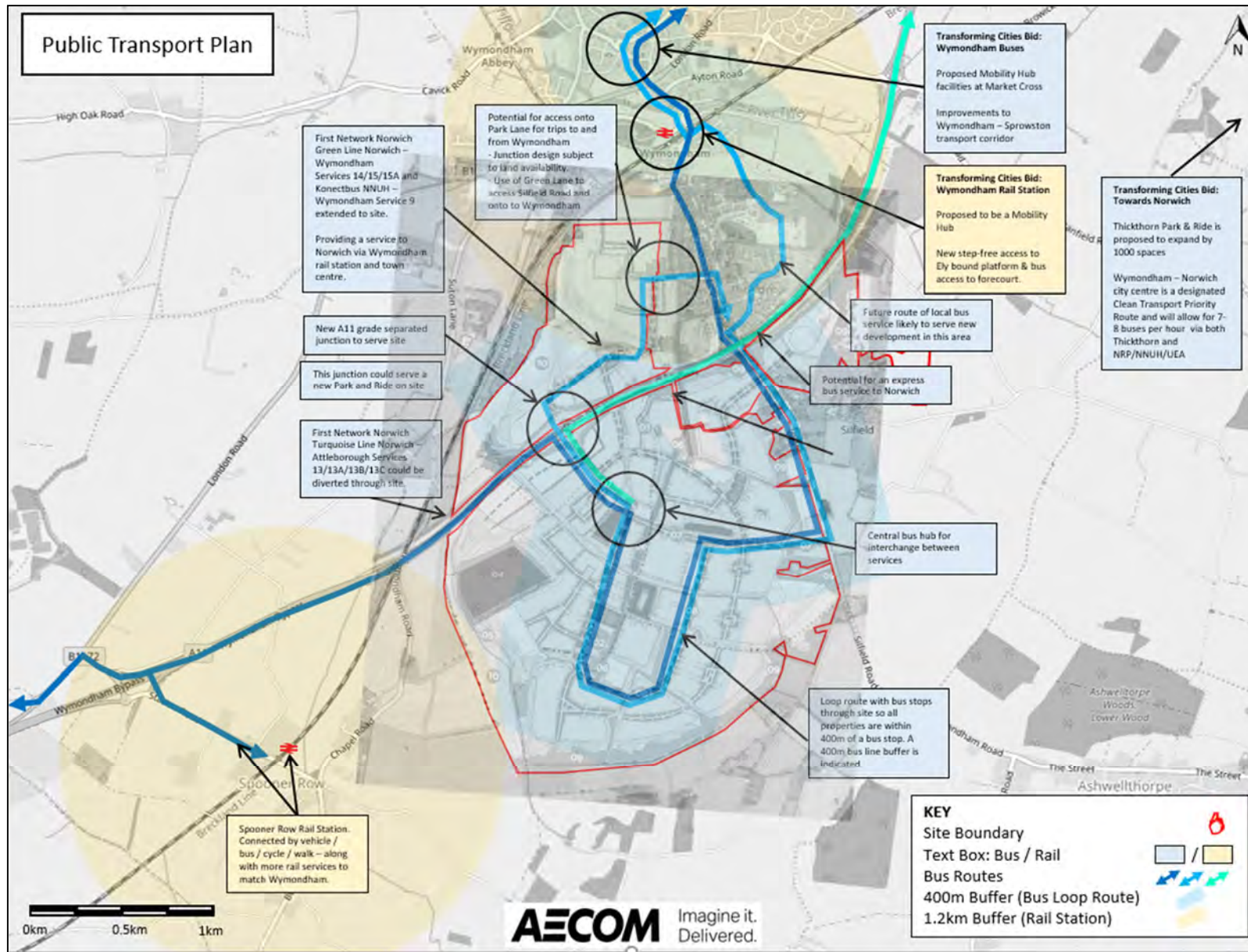
The public transport strategy for the site is as followings:

- A public transport corridor is proposed, with a route through the site from the access on Park Lane to the main access on Silfield Road, providing a substantial amount of the development area with access to one of the proposed bus stops along this route. The majority of the development would be within a 400 metre walking distance of a bus stop, which is deemed an acceptable walking distance. This is shown in light blue on the below figure This illustrates that this would be an attractive mode of travel for residents living and working at the proposed development.

- A bus route to Wymondham using the existing Silfield Road, which would connect with the public transport corridor within the site. This would provide a connection to the proposed mobility hub at the railway station and also Wymondham town centre, providing a continuation of bus services, and also improving the viability of extending existing and future buses in Wymondham, into the site, where there would be a significant critical mass for bus operators.
- There is also potential that the Clean Transport Priority corridor, could be extended into the site, which would create a highly frequent bus service into Norwich (approximately 7-8 buses per hour) that serves the development. This corridor could also serve Wymondham railway station, providing a highly frequent service to the railway station a therefore a frequent and quick connection via sustainable travel, offering an attractive alternative to walking and cycling and also car usage.
- There are a number of opportunities, whereby existing services could divert into the site, if deemed viable. In addition, as the development is build out, there may be the demand for a new direct express services to Norwich, which purely service the site, through the use of the new proposed junction on the A11.
- The First Network Norwich Turquoise Line Norwich – Attleborough Services 13/13A/13B/13C currently uses London Road to and from Wymondham, therefore there could be an opportunity that some of these bus services could divert use the new A11 junction to serve the proposed development, with a direct service from the site to Norwich, via the A11.
- As part of the consented development, to the south of the railway bridge, there are proposals that buses will serve these new developments, as set out in their Transport Assessments. There is an opportunity that bus services such as the such as the First Network Norwich Green Line Norwich – Wymondham Services 14/15/15A or the Konectbus NNUH – Wymondham Service 9, could be extended into the proposed development, offering an additional bus service for the site users.

The public transport strategy is a fundamental aspect of this sustainable development and has been designed with sustainable travel as a key principle.

Figure 17. Proposed Public Transport Plan



7.4 Proposed A11 Interchange

7.4.1 Overview of Indicative Junction

A new grade separated junction off the A11 has been proposed as part of the development proposals, which will enable both bus movements and car movements into the development with the A11 and also provide a vehicular connection onto Silfield Road (on the local road network). The A11 junction could help facilitate improvements on the local highway network, especially in Wymondham where existing junctions are operating close to capacity and could be alleviated by this new junction as traffic reassigns to use this junction if deemed an attractive alternative junction.

This proposed junction has been discussed with the Norfolk County Council Highway Authority, and Highways England. Highways England have stated that they welcome that consideration of the need for a new junction is being considered at the plan making stage. As part of plan making, Highways England have advised that a strategic growth case needs to be made for any new junction on the strategic road network, and also that the movements created as a result of the development proposal cannot be catered for by other means either sustainably through modal shift or through connections to the local road network and to existing junctions on the A11. This case will be advanced as part of the continued promotion of land at Silfield through the GNLP as the most appropriate growth strategy to meet the economic and sustainable growth objectives of the GNLP.

7.4.2 Junction Design

In terms of junction design, Highways England are of the view that any new junction will need to meet design standards as set out in the Design Manual for Roads and Bridges, and that in this case there are minimum and desirable spacing requirements between junctions. Highways England also state that it would appear from the information provided that there is sufficient space to meet these standards, and that therefore in principle, Highways England consider an acceptable design could be developed. This is clearly subject to further development including the consideration of available land, safety, environmental and detailed design considerations.

In terms of the junction design, previous work has been undertaken by Peter Brett Associates (PBA) (now part of Stantec), for a junction in this location, through earlier promotion of the land. A junction type, location and indicative design was recently put forward by PBA. The design was based on achieving standards set out in the Design Manual for Roads and Bridges (DMRB)²⁴. A design review has been undertaken to ensure it is deliverable, meets the needs of the current masterplan and meets the latest design standards.

From reviewing the original design, AECOM consider that the indicative grade separated junction does seem to be acceptable in terms of location, in that it is a sufficient distance away from other junctions on the A11 to incorporate weaving lengths. However the DMRB standards have been revised since the original work was undertaken, as indicated below, with the old reference included in brackets:

- CD 109 Highway Link Design (TD 9/93)
- CD 116 Geometric Design of Roundabouts (TD 16/07)

Other DMRB standards that are applicable are below:

- CD 122 Geometric Design of Grade Separated Junctions (TD 40/94)
- CD 169 The Design of Lay-Bys, Maintenance Hardstandings, Rest Areas, Service Areas and Observation Platforms (TD 69/07)
- CD 127 Cross-sections and Headrooms (TD 27/05)

²⁴ DMRB Standards – CD 109, CD 116, CD 122, CD 169, CD 127, (<http://www.standardsforhighways.co.uk/ha/standards/dmrb/>)

An updated indicative drawing has been prepared, and is attached in Appendix I, which illustrates an indicative design, using the PBA design as the basis. It is important to note that the following will need to be considered, updated and reviewed in detail at later stages of the design process.

- AECOM acknowledge that the original design is substandard in terms deflection angles and that the design may require a review of the relocation of the existing parking / emergency lay-bys.
- At this stage verges, earthworks or lane markings are not included. The design now includes a shared pedestrian and cycle route, to allow north - south connectivity across the A11.
- AECOM acknowledge that the original design for the merge diverge allowed for a 'Type A Option1' with 3.7m wide single lane slip roads and 3.3m hard shoulders, with simple merge/diverge tapers with the mainline A11 carriageway. It is however anticipated that a parallel merge on the northbound on-slip may be required, based on the below merge diverge analysis.

7.4.3 Merge Diverge Analysis

A merge diverge analysis has been undertaken as part of this report, to understand the likely requirements of the new A11 junction design. This analysis is included in Appendix J. If this proposed development site was allocated in the GNLP, around 3,700 dwellings could be delivered within the plan period to 2038 (which is the end of the Local Plan). 2038 future year testing of the development traffic has therefore been undertaken to understand if this level of development could be accommodated based on the proposed A11 junction design, in a future year of 2038.

This 2038 future year has been derived assuming that background traffic levels on the A11, would increase in line with the traffic growth allowed for in TEMPro²⁵. However there is some level of uncertainty over the future increase in background traffic levels on the A11 as sustainable travel is further promoted in the future than that forecast, especially beyond 2038. It is acknowledged that Highways England and the Highway Authority need to be assured that the highway improvements proposed will provide appropriate and adequate mitigation for the increase in traffic growth expected. The assessment undertaken therefore allows for a 'worst case' scenario in terms of modelled increases in vehicular movements, based on current information and data.

Further refinement would be required in deriving the 2038 future year traffic levels, through using current traffic data. In this assessment 2011 traffic data has been used from WebTris²⁶, on the northbound mainline flow on the A11, and 2019 traffic data on the southbound mainline flow, which is the latest available traffic data for this section of the A11.

As discussed in the trip generation section of this report, there is further refinement that can be achieved in relation to the vehicular trip generation, therefore this assessment assumes a worst case scenario in development vehicular trips. High level testing has therefore been undertaken, based on current available traffic data on the A11, and indicates that at least 3,700 dwelling, along with all employment and education elements of the development, could be accommodated on site based on the proposed A11 junction design in 2038.

The proposed junction design would likely require a parallel merge on the northbound on slip in 2038, based on current predictions, and proposed development likely to be delivered in the local plan period. However this would be subject to a Monitor and Manage approach, as discussed in the below paragraphs.

For the period post 2038, given the uncertainty about accurate modelling into this future period and beyond, a monitor and manage approach is proposed whereby the scope and design of any further mitigation measures in and around the A11 junction (or indeed, other agreed location) would be agreed based on the pattern of traffic and travel movements in place at the time. Funding arrangements for any such measures will be built into the garden village viability model and S106 agreement with any planning approval should the site be consented.

The Monitor and Manage approach provides flexibility for the investment in transport mitigation for strategic scale development to be directed to the most appropriate measures over the long build-out period associated with developments of this scale and duration. This approach allows for:

²⁵ TEMPro Version 7 - A modelling tool designed to allow users to look at the growth in trip ends, using actual and forecast data supplied by the Department for Transport.

²⁶ Highways England WebTris (<http://webtris.highwaysengland.co.uk/>)

- Changing transport policies, technological improvements and behavioural change which will affect the way in which people and goods choose to move around.
- A dual approach to be adopted which includes agreeing shorter term works and triggers for the first stages of development (such as specific highway improvements or mitigation measures to unlock development, manage traffic movements or enhance public transport services). The second part of the Monitor and Manage model involves agreeing a financial 'Transport Cap' - based upon detailed costings of the anticipated longer term mitigation measures identified through the assessment – but secured within the S106 agreement as a fund for the delivery of future transport measures as the development progresses.
- Periodic reviews of transport monitoring to take place at specified intervals throughout the build out period, which ensures that an up to date assessment of movements and transport capacity can be provided. The Transport Cap is then drawn down and directed towards whatever transport measures are agreed through these reviews as being required - these may differ in scope or design from those originally costed but can be agreed to offer a better mitigation solution given the latest position. This provides the necessary long-term flexibility for the delivery of mitigation measures deemed most appropriate, in the right place, at the right time whilst also ensuring that the transport effects of the development remain properly mitigated.
- The successful implementation of Monitor and Manage is dependent upon the necessary safeguards and oversight being established through the permission via conditions and s106 commitments. Notably, it is anticipated that a group will be formed to control and govern the investment of the Transport Cap. The group would be formed by the key stakeholders, Councils, Highways England and the developer.
- A full consideration of the likely transport impacts of the development at completion which is submitted as a Transport Assessment. This work allows for the identification of the measures necessary to mitigate the identified effects.

7.5 Local Highway Network

The new interchange on the A11 could provide benefits to the local highway network in Wymondham, as it is anticipated that a proportion of people residing to the south of the railway bridge, would use this new interchange to access the A11. For the purposes of this high level assessment, it has been assumed that a proportion of the two nearby consented developments, as set out in section 1, to the south of Wymondham (would likely use the proposed junction on the A11. This means that some traffic from these sites will not be required to travel through Wymondham removing these trips from the local network.

To quantify the potential benefits that the new A11 junction could have on the local network, the trip generation from these consented developments has been identified from within the Transport Assessment Addendum. These consented trips have then been distributed onto the new A11 junction using the Journey to Work assessment which identified that, for those living in MSOA South Norfolk 007, 73% of work related trips use the A11, with 53% travelling north and 20% to the south. The resulting Endurance and Pelham Development traffic to use the proposed A11 junction is set out in Table 13 below.

Table 13. Potential Traffic Redistributed to New A11 Junction (Pelham and Endurance Developments)

Mode	A11 Northeast-bound			A11 Southwest-bound			Total Junction		
	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way	Arr.	Dep.	Two-Way
AM Peak	50	120	170	38	92	130	88	212	300
PM Peak	97	55	152	74	42	116	171	97	268

With the implementation of a new A11 interchange, the trips identified in the above table, will no longer be travelling through Wymondham to access the A11 at other junctions, therefore resulting in a reduction of these consented vehicular trips in Wymondham. This could result in a reduction of up to 300 two-way vehicular trips in the AM peak and 268 vehicles in the PM peak at some junctions.

Table 14 below summarises the potential impact in traffic, due to reassignment of the consented development trips to the new A11 junction, as well as the predicted development trips at a number of junctions in Wymondham, from understanding the proposed junction operation in the future, as set out in Section 4. This does not take into account other areas in Wymondham redistributing to use the new junction.

It is important to note that this is a high level review, based on the available existing information and should be treated as indicative at this stage. The below assessment does not take into account future background traffic growth at these junctions, and therefore below provides a summary of potential improvements that may be required on the local highway network, assuming the development is brought forward now. A Transport Assessment would be required to assess the impacts of the proposed development in full as part of the planning application process.

Table 14. Highway Network Summary

Junction	Total Proposed Development Vehicular Trips		Predicted Reduction in Vehicular Trips (associated with Consented Developments*)		Net Change in Vehicular Trips		Mitigation / Improvement Scheme Proposed	Junction Likely to be a Constraint (currently & in 2021/2023)?	Justification
	AM	PM	AM	PM	AM	PM			
B1172 London Road / Harts Farm Road / Station Road / Avenue Road - signalised junction	193	193	-215	-192	-22	1	Yes	No	The mitigation scheme it is predicted to operate at a maximum of 88% DoS in the AM peak hour in 2021, on Avenue Road, Station Road, London Road left ahead. Overall in the AM the development (new A11 junction) could result in a reduction in vehicular trips in the AM at this location.
Station Road / Ayton Road Junction - Priority T Junction	226	229	-300	-268	-74	-39	No	No	The existing junction is predicted to operate in 2021 at a maximum of 0.80 RFC in the AM peak hour on Station Road. Overall, the development (new A11 junction) could result in a reduction in vehicular trips in the AM and PM peak hours at this location.
Ayton / Browick Road Roundabout - Priority Roundabout	-	-	-	-	-	-	No	No	As there is predicted to be significant spare capacity at this junction in both peak hours in 2021, (max RFC is 0.2). It is anticipated that the junction can accommodate the associated development trips without any capacity issues.
Silfield Road / Station Road / Rightup Lane roundabout	228	230	-300	-268	-72	-38	Yes	No	The mitigation scheme is predicted to operate at a maximum of 88% DoS in the AM peak hour in 2021, on Station Road. Overall in the AM the development (new A11 junction) could result in a reduction in vehicular trips in the AM and PM peak hour at this location.
A11 / Stanfield Road / Browick Road Dumbell Roundabout	36	38	-85	-75	-49	-37	No	No	The existing junction is predicted to operate in 2021 at a maximum of 0.40 RFC in the PM peak hour on Stanfield Road. Overall, the development (new A11 junction) could result in a reduction in vehicular trips in the AM and PM peak hours at this location.
B1135 / B1172 Harts Farm Road / Falconers Close four-arm roundabout	249	259	-85	-76	164	183	No	Yes	This junction may be impacted upon from Waitrose and the below Tutttles Lane roundabout operation, therefore capacity at this junction is not likely to be an issue. However with the addition of proposed development trips, this could be a highway constraint.

B1135 Tuttle Lane East / Norwich Road / B1172 Norwich Common / B1135 four-arm roundabout	131	124	-0	-0	131	124	No	Yes	This junction is known to be currently operating with spare capacity. The development would add trips to this roundabout. With future development proposed to the North of Wymondham, it is likely that this junction would operate over capacity with the development trips. The development may need to mitigate the development impacts at this junction.
A11 / A47 Thickthorn Interchange	1851	1857	-0	-0	1851	1857	Yes	No	Even though the development would add to the level of traffic at Thickthorn Interchange, the proposed improvement scheme has been designed to cater for a 30% increase in traffic up to 2036.
Spinks Lane / B1135 / A11	248	252	-85	-76	163	176	No	No	This junction is forecast in the future to operate with spare capacity in 2023. The development would add trips to this roundabout. Further analysis would be required at this junction.

Although some of the junctions are predicted to operate with spare capacity at present and in 2021/2023, it is likely that by the time the development is built and operational, background traffic levels would have changed due to an increase in sustainable travel and an increase in new developments. Therefore, as a worst case assessment, it is assumed that the following junctions may be required to be improved by the proposed development, however this would depend on future travel patterns in Wymondham, which is uncertain at this time due to promotion and implementation of sustainable travel.

- B1172 London Road / Harts Farm Road / Station Road / Avenue Road - signalised junction
- Station Road / Ayton Road Junction - Priority T Junction
- Silfield Road / Station Road / Rightup Lane roundabout
- B1135 / B1172 Harts Farm Road / Falconers Close four-arm roundabout
- B1135 Tuttle Lane East / Norwich Road / B1172 Norwich Common / B1135 four-arm roundabout
- A11 / B1135 Interchange

As with the A11 junction, it is envisaged that a Manage and Monitor approach will be undertaken, as the future operation of these local junctions would be dependent on the success of proposed changes in the local sustainable travel network in Wymondham, therefore it is hard to quantify at this stage what the specific benefits this would bring to the local highway network. Therefore it is proposed that periodic reviews of transport monitoring will be undertaken at specified intervals throughout the build out period, which ensure that an up to date assessment of traffic movements on the local highway network and transport capacity is quantified. The Transport Cap will then be directed towards specific transport measures that are agreed through these reviews as being required, providing long term flexibility for the delivery of the most appropriate mitigation measures and to ensure the development is mitigated as necessary.

Summary and Conclusions

08

8. Summary and Conclusions

Orbit Homes are leading the promotion of a major new residential led, mixed use, strategic garden village development on land at Silfield in Norfolk, with a view for it to be included in the Greater Norwich Local Plan (GNLP). Orbit Homes are working with others including Bowbridge Strategic Land to promote the site.

The site covers some 451 hectares of agricultural land and is located to the south of Wymondham and 15 kilometres south-west of Norwich. The site is situated to the north and south of the A11. The site is located such that it is a natural southern extension to the existing and planned residential areas of Wymondham.

This land has potential to provide up to 6,500 new dwellings, a secondary school, three primary schools, 15ha of employment land and three local centres. Access to the site is proposed from a new grade separated junction on the A11 and secondary access points from Silfield Road. This proposed garden village offers a new sustainable community to be created along with local services, infrastructure and employment. The proposed development has been designed to build in sustainable movements from the outset and includes specific measures to actively prioritise active and sustainable travel over car travel. The site is well positioned to provide large scale delivery of homes with high quality transport links to key employment locations such as Norwich, Cambridge, and London.

The site has opportunities to connect into the already established sustainable transport network of bus routes, rail services and the active travel network in Wymondham, with the edge of the site located 1km from Wymondham town centre which includes a bus interchange and a mainline railway station. The established bus interchange at Market Cross is proposed to be upgraded to a mobility hub as part of planned proposals for bus corridor improvements between Wymondham and Sprowston and a Clean Transport Priority Corridor between Wymondham and Norwich City Centre. The railway station is 800 metres walking and cycling distance from the site and offers hourly access to mainline services throughout the UK. Proposals to upgrade Wymondham station to provide direct interchange with bus services and enhanced accessibility within the station have been identified by Norfolk County Council. The proposed Garden Village has the opportunity to provide connections focussing on integrating with the established sustainable transport network and would ultimately support the continued enhancement and upgrade to these existing facilities. Given the links to sustainable modes of transport, the use of the private car should not be the first mode of choice for residents of the development therefore limiting the impact of the development the local highway network. Sustainable travel will be promoted through the design of the proposed development site and also through the implementation of a Travel Plan.

The proposed development site is essential for the delivery of strategic planned growth in Norfolk. The delivery of the proposed development site would deliver a new A11 junction and in turn the delivery of the new infrastructure is essential to facilitate this development.

The impact of the development on the highway network suggests that there would be a total of 3,419 two-way vehicular trips and 3,423 two-way vehicular trips in the AM and PM peak hours respectively. When distributed onto the network, the majority of vehicular trips will be using the A11 northeast (61% and 55%), and the A11 southwest (20% and 22%). This does not account for the potential for mode share shift to sustainable travel modes.

The site straddles the A11 and a new A11 Junction is proposed. This will provide direct vehicular access to the strategic road network, connecting with Norwich to the north and Cambridge to the south. The new Junction will also relieve pressure on the Town Centre and existing transport links in southern Wymondham, allowing the promotion of sustainable transport modes on the more urban routes into the Town Centre.

A review has been undertaken on the indicative A11 junction previously prepared by Peter Brett Associates (PBA) (now part of Stantec), which identifies that a new grade separated junction would be acceptable in terms of proposed location based on design requirement. Highway England state that it would appear from the information provided that there is sufficient space to meet these standards, and that therefore in principle, Highways England consider an acceptable design could be developed. A high level merge diverge analysis has been undertaken, based on current available traffic data on the A11, and this indicates that the quantum of development deliverable within the Plan Period (up to 2038) at SGV of at least 3,700 dwelling, along with all employment and education elements of the development, could be accommodated on site based on the proposed A11 junction design.

The new junction on the A11 has the potential to provide benefits to the local highway network in Wymondham, as it is anticipated that a proportion of people residing to the south of the railway bridge, would use this new

junction to access the A11, and therefore would not need to use the local highway network in Wymondham to access the A11. Whilst sustainable transport would be promoted for local trips from Silfield Garden Village, the development would be expected to attract residual car trips through the following junctions in Wymondham.

In addition to delivering excellent sustainable transport improvements, SGV would, subject to further modelling, provide a range of local highway improvements, which may include:

- B1172 London Road / Harts Farm Road / Station Road / Avenue Road - signalised junction
- Station Road / Ayton Road Junction - Priority T Junction
- Silfield Road / Station Road / Rightup Lane roundabout
- B1135 / B1172 Harts Farm Road / Falconers Close four-arm roundabout
- B1135 Tuttlles Lane East / Norwich Road / B1172 Norwich Common / B1135 four-arm roundabout
- Spinks Lane / B1135 / A11

The junctions listed above would need to be examined as part of further studies so that any net impacts can be addressed, although overall, a net reduction in trips would be expected in most cases, through the provision of a new A11 Junction.

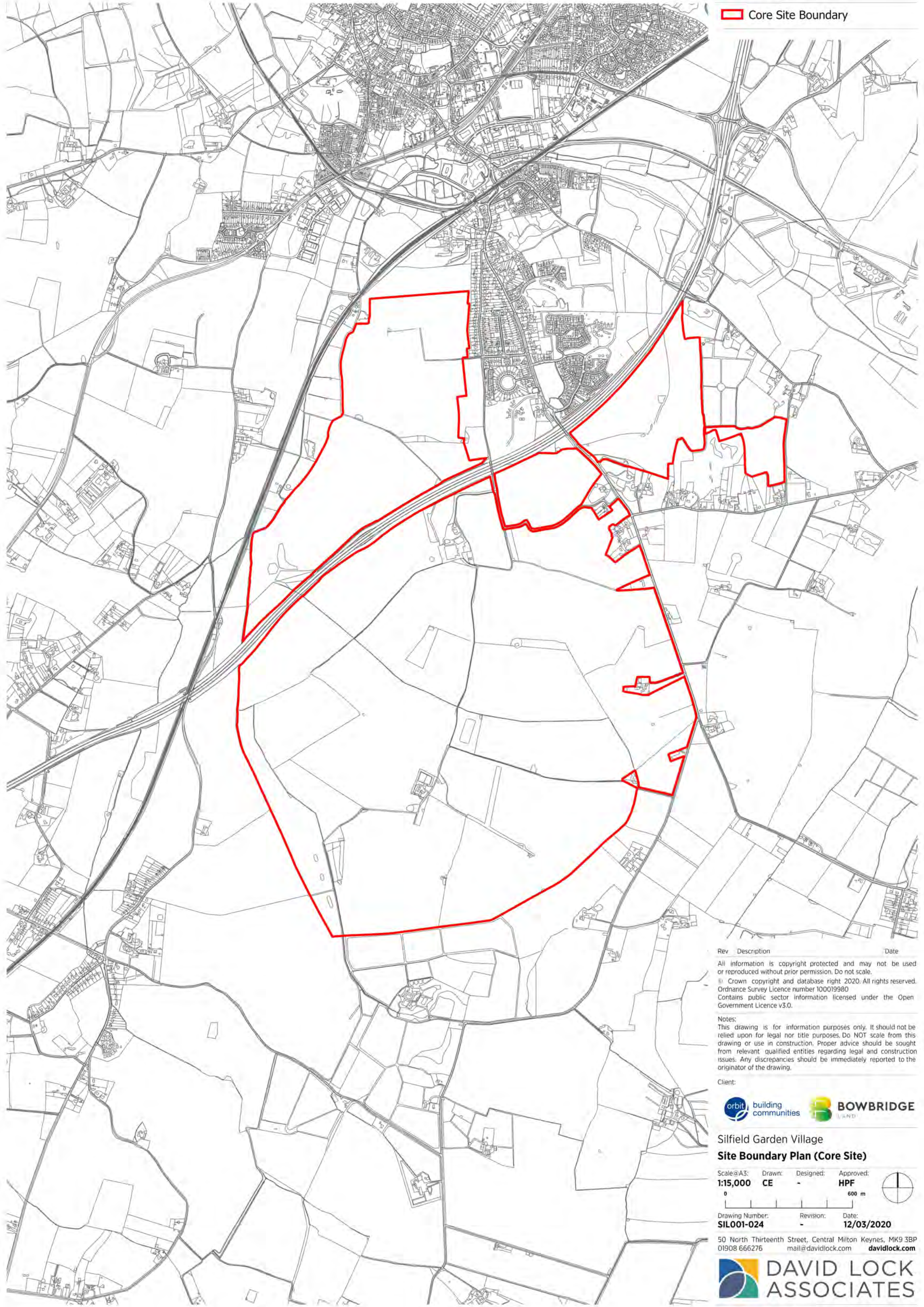
Given the uncertainty over future traffic levels and travel patterns, and to avoid a 'predict and provide approach', a more sustainable 'monitor and manage' approach is proposed whereby the scope and design of any mitigation measures in and around the A11 junction, and any mitigation required at any other local junctions, would be agreed based on the pattern of traffic and travel movements in place at the time. Funding arrangements for any such measures will be built into the Silfield Garden Village viability model and S106 agreement with any planning approval should the site be consented. What is certain is that the proposed development can deliver an access strategy which allows for a substantial sustainable garden village development at Silfield.

A Transport Assessment would be required to assess the full impacts of the proposed development as part of the planning application process.

As such it is considered that the proposed development site is deliverable and a suitable 'reasonable alternative site' for a new settlement in the GNLP. It has the potential to be an accessible site by all modes and offers a sustainable site that connects to nearby facilities and amenities and to key employment centres in Wymondham and beyond.

Appendix A – Site Boundary Plan (Core Site)

Core Site Boundary



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Client:



Silfield Garden Village
Site Boundary Plan (Core Site)

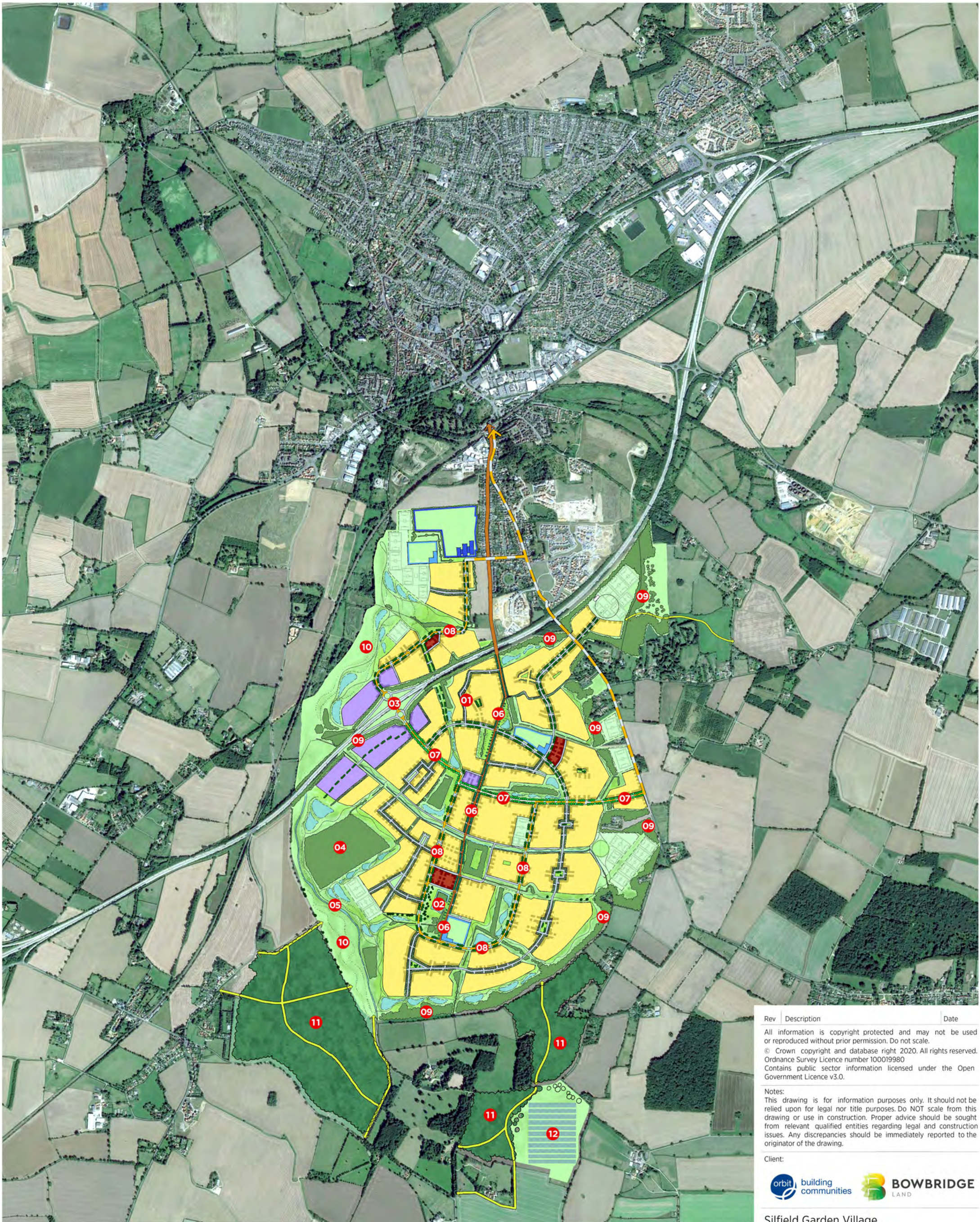
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1:15,000 CE - HPF
0 600 m

Drawing Number: Revision: Date:
SIL001-024 - 12/03/2020

50 North Thirteenth Street, Central Milton Keynes, MK9 3BP
01908 666276 mail@davidlock.com davidlock.com



Appendix B – Illustrative Framework Masterplan



- Residential
- Secondary School
- Primary School
- Employment
- Mixed use centre
- Sports pitches
- SuDS attenuation
- Informal open space
- Woodland (existing & proposed)
- Pedestrian & Cycle Connection
- Public Transport Connection
- Potential Pedestrian and Cycle Connection
- 01 Park Farm
- 02 Lower Park Farm
- 03 Proposed All Junction
- 04 Peasacre Wood (Ancient Woodland)
- 05 Rewilded Bays River Corridor
- 06 Pedestrian & Cycle Greenway
- 07 Primary Street
- 08 Primary Street & Public Transport Route
- 09 Woodland Belt
- 10 River Parkland
- 11 Woodland Carbon Code Planting
- 12 Indicative Location for Solar Farm

Rev	Description	Date
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Client:

Silfield Garden Village
Illustrative Masterplan

Scale@A3: **1:20,000** Drawn: **CE** Designed: **IW** Approved: **HPF**
 0 800 m

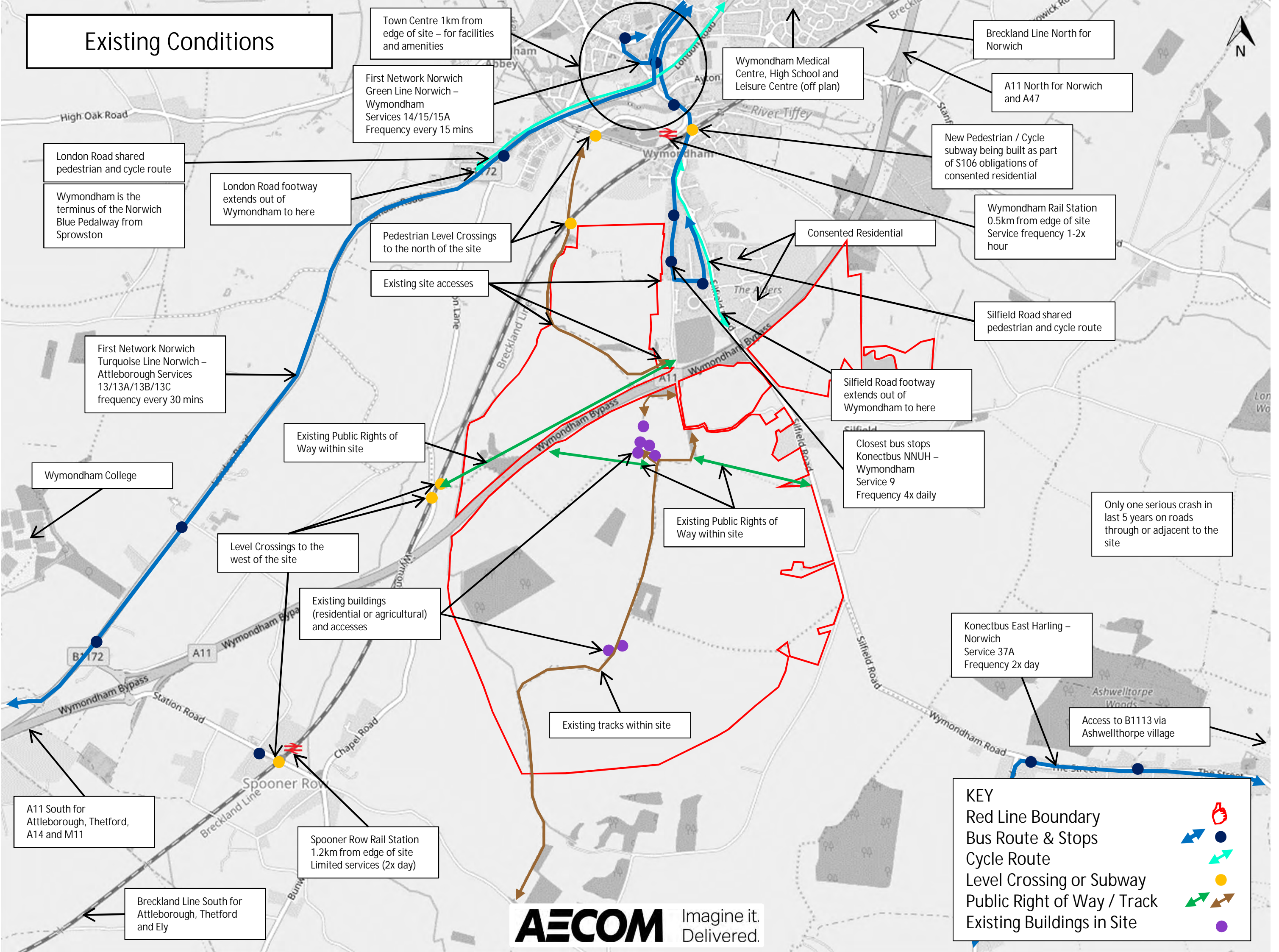
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Appendix C – Figures

Existing Conditions



Town Centre 1km from edge of site – for facilities and amenities

First Network Norwich Green Line Norwich – Wymondham Services 14/15/15A Frequency every 15 mins

Wymondham Medical Centre, High School and Leisure Centre (off plan)

Breckland Line North for Norwich

A11 North for Norwich and A47

London Road shared pedestrian and cycle route

Wymondham is the terminus of the Norwich Blue Pedalway from Sprowston

London Road footway extends out of Wymondham to here

Pedestrian Level Crossings to the north of the site

Existing site accesses

Consented Residential

Wymondham Rail Station 0.5km from edge of site Service frequency 1-2x hour

Silfield Road shared pedestrian and cycle route

First Network Norwich Turquoise Line Norwich – Attleborough Services 13/13A/13B/13C frequency every 30 mins

Existing Public Rights of Way within site

Silfield Road footway extends out of Wymondham to here

Closest bus stops Konectbus NNUH – Wymondham Service 9 Frequency 4x daily

Wymondham College

Level Crossings to the west of the site

Existing Public Rights of Way within site

Only one serious crash in last 5 years on roads through or adjacent to the site

Existing buildings (residential or agricultural) and accesses

Existing tracks within site

Konectbus East Harling – Norwich Service 37A Frequency 2x day

Access to B1113 via Ashwellthorpe village

A11 South for Attleborough, Thetford, A14 and M11

Spooner Row Rail Station 1.2km from edge of site Limited services (2x day)

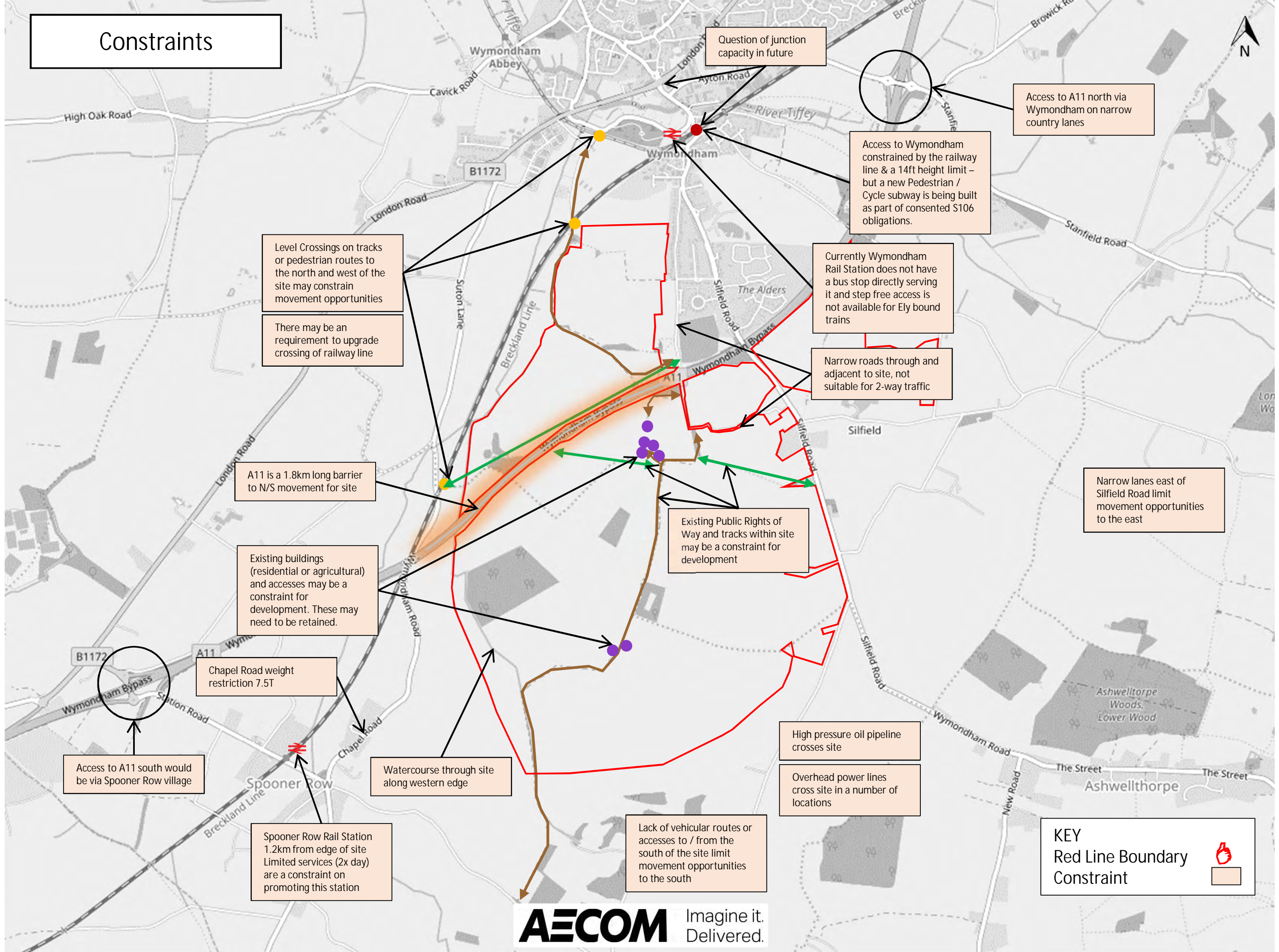
Breckland Line South for Attleborough, Thetford and Ely

KEY

- Red Line Boundary
- Bus Route & Stops
- Cycle Route
- Level Crossing or Subway
- Public Right of Way / Track
- Existing Buildings in Site

Appendix D – Constraints and Opportunity Plans

Constraints



Question of junction capacity in future

Access to A11 north via Wymondham on narrow country lanes

Access to Wymondham constrained by the railway line & a 14ft height limit – but a new Pedestrian / Cycle subway is being built as part of consented S106 obligations.

Level Crossings on tracks or pedestrian routes to the north and west of the site may constrain movement opportunities

There may be an requirement to upgrade crossing of railway line

Currently Wymondham Rail Station does not have a bus stop directly serving it and step free access is not available for Ely bound trains

Narrow roads through and adjacent to site, not suitable for 2-way traffic

A11 is a 1.8km long barrier to N/S movement for site

Existing Public Rights of Way and tracks within site may be a constraint for development

Narrow lanes east of Silfield Road limit movement opportunities to the east

Existing buildings (residential or agricultural) and accesses may be a constraint for development. These may need to be retained.

Chapel Road weight restriction 7.5T

Access to A11 south would be via Spooner Row village



Watercourse through site along western edge

High pressure oil pipeline crosses site

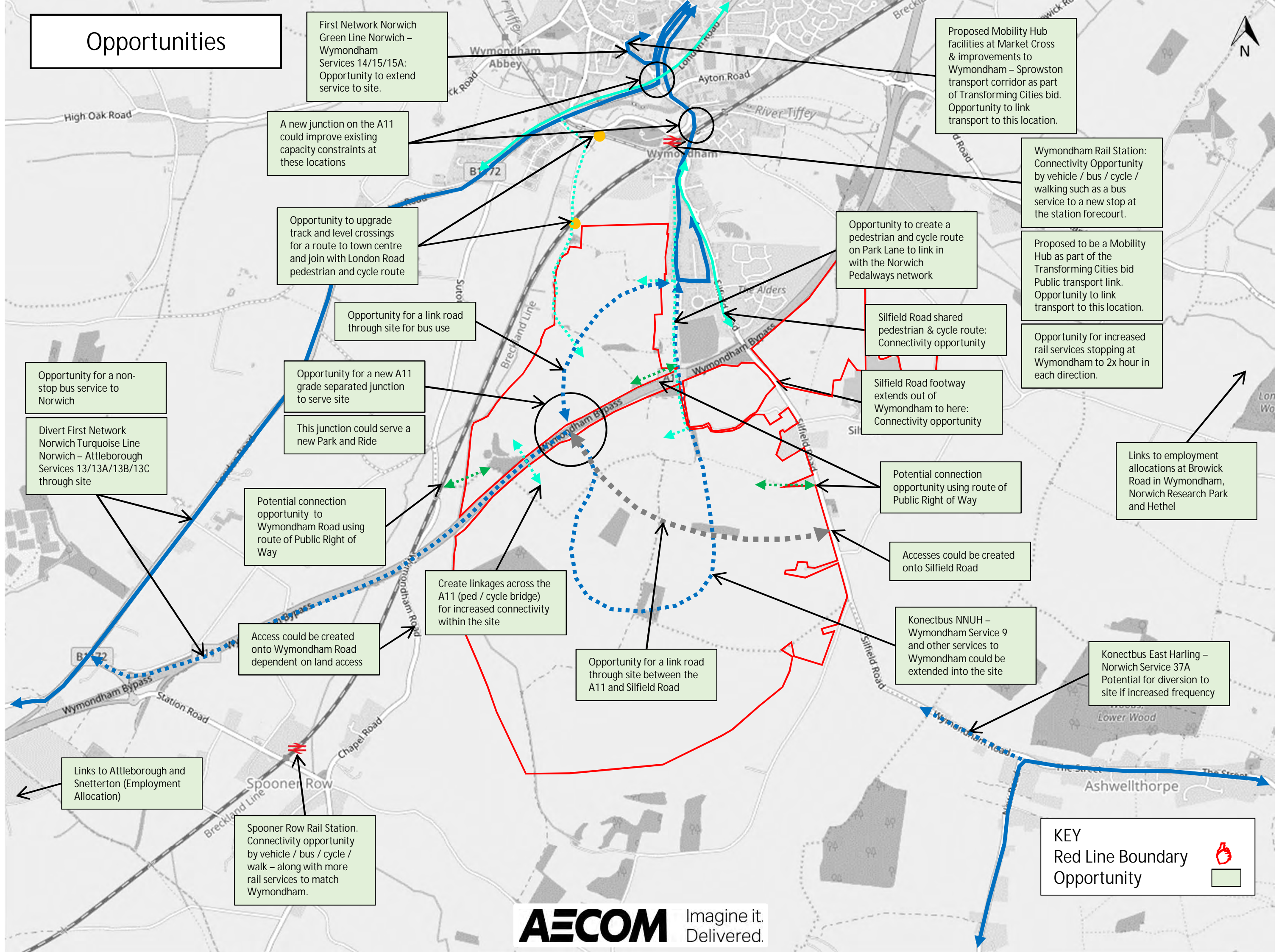
Overhead power lines cross site in a number of locations

Spooner Row Rail Station 1.2km from edge of site Limited services (2x day) are a constraint on promoting this station

Lack of vehicular routes or accesses to / from the south of the site limit movement opportunities to the south

KEY
 Red Line Boundary 
 Constraint 

Opportunities



First Network Norwich Green Line Norwich – Wymondham Services 14/15/15A: Opportunity to extend service to site.

Proposed Mobility Hub facilities at Market Cross & improvements to Wymondham – Sprowston transport corridor as part of Transforming Cities bid. Opportunity to link transport to this location.

A new junction on the A11 could improve existing capacity constraints at these locations

Wymondham Rail Station: Connectivity Opportunity by vehicle / bus / cycle / walking such as a bus service to a new stop at the station forecourt.

Opportunity to upgrade track and level crossings for a route to town centre and join with London Road pedestrian and cycle route

Opportunity to create a pedestrian and cycle route on Park Lane to link in with the Norwich Pedalways network

Proposed to be a Mobility Hub as part of the Transforming Cities bid Public transport link. Opportunity to link transport to this location.

Opportunity for a link road through site for bus use

Silfield Road shared pedestrian & cycle route: Connectivity opportunity

Opportunity for increased rail services stopping at Wymondham to 2x hour in each direction.

Opportunity for a non-stop bus service to Norwich

Opportunity for a new A11 grade separated junction to serve site

Silfield Road footway extends out of Wymondham to here: Connectivity opportunity

Divert First Network Norwich Turquoise Line Norwich – Attleborough Services 13/13A/13B/13C through site

This junction could serve a new Park and Ride

Potential connection opportunity using route of Public Right of Way

Links to employment allocations at Browick Road in Wymondham, Norwich Research Park and Hethel

Potential connection opportunity to Wymondham Road using route of Public Right of Way

Create linkages across the A11 (ped / cycle bridge) for increased connectivity within the site

Accesses could be created onto Silfield Road

Access could be created onto Wymondham Road dependent on land access



Opportunity for a link road through site between the A11 and Silfield Road

Konectbus NNUH – Wymondham Service 9 and other services to Wymondham could be extended into the site

Konectbus East Harling – Norwich Service 37A Potential for diversion to site if increased frequency

Links to Attleborough and Snetterton (Employment Allocation)

Spoooner Row Rail Station. Connectivity opportunity by vehicle / bus / cycle / walk – along with more rail services to match Wymondham.

KEY
 Red Line Boundary 
 Opportunity 

Appendix E – TRICS Data

Filtering Summary

Land Use	02/D	EMPLOYMENT/INDUSTRIAL ESTATE
Selected Trip Rate Calculation Parameter Range	20000-60000 sqm GFA	
Actual Trip Rate Calculation Parameter Range	23480-37130 sqm GFA	
Date Range	Minimum: 01/01/11	Maximum: 12/03/19
Parking Spaces Range	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	1
	Wednesday	1
	Thursday	1
Main Location Types selected	Edge of Town	3
	Neighbourhood Centre (PPS6 Local Centre)	1
Population <1 Mile ranges selected	1,000 or Less	1
	5,001 to 10,000	1
	10,001 to 15,000	2
Population <5 Mile ranges selected	25,001 to 50,000	2
	75,001 to 100,000	1
	125,001 to 250,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	2
	1.1 to 1.5	2
PTAL Rating	No PTAL Present	4

Calculation Reference: AUDIT-204614-200224-0207

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : D - INDUSTRIAL ESTATE
 MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	1 days
03	SOUTH WEST	
	CW CORNWALL	1 days
06	WEST MIDLANDS	
	WM WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 23480 to 37130 (units: sqm)
 Range Selected by User: 20000 to 60000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 12/03/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	1 days
Thursday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	3
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	1
Residential Zone	1
Village	1
Out of Town	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

n/a	1 days
B1	1 days
B2	2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	1 days
5,001 to 10,000	1 days
10,001 to 15,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	2 days
75,001 to 100,000	1 days
125,001 to 250,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	4 days
----	--------

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	4 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CW-02-D-03	IND. ESTATE	CORNWALL
	LONG ROCK ROAD NEAR PENZANCE LONG ROCK Neighbourhood Centre (PPS6 Local Centre) Village Total Gross floor area: 36500 sqm <i>Survey date: MONDAY 03/10/11</i>		
2	EX-02-D-04	INDUSTRIAL ESTATE	ESSEX
	PASTURE ROAD WITHAM Edge of Town Industrial Zone Total Gross floor area: 37130 sqm <i>Survey date: THURSDAY 10/05/18</i>		
3	NY-02-D-02	INDUSTRIAL ESTATE	NORTH YORKSHIRE
	RACECOURSE ROAD RICHMOND Edge of Town Out of Town Total Gross floor area: 35183 sqm <i>Survey date: TUESDAY 12/03/19</i>		
4	WM-02-D-02	INDUSTRIAL ESTATE	WEST MIDLANDS
	DUNLOP WAY BIRMINGHAM Edge of Town Residential Zone Total Gross floor area: 23480 sqm <i>Survey date: WEDNESDAY 07/11/12</i>		

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
 MULTI-MODAL VEHICLES
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.168	4	33073	0.044	4	33073	0.212
07:30 - 08:00	4	33073	0.291	4	33073	0.085	4	33073	0.376
08:00 - 08:30	4	33073	0.330	4	33073	0.130	4	33073	0.460
08:30 - 09:00	4	33073	0.327	4	33073	0.150	4	33073	0.477
09:00 - 09:30	4	33073	0.248	4	33073	0.149	4	33073	0.397
09:30 - 10:00	4	33073	0.185	4	33073	0.166	4	33073	0.351
10:00 - 10:30	4	33073	0.173	4	33073	0.156	4	33073	0.329
10:30 - 11:00	4	33073	0.152	4	33073	0.148	4	33073	0.300
11:00 - 11:30	4	33073	0.178	4	33073	0.171	4	33073	0.349
11:30 - 12:00	4	33073	0.179	4	33073	0.192	4	33073	0.371
12:00 - 12:30	4	33073	0.168	4	33073	0.200	4	33073	0.368
12:30 - 13:00	4	33073	0.163	4	33073	0.190	4	33073	0.353
13:00 - 13:30	4	33073	0.167	4	33073	0.190	4	33073	0.357
13:30 - 14:00	4	33073	0.200	4	33073	0.156	4	33073	0.356
14:00 - 14:30	4	33073	0.167	4	33073	0.190	4	33073	0.357
14:30 - 15:00	4	33073	0.153	4	33073	0.182	4	33073	0.335
15:00 - 15:30	4	33073	0.141	4	33073	0.164	4	33073	0.305
15:30 - 16:00	4	33073	0.142	4	33073	0.174	4	33073	0.316
16:00 - 16:30	4	33073	0.132	4	33073	0.224	4	33073	0.356
16:30 - 17:00	4	33073	0.147	4	33073	0.265	4	33073	0.412
17:00 - 17:30	4	33073	0.085	4	33073	0.339	4	33073	0.424
17:30 - 18:00	4	33073	0.077	4	33073	0.252	4	33073	0.329
18:00 - 18:30	4	33073	0.067	4	33073	0.140	4	33073	0.207
18:30 - 19:00	4	33073	0.047	4	33073	0.067	4	33073	0.114
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			4.087			4.124			8.211

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	23480 - 37130 (units: sqm)
Survey date date range:	01/01/11 - 12/03/19
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL TAXIS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.001	4	33073	0.001	4	33073	0.002
07:30 - 08:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
08:00 - 08:30	4	33073	0.002	4	33073	0.002	4	33073	0.004
08:30 - 09:00	4	33073	0.005	4	33073	0.005	4	33073	0.010
09:00 - 09:30	4	33073	0.003	4	33073	0.003	4	33073	0.006
09:30 - 10:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
10:00 - 10:30	4	33073	0.001	4	33073	0.001	4	33073	0.002
10:30 - 11:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
11:00 - 11:30	4	33073	0.001	4	33073	0.001	4	33073	0.002
11:30 - 12:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
12:00 - 12:30	4	33073	0.001	4	33073	0.001	4	33073	0.002
12:30 - 13:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
13:00 - 13:30	4	33073	0.001	4	33073	0.002	4	33073	0.003
13:30 - 14:00	4	33073	0.003	4	33073	0.002	4	33073	0.005
14:00 - 14:30	4	33073	0.001	4	33073	0.002	4	33073	0.003
14:30 - 15:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
15:00 - 15:30	4	33073	0.000	4	33073	0.000	4	33073	0.000
15:30 - 16:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
16:00 - 16:30	4	33073	0.001	4	33073	0.000	4	33073	0.001
16:30 - 17:00	4	33073	0.001	4	33073	0.001	4	33073	0.002
17:00 - 17:30	4	33073	0.002	4	33073	0.002	4	33073	0.004
17:30 - 18:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
18:00 - 18:30	4	33073	0.002	4	33073	0.002	4	33073	0.004
18:30 - 19:00	4	33073	0.000	4	33073	0.001	4	33073	0.001
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.037			0.035			0.072

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.009	4	33073	0.006	4	33073	0.015
07:30 - 08:00	4	33073	0.010	4	33073	0.015	4	33073	0.025
08:00 - 08:30	4	33073	0.008	4	33073	0.011	4	33073	0.019
08:30 - 09:00	4	33073	0.014	4	33073	0.013	4	33073	0.027
09:00 - 09:30	4	33073	0.017	4	33073	0.017	4	33073	0.034
09:30 - 10:00	4	33073	0.016	4	33073	0.013	4	33073	0.029
10:00 - 10:30	4	33073	0.017	4	33073	0.018	4	33073	0.035
10:30 - 11:00	4	33073	0.017	4	33073	0.013	4	33073	0.030
11:00 - 11:30	4	33073	0.017	4	33073	0.019	4	33073	0.036
11:30 - 12:00	4	33073	0.019	4	33073	0.014	4	33073	0.033
12:00 - 12:30	4	33073	0.018	4	33073	0.022	4	33073	0.040
12:30 - 13:00	4	33073	0.010	4	33073	0.008	4	33073	0.018
13:00 - 13:30	4	33073	0.012	4	33073	0.011	4	33073	0.023
13:30 - 14:00	4	33073	0.014	4	33073	0.015	4	33073	0.029
14:00 - 14:30	4	33073	0.011	4	33073	0.013	4	33073	0.024
14:30 - 15:00	4	33073	0.016	4	33073	0.011	4	33073	0.027
15:00 - 15:30	4	33073	0.013	4	33073	0.014	4	33073	0.027
15:30 - 16:00	4	33073	0.009	4	33073	0.013	4	33073	0.022
16:00 - 16:30	4	33073	0.013	4	33073	0.005	4	33073	0.018
16:30 - 17:00	4	33073	0.007	4	33073	0.005	4	33073	0.012
17:00 - 17:30	4	33073	0.003	4	33073	0.002	4	33073	0.005
17:30 - 18:00	4	33073	0.005	4	33073	0.003	4	33073	0.008
18:00 - 18:30	4	33073	0.001	4	33073	0.002	4	33073	0.003
18:30 - 19:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.278			0.264			0.542

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL PSVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.000	4	33073	0.000	4	33073	0.000
07:30 - 08:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
08:00 - 08:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
08:30 - 09:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
09:00 - 09:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
09:30 - 10:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
10:00 - 10:30	4	33073	0.001	4	33073	0.001	4	33073	0.002
10:30 - 11:00	4	33073	0.000	4	33073	0.002	4	33073	0.002
11:00 - 11:30	4	33073	0.000	4	33073	0.001	4	33073	0.001
11:30 - 12:00	4	33073	0.000	4	33073	0.001	4	33073	0.001
12:00 - 12:30	4	33073	0.000	4	33073	0.000	4	33073	0.000
12:30 - 13:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
13:00 - 13:30	4	33073	0.000	4	33073	0.000	4	33073	0.000
13:30 - 14:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
14:00 - 14:30	4	33073	0.000	4	33073	0.001	4	33073	0.001
14:30 - 15:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
15:00 - 15:30	4	33073	0.000	4	33073	0.002	4	33073	0.002
15:30 - 16:00	4	33073	0.000	4	33073	0.000	4	33073	0.000
16:00 - 16:30	4	33073	0.001	4	33073	0.000	4	33073	0.001
16:30 - 17:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
17:00 - 17:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
17:30 - 18:00	4	33073	0.002	4	33073	0.000	4	33073	0.002
18:00 - 18:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
18:30 - 19:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.018			0.012			0.030

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
 MULTI-MODAL CYCLISTS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.002	4	33073	0.002	4	33073	0.004
07:30 - 08:00	4	33073	0.005	4	33073	0.001	4	33073	0.006
08:00 - 08:30	4	33073	0.006	4	33073	0.001	4	33073	0.007
08:30 - 09:00	4	33073	0.002	4	33073	0.001	4	33073	0.003
09:00 - 09:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
09:30 - 10:00	4	33073	0.001	4	33073	0.001	4	33073	0.002
10:00 - 10:30	4	33073	0.000	4	33073	0.002	4	33073	0.002
10:30 - 11:00	4	33073	0.007	4	33073	0.006	4	33073	0.013
11:00 - 11:30	4	33073	0.000	4	33073	0.000	4	33073	0.000
11:30 - 12:00	4	33073	0.001	4	33073	0.000	4	33073	0.001
12:00 - 12:30	4	33073	0.000	4	33073	0.002	4	33073	0.002
12:30 - 13:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
13:00 - 13:30	4	33073	0.002	4	33073	0.001	4	33073	0.003
13:30 - 14:00	4	33073	0.003	4	33073	0.000	4	33073	0.003
14:00 - 14:30	4	33073	0.002	4	33073	0.002	4	33073	0.004
14:30 - 15:00	4	33073	0.000	4	33073	0.001	4	33073	0.001
15:00 - 15:30	4	33073	0.001	4	33073	0.001	4	33073	0.002
15:30 - 16:00	4	33073	0.000	4	33073	0.005	4	33073	0.005
16:00 - 16:30	4	33073	0.001	4	33073	0.004	4	33073	0.005
16:30 - 17:00	4	33073	0.001	4	33073	0.002	4	33073	0.003
17:00 - 17:30	4	33073	0.005	4	33073	0.008	4	33073	0.013
17:30 - 18:00	4	33073	0.003	4	33073	0.007	4	33073	0.010
18:00 - 18:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
18:30 - 19:00	4	33073	0.001	4	33073	0.000	4	33073	0.001
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.049			0.049			0.098

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.219	4	33073	0.045	4	33073	0.264
07:30 - 08:00	4	33073	0.364	4	33073	0.098	4	33073	0.462
08:00 - 08:30	4	33073	0.405	4	33073	0.143	4	33073	0.548
08:30 - 09:00	4	33073	0.412	4	33073	0.177	4	33073	0.589
09:00 - 09:30	4	33073	0.294	4	33073	0.170	4	33073	0.464
09:30 - 10:00	4	33073	0.224	4	33073	0.201	4	33073	0.425
10:00 - 10:30	4	33073	0.203	4	33073	0.182	4	33073	0.385
10:30 - 11:00	4	33073	0.187	4	33073	0.181	4	33073	0.368
11:00 - 11:30	4	33073	0.217	4	33073	0.198	4	33073	0.415
11:30 - 12:00	4	33073	0.213	4	33073	0.231	4	33073	0.444
12:00 - 12:30	4	33073	0.197	4	33073	0.231	4	33073	0.428
12:30 - 13:00	4	33073	0.188	4	33073	0.221	4	33073	0.409
13:00 - 13:30	4	33073	0.202	4	33073	0.221	4	33073	0.423
13:30 - 14:00	4	33073	0.240	4	33073	0.190	4	33073	0.430
14:00 - 14:30	4	33073	0.209	4	33073	0.231	4	33073	0.440
14:30 - 15:00	4	33073	0.197	4	33073	0.225	4	33073	0.422
15:00 - 15:30	4	33073	0.183	4	33073	0.209	4	33073	0.392
15:30 - 16:00	4	33073	0.176	4	33073	0.216	4	33073	0.392
16:00 - 16:30	4	33073	0.175	4	33073	0.277	4	33073	0.452
16:30 - 17:00	4	33073	0.193	4	33073	0.335	4	33073	0.528
17:00 - 17:30	4	33073	0.109	4	33073	0.434	4	33073	0.543
17:30 - 18:00	4	33073	0.094	4	33073	0.324	4	33073	0.418
18:00 - 18:30	4	33073	0.091	4	33073	0.166	4	33073	0.257
18:30 - 19:00	4	33073	0.055	4	33073	0.079	4	33073	0.134
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			5.047			4.985			10.032

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
 MULTI-MODAL PEDESTRIANS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.014	4	33073	0.007	4	33073	0.021
07:30 - 08:00	4	33073	0.015	4	33073	0.011	4	33073	0.026
08:00 - 08:30	4	33073	0.014	4	33073	0.012	4	33073	0.026
08:30 - 09:00	4	33073	0.026	4	33073	0.008	4	33073	0.034
09:00 - 09:30	4	33073	0.012	4	33073	0.007	4	33073	0.019
09:30 - 10:00	4	33073	0.009	4	33073	0.007	4	33073	0.016
10:00 - 10:30	4	33073	0.011	4	33073	0.006	4	33073	0.017
10:30 - 11:00	4	33073	0.011	4	33073	0.010	4	33073	0.021
11:00 - 11:30	4	33073	0.005	4	33073	0.003	4	33073	0.008
11:30 - 12:00	4	33073	0.002	4	33073	0.009	4	33073	0.011
12:00 - 12:30	4	33073	0.014	4	33073	0.023	4	33073	0.037
12:30 - 13:00	4	33073	0.029	4	33073	0.027	4	33073	0.056
13:00 - 13:30	4	33073	0.023	4	33073	0.028	4	33073	0.051
13:30 - 14:00	4	33073	0.019	4	33073	0.014	4	33073	0.033
14:00 - 14:30	4	33073	0.016	4	33073	0.022	4	33073	0.038
14:30 - 15:00	4	33073	0.011	4	33073	0.008	4	33073	0.019
15:00 - 15:30	4	33073	0.010	4	33073	0.008	4	33073	0.018
15:30 - 16:00	4	33073	0.006	4	33073	0.010	4	33073	0.016
16:00 - 16:30	4	33073	0.003	4	33073	0.008	4	33073	0.011
16:30 - 17:00	4	33073	0.008	4	33073	0.011	4	33073	0.019
17:00 - 17:30	4	33073	0.019	4	33073	0.042	4	33073	0.061
17:30 - 18:00	4	33073	0.013	4	33073	0.013	4	33073	0.026
18:00 - 18:30	4	33073	0.003	4	33073	0.013	4	33073	0.016
18:30 - 19:00	4	33073	0.003	4	33073	0.005	4	33073	0.008
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.296			0.312			0.608

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL BUS/TRAM PASSENGERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.005	4	33073	0.000	4	33073	0.005
07:30 - 08:00	4	33073	0.002	4	33073	0.000	4	33073	0.002
08:00 - 08:30	4	33073	0.005	4	33073	0.000	4	33073	0.005
08:30 - 09:00	4	33073	0.004	4	33073	0.000	4	33073	0.004
09:00 - 09:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
09:30 - 10:00	4	33073	0.003	4	33073	0.000	4	33073	0.003
10:00 - 10:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
10:30 - 11:00	4	33073	0.002	4	33073	0.000	4	33073	0.002
11:00 - 11:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
11:30 - 12:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
12:00 - 12:30	4	33073	0.008	4	33073	0.014	4	33073	0.022
12:30 - 13:00	4	33073	0.012	4	33073	0.012	4	33073	0.024
13:00 - 13:30	4	33073	0.011	4	33073	0.005	4	33073	0.016
13:30 - 14:00	4	33073	0.015	4	33073	0.005	4	33073	0.020
14:00 - 14:30	4	33073	0.001	4	33073	0.005	4	33073	0.006
14:30 - 15:00	4	33073	0.002	4	33073	0.005	4	33073	0.007
15:00 - 15:30	4	33073	0.001	4	33073	0.002	4	33073	0.003
15:30 - 16:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
16:00 - 16:30	4	33073	0.001	4	33073	0.003	4	33073	0.004
16:30 - 17:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
17:00 - 17:30	4	33073	0.002	4	33073	0.009	4	33073	0.011
17:30 - 18:00	4	33073	0.001	4	33073	0.009	4	33073	0.010
18:00 - 18:30	4	33073	0.001	4	33073	0.006	4	33073	0.007
18:30 - 19:00	4	33073	0.001	4	33073	0.002	4	33073	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.089			0.083			0.172

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.005	4	33073	0.000	4	33073	0.005
07:30 - 08:00	4	33073	0.002	4	33073	0.000	4	33073	0.002
08:00 - 08:30	4	33073	0.005	4	33073	0.000	4	33073	0.005
08:30 - 09:00	4	33073	0.004	4	33073	0.000	4	33073	0.004
09:00 - 09:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
09:30 - 10:00	4	33073	0.003	4	33073	0.000	4	33073	0.003
10:00 - 10:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
10:30 - 11:00	4	33073	0.002	4	33073	0.000	4	33073	0.002
11:00 - 11:30	4	33073	0.002	4	33073	0.000	4	33073	0.002
11:30 - 12:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
12:00 - 12:30	4	33073	0.008	4	33073	0.014	4	33073	0.022
12:30 - 13:00	4	33073	0.012	4	33073	0.012	4	33073	0.024
13:00 - 13:30	4	33073	0.011	4	33073	0.005	4	33073	0.016
13:30 - 14:00	4	33073	0.015	4	33073	0.005	4	33073	0.020
14:00 - 14:30	4	33073	0.001	4	33073	0.005	4	33073	0.006
14:30 - 15:00	4	33073	0.002	4	33073	0.005	4	33073	0.007
15:00 - 15:30	4	33073	0.001	4	33073	0.002	4	33073	0.003
15:30 - 16:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
16:00 - 16:30	4	33073	0.001	4	33073	0.003	4	33073	0.004
16:30 - 17:00	4	33073	0.002	4	33073	0.002	4	33073	0.004
17:00 - 17:30	4	33073	0.002	4	33073	0.009	4	33073	0.011
17:30 - 18:00	4	33073	0.001	4	33073	0.009	4	33073	0.010
18:00 - 18:30	4	33073	0.001	4	33073	0.006	4	33073	0.007
18:30 - 19:00	4	33073	0.001	4	33073	0.002	4	33073	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.089			0.083			0.172

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	33073	0.240	4	33073	0.054	4	33073	0.294
07:30 - 08:00	4	33073	0.386	4	33073	0.109	4	33073	0.495
08:00 - 08:30	4	33073	0.430	4	33073	0.156	4	33073	0.586
08:30 - 09:00	4	33073	0.443	4	33073	0.185	4	33073	0.628
09:00 - 09:30	4	33073	0.310	4	33073	0.177	4	33073	0.487
09:30 - 10:00	4	33073	0.237	4	33073	0.209	4	33073	0.446
10:00 - 10:30	4	33073	0.215	4	33073	0.190	4	33073	0.405
10:30 - 11:00	4	33073	0.207	4	33073	0.197	4	33073	0.404
11:00 - 11:30	4	33073	0.223	4	33073	0.201	4	33073	0.424
11:30 - 12:00	4	33073	0.217	4	33073	0.243	4	33073	0.460
12:00 - 12:30	4	33073	0.218	4	33073	0.270	4	33073	0.488
12:30 - 13:00	4	33073	0.231	4	33073	0.262	4	33073	0.493
13:00 - 13:30	4	33073	0.238	4	33073	0.254	4	33073	0.492
13:30 - 14:00	4	33073	0.277	4	33073	0.209	4	33073	0.486
14:00 - 14:30	4	33073	0.228	4	33073	0.259	4	33073	0.487
14:30 - 15:00	4	33073	0.210	4	33073	0.238	4	33073	0.448
15:00 - 15:30	4	33073	0.194	4	33073	0.221	4	33073	0.415
15:30 - 16:00	4	33073	0.184	4	33073	0.232	4	33073	0.416
16:00 - 16:30	4	33073	0.179	4	33073	0.292	4	33073	0.471
16:30 - 17:00	4	33073	0.204	4	33073	0.349	4	33073	0.553
17:00 - 17:30	4	33073	0.134	4	33073	0.493	4	33073	0.627
17:30 - 18:00	4	33073	0.110	4	33073	0.353	4	33073	0.463
18:00 - 18:30	4	33073	0.097	4	33073	0.185	4	33073	0.282
18:30 - 19:00	4	33073	0.060	4	33073	0.086	4	33073	0.146
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			5.472			5.424			10.896

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Calculation Reference: AUDIT-204614-200227-0224

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
 Category : A - PRIMARY
 MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	SC SURREY	1 days
03	SOUTH WEST	
	SM SOMERSET	1 days
	WL WILTSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
08	NORTH WEST	
	LC LANCASHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of pupils
 Actual Range: 147 to 472 (units:)
 Range Selected by User: 92 to 472 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 03/04/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	2 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	3

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	1
Village	3
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

D1 5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000 3 days
5,001 to 10,000 1 days
25,001 to 50,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000 1 days
25,001 to 50,000 1 days
75,001 to 100,000 2 days
125,001 to 250,000 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0 2 days
1.1 to 1.5 3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes 1 days
No 4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	LC-04-A-05 NEWTON STREET BLACKBURN	PRIMARY SCHOOL	LANCASHIRE
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of pupils: 472 <i>Survey date: WEDNESDAY 28/09/16</i>		<i>Survey Type: MANUAL</i>
2	NE-04-A-01 SUNNINGDALE ROAD SCUNTHORPE	PRIMARY SCHOOL	NORTH EAST LINCOLNSHIRE
	Edge of Town Residential Zone Total Number of pupils: 147 <i>Survey date: TUESDAY 20/05/14</i>		<i>Survey Type: MANUAL</i>
3	SC-04-A-01 SCHOOL LANE NEAR WOKING PIRBRIGHT	PRIMARY SCHOOL	SURREY
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of pupils: 414 <i>Survey date: THURSDAY 22/11/12</i>		<i>Survey Type: MANUAL</i>
4	SM-04-A-01 BRIDGWATER ROAD NEAR TAUNTON BATHPOOL	PRIMARY SCHOOL	SOMERSET
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of pupils: 407 <i>Survey date: THURSDAY 27/09/18</i>		<i>Survey Type: MANUAL</i>
5	WL-04-A-02 HIGH STREET ROWDE	C OF E PRIMARY ACADEMY	WILTSHIRE
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of pupils: 199 <i>Survey date: WEDNESDAY 03/04/19</i>		<i>Survey Type: MANUAL</i>

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL VEHICLES

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.067	5	328	0.031	5	328	0.098
08:00 - 09:00	5	328	0.319	5	328	0.203	5	328	0.522
09:00 - 10:00	5	328	0.032	5	328	0.035	5	328	0.067
10:00 - 11:00	5	328	0.014	5	328	0.010	5	328	0.024
11:00 - 12:00	5	328	0.014	5	328	0.015	5	328	0.029
12:00 - 13:00	5	328	0.012	5	328	0.012	5	328	0.024
13:00 - 14:00	5	328	0.023	5	328	0.032	5	328	0.055
14:00 - 15:00	5	328	0.052	5	328	0.026	5	328	0.078
15:00 - 16:00	5	328	0.142	5	328	0.254	5	328	0.396
16:00 - 17:00	5	328	0.085	5	328	0.121	5	328	0.206
17:00 - 18:00	4	360	0.027	4	360	0.033	4	360	0.060
18:00 - 19:00	4	360	0.044	4	360	0.019	4	360	0.063
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.831			0.791			1.622

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	147 - 472 (units:)
Survey date range:	01/01/11 - 03/04/19
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL TAXIS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.000	5	328	0.000	5	328	0.000
08:00 - 09:00	5	328	0.001	5	328	0.001	5	328	0.002
09:00 - 10:00	5	328	0.000	5	328	0.000	5	328	0.000
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.000	5	328	0.000	5	328	0.000
13:00 - 14:00	5	328	0.000	5	328	0.000	5	328	0.000
14:00 - 15:00	5	328	0.000	5	328	0.000	5	328	0.000
15:00 - 16:00	5	328	0.002	5	328	0.002	5	328	0.004
16:00 - 17:00	5	328	0.000	5	328	0.000	5	328	0.000
17:00 - 18:00	4	360	0.001	4	360	0.001	4	360	0.002
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.004			0.004			0.008

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL OGVS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.000	5	328	0.000	5	328	0.000
08:00 - 09:00	5	328	0.001	5	328	0.001	5	328	0.002
09:00 - 10:00	5	328	0.000	5	328	0.000	5	328	0.000
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.000	5	328	0.000	5	328	0.000
13:00 - 14:00	5	328	0.001	5	328	0.001	5	328	0.002
14:00 - 15:00	5	328	0.000	5	328	0.000	5	328	0.000
15:00 - 16:00	5	328	0.000	5	328	0.000	5	328	0.000
16:00 - 17:00	5	328	0.000	5	328	0.000	5	328	0.000
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.002			0.002			0.004

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL PSVS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.000	5	328	0.000	5	328	0.000
08:00 - 09:00	5	328	0.001	5	328	0.001	5	328	0.002
09:00 - 10:00	5	328	0.001	5	328	0.001	5	328	0.002
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.000	5	328	0.000	5	328	0.000
13:00 - 14:00	5	328	0.001	5	328	0.000	5	328	0.001
14:00 - 15:00	5	328	0.001	5	328	0.000	5	328	0.001
15:00 - 16:00	5	328	0.001	5	328	0.002	5	328	0.003
16:00 - 17:00	5	328	0.000	5	328	0.000	5	328	0.000
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.005			0.004			0.009

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL CYCLISTS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.005	5	328	0.000	5	328	0.005
08:00 - 09:00	5	328	0.019	5	328	0.005	5	328	0.024
09:00 - 10:00	5	328	0.001	5	328	0.002	5	328	0.003
10:00 - 11:00	5	328	0.000	5	328	0.001	5	328	0.001
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.000	5	328	0.000	5	328	0.000
13:00 - 14:00	5	328	0.000	5	328	0.001	5	328	0.001
14:00 - 15:00	5	328	0.000	5	328	0.001	5	328	0.001
15:00 - 16:00	5	328	0.004	5	328	0.012	5	328	0.016
16:00 - 17:00	5	328	0.002	5	328	0.009	5	328	0.011
17:00 - 18:00	4	360	0.003	4	360	0.004	4	360	0.007
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.034			0.035			0.069

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.093	5	328	0.025	5	328	0.118
08:00 - 09:00	5	328	0.504	5	328	0.131	5	328	0.635
09:00 - 10:00	5	328	0.046	5	328	0.023	5	328	0.069
10:00 - 11:00	5	328	0.018	5	328	0.011	5	328	0.029
11:00 - 12:00	5	328	0.018	5	328	0.017	5	328	0.035
12:00 - 13:00	5	328	0.013	5	328	0.012	5	328	0.025
13:00 - 14:00	5	328	0.026	5	328	0.041	5	328	0.067
14:00 - 15:00	5	328	0.032	5	328	0.033	5	328	0.065
15:00 - 16:00	5	328	0.090	5	328	0.372	5	328	0.462
16:00 - 17:00	5	328	0.074	5	328	0.212	5	328	0.286
17:00 - 18:00	4	360	0.024	4	360	0.044	4	360	0.068
18:00 - 19:00	4	360	0.062	4	360	0.019	4	360	0.081
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.000			0.940			1.940

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.019	5	328	0.009	5	328	0.028
08:00 - 09:00	5	328	0.589	5	328	0.175	5	328	0.764
09:00 - 10:00	5	328	0.052	5	328	0.092	5	328	0.144
10:00 - 11:00	5	328	0.011	5	328	0.013	5	328	0.024
11:00 - 12:00	5	328	0.023	5	328	0.025	5	328	0.048
12:00 - 13:00	5	328	0.041	5	328	0.039	5	328	0.080
13:00 - 14:00	5	328	0.023	5	328	0.040	5	328	0.063
14:00 - 15:00	5	328	0.059	5	328	0.031	5	328	0.090
15:00 - 16:00	5	328	0.210	5	328	0.513	5	328	0.723
16:00 - 17:00	5	328	0.031	5	328	0.110	5	328	0.141
17:00 - 18:00	4	360	0.008	4	360	0.024	4	360	0.032
18:00 - 19:00	4	360	0.008	4	360	0.003	4	360	0.011
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.074			1.074			2.148

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL BUS/TRAM PASSENGERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.000	5	328	0.000	5	328	0.000
08:00 - 09:00	5	328	0.024	5	328	0.008	5	328	0.032
09:00 - 10:00	5	328	0.016	5	328	0.012	5	328	0.028
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.008	5	328	0.004	5	328	0.012
13:00 - 14:00	5	328	0.005	5	328	0.009	5	328	0.014
14:00 - 15:00	5	328	0.001	5	328	0.000	5	328	0.001
15:00 - 16:00	5	328	0.012	5	328	0.024	5	328	0.036
16:00 - 17:00	5	328	0.003	5	328	0.010	5	328	0.013
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.069			0.067			0.136

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL TOTAL RAIL PASSENGERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.000	5	328	0.000	5	328	0.000
08:00 - 09:00	5	328	0.009	5	328	0.003	5	328	0.012
09:00 - 10:00	5	328	0.000	5	328	0.002	5	328	0.002
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.000	5	328	0.000	5	328	0.000
13:00 - 14:00	5	328	0.000	5	328	0.000	5	328	0.000
14:00 - 15:00	5	328	0.000	5	328	0.000	5	328	0.000
15:00 - 16:00	5	328	0.007	5	328	0.012	5	328	0.019
16:00 - 17:00	5	328	0.001	5	328	0.000	5	328	0.001
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.017			0.017			0.034

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL COACH PASSENGERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.002	5	328	0.000	5	328	0.002
08:00 - 09:00	5	328	0.009	5	328	0.000	5	328	0.009
09:00 - 10:00	5	328	0.001	5	328	0.040	5	328	0.041
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.000	5	328	0.000	5	328	0.000
13:00 - 14:00	5	328	0.000	5	328	0.000	5	328	0.000
14:00 - 15:00	5	328	0.000	5	328	0.000	5	328	0.000
15:00 - 16:00	5	328	0.040	5	328	0.008	5	328	0.048
16:00 - 17:00	5	328	0.000	5	328	0.004	5	328	0.004
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.052			0.052			0.104

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.002	5	328	0.000	5	328	0.002
08:00 - 09:00	5	328	0.041	5	328	0.011	5	328	0.052
09:00 - 10:00	5	328	0.016	5	328	0.054	5	328	0.070
10:00 - 11:00	5	328	0.000	5	328	0.000	5	328	0.000
11:00 - 12:00	5	328	0.000	5	328	0.000	5	328	0.000
12:00 - 13:00	5	328	0.008	5	328	0.004	5	328	0.012
13:00 - 14:00	5	328	0.005	5	328	0.009	5	328	0.014
14:00 - 15:00	5	328	0.001	5	328	0.000	5	328	0.001
15:00 - 16:00	5	328	0.059	5	328	0.044	5	328	0.103
16:00 - 17:00	5	328	0.004	5	328	0.014	5	328	0.018
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.000	4	360	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.136			0.136			0.272

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.119	5	328	0.034	5	328	0.153
08:00 - 09:00	5	328	1.154	5	328	0.322	5	328	1.476
09:00 - 10:00	5	328	0.116	5	328	0.170	5	328	0.286
10:00 - 11:00	5	328	0.029	5	328	0.025	5	328	0.054
11:00 - 12:00	5	328	0.040	5	328	0.042	5	328	0.082
12:00 - 13:00	5	328	0.062	5	328	0.055	5	328	0.117
13:00 - 14:00	5	328	0.054	5	328	0.090	5	328	0.144
14:00 - 15:00	5	328	0.092	5	328	0.064	5	328	0.156
15:00 - 16:00	5	328	0.364	5	328	0.941	5	328	1.305
16:00 - 17:00	5	328	0.112	5	328	0.345	5	328	0.457
17:00 - 18:00	4	360	0.035	4	360	0.072	4	360	0.107
18:00 - 19:00	4	360	0.070	4	360	0.022	4	360	0.092
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.247			2.182			4.429

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL CARS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.052	5	328	0.027	5	328	0.079
08:00 - 09:00	5	328	0.220	5	328	0.129	5	328	0.349
09:00 - 10:00	5	328	0.012	5	328	0.013	5	328	0.025
10:00 - 11:00	5	328	0.010	5	328	0.007	5	328	0.017
11:00 - 12:00	5	328	0.007	5	328	0.008	5	328	0.015
12:00 - 13:00	5	328	0.008	5	328	0.007	5	328	0.015
13:00 - 14:00	5	328	0.009	5	328	0.016	5	328	0.025
14:00 - 15:00	5	328	0.029	5	328	0.017	5	328	0.046
15:00 - 16:00	5	328	0.090	5	328	0.182	5	328	0.272
16:00 - 17:00	5	328	0.039	5	328	0.067	5	328	0.106
17:00 - 18:00	4	360	0.016	4	360	0.019	4	360	0.035
18:00 - 19:00	4	360	0.022	4	360	0.001	4	360	0.023
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.514			0.493			1.007

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL LGVS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	328	0.001	5	328	0.001	5	328	0.002
08:00 - 09:00	5	328	0.005	5	328	0.004	5	328	0.009
09:00 - 10:00	5	328	0.002	5	328	0.001	5	328	0.003
10:00 - 11:00	5	328	0.002	5	328	0.002	5	328	0.004
11:00 - 12:00	5	328	0.001	5	328	0.002	5	328	0.003
12:00 - 13:00	5	328	0.002	5	328	0.002	5	328	0.004
13:00 - 14:00	5	328	0.004	5	328	0.002	5	328	0.006
14:00 - 15:00	5	328	0.001	5	328	0.002	5	328	0.003
15:00 - 16:00	5	328	0.002	5	328	0.003	5	328	0.005
16:00 - 17:00	5	328	0.001	5	328	0.001	5	328	0.002
17:00 - 18:00	4	360	0.000	4	360	0.000	4	360	0.000
18:00 - 19:00	4	360	0.000	4	360	0.001	4	360	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.021			0.042

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Filtering Summary

Land Use	03/A	RESIDENTIAL/HOUSES PRIVATELY OWNED
Selected Trip Rate Calculation Parameter Range	400-1817 DWELLS	
Actual Trip Rate Calculation Parameter Range	984-1817 DWELLS	
Date Range	Minimum: 01/01/11	Maximum: 24/09/19
Parking Spaces Range	All Surveys Included	
Bedrooms Per Dwelling Range:	All Surveys Included	
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Tuesday	1
	Thursday	1
Main Location Types selected	Edge of Town	1
	Neighbourhood Centre (PPS6 Local Centre)	1
Population <1 Mile ranges selected	1,001 to 5,000	2
Population <5 Mile ranges selected	125,001 to 250,000	2
Car Ownership <5 Mile ranges selected	0.6 to 1.0	1
	1.1 to 1.5	1
PTAL Rating	No PTAL Present	2

Calculation Reference: AUDIT-204614-200207-0221

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLES

Selected regions and areas:

04 EAST ANGLIA
 NF NORFOLK 2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 984 to 1817 (units:)
 Range Selected by User: 400 to 1817 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 24/09/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday 1 days
 Thursday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town 1
 Neighbourhood Centre (PPS6 Local Centre) 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone 1
 Village 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000 2 days

*This data displays the number of selected surveys within stated 1-mile radii of population.*Population within 5 miles:

125,001 to 250,000 2 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*Car ownership within 5 miles:

0.6 to 1.0 1 days

1.1 to 1.5 1 days

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*Travel Plan:

Yes 2 days

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*PTAL Rating:

No PTAL Present 2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	NF-03-A-08	MIXED HOUSES & FLATS	NORFOLK
	SIR ALFRED MUNNINGS RD		
	NEAR NORWICH		
	COSTESSEY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of dwellings:	1817	
	Survey date:	THURSDAY 19/09/19	Survey Type: MANUAL
2	NF-03-A-09	MIXED HOUSES & FLATS	NORFOLK
	ROUND HOUSE WAY		
	NORWICH		
	CRINGLEFORD		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	984	
	Survey date:	TUESDAY 24/09/19	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.055	2	1401	0.316	2	1401	0.371
08:00 - 09:00	2	1401	0.110	2	1401	0.318	2	1401	0.428
09:00 - 10:00	2	1401	0.121	2	1401	0.153	2	1401	0.274
10:00 - 11:00	2	1401	0.096	2	1401	0.106	2	1401	0.202
11:00 - 12:00	2	1401	0.094	2	1401	0.081	2	1401	0.175
12:00 - 13:00	2	1401	0.109	2	1401	0.119	2	1401	0.228
13:00 - 14:00	2	1401	0.119	2	1401	0.096	2	1401	0.215
14:00 - 15:00	2	1401	0.136	2	1401	0.111	2	1401	0.247
15:00 - 16:00	2	1401	0.152	2	1401	0.135	2	1401	0.287
16:00 - 17:00	2	1401	0.212	2	1401	0.124	2	1401	0.336
17:00 - 18:00	2	1401	0.311	2	1401	0.141	2	1401	0.452
18:00 - 19:00	2	1401	0.296	2	1401	0.138	2	1401	0.434
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.811			1.838			3.649

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	984 - 1817 (units:)
Survey date range:	01/01/11 - 24/09/19
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
08:00 - 09:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
09:00 - 10:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
10:00 - 11:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
11:00 - 12:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
12:00 - 13:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
13:00 - 14:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
14:00 - 15:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
15:00 - 16:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
16:00 - 17:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
17:00 - 18:00	2	1401	0.003	2	1401	0.003	2	1401	0.006
18:00 - 19:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.009			0.018

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.001	2	1401	0.004	2	1401	0.005
08:00 - 09:00	2	1401	0.003	2	1401	0.002	2	1401	0.005
09:00 - 10:00	2	1401	0.002	2	1401	0.004	2	1401	0.006
10:00 - 11:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
11:00 - 12:00	2	1401	0.003	2	1401	0.002	2	1401	0.005
12:00 - 13:00	2	1401	0.003	2	1401	0.002	2	1401	0.005
13:00 - 14:00	2	1401	0.001	2	1401	0.002	2	1401	0.003
14:00 - 15:00	2	1401	0.004	2	1401	0.002	2	1401	0.006
15:00 - 16:00	2	1401	0.001	2	1401	0.003	2	1401	0.004
16:00 - 17:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
17:00 - 18:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
18:00 - 19:00	2	1401	0.001	2	1401	0.000	2	1401	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.025			0.027			0.052

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
08:00 - 09:00	2	1401	0.001	2	1401	0.002	2	1401	0.003
09:00 - 10:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
10:00 - 11:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
11:00 - 12:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
12:00 - 13:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
13:00 - 14:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
14:00 - 15:00	2	1401	0.002	2	1401	0.001	2	1401	0.003
15:00 - 16:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
16:00 - 17:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
17:00 - 18:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
18:00 - 19:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.016			0.016			0.032

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
08:00 - 09:00	2	1401	0.002	2	1401	0.005	2	1401	0.007
09:00 - 10:00	2	1401	0.001	2	1401	0.003	2	1401	0.004
10:00 - 11:00	2	1401	0.001	2	1401	0.002	2	1401	0.003
11:00 - 12:00	2	1401	0.001	2	1401	0.002	2	1401	0.003
12:00 - 13:00	2	1401	0.001	2	1401	0.002	2	1401	0.003
13:00 - 14:00	2	1401	0.002	2	1401	0.001	2	1401	0.003
14:00 - 15:00	2	1401	0.002	2	1401	0.001	2	1401	0.003
15:00 - 16:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
16:00 - 17:00	2	1401	0.004	2	1401	0.003	2	1401	0.007
17:00 - 18:00	2	1401	0.004	2	1401	0.002	2	1401	0.006
18:00 - 19:00	2	1401	0.004	2	1401	0.002	2	1401	0.006
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.025			0.026			0.051

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.074	2	1401	0.548	2	1401	0.622
08:00 - 09:00	2	1401	0.160	2	1401	0.589	2	1401	0.749
09:00 - 10:00	2	1401	0.182	2	1401	0.268	2	1401	0.450
10:00 - 11:00	2	1401	0.161	2	1401	0.187	2	1401	0.348
11:00 - 12:00	2	1401	0.161	2	1401	0.132	2	1401	0.293
12:00 - 13:00	2	1401	0.178	2	1401	0.178	2	1401	0.356
13:00 - 14:00	2	1401	0.185	2	1401	0.155	2	1401	0.340
14:00 - 15:00	2	1401	0.260	2	1401	0.161	2	1401	0.421
15:00 - 16:00	2	1401	0.297	2	1401	0.206	2	1401	0.503
16:00 - 17:00	2	1401	0.402	2	1401	0.197	2	1401	0.599
17:00 - 18:00	2	1401	0.528	2	1401	0.223	2	1401	0.751
18:00 - 19:00	2	1401	0.466	2	1401	0.235	2	1401	0.701
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.054			3.079			6.133

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.005	2	1401	0.024	2	1401	0.029
08:00 - 09:00	2	1401	0.004	2	1401	0.022	2	1401	0.026
09:00 - 10:00	2	1401	0.002	2	1401	0.011	2	1401	0.013
10:00 - 11:00	2	1401	0.005	2	1401	0.007	2	1401	0.012
11:00 - 12:00	2	1401	0.005	2	1401	0.007	2	1401	0.012
12:00 - 13:00	2	1401	0.006	2	1401	0.004	2	1401	0.010
13:00 - 14:00	2	1401	0.006	2	1401	0.005	2	1401	0.011
14:00 - 15:00	2	1401	0.007	2	1401	0.002	2	1401	0.009
15:00 - 16:00	2	1401	0.010	2	1401	0.006	2	1401	0.016
16:00 - 17:00	2	1401	0.018	2	1401	0.004	2	1401	0.022
17:00 - 18:00	2	1401	0.014	2	1401	0.002	2	1401	0.016
18:00 - 19:00	2	1401	0.010	2	1401	0.001	2	1401	0.011
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.092			0.095			0.187

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.000	2	1401	0.024	2	1401	0.024
08:00 - 09:00	2	1401	0.004	2	1401	0.035	2	1401	0.039
09:00 - 10:00	2	1401	0.008	2	1401	0.014	2	1401	0.022
10:00 - 11:00	2	1401	0.007	2	1401	0.013	2	1401	0.020
11:00 - 12:00	2	1401	0.006	2	1401	0.012	2	1401	0.018
12:00 - 13:00	2	1401	0.009	2	1401	0.009	2	1401	0.018
13:00 - 14:00	2	1401	0.011	2	1401	0.007	2	1401	0.018
14:00 - 15:00	2	1401	0.016	2	1401	0.005	2	1401	0.021
15:00 - 16:00	2	1401	0.018	2	1401	0.011	2	1401	0.029
16:00 - 17:00	2	1401	0.031	2	1401	0.007	2	1401	0.038
17:00 - 18:00	2	1401	0.025	2	1401	0.007	2	1401	0.032
18:00 - 19:00	2	1401	0.014	2	1401	0.005	2	1401	0.019
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.149			0.149			0.298

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.001	2	1401	0.003	2	1401	0.004
08:00 - 09:00	2	1401	0.001	2	1401	0.005	2	1401	0.006
09:00 - 10:00	2	1401	0.001	2	1401	0.004	2	1401	0.005
10:00 - 11:00	2	1401	0.002	2	1401	0.001	2	1401	0.003
11:00 - 12:00	2	1401	0.004	2	1401	0.001	2	1401	0.005
12:00 - 13:00	2	1401	0.004	2	1401	0.002	2	1401	0.006
13:00 - 14:00	2	1401	0.001	2	1401	0.000	2	1401	0.001
14:00 - 15:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
15:00 - 16:00	2	1401	0.002	2	1401	0.000	2	1401	0.002
16:00 - 17:00	2	1401	0.002	2	1401	0.000	2	1401	0.002
17:00 - 18:00	2	1401	0.006	2	1401	0.000	2	1401	0.006
18:00 - 19:00	2	1401	0.008	2	1401	0.001	2	1401	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.033			0.018			0.051

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.002	2	1401	0.027	2	1401	0.029
08:00 - 09:00	2	1401	0.005	2	1401	0.040	2	1401	0.045
09:00 - 10:00	2	1401	0.009	2	1401	0.018	2	1401	0.027
10:00 - 11:00	2	1401	0.010	2	1401	0.014	2	1401	0.024
11:00 - 12:00	2	1401	0.009	2	1401	0.013	2	1401	0.022
12:00 - 13:00	2	1401	0.014	2	1401	0.011	2	1401	0.025
13:00 - 14:00	2	1401	0.012	2	1401	0.008	2	1401	0.020
14:00 - 15:00	2	1401	0.017	2	1401	0.006	2	1401	0.023
15:00 - 16:00	2	1401	0.020	2	1401	0.011	2	1401	0.031
16:00 - 17:00	2	1401	0.033	2	1401	0.007	2	1401	0.040
17:00 - 18:00	2	1401	0.031	2	1401	0.007	2	1401	0.038
18:00 - 19:00	2	1401	0.022	2	1401	0.006	2	1401	0.028
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.184			0.168			0.352

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.082	2	1401	0.602	2	1401	0.684
08:00 - 09:00	2	1401	0.171	2	1401	0.656	2	1401	0.827
09:00 - 10:00	2	1401	0.195	2	1401	0.301	2	1401	0.496
10:00 - 11:00	2	1401	0.177	2	1401	0.211	2	1401	0.388
11:00 - 12:00	2	1401	0.176	2	1401	0.155	2	1401	0.331
12:00 - 13:00	2	1401	0.199	2	1401	0.195	2	1401	0.394
13:00 - 14:00	2	1401	0.205	2	1401	0.169	2	1401	0.374
14:00 - 15:00	2	1401	0.287	2	1401	0.170	2	1401	0.457
15:00 - 16:00	2	1401	0.328	2	1401	0.224	2	1401	0.552
16:00 - 17:00	2	1401	0.457	2	1401	0.211	2	1401	0.668
17:00 - 18:00	2	1401	0.577	2	1401	0.235	2	1401	0.812
18:00 - 19:00	2	1401	0.503	2	1401	0.243	2	1401	0.746
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.357			3.372			6.729

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CARS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.040	2	1401	0.281	2	1401	0.321
08:00 - 09:00	2	1401	0.089	2	1401	0.290	2	1401	0.379
09:00 - 10:00	2	1401	0.106	2	1401	0.140	2	1401	0.246
10:00 - 11:00	2	1401	0.084	2	1401	0.091	2	1401	0.175
11:00 - 12:00	2	1401	0.079	2	1401	0.069	2	1401	0.148
12:00 - 13:00	2	1401	0.095	2	1401	0.107	2	1401	0.202
13:00 - 14:00	2	1401	0.105	2	1401	0.084	2	1401	0.189
14:00 - 15:00	2	1401	0.120	2	1401	0.100	2	1401	0.220
15:00 - 16:00	2	1401	0.137	2	1401	0.113	2	1401	0.250
16:00 - 17:00	2	1401	0.192	2	1401	0.107	2	1401	0.299
17:00 - 18:00	2	1401	0.283	2	1401	0.127	2	1401	0.410
18:00 - 19:00	2	1401	0.277	2	1401	0.128	2	1401	0.405
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.607			1.637			3.244

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL LGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.009	2	1401	0.023	2	1401	0.032
08:00 - 09:00	2	1401	0.014	2	1401	0.018	2	1401	0.032
09:00 - 10:00	2	1401	0.010	2	1401	0.008	2	1401	0.018
10:00 - 11:00	2	1401	0.007	2	1401	0.011	2	1401	0.018
11:00 - 12:00	2	1401	0.008	2	1401	0.006	2	1401	0.014
12:00 - 13:00	2	1401	0.008	2	1401	0.007	2	1401	0.015
13:00 - 14:00	2	1401	0.009	2	1401	0.006	2	1401	0.015
14:00 - 15:00	2	1401	0.009	2	1401	0.005	2	1401	0.014
15:00 - 16:00	2	1401	0.011	2	1401	0.015	2	1401	0.026
16:00 - 17:00	2	1401	0.015	2	1401	0.012	2	1401	0.027
17:00 - 18:00	2	1401	0.018	2	1401	0.006	2	1401	0.024
18:00 - 19:00	2	1401	0.012	2	1401	0.006	2	1401	0.018
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.130			0.123			0.253

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL MOTOR CYCLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.001	2	1401	0.005	2	1401	0.006
08:00 - 09:00	2	1401	0.000	2	1401	0.005	2	1401	0.005
09:00 - 10:00	2	1401	0.000	2	1401	0.000	2	1401	0.000
10:00 - 11:00	2	1401	0.001	2	1401	0.000	2	1401	0.001
11:00 - 12:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
12:00 - 13:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
13:00 - 14:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
14:00 - 15:00	2	1401	0.002	2	1401	0.002	2	1401	0.004
15:00 - 16:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
16:00 - 17:00	2	1401	0.001	2	1401	0.001	2	1401	0.002
17:00 - 18:00	2	1401	0.003	2	1401	0.001	2	1401	0.004
18:00 - 19:00	2	1401	0.003	2	1401	0.001	2	1401	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.016			0.020			0.036

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL Servicing Vehicles

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	1401	0.002	2	1401	0.004	2	1401	0.006
08:00 - 09:00	2	1401	0.005	2	1401	0.004	2	1401	0.009
09:00 - 10:00	2	1401	0.004	2	1401	0.005	2	1401	0.009
10:00 - 11:00	2	1401	0.004	2	1401	0.003	2	1401	0.007
11:00 - 12:00	2	1401	0.005	2	1401	0.005	2	1401	0.010
12:00 - 13:00	2	1401	0.004	2	1401	0.004	2	1401	0.008
13:00 - 14:00	2	1401	0.003	2	1401	0.002	2	1401	0.005
14:00 - 15:00	2	1401	0.005	2	1401	0.004	2	1401	0.009
15:00 - 16:00	2	1401	0.004	2	1401	0.004	2	1401	0.008
16:00 - 17:00	2	1401	0.002	2	1401	0.004	2	1401	0.006
17:00 - 18:00	2	1401	0.006	2	1401	0.005	2	1401	0.011
18:00 - 19:00	2	1401	0.007	2	1401	0.007	2	1401	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.051			0.051			0.102

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Filtering Summary

Land Use	04/B	EDUCATION/SECONDARY
Selected Trip Rate Calculation Parameter Range	520-1913 PUPILS	
Actual Trip Rate Calculation Parameter Range	520-835 PUPILS	
Date Range	Minimum: 01/01/11	Maximum: 02/04/19
Parking Spaces Range	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	1
	Friday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	2
	Edge of Town	1
Population <1 Mile ranges selected	5,001 to 10,000	1
	20,001 to 25,000	2
Population <5 Mile ranges selected	25,001 to 50,000	2
	125,001 to 250,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	2
	1.1 to 1.5	1
PTAL Rating	No PTAL Present	3

Calculation Reference: AUDIT-204614-200224-0248

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
 Category : B - SECONDARY
 MULTI-MODAL VEHICLES

Selected regions and areas:

03	SOUTH WEST	
	DV DEVON	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of pupils
 Actual Range: 520 to 835 (units:)
 Range Selected by User: 520 to 1913 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 02/04/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	3 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Edge of Town	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	3
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This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

D1	3 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
20,001 to 25,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	2 days
125,001 to 250,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	3 days
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This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	3 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	DV-04-B-04	SECONDARY ACADEMY	DEVON
	EARL RICHARD	RD SOUTH	
	EXETER		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of pupils:	835	
	Survey date: <i>TUESDAY</i>	<i>02/04/19</i>	<i>Survey Type: MANUAL</i>
2	NE-04-B-01	SECONDARY SCHOOL	NORTH EAST LINCOLNSHIRE
	FOXHILLS ROAD		
	SCUNTHORPE		
	Edge of Town		
	Residential Zone		
	Total Number of pupils:	520	
	Survey date: <i>MONDAY</i>	<i>19/05/14</i>	<i>Survey Type: MANUAL</i>
3	NY-04-B-03	GIRLS' HIGH SCHOOL	NORTH YORKSHIRE
	GARGRAVE ROAD		
	SKIPTON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of pupils:	800	
	Survey date: <i>FRIDAY</i>	<i>08/03/19</i>	<i>Survey Type: MANUAL</i>

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL VEHICLES
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.058	3	718	0.023	3	718	0.081
08:00 - 09:00	3	718	0.150	3	718	0.135	3	718	0.285
09:00 - 10:00	3	718	0.018	3	718	0.016	3	718	0.034
10:00 - 11:00	3	718	0.014	3	718	0.013	3	718	0.027
11:00 - 12:00	3	718	0.010	3	718	0.010	3	718	0.020
12:00 - 13:00	3	718	0.013	3	718	0.020	3	718	0.033
13:00 - 14:00	3	718	0.011	3	718	0.013	3	718	0.024
14:00 - 15:00	3	718	0.026	3	718	0.033	3	718	0.059
15:00 - 16:00	3	718	0.055	3	718	0.078	3	718	0.133
16:00 - 17:00	3	718	0.089	3	718	0.112	3	718	0.201
17:00 - 18:00	3	718	0.026	3	718	0.019	3	718	0.045
18:00 - 19:00	2	818	0.034	2	818	0.015	2	818	0.049
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.504			0.487			0.991

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	520 - 835 (units:)
Survey date range:	01/01/11 - 02/04/19
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY

MULTI-MODAL TAXIS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.000	3	718	0.000	3	718	0.000
08:00 - 09:00	3	718	0.001	3	718	0.001	3	718	0.002
09:00 - 10:00	3	718	0.000	3	718	0.000	3	718	0.000
10:00 - 11:00	3	718	0.000	3	718	0.000	3	718	0.000
11:00 - 12:00	3	718	0.000	3	718	0.000	3	718	0.000
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.000	3	718	0.000	3	718	0.000
14:00 - 15:00	3	718	0.001	3	718	0.001	3	718	0.002
15:00 - 16:00	3	718	0.001	3	718	0.001	3	718	0.002
16:00 - 17:00	3	718	0.000	3	718	0.000	3	718	0.000
17:00 - 18:00	3	718	0.000	3	718	0.000	3	718	0.000
18:00 - 19:00	2	818	0.000	2	818	0.000	2	818	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.003			0.003			0.006

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL OGVS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.000	3	718	0.000	3	718	0.000
08:00 - 09:00	3	718	0.001	3	718	0.001	3	718	0.002
09:00 - 10:00	3	718	0.000	3	718	0.000	3	718	0.000
10:00 - 11:00	3	718	0.001	3	718	0.000	3	718	0.001
11:00 - 12:00	3	718	0.001	3	718	0.000	3	718	0.001
12:00 - 13:00	3	718	0.000	3	718	0.001	3	718	0.001
13:00 - 14:00	3	718	0.000	3	718	0.000	3	718	0.000
14:00 - 15:00	3	718	0.000	3	718	0.001	3	718	0.001
15:00 - 16:00	3	718	0.000	3	718	0.000	3	718	0.000
16:00 - 17:00	3	718	0.000	3	718	0.000	3	718	0.000
17:00 - 18:00	3	718	0.000	3	718	0.000	3	718	0.000
18:00 - 19:00	2	818	0.000	2	818	0.000	2	818	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.003			0.003			0.006

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL PSVS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.000	3	718	0.000	3	718	0.000
08:00 - 09:00	3	718	0.001	3	718	0.000	3	718	0.001
09:00 - 10:00	3	718	0.000	3	718	0.000	3	718	0.000
10:00 - 11:00	3	718	0.000	3	718	0.000	3	718	0.000
11:00 - 12:00	3	718	0.000	3	718	0.000	3	718	0.000
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.000	3	718	0.000	3	718	0.000
14:00 - 15:00	3	718	0.000	3	718	0.000	3	718	0.000
15:00 - 16:00	3	718	0.000	3	718	0.001	3	718	0.001
16:00 - 17:00	3	718	0.000	3	718	0.000	3	718	0.000
17:00 - 18:00	3	718	0.000	3	718	0.000	3	718	0.000
18:00 - 19:00	2	818	0.000	2	818	0.000	2	818	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.001			0.002

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL CYCLISTS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.002	3	718	0.000	3	718	0.002
08:00 - 09:00	3	718	0.040	3	718	0.000	3	718	0.040
09:00 - 10:00	3	718	0.001	3	718	0.000	3	718	0.001
10:00 - 11:00	3	718	0.000	3	718	0.000	3	718	0.000
11:00 - 12:00	3	718	0.000	3	718	0.000	3	718	0.000
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.000	3	718	0.000	3	718	0.000
14:00 - 15:00	3	718	0.000	3	718	0.006	3	718	0.006
15:00 - 16:00	3	718	0.000	3	718	0.019	3	718	0.019
16:00 - 17:00	3	718	0.000	3	718	0.016	3	718	0.016
17:00 - 18:00	3	718	0.000	3	718	0.000	3	718	0.000
18:00 - 19:00	2	818	0.002	2	818	0.001	2	818	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.045			0.042			0.087

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.072	3	718	0.013	3	718	0.085
08:00 - 09:00	3	718	0.219	3	718	0.086	3	718	0.305
09:00 - 10:00	3	718	0.022	3	718	0.013	3	718	0.035
10:00 - 11:00	3	718	0.016	3	718	0.014	3	718	0.030
11:00 - 12:00	3	718	0.011	3	718	0.011	3	718	0.022
12:00 - 13:00	3	718	0.016	3	718	0.024	3	718	0.040
13:00 - 14:00	3	718	0.013	3	718	0.018	3	718	0.031
14:00 - 15:00	3	718	0.041	3	718	0.041	3	718	0.082
15:00 - 16:00	3	718	0.052	3	718	0.130	3	718	0.182
16:00 - 17:00	3	718	0.021	3	718	0.138	3	718	0.159
17:00 - 18:00	3	718	0.037	3	718	0.031	3	718	0.068
18:00 - 19:00	2	818	0.064	2	818	0.020	2	818	0.084
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.584			0.539			1.123

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL PEDESTRIANS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.031	3	718	0.000	3	718	0.031
08:00 - 09:00	3	718	0.323	3	718	0.003	3	718	0.326
09:00 - 10:00	3	718	0.014	3	718	0.001	3	718	0.015
10:00 - 11:00	3	718	0.007	3	718	0.008	3	718	0.015
11:00 - 12:00	3	718	0.004	3	718	0.002	3	718	0.006
12:00 - 13:00	3	718	0.006	3	718	0.014	3	718	0.020
13:00 - 14:00	3	718	0.018	3	718	0.010	3	718	0.028
14:00 - 15:00	3	718	0.010	3	718	0.126	3	718	0.136
15:00 - 16:00	3	718	0.011	3	718	0.187	3	718	0.198
16:00 - 17:00	3	718	0.009	3	718	0.080	3	718	0.089
17:00 - 18:00	3	718	0.009	3	718	0.005	3	718	0.014
18:00 - 19:00	2	818	0.004	2	818	0.005	2	818	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.446			0.441			0.887

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL BUS/TRAM PASSENGERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.005	3	718	0.000	3	718	0.005
08:00 - 09:00	3	718	0.196	3	718	0.001	3	718	0.197
09:00 - 10:00	3	718	0.001	3	718	0.001	3	718	0.002
10:00 - 11:00	3	718	0.000	3	718	0.002	3	718	0.002
11:00 - 12:00	3	718	0.001	3	718	0.000	3	718	0.001
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.002	3	718	0.008	3	718	0.010
14:00 - 15:00	3	718	0.000	3	718	0.020	3	718	0.020
15:00 - 16:00	3	718	0.001	3	718	0.168	3	718	0.169
16:00 - 17:00	3	718	0.000	3	718	0.009	3	718	0.009
17:00 - 18:00	3	718	0.001	3	718	0.000	3	718	0.001
18:00 - 19:00	2	818	0.001	2	818	0.001	2	818	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.208			0.210			0.418

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL TOTAL RAIL PASSENGERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.000	3	718	0.000	3	718	0.000
08:00 - 09:00	3	718	0.027	3	718	0.000	3	718	0.027
09:00 - 10:00	3	718	0.000	3	718	0.000	3	718	0.000
10:00 - 11:00	3	718	0.000	3	718	0.000	3	718	0.000
11:00 - 12:00	3	718	0.000	3	718	0.000	3	718	0.000
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.000	3	718	0.000	3	718	0.000
14:00 - 15:00	3	718	0.000	3	718	0.000	3	718	0.000
15:00 - 16:00	3	718	0.000	3	718	0.010	3	718	0.010
16:00 - 17:00	3	718	0.000	3	718	0.016	3	718	0.016
17:00 - 18:00	3	718	0.000	3	718	0.000	3	718	0.000
18:00 - 19:00	2	818	0.000	2	818	0.001	2	818	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.027			0.027			0.054

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.005	3	718	0.000	3	718	0.005
08:00 - 09:00	3	718	0.224	3	718	0.001	3	718	0.225
09:00 - 10:00	3	718	0.001	3	718	0.001	3	718	0.002
10:00 - 11:00	3	718	0.001	3	718	0.002	3	718	0.003
11:00 - 12:00	3	718	0.001	3	718	0.000	3	718	0.001
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.002	3	718	0.008	3	718	0.010
14:00 - 15:00	3	718	0.000	3	718	0.020	3	718	0.020
15:00 - 16:00	3	718	0.001	3	718	0.178	3	718	0.179
16:00 - 17:00	3	718	0.000	3	718	0.025	3	718	0.025
17:00 - 18:00	3	718	0.001	3	718	0.000	3	718	0.001
18:00 - 19:00	2	818	0.001	2	818	0.001	2	818	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.237			0.236			0.473

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.110	3	718	0.014	3	718	0.124
08:00 - 09:00	3	718	0.806	3	718	0.090	3	718	0.896
09:00 - 10:00	3	718	0.039	3	718	0.016	3	718	0.055
10:00 - 11:00	3	718	0.025	3	718	0.025	3	718	0.050
11:00 - 12:00	3	718	0.016	3	718	0.014	3	718	0.030
12:00 - 13:00	3	718	0.023	3	718	0.038	3	718	0.061
13:00 - 14:00	3	718	0.033	3	718	0.036	3	718	0.069
14:00 - 15:00	3	718	0.051	3	718	0.193	3	718	0.244
15:00 - 16:00	3	718	0.065	3	718	0.514	3	718	0.579
16:00 - 17:00	3	718	0.030	3	718	0.259	3	718	0.289
17:00 - 18:00	3	718	0.047	3	718	0.036	3	718	0.083
18:00 - 19:00	2	818	0.072	2	818	0.027	2	818	0.099
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.317			1.262			2.579

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL CARS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.034	3	718	0.017	3	718	0.051
08:00 - 09:00	3	718	0.120	3	718	0.114	3	718	0.234
09:00 - 10:00	3	718	0.011	3	718	0.011	3	718	0.022
10:00 - 11:00	3	718	0.007	3	718	0.007	3	718	0.014
11:00 - 12:00	3	718	0.005	3	718	0.006	3	718	0.011
12:00 - 13:00	3	718	0.005	3	718	0.010	3	718	0.015
13:00 - 14:00	3	718	0.007	3	718	0.009	3	718	0.016
14:00 - 15:00	3	718	0.010	3	718	0.006	3	718	0.016
15:00 - 16:00	3	718	0.043	3	718	0.059	3	718	0.102
16:00 - 17:00	3	718	0.087	3	718	0.101	3	718	0.188
17:00 - 18:00	3	718	0.022	3	718	0.016	3	718	0.038
18:00 - 19:00	2	818	0.032	2	818	0.015	2	818	0.047
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.383			0.371			0.754

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
 MULTI-MODAL LGVS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.001	3	718	0.000	3	718	0.001
08:00 - 09:00	3	718	0.002	3	718	0.003	3	718	0.005
09:00 - 10:00	3	718	0.001	3	718	0.001	3	718	0.002
10:00 - 11:00	3	718	0.002	3	718	0.002	3	718	0.004
11:00 - 12:00	3	718	0.000	3	718	0.000	3	718	0.000
12:00 - 13:00	3	718	0.003	3	718	0.002	3	718	0.005
13:00 - 14:00	3	718	0.002	3	718	0.002	3	718	0.004
14:00 - 15:00	3	718	0.000	3	718	0.001	3	718	0.001
15:00 - 16:00	3	718	0.000	3	718	0.001	3	718	0.001
16:00 - 17:00	3	718	0.001	3	718	0.001	3	718	0.002
17:00 - 18:00	3	718	0.001	3	718	0.000	3	718	0.001
18:00 - 19:00	2	818	0.002	2	818	0.000	2	818	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.015			0.013			0.028

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 04 - EDUCATION/B - SECONDARY
MULTI-MODAL MOTOR CYCLES

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	718	0.000	3	718	0.000	3	718	0.000
08:00 - 09:00	3	718	0.000	3	718	0.000	3	718	0.000
09:00 - 10:00	3	718	0.000	3	718	0.000	3	718	0.000
10:00 - 11:00	3	718	0.000	3	718	0.000	3	718	0.000
11:00 - 12:00	3	718	0.000	3	718	0.000	3	718	0.000
12:00 - 13:00	3	718	0.000	3	718	0.000	3	718	0.000
13:00 - 14:00	3	718	0.000	3	718	0.000	3	718	0.000
14:00 - 15:00	3	718	0.000	3	718	0.000	3	718	0.000
15:00 - 16:00	3	718	0.000	3	718	0.000	3	718	0.000
16:00 - 17:00	3	718	0.000	3	718	0.000	3	718	0.000
17:00 - 18:00	3	718	0.000	3	718	0.000	3	718	0.000
18:00 - 19:00	2	818	0.000	2	818	0.000	2	818	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Filtering Summary

Land Use	02/B	EMPLOYMENT/BUSINESS PARK
Selected Trip Rate Calculation Parameter Range	2000-50000 sqm GFA	
Actual Trip Rate Calculation Parameter Range	2900-20760 sqm GFA	
Date Range	Minimum: 01/01/11	Maximum: 26/06/18
Parking Spaces Range	All Surveys Included	
Days of the week selected	Tuesday	1
	Wednesday	1
	Thursday	1
	Friday	2
Main Location Types selected	Edge of Town	4
	Neighbourhood Centre (PPS6 Local Centre)	1
Population <1 Mile ranges selected	5,001 to 10,000	1
	10,001 to 15,000	3
	15,001 to 20,000	1
Population <5 Mile ranges selected	50,001 to 75,000	2
	125,001 to 250,000	3
Car Ownership <5 Mile ranges selected	0.6 to 1.0	1
	1.1 to 1.5	4
PTAL Rating	No PTAL Present	5

Calculation Reference: AUDIT-204614-200224-0205

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : B - BUSINESS PARK
 MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	2 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	1 days
	WO WORCESTERSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 2900 to 20760 (units: sqm)
 Range Selected by User: 2000 to 50000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 26/06/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	1 days
Thursday	1 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	4
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	4
Village	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

B1 5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	3 days
15,001 to 20,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	2 days
125,001 to 250,000	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
 MULTI-MODAL VEHICLES
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.371	5	7386	0.041	5	7386	0.412
07:30 - 08:00	5	7386	0.772	5	7386	0.054	5	7386	0.826
08:00 - 08:30	5	7386	0.975	5	7386	0.079	5	7386	1.054
08:30 - 09:00	5	7386	0.853	5	7386	0.141	5	7386	0.994
09:00 - 09:30	5	7386	0.631	5	7386	0.171	5	7386	0.802
09:30 - 10:00	5	7386	0.236	5	7386	0.157	5	7386	0.393
10:00 - 10:30	5	7386	0.176	5	7386	0.160	5	7386	0.336
10:30 - 11:00	5	7386	0.168	5	7386	0.152	5	7386	0.320
11:00 - 11:30	5	7386	0.144	5	7386	0.168	5	7386	0.312
11:30 - 12:00	5	7386	0.176	5	7386	0.168	5	7386	0.344
12:00 - 12:30	5	7386	0.184	5	7386	0.260	5	7386	0.444
12:30 - 13:00	5	7386	0.263	5	7386	0.246	5	7386	0.509
13:00 - 13:30	5	7386	0.244	5	7386	0.154	5	7386	0.398
13:30 - 14:00	5	7386	0.222	5	7386	0.200	5	7386	0.422
14:00 - 14:30	5	7386	0.125	5	7386	0.149	5	7386	0.274
14:30 - 15:00	5	7386	0.127	5	7386	0.195	5	7386	0.322
15:00 - 15:30	5	7386	0.125	5	7386	0.255	5	7386	0.380
15:30 - 16:00	5	7386	0.103	5	7386	0.276	5	7386	0.379
16:00 - 16:30	5	7386	0.133	5	7386	0.601	5	7386	0.734
16:30 - 17:00	5	7386	0.141	5	7386	0.742	5	7386	0.883
17:00 - 17:30	5	7386	0.162	5	7386	0.793	5	7386	0.955
17:30 - 18:00	5	7386	0.043	5	7386	0.674	5	7386	0.717
18:00 - 18:30	5	7386	0.079	5	7386	0.403	5	7386	0.482
18:30 - 19:00	5	7386	0.049	5	7386	0.363	5	7386	0.412
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			6.502			6.602			13.104

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:	2900 - 20760 (units: sqm)
Survey date date range:	01/01/11 - 26/06/18
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL TAXIS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
07:30 - 08:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
08:00 - 08:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
08:30 - 09:00	5	7386	0.005	5	7386	0.003	5	7386	0.008
09:00 - 09:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
09:30 - 10:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:00 - 10:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
10:30 - 11:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
11:00 - 11:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:30 - 12:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
12:00 - 12:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
12:30 - 13:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:00 - 13:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:30 - 14:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
14:00 - 14:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
14:30 - 15:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:00 - 15:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:30 - 16:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
16:00 - 16:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
16:30 - 17:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
17:00 - 17:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
17:30 - 18:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
18:00 - 18:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
18:30 - 19:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.014			0.015			0.029

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.005	5	7386	0.005	5	7386	0.010
07:30 - 08:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
08:00 - 08:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
08:30 - 09:00	5	7386	0.016	5	7386	0.019	5	7386	0.035
09:00 - 09:30	5	7386	0.011	5	7386	0.011	5	7386	0.022
09:30 - 10:00	5	7386	0.016	5	7386	0.008	5	7386	0.024
10:00 - 10:30	5	7386	0.003	5	7386	0.014	5	7386	0.017
10:30 - 11:00	5	7386	0.005	5	7386	0.003	5	7386	0.008
11:00 - 11:30	5	7386	0.005	5	7386	0.005	5	7386	0.010
11:30 - 12:00	5	7386	0.014	5	7386	0.016	5	7386	0.030
12:00 - 12:30	5	7386	0.014	5	7386	0.008	5	7386	0.022
12:30 - 13:00	5	7386	0.011	5	7386	0.011	5	7386	0.022
13:00 - 13:30	5	7386	0.005	5	7386	0.003	5	7386	0.008
13:30 - 14:00	5	7386	0.011	5	7386	0.011	5	7386	0.022
14:00 - 14:30	5	7386	0.003	5	7386	0.008	5	7386	0.011
14:30 - 15:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
15:00 - 15:30	5	7386	0.016	5	7386	0.014	5	7386	0.030
15:30 - 16:00	5	7386	0.008	5	7386	0.011	5	7386	0.019
16:00 - 16:30	5	7386	0.008	5	7386	0.008	5	7386	0.016
16:30 - 17:00	5	7386	0.003	5	7386	0.005	5	7386	0.008
17:00 - 17:30	5	7386	0.003	5	7386	0.005	5	7386	0.008
17:30 - 18:00	5	7386	0.003	5	7386	0.005	5	7386	0.008
18:00 - 18:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
18:30 - 19:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.169			0.179			0.348

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
 MULTI-MODAL PSVS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
07:30 - 08:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
08:00 - 08:30	5	7386	0.005	5	7386	0.005	5	7386	0.010
08:30 - 09:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
09:00 - 09:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
09:30 - 10:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:00 - 10:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:30 - 11:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:00 - 11:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:30 - 12:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
12:00 - 12:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
12:30 - 13:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:00 - 13:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:30 - 14:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
14:00 - 14:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
14:30 - 15:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:00 - 15:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:30 - 16:00	5	7386	0.005	5	7386	0.005	5	7386	0.010
16:00 - 16:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
16:30 - 17:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
17:00 - 17:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
17:30 - 18:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
18:00 - 18:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
18:30 - 19:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.034			0.034			0.068

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
 MULTI-MODAL CYCLISTS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
07:30 - 08:00	5	7386	0.005	5	7386	0.000	5	7386	0.005
08:00 - 08:30	5	7386	0.016	5	7386	0.000	5	7386	0.016
08:30 - 09:00	5	7386	0.014	5	7386	0.000	5	7386	0.014
09:00 - 09:30	5	7386	0.008	5	7386	0.000	5	7386	0.008
09:30 - 10:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
10:00 - 10:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:30 - 11:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:00 - 11:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
11:30 - 12:00	5	7386	0.003	5	7386	0.003	5	7386	0.006
12:00 - 12:30	5	7386	0.000	5	7386	0.005	5	7386	0.005
12:30 - 13:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
13:00 - 13:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:30 - 14:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
14:00 - 14:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
14:30 - 15:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
15:00 - 15:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
15:30 - 16:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
16:00 - 16:30	5	7386	0.000	5	7386	0.008	5	7386	0.008
16:30 - 17:00	5	7386	0.000	5	7386	0.005	5	7386	0.005
17:00 - 17:30	5	7386	0.000	5	7386	0.014	5	7386	0.014
17:30 - 18:00	5	7386	0.000	5	7386	0.014	5	7386	0.014
18:00 - 18:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
18:30 - 19:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.061			0.067			0.128

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.523	5	7386	0.046	5	7386	0.569
07:30 - 08:00	5	7386	1.056	5	7386	0.062	5	7386	1.118
08:00 - 08:30	5	7386	1.267	5	7386	0.089	5	7386	1.356
08:30 - 09:00	5	7386	1.108	5	7386	0.190	5	7386	1.298
09:00 - 09:30	5	7386	0.834	5	7386	0.222	5	7386	1.056
09:30 - 10:00	5	7386	0.333	5	7386	0.195	5	7386	0.528
10:00 - 10:30	5	7386	0.260	5	7386	0.225	5	7386	0.485
10:30 - 11:00	5	7386	0.246	5	7386	0.198	5	7386	0.444
11:00 - 11:30	5	7386	0.217	5	7386	0.230	5	7386	0.447
11:30 - 12:00	5	7386	0.255	5	7386	0.222	5	7386	0.477
12:00 - 12:30	5	7386	0.255	5	7386	0.366	5	7386	0.621
12:30 - 13:00	5	7386	0.366	5	7386	0.336	5	7386	0.702
13:00 - 13:30	5	7386	0.357	5	7386	0.230	5	7386	0.587
13:30 - 14:00	5	7386	0.303	5	7386	0.279	5	7386	0.582
14:00 - 14:30	5	7386	0.171	5	7386	0.217	5	7386	0.388
14:30 - 15:00	5	7386	0.190	5	7386	0.290	5	7386	0.480
15:00 - 15:30	5	7386	0.187	5	7386	0.376	5	7386	0.563
15:30 - 16:00	5	7386	0.149	5	7386	0.390	5	7386	0.539
16:00 - 16:30	5	7386	0.176	5	7386	0.842	5	7386	1.018
16:30 - 17:00	5	7386	0.190	5	7386	1.070	5	7386	1.260
17:00 - 17:30	5	7386	0.225	5	7386	1.086	5	7386	1.311
17:30 - 18:00	5	7386	0.057	5	7386	0.913	5	7386	0.970
18:00 - 18:30	5	7386	0.125	5	7386	0.571	5	7386	0.696
18:30 - 19:00	5	7386	0.076	5	7386	0.509	5	7386	0.585
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			8.926			9.154			18.080

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
 MULTI-MODAL PEDESTRIANS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.005	5	7386	0.003	5	7386	0.008
07:30 - 08:00	5	7386	0.011	5	7386	0.016	5	7386	0.027
08:00 - 08:30	5	7386	0.022	5	7386	0.016	5	7386	0.038
08:30 - 09:00	5	7386	0.035	5	7386	0.011	5	7386	0.046
09:00 - 09:30	5	7386	0.014	5	7386	0.008	5	7386	0.022
09:30 - 10:00	5	7386	0.008	5	7386	0.003	5	7386	0.011
10:00 - 10:30	5	7386	0.008	5	7386	0.014	5	7386	0.022
10:30 - 11:00	5	7386	0.005	5	7386	0.005	5	7386	0.010
11:00 - 11:30	5	7386	0.005	5	7386	0.011	5	7386	0.016
11:30 - 12:00	5	7386	0.000	5	7386	0.008	5	7386	0.008
12:00 - 12:30	5	7386	0.011	5	7386	0.016	5	7386	0.027
12:30 - 13:00	5	7386	0.030	5	7386	0.027	5	7386	0.057
13:00 - 13:30	5	7386	0.051	5	7386	0.027	5	7386	0.078
13:30 - 14:00	5	7386	0.019	5	7386	0.027	5	7386	0.046
14:00 - 14:30	5	7386	0.014	5	7386	0.016	5	7386	0.030
14:30 - 15:00	5	7386	0.000	5	7386	0.008	5	7386	0.008
15:00 - 15:30	5	7386	0.011	5	7386	0.003	5	7386	0.014
15:30 - 16:00	5	7386	0.005	5	7386	0.008	5	7386	0.013
16:00 - 16:30	5	7386	0.005	5	7386	0.024	5	7386	0.029
16:30 - 17:00	5	7386	0.016	5	7386	0.005	5	7386	0.021
17:00 - 17:30	5	7386	0.024	5	7386	0.022	5	7386	0.046
17:30 - 18:00	5	7386	0.011	5	7386	0.019	5	7386	0.030
18:00 - 18:30	5	7386	0.011	5	7386	0.014	5	7386	0.025
18:30 - 19:00	5	7386	0.005	5	7386	0.008	5	7386	0.013
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.326			0.319			0.645

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
MULTI-MODAL BUS/TRAM PASSENGERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
07:30 - 08:00	5	7386	0.008	5	7386	0.000	5	7386	0.008
08:00 - 08:30	5	7386	0.032	5	7386	0.000	5	7386	0.032
08:30 - 09:00	5	7386	0.041	5	7386	0.000	5	7386	0.041
09:00 - 09:30	5	7386	0.016	5	7386	0.000	5	7386	0.016
09:30 - 10:00	5	7386	0.005	5	7386	0.000	5	7386	0.005
10:00 - 10:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
10:30 - 11:00	5	7386	0.011	5	7386	0.000	5	7386	0.011
11:00 - 11:30	5	7386	0.000	5	7386	0.005	5	7386	0.005
11:30 - 12:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
12:00 - 12:30	5	7386	0.014	5	7386	0.005	5	7386	0.019
12:30 - 13:00	5	7386	0.030	5	7386	0.003	5	7386	0.033
13:00 - 13:30	5	7386	0.019	5	7386	0.008	5	7386	0.027
13:30 - 14:00	5	7386	0.005	5	7386	0.008	5	7386	0.013
14:00 - 14:30	5	7386	0.000	5	7386	0.008	5	7386	0.008
14:30 - 15:00	5	7386	0.005	5	7386	0.005	5	7386	0.010
15:00 - 15:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
15:30 - 16:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
16:00 - 16:30	5	7386	0.003	5	7386	0.011	5	7386	0.014
16:30 - 17:00	5	7386	0.000	5	7386	0.022	5	7386	0.022
17:00 - 17:30	5	7386	0.011	5	7386	0.051	5	7386	0.062
17:30 - 18:00	5	7386	0.005	5	7386	0.049	5	7386	0.054
18:00 - 18:30	5	7386	0.003	5	7386	0.022	5	7386	0.025
18:30 - 19:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.217			0.206			0.423

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
MULTI-MODAL TOTAL RAIL PASSENGERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
07:30 - 08:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
08:00 - 08:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
08:30 - 09:00	5	7386	0.005	5	7386	0.000	5	7386	0.005
09:00 - 09:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
09:30 - 10:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:00 - 10:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:30 - 11:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
11:00 - 11:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:30 - 12:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
12:00 - 12:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
12:30 - 13:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:00 - 13:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
13:30 - 14:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
14:00 - 14:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
14:30 - 15:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:00 - 15:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:30 - 16:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
16:00 - 16:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
16:30 - 17:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
17:00 - 17:30	5	7386	0.000	5	7386	0.005	5	7386	0.005
17:30 - 18:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
18:00 - 18:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
18:30 - 19:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.017			0.017			0.034

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
07:30 - 08:00	5	7386	0.011	5	7386	0.000	5	7386	0.011
08:00 - 08:30	5	7386	0.035	5	7386	0.000	5	7386	0.035
08:30 - 09:00	5	7386	0.046	5	7386	0.000	5	7386	0.046
09:00 - 09:30	5	7386	0.016	5	7386	0.000	5	7386	0.016
09:30 - 10:00	5	7386	0.005	5	7386	0.000	5	7386	0.005
10:00 - 10:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
10:30 - 11:00	5	7386	0.014	5	7386	0.000	5	7386	0.014
11:00 - 11:30	5	7386	0.000	5	7386	0.005	5	7386	0.005
11:30 - 12:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
12:00 - 12:30	5	7386	0.016	5	7386	0.005	5	7386	0.021
12:30 - 13:00	5	7386	0.030	5	7386	0.003	5	7386	0.033
13:00 - 13:30	5	7386	0.019	5	7386	0.011	5	7386	0.030
13:30 - 14:00	5	7386	0.005	5	7386	0.008	5	7386	0.013
14:00 - 14:30	5	7386	0.000	5	7386	0.011	5	7386	0.011
14:30 - 15:00	5	7386	0.005	5	7386	0.005	5	7386	0.010
15:00 - 15:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
15:30 - 16:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
16:00 - 16:30	5	7386	0.003	5	7386	0.014	5	7386	0.017
16:30 - 17:00	5	7386	0.000	5	7386	0.022	5	7386	0.022
17:00 - 17:30	5	7386	0.011	5	7386	0.057	5	7386	0.068
17:30 - 18:00	5	7386	0.005	5	7386	0.051	5	7386	0.056
18:00 - 18:30	5	7386	0.003	5	7386	0.022	5	7386	0.025
18:30 - 19:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.233			0.223			0.456

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.533	5	7386	0.049	5	7386	0.582
07:30 - 08:00	5	7386	1.083	5	7386	0.079	5	7386	1.162
08:00 - 08:30	5	7386	1.340	5	7386	0.106	5	7386	1.446
08:30 - 09:00	5	7386	1.202	5	7386	0.200	5	7386	1.402
09:00 - 09:30	5	7386	0.872	5	7386	0.230	5	7386	1.102
09:30 - 10:00	5	7386	0.349	5	7386	0.198	5	7386	0.547
10:00 - 10:30	5	7386	0.271	5	7386	0.238	5	7386	0.509
10:30 - 11:00	5	7386	0.265	5	7386	0.203	5	7386	0.468
11:00 - 11:30	5	7386	0.225	5	7386	0.249	5	7386	0.474
11:30 - 12:00	5	7386	0.257	5	7386	0.236	5	7386	0.493
12:00 - 12:30	5	7386	0.282	5	7386	0.393	5	7386	0.675
12:30 - 13:00	5	7386	0.428	5	7386	0.366	5	7386	0.794
13:00 - 13:30	5	7386	0.428	5	7386	0.268	5	7386	0.696
13:30 - 14:00	5	7386	0.328	5	7386	0.314	5	7386	0.642
14:00 - 14:30	5	7386	0.187	5	7386	0.244	5	7386	0.431
14:30 - 15:00	5	7386	0.195	5	7386	0.306	5	7386	0.501
15:00 - 15:30	5	7386	0.200	5	7386	0.382	5	7386	0.582
15:30 - 16:00	5	7386	0.154	5	7386	0.403	5	7386	0.557
16:00 - 16:30	5	7386	0.184	5	7386	0.888	5	7386	1.072
16:30 - 17:00	5	7386	0.206	5	7386	1.102	5	7386	1.308
17:00 - 17:30	5	7386	0.260	5	7386	1.178	5	7386	1.438
17:30 - 18:00	5	7386	0.073	5	7386	0.996	5	7386	1.069
18:00 - 18:30	5	7386	0.138	5	7386	0.609	5	7386	0.747
18:30 - 19:00	5	7386	0.081	5	7386	0.523	5	7386	0.604
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			9.541			9.760			19.301

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL CARS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.347	5	7386	0.024	5	7386	0.371
07:30 - 08:00	5	7386	0.745	5	7386	0.041	5	7386	0.786
08:00 - 08:30	5	7386	0.923	5	7386	0.049	5	7386	0.972
08:30 - 09:00	5	7386	0.755	5	7386	0.057	5	7386	0.812
09:00 - 09:30	5	7386	0.569	5	7386	0.100	5	7386	0.669
09:30 - 10:00	5	7386	0.157	5	7386	0.089	5	7386	0.246
10:00 - 10:30	5	7386	0.097	5	7386	0.065	5	7386	0.162
10:30 - 11:00	5	7386	0.089	5	7386	0.079	5	7386	0.168
11:00 - 11:30	5	7386	0.065	5	7386	0.081	5	7386	0.146
11:30 - 12:00	5	7386	0.097	5	7386	0.095	5	7386	0.192
12:00 - 12:30	5	7386	0.111	5	7386	0.190	5	7386	0.301
12:30 - 13:00	5	7386	0.192	5	7386	0.192	5	7386	0.384
13:00 - 13:30	5	7386	0.181	5	7386	0.108	5	7386	0.289
13:30 - 14:00	5	7386	0.149	5	7386	0.111	5	7386	0.260
14:00 - 14:30	5	7386	0.084	5	7386	0.106	5	7386	0.190
14:30 - 15:00	5	7386	0.065	5	7386	0.133	5	7386	0.198
15:00 - 15:30	5	7386	0.076	5	7386	0.200	5	7386	0.276
15:30 - 16:00	5	7386	0.057	5	7386	0.222	5	7386	0.279
16:00 - 16:30	5	7386	0.087	5	7386	0.539	5	7386	0.626
16:30 - 17:00	5	7386	0.103	5	7386	0.696	5	7386	0.799
17:00 - 17:30	5	7386	0.141	5	7386	0.737	5	7386	0.878
17:30 - 18:00	5	7386	0.032	5	7386	0.644	5	7386	0.676
18:00 - 18:30	5	7386	0.065	5	7386	0.390	5	7386	0.455
18:30 - 19:00	5	7386	0.049	5	7386	0.349	5	7386	0.398
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			5.236			5.297			10.533

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL LGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.014	5	7386	0.011	5	7386	0.025
07:30 - 08:00	5	7386	0.019	5	7386	0.011	5	7386	0.030
08:00 - 08:30	5	7386	0.041	5	7386	0.022	5	7386	0.063
08:30 - 09:00	5	7386	0.070	5	7386	0.057	5	7386	0.127
09:00 - 09:30	5	7386	0.043	5	7386	0.060	5	7386	0.103
09:30 - 10:00	5	7386	0.062	5	7386	0.060	5	7386	0.122
10:00 - 10:30	5	7386	0.076	5	7386	0.079	5	7386	0.155
10:30 - 11:00	5	7386	0.070	5	7386	0.068	5	7386	0.138
11:00 - 11:30	5	7386	0.073	5	7386	0.081	5	7386	0.154
11:30 - 12:00	5	7386	0.060	5	7386	0.054	5	7386	0.114
12:00 - 12:30	5	7386	0.057	5	7386	0.060	5	7386	0.117
12:30 - 13:00	5	7386	0.060	5	7386	0.046	5	7386	0.106
13:00 - 13:30	5	7386	0.057	5	7386	0.038	5	7386	0.095
13:30 - 14:00	5	7386	0.062	5	7386	0.076	5	7386	0.138
14:00 - 14:30	5	7386	0.038	5	7386	0.032	5	7386	0.070
14:30 - 15:00	5	7386	0.060	5	7386	0.060	5	7386	0.120
15:00 - 15:30	5	7386	0.030	5	7386	0.041	5	7386	0.071
15:30 - 16:00	5	7386	0.032	5	7386	0.038	5	7386	0.070
16:00 - 16:30	5	7386	0.032	5	7386	0.049	5	7386	0.081
16:30 - 17:00	5	7386	0.032	5	7386	0.027	5	7386	0.059
17:00 - 17:30	5	7386	0.011	5	7386	0.046	5	7386	0.057
17:30 - 18:00	5	7386	0.005	5	7386	0.022	5	7386	0.027
18:00 - 18:30	5	7386	0.011	5	7386	0.005	5	7386	0.016
18:30 - 19:00	5	7386	0.000	5	7386	0.008	5	7386	0.008
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			1.015			1.051			2.066

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL MOTOR CYCLES

Calculation factor: 100 sqm

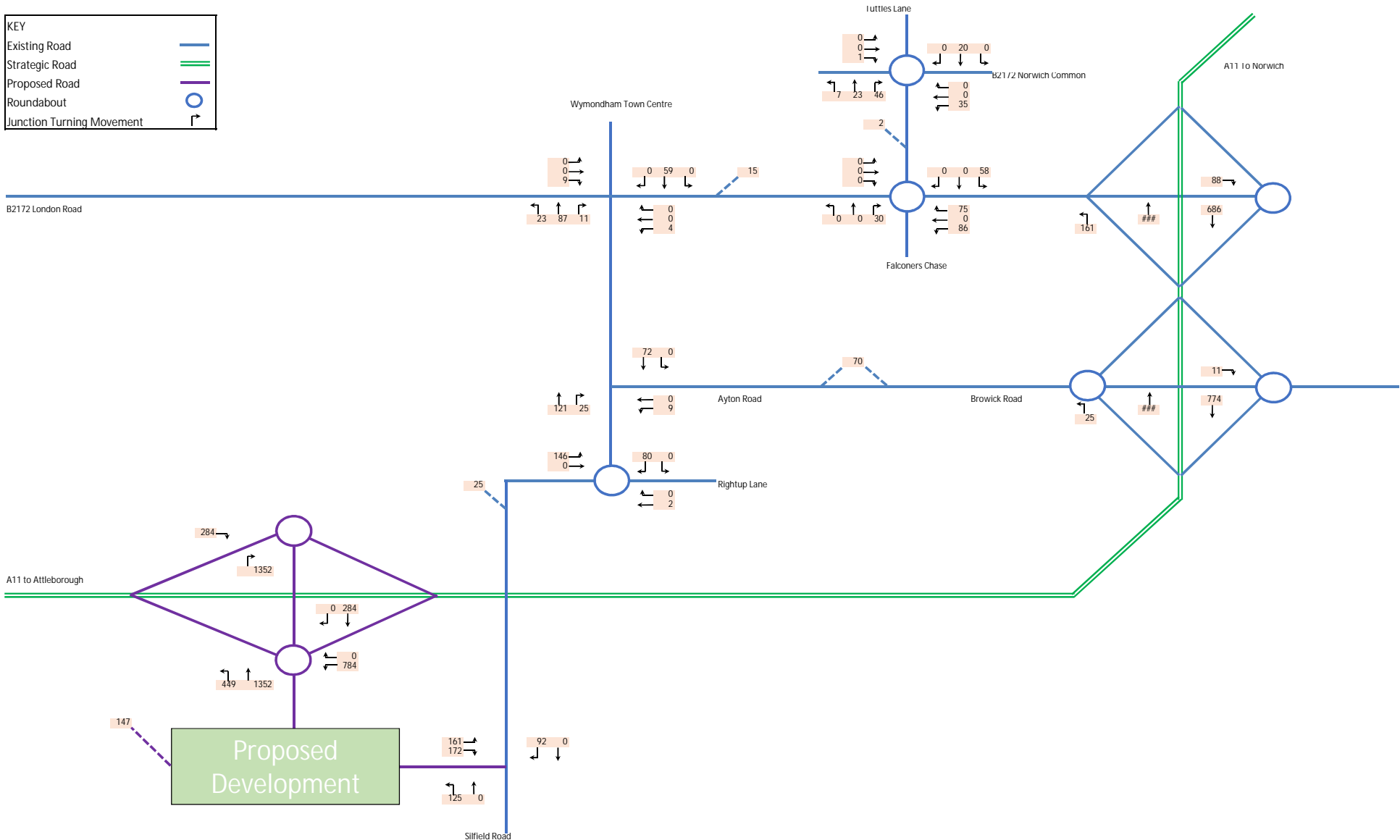
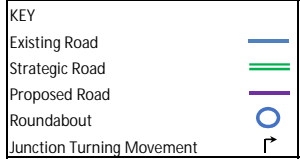
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
07:30 - 08:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
08:00 - 08:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
08:30 - 09:00	5	7386	0.003	5	7386	0.000	5	7386	0.003
09:00 - 09:30	5	7386	0.005	5	7386	0.000	5	7386	0.005
09:30 - 10:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:00 - 10:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
10:30 - 11:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:00 - 11:30	5	7386	0.000	5	7386	0.000	5	7386	0.000
11:30 - 12:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
12:00 - 12:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
12:30 - 13:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
13:00 - 13:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
13:30 - 14:00	5	7386	0.000	5	7386	0.003	5	7386	0.003
14:00 - 14:30	5	7386	0.000	5	7386	0.003	5	7386	0.003
14:30 - 15:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
15:00 - 15:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
15:30 - 16:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
16:00 - 16:30	5	7386	0.003	5	7386	0.003	5	7386	0.006
16:30 - 17:00	5	7386	0.000	5	7386	0.011	5	7386	0.011
17:00 - 17:30	5	7386	0.003	5	7386	0.000	5	7386	0.003
17:30 - 18:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
18:00 - 18:30	5	7386	0.000	5	7386	0.005	5	7386	0.005
18:30 - 19:00	5	7386	0.000	5	7386	0.000	5	7386	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.029			0.031			0.060

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

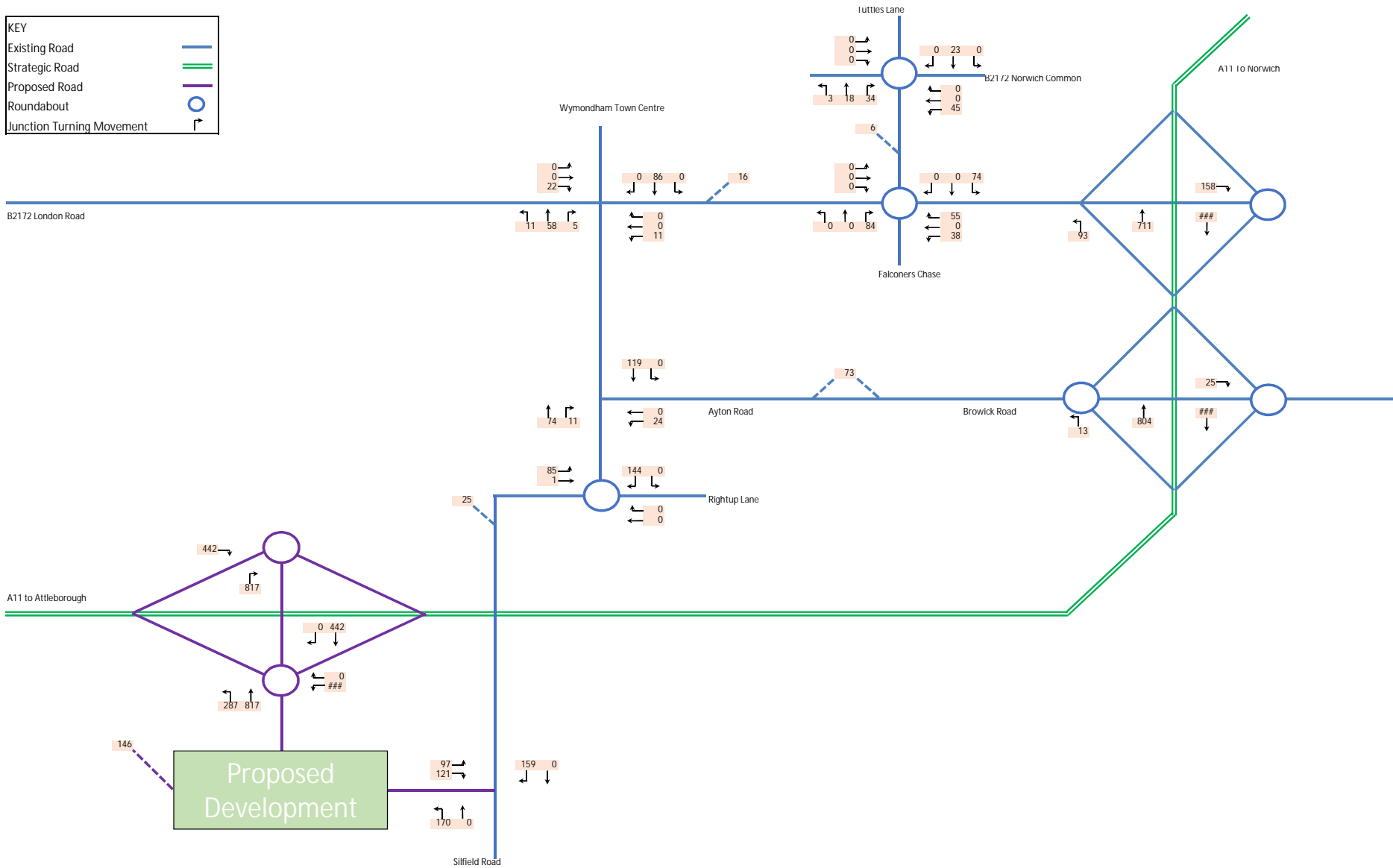
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Appendix F – Traffic Flow Diagrams



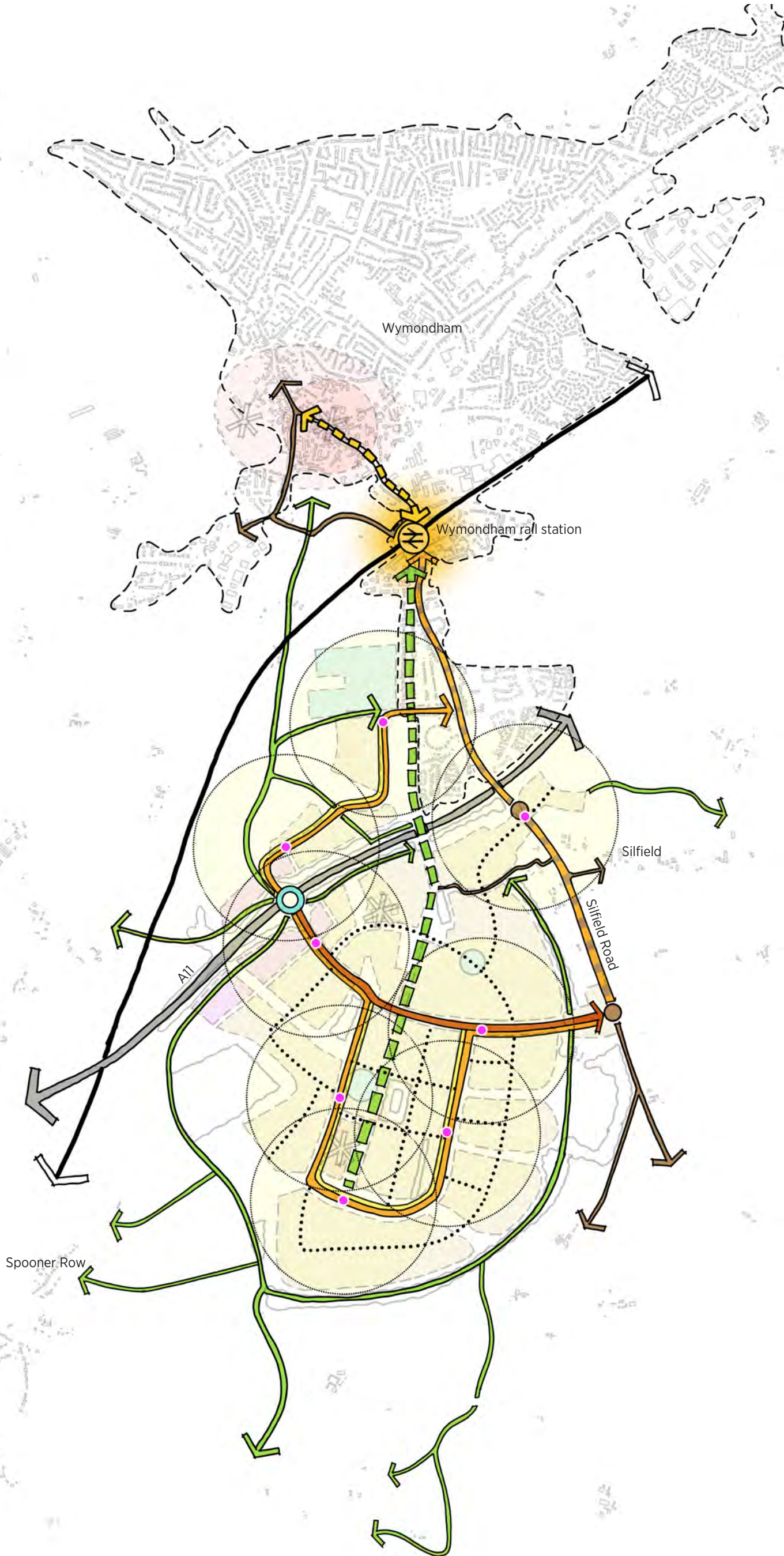
Project	Client	Title	Drawn By	Checked By	Date	
Silfield Garden Village	Orbit Homes and Bowbridge Strategic Land	Total Development Trips (Vehicles) - AM Peak Hour (08:00-09:00)	TJ	GW	27/02/2020	AECOM Imagine it. Delivered.

KEY	
Existing Road	
Strategic Road	
Proposed Road	
Roundabout	
Junction Turning Movement	



Project	Client	Title	Drawn By	Checked By	Date	
Silfield Garden Village	Orbit Homes and Bowbridge Strategic Land	Total Development Trips (Vehicles) - PM Peak Hour (17:00-18:00)	TJ	GW	27/02/2020	AECOM Imagine it Delivered.

Appendix G – Illustrative Sustainable Transport Movement Strategy



-  A11
-  Existing road connections
-  Proposed A11 junction
-  Primary street (A11 to Silfield Road)
-  Pedestrian / cycle greenway to Wymondham town centre and station
-  Public transport route
-  Primary street
-  Indicative secondary street
-  Potential & existing pedestrian / cycle connections
-  Indicative bus stop location
-  400m walking isochrone from indicative bus stop locations

Rev	Description	Date
-----	-------------	------

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Notes:
 This drawing is for information purposes only. It should not be relied upon for legal nor title purposes. Do NOT scale from this drawing or use in construction. Proper advice should be sought from relevant qualified entities regarding legal and construction issues. Any discrepancies should be immediately reported to the originator of the drawing.

Client:




Silfield Garden Village
 Connectivity Framework

Scale@A3:	Drawn:	Designed:	Approved:
1:20,000	IW	IW	HPF

0m 800m

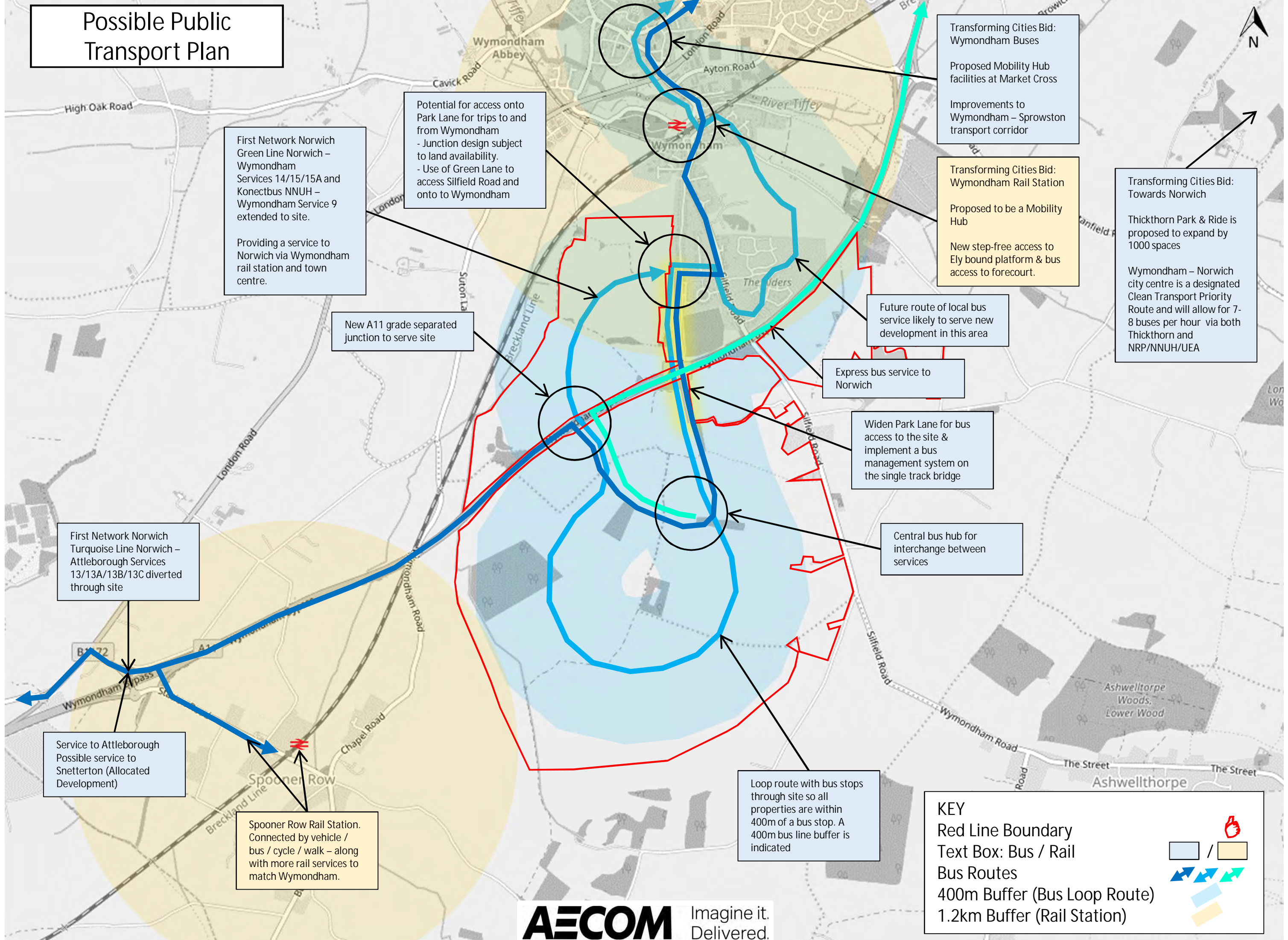
Drawing Number:	Revision:	Date:
SIL001-023	-	12/03/2020

50 North Thirteenth Street, Central Milton Keynes, MK9 3BP
 01908 666276 mail@davidlock.com davidlock.com



Appendix H – Public Transport Strategy

Possible Public Transport Plan



First Network Norwich Green Line Norwich – Wymondham Services 14/15/15A and Konectbus NNUH – Wymondham Service 9 extended to site.
Providing a service to Norwich via Wymondham rail station and town centre.

Potential for access onto Park Lane for trips to and from Wymondham
- Junction design subject to land availability.
- Use of Green Lane to access Silfield Road and onto to Wymondham

Transforming Cities Bid: Wymondham Buses
Proposed Mobility Hub facilities at Market Cross
Improvements to Wymondham – Sprowston transport corridor

Transforming Cities Bid: Wymondham Rail Station
Proposed to be a Mobility Hub
New step-free access to Ely bound platform & bus access to forecourt.

Transforming Cities Bid: Towards Norwich
Thickthorn Park & Ride is proposed to expand by 1000 spaces
Wymondham – Norwich city centre is a designated Clean Transport Priority Route and will allow for 7-8 buses per hour via both Thickthorn and NRP/NNUH/UEA

New A11 grade separated junction to serve site

Future route of local bus service likely to serve new development in this area

Express bus service to Norwich

Widen Park Lane for bus access to the site & implement a bus management system on the single track bridge

Central bus hub for interchange between services

First Network Norwich Turquoise Line Norwich – Attleborough Services 13/13A/13B/13C diverted through site

Service to Attleborough
Possible service to Snetterton (Allocated Development)

Spooener Row Rail Station. Connected by vehicle / bus / cycle / walk – along with more rail services to match Wymondham.

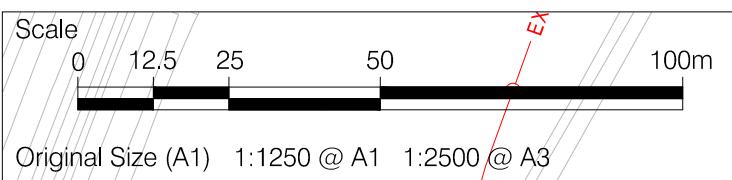
Loop route with bus stops through site so all properties are within 400m of a bus stop. A 400m bus line buffer is indicated

KEY

- Red Line Boundary
- Text Box: Bus / Rail
- Bus Routes
- 400m Buffer (Bus Loop Route)
- 1.2km Buffer (Rail Station)

Appendix I – Indicative A11 Junction Design

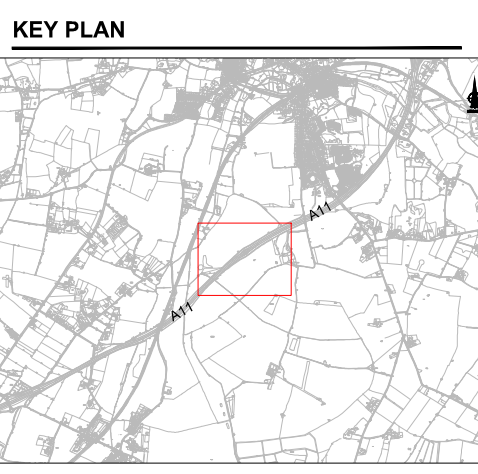
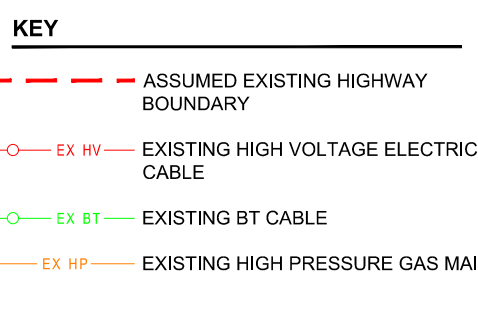
ISO A1 594mm x 841mm
 Approved: PD
 Checked: DB
 Approved: NA
 Designer: RC
 Checked: DB
 Project Management Initials: [Redacted]
 Latest Revision Initials: [Redacted]
 Project Reference Number: 60624799



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PROJECT
 SILFIELD GARDEN VILLAGE

CLIENT
 ORBIT HOMES
 (2020) LTD

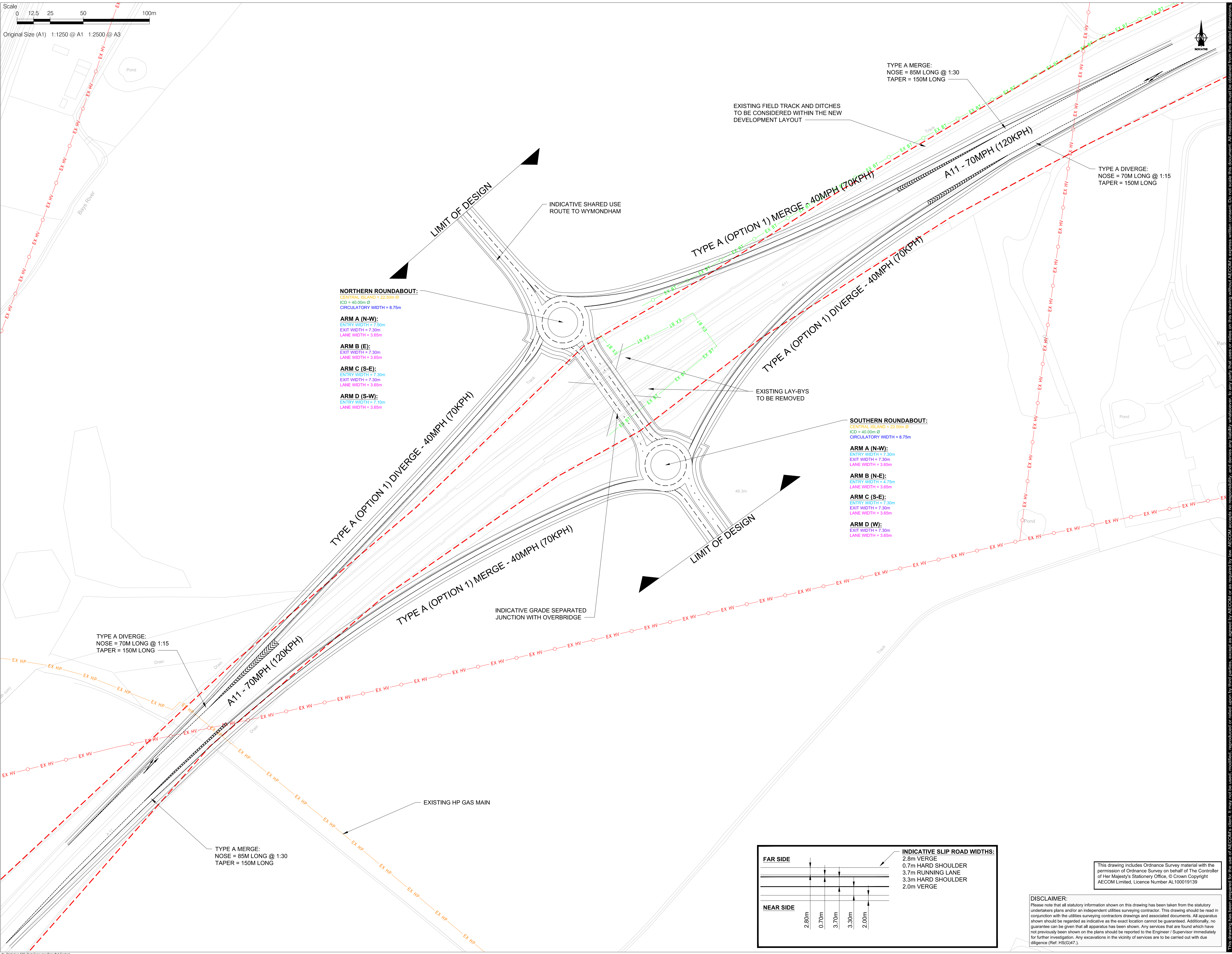
- NOTES**
- ALL DIMENSIONS ARE IN METRES, UNLESS OTHERWISE STATED.
 - THIS DRAWING CONTAINS OS MAPPING.
 - PRELIMINARY DESIGN BASED ON INDICATIVE DUMB-BELL ROUNDABOUT LAYOUT, DRAWING NUMBER 46105_5001_001, PRODUCED BY PETER BRETT ASSOCIATES.
 - THE LOCATION OF UTILITIES SHOULD BE VERIFIED ON SITE PRIOR TO ANY INTRUSIVE INVESTIGATIONS OR CONSTRUCTION WORK, AND AS SUCH NO GUARANTEES OF THEIR ACCURACY CAN BE GIVEN. AECOM ACCEPTS NO RESPONSIBILITY FOR THE INFORMATION CONTAINED THERE IN.
 - FUTURE A11 UPGRADES TO THE EXPRESSWAY DESIGN STANDARDS TO BE INCORPORATED INTO JUNCTION LAYOUT DURING DETAILED DESIGN STAGE.
 - PRELIMINARY DESIGN LAYOUT IS SUBJECT TO CHANGE, DEPENDING ON TRAFFIC MODELING DATA, FORTHCOMING 3D TOPOGRAPHIC INFORMATION AND CONSULTATIONS WITH HIGHWAYS ENGLAND.



ISSUE/REVISION

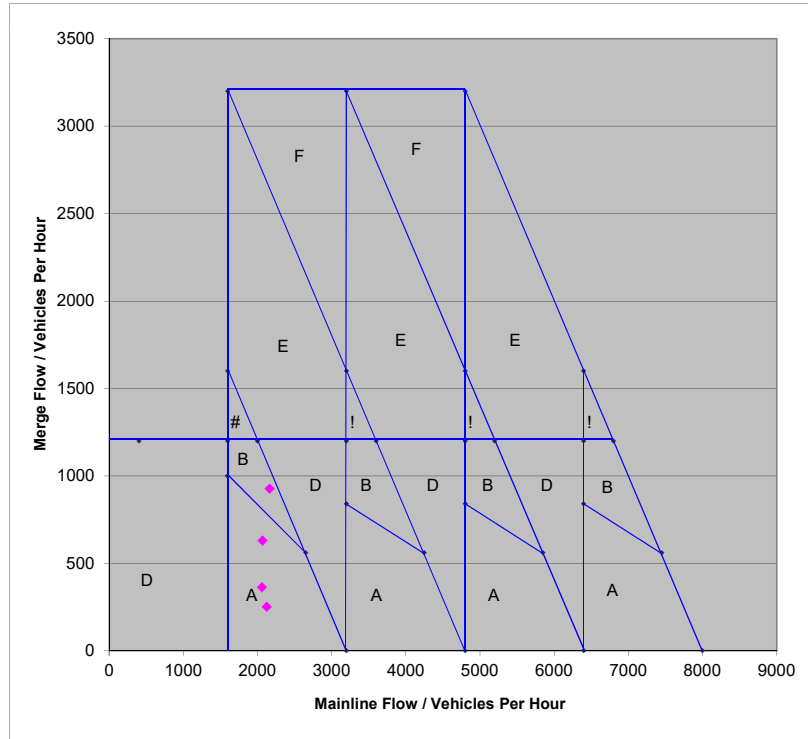
IR	DATE	DESCRIPTION
B	12/03/20	MINOR TITLE BLOCK CHANGES
A	12/02/20	FIRST ISSUE

SHEET TITLE
 A11 INDICATIVE GRADE SEPARATED JUNCTION LAYOUT
SHEET NUMBER
 60624799-ACM-00-XX-SK-CE-0001
SCALE
 1:1250 @ A1; KEY PLAN 1:75000



Appendix J – Merge – Diverge Analysis

Merge-Diverge Analysis



All-Purpose Merge

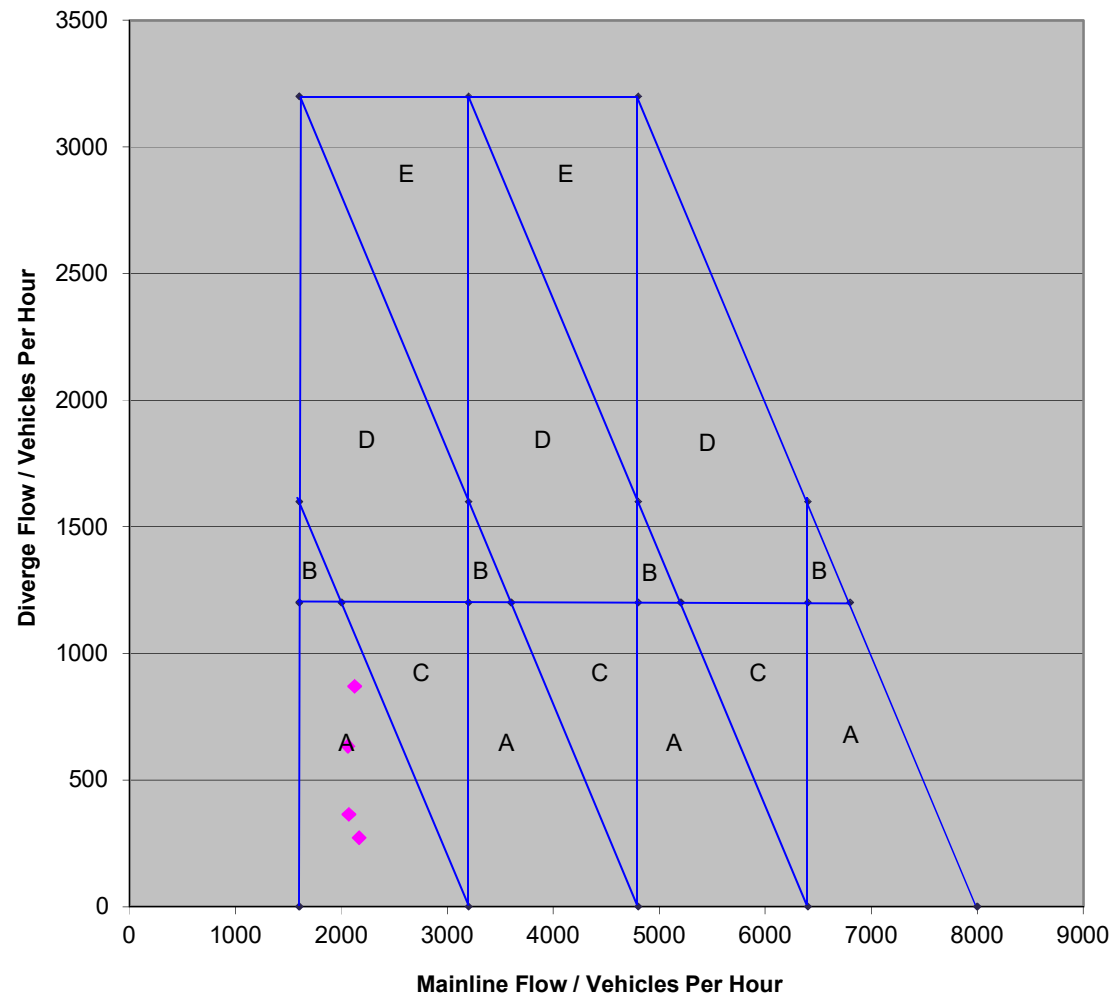
Merge Analysis - 2038

Input Data:

Mainline Flow Information	Mainline Flow/VPH (x)	Merge Flow/VPH (y)		Requirement
based on 2011 flows growthed to 2038	2166	927	Northbound	AM B - Parallel Merge
based on 2011 flows growthed to 2038	2069	630	Northbound	PM A - Op. 1 - Taper Merge or A - Op. 2 - 2 lane Taper Merge
based on 2019 flows growthed to 2038	2060	363	Southbound	AM A - Op. 1 - Taper Merge or A - Op. 2 - 2 lane Taper Merge
based on 2019 flows growthed to 2038	2123	250	Southbound	PM A - Op. 1 - Taper Merge or A - Op. 2 - 2 lane Taper Merge

Key:

- A - Op. 1 - Taper Merge
- A - Op. 2 - 2 lane Taper Merge
- B - Parallel Merge
- C - Ghost Island Merge
- D - Lane Gain
- E - Op. 1 - Lane Gain with Ghost Island Offside Merge
- E - Op. 2 - Lane Gain with Ghost Island Nearside Merge
- F - 2 Lane Gain with Ghost Island
- G - Op. 1 - Mainline Lane Gain and Double Ghost Island Merge
- G - Op. 2 - Mainline Lane Gain and Single Ghost Island Merge
- H - Mainline 2 Lane Gain and Ghost Island Merge
- # - Area of Uncertainty



All-Purpose Diverge

Diverge Analysis - 2038

Input Data:

Mainline Flow Information	Mainline Flow/VPH (x)	Diverge Flow/VPH (y)			Requirement
based on 2011 flows growthed to 2038	2166	272	Northbound	AM	A - Op. 1 - Taper Diverge or A - Op. 2 - Sing
based on 2011 flows growthed to 2038	2069	364	Northbound	PM	A - Op. 1 - Taper Diverge or A - Op. 2 - Single Lane Auxiliary Diverge
based on 2019 flows growthed to 2038	2060	634	Southbound	AM	A - Op. 1 - Taper Diverge or A - Op. 2 - Single Lane Auxiliary Diverge
based on 2019 flows growthed to 2038	2123	870	Southbound	PM	A - Op. 1 - Taper Diverge or A - Op. 2 - Single Lane Auxiliary Diverge

Key:

- A - Op. 1 - Taper Diverge
- A - Op. 2 - Single Lane Auxiliary Diverge
- B - Op.1 - Ghost Island Diverge
- B - Op. 2 - Two Lane Auxiliary Diverge
- C - Lane Drop
- D - Op. 1 - Ghost Island Lane Drop
- D - Op. 2 - Auxiliary Lane Lane Drop
- E - 2 Lane Drop

