sides by built development and so is perceived as being closely associated with the existing settlement edge. A continuous belt of trees and hedgerows on the skyline screens the large majority of Harpenden from view.

Users of a public right of way (Harpenden rural 011) approximately 250-600m to the south west of the site (refer to VP3, figure 9 for representative views)

4.21. A dense 2m high hedgerow obstructs views of the site for the large majority of the public right of way with the exception of an 8m (approx.) gap in the hedgerow. From this location, views of the site are possible in the middle distance, partially screened by an intervening hedgerow on the south western boundary of the site.

Users of a bridleway (ref. Harpenden rural 001) between The Nickey Line and Rothamsted Reasearch Park (refer to VP6, figure 12 for representative views)

4.22. Medium to long distance views of the site from the bridleway are constrained by intervening landform and topography. To the west of the Rothamsted Experimental Station, a gentle incline rises to the intervening plateau, obstructing views of the site and any future development. To the east of the Rothamsted Experimental Station, the land rises again gently, to a comparable elevation with the site. From these locations views are intermittent and restricted by layers of intervening high hedgerows and hedgerow trees. This is further compounded by the viewing distance and sites easterly aspect and so inter-visibility is limited.

5. Development proposals

Description of the proposals

5.1. In order to develop a strategy to remove or limit the potential landscape and visual effects of the proposals, it is necessary to gain an understanding of the potential effects without mitigation measures in place. The following description covers the indicative areas that will affect the landscape and visual resources and the primary mitigation measures that were incorporated into the scheme. The appraisal will consider the masterplan in its current form with the intention of presenting the site and its development potential for consideration within St Albans City and District Council Strategic Housing Land Availability Assessment. It is understood, therefore, that the current scheme will be subject to some change prior to any outline or detailed application. A number of parameters have been set, however, to provide a degree of certainty on the scale of the development and to enable a balanced and accurate appraisal of the likely effects:

- Residential development of up to 50 dwellings
- Vehicular Access from Townsend Lane
- Maximum building height of 2.5 storeys

5.2. The potential impacts on the landscape and visual resources were a significant consideration during initial feasibility work and master plan evolution. The need to retain and accommodate key landscape elements, and the likely effect on receptors both within and beyond the development boundaries, influenced and guided the proposals. As a result, the scheme has been developed to best protect the landscape resources of the application site and its landscape setting.

Landscape strategy

5.3. This section describes the measures that can be adopted to ensure that the development proposals do not carry an unacceptable level of harm on the character or visual amenity of the local landscape. Careful consideration has been given to the character of the local area and the effect on views. Identification of the key landscape and environmental issues was achieved early in the feasibility process in order to reduce effects on the local landscape and to mitigate the potential visual impact of the development. Cosmetic screening of individual views has therefore been avoided and a more holistic approach to planning seeks to ensure that the development responds positively to the landscape and enhances the local area.

5.4. The landscape strategy comprises the following aims:

- Coordinated approach by the design team to find the optimum layout, scale and form for the master plan;
- New planting to reduce the visual effect of the proposals;
- New planting to be appropriate and enhance local landscape character;
- Provision of new habitat, wildlife corridors and grassland management to enhance the biodiversity of the site and connectivity with the immediate landscape;
- Protection of existing retained vegetation, particularly trees.

Mitigation measures

5.5. The key design solutions incorporated into the development proposals include the following:

- Retention of all trees on site with the exception of those that need to be removed on arboricultural grounds which would be replaced with native tree stock where appropriate.
- The large majority of existing hedgerows within the application site boundary would be retained with the exception of small sections of hedgerow to facilitate access. The prominent mature trees adjacent to Townsend Lane and Hartwell Gardens are intrinsic to the character of the local landscape and contribute to the soft edge to the town.
- Site appraisal work identified the part of the site as having capacity for development within the perceived settlement envelope. This was a major factor in shaping the scale and spread of the development such that no element of the urban form protrudes from this imposed boundary and so minimising any perceived urban sprawl.
- A new vegetation belt will be created on the south western boundary comprising small groups of native, standard trees, enhanced hedgerow mix and shrubs to replicate the existing fragmented treed settlement edge. This vegetation is proposed to improve the existing edge bordering Hartwell Gardens and Townsend Lane and will serve to further improve the urban fringe, reducing the impact of existing and proposed built development for local views.

6. Predicted landscape and visual effects

6.1. The form, scale and nature of the proposals mean that there will be potential effects on the landscape character of the area, landscape resources and on views. The following paragraphs describe those potential effects.

6.2. The principal sources of change to landscape resources and visual amenity arise from the introduction of new built forms and landscape elements. Some of these changes may be beneficial, resulting in an improvement in quality or landscape resources, while others may be adverse. The following appraisal gives a description of the predicted effects, their duration and whether they are adverse or beneficial.

Potential permanent effects post-construction

6.3. The following activities will cause the principal permanent changes to landscape and visual receptors:

- Loss of a 20-30m of hedgerow along the northern edge of the site
- Construction of up to 50 houses, along with new infrastructure
- Introduction of new planting
- Introduction of new junction arrangement and roads
- Relocation of the development / urban edge of Harpenden
- Changes in visual appearance of the application site
- Changes to the character of the application site
- Predicted effects on landscape character

6.4. The landscape resources of the application site will be altered by the loss of agricultural land and the development and expansion of Harpenden's urban fabric. The built form will consist of new houses comprising a range of 2–2.5 storeys in addition to associated infrastructure, including a new access junction on Townsend Lane. A new landscape edge consisting of Woodland structure planting, and grassland will be created retaining the strong landscape structure and fragmented urban fringe. The majority of vegetation within the application site will be retained, including the application sites boundary vegetation although a section of hedgerow approximately 20-30m in length will be removed to accommodate the access point. Long distance views and a sense of the wider landscape will be reduced within the fabric of the development.

6.5. Due to the constrained area of visual influence, the large majority of the landscape will not experience direct or indirect effects associated with the potential development. The proposals will introduce new urban form on a currently undeveloped site; however the site is located within the existing perceived settlement envelope and so will be visible in the context of the existing urban fringe. A moderate localised affect on the landscape setting of the town is predicted although steps to introduce new areas of planting and a fragmented development edge addressing the rural landscape will serve to restore and improve the rural setting once established.

Predicted effects on visual amenity

6.6. Paragraph 4.6 – 4.21 sets out the range of potential available views of the site. These are:

- Residential properties on Townsend Lane / Claygate Avenue

- Residential properties on Hartwell Gardens
- Residential properties on Park Avenue North
- Residential properties at Collye Grove Cottages
- User of a public right of way (Harpenden 013) approximately 200-300m to the south of the site Users of public right of way
- Users of a public right of way (Harpenden rural 011) approximately 250-600m to the south west of the site
- Users of a bridleway (ref. Harpenden rural 001) between The Nickey Line and Rothamsted Reasearch Farm

6.7. As described in paragraph 4.2-4.5 above, the site is particularly well contained and, where views of the site are possible, this is generally restricted to locations immediately adjacent to the site's boundary or within 1km of the site boundary where the site comprises a small element of a much wider view. As the site is well contained and visibility is very limited, an appraisal of the potential effects associated with the built development therefore focuses on a particularly small area of the landscape.

6.8. A description of potential visual effects of the proposals on available views as listed above is set out below:

Effects on residential properties adjacent to the site on Townsend Lane and Claygate Avenue (refer to Figure 7, VP1 for representative view)

6.9. The development would affect a small number of residential properties on Townsend Lane and Claygate Avenue (approximately 8 and 5 respectively). The outlook, currently semi-urban, would become urban with the introduction of new built form, removal of sections of hedgerow totalling approximately 20-30m and new infrastructure. In consideration of the baseline conditions, the change that results will not represent a large shift in the experiential nature and value of views but will represent a small adverse effect.

Effects on residential properties on Hartwell Gardens

6.10. The development would affect a small number of residential properties on Hartwell Gardens (approximately 6). The outlook, currently semi-urban, would become urban with the introduction of new built form in the foreground. Residential development will be perceived within a small pocket of agricultural land contained by existing built development and so any future development will be perceived in this context, contained by a more significant field boundary to the south west. In consideration of the baseline conditions, the change that results will not represent a large shift in the experiential nature and value of views but will represent a small adverse effect for a small number of residential properties.

Effects on residential properties on Park Avenue North (refer to figure 11, VP5 for representative view)

6.11. Built development will be visible from the rear of a particularly small number of properties (first storey only) on Park Avenue North. The main focus of views is to the south west and west, over the plateau and expanse of open countryside. The site is visible within the perceived settlement edge, viewed obliquely and partly screened by housing on Hartwell Gardens. From this location, the development will not, then, appear to protrude beyond the development line currently defined by

these properties and the rear garden boundaries of properties on Park Avenue North.

Effects on residential properties on Collye Grove Cottages

6.12. Built development will be visible in the middle distance above existing and new structural planting on the sites south western boundary and in the immediate context of built development on Hartwell Gardens and Park Avenue. New planting, once established, will serve to largely screen the built development from these locations.

Effects on users of Townsend Lane adjacent to the sites north western boundary

6.13. Built development would not be visible during the summer months due to the density and width of the hedgerow on the sites north western boundary, adjacent to Townsend Lane. During the winter months, views of development in the foreground will be filtered by the intervening hedgerow. and viewed in the context of development on Hartwell Gardens and Townsend Lane. The result will be an intensification of the settlement edge character of existing views. There are currently no views to the wider countryside from locations adjacent to the north western boundary and so built development will not obstruct longer distance views.

Effects on users of a public right of way (ref. Harpenden 013) approximately 200-300m to the south of the site (refer to figures 10 and 11, VP4 and VP5 for representative views)

6.14. The site is visible from a short section of the footpath between North Park Avenue and The Nickey Line. From these locations, the roofline of the development would be visible to the north east but comparable with the roofline of properties on Hartwell Gardens. As such, additional built form will be introduced which is visible in the context of the existing settlement fringe and at a lower elevation than the plateau. New planting on the south western boundary would enhance the existing boundary vegetation and continue the strong tree line visible to the right of the view. The vegetation will serve to soften the development edge and will sit comfortably in context. Further, built development will not extend in to the adjacent field in the foreground, will be contained by existing development and so not perceived as urban sprawl. The semi / rural settlement fringe nature of the view will not be effected and in consideration of the small scale of the development and context the visual effects will be slight adverse.

Effects on users of a public right of way (ref. Harpenden rural 011) approximately 250-600m to the south west of the site (refer to figure 9, VP3 for representative views)

6.15. The development will be visible in the middle distance from a short section of the footpath between The Nickey Line and connecting public right of way (ref. Harpenden 013). Additional development will be visible through a break in the intervening hedgerow which itself will screen the large majority of built form. Considering the orientation of the field of view, the visual effects are very similar to those described above, albeit reduced significantly by intervening vegetation.

Effects on users of a bridleway (ref. Harpenden rural 001) between The Nickey Line and Rothamsted Reasearch Park (refer to figure 12, VP6, representative views)

6.16. Views from the large majority of the footpath are screened by the Rothamsted Experimental Farm, intervening landform and vegetation. The development would be visible from a short section of the public right of way between Collye Grove Cottages, directly north, and Rothamsted Manor, directly to the south. Receptors would experience distant filtered views of the development, partially screened by intervening vegetation and new planting on the south western boundary. Once established, vegetation on the south western boundary, compounded by the sites easterly aspect, would screen the large majority of the development. The visual effect would be the addition of a particularly small element of development which will be barley perceptible and viewed in the context of the existing settlement edge. The experiential value and nature of views would be unaffected by the development.

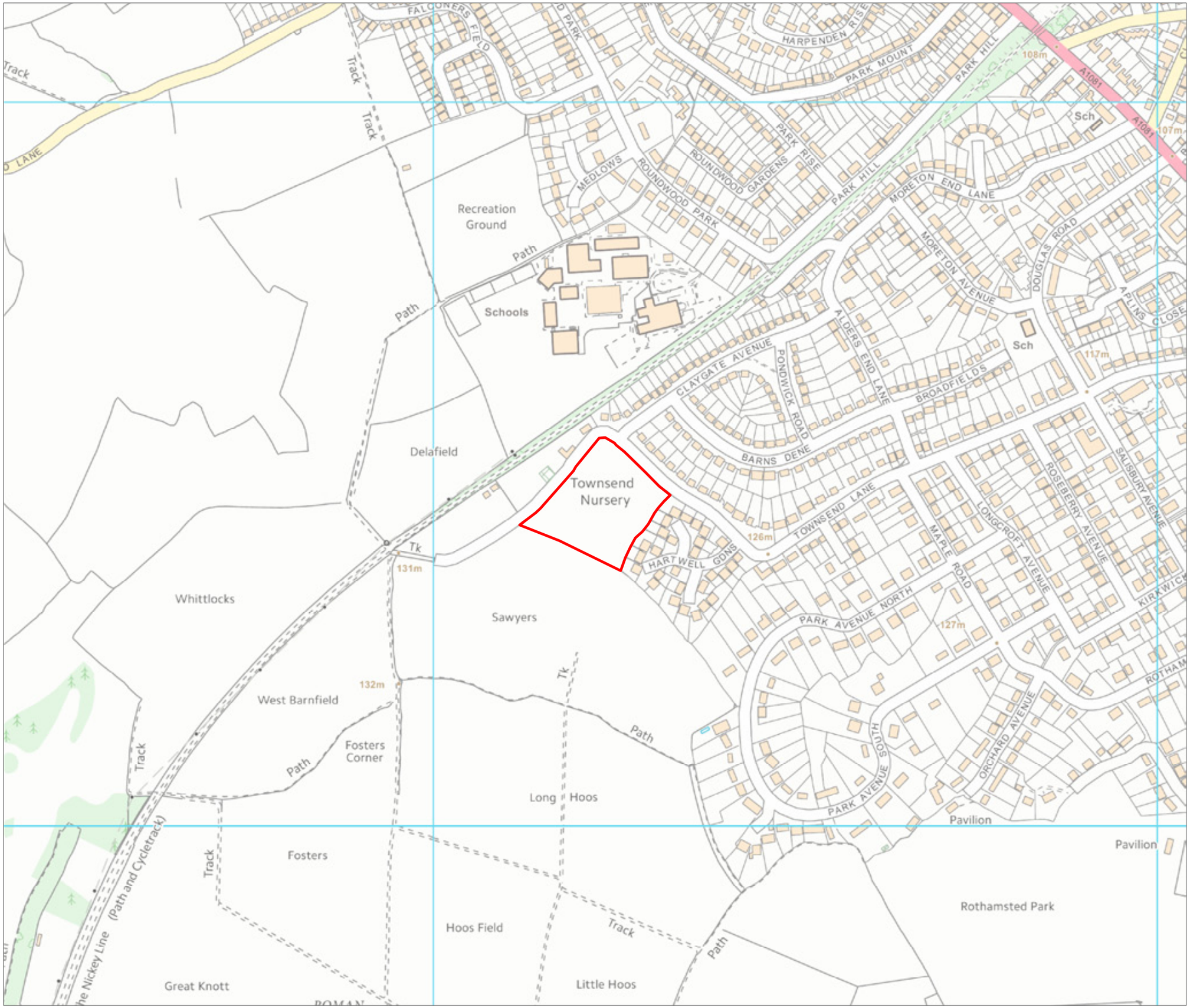
7. Summary of effects

7.1. As a result of limited visibility throughout the wider landscape moderated by the topography, abundant hedgerow trees, copses and woodlands, no distant views were available that will be affected by the development. The 6 representative viewpoints chosen are therefore all within 1 km of the site boundary. Of which, one is immediately adjacent to the site boundary.

7.2. Views are largely restricted to locations within 1km of the site boundary. The interplay of landform and landscape structure, or viewing distance itself, significantly reduces the degree of visual effect. It is concluded that the site is particularly well contained and shares very limited inter-visibility with the surrounding landscape. With the effective mitigation proposed in paragraph 5.5, the development will be almost entirely screened from the wider landscape. There is therefore no overriding landscape or visual effect that would preclude the development of the site as proposed and, in the longer term, there is the potential for some valuable landscape benefits in the form of a better defined settlement boundary and softer settlement edge adjacent to the site.

7.3. It is clear that, where the site is visible, it is viewed as a small area of open land that is strongly associated with the existing built development and perceived as sitting within the settlement envelope. With additional native tree and shrub planting on the south western boundary, the soft settlement edge will be maintained and enhanced. The resultant development will not materially alter the experiential value of existing local views.

7.4. As the site is closely associated with built development and sits within the perceived settlement boundary and further contained by an enhanced boundary, the perceived effect on sprawl is negligible. Further, the existing site and adjacent agricultural land does not currently function as an open gap and so development on site would not contribute to coalescence. The existing plateau forms a natural boundary to development, the settlement itself sitting on the valley sides and at lower elevations to the east. The site is therefore located on the gentle valley sides, is not located on the plateau and so preserves the existing settlement pattern.



Site boundary

Figure 1: Site location

Land at Townsend Lane, Harpenden Hill

0 130 m

Dwg no/	Revision
17 March 2016	Drawn by: JC / Checked by: TF
Scale: 1:5,000 @A3	

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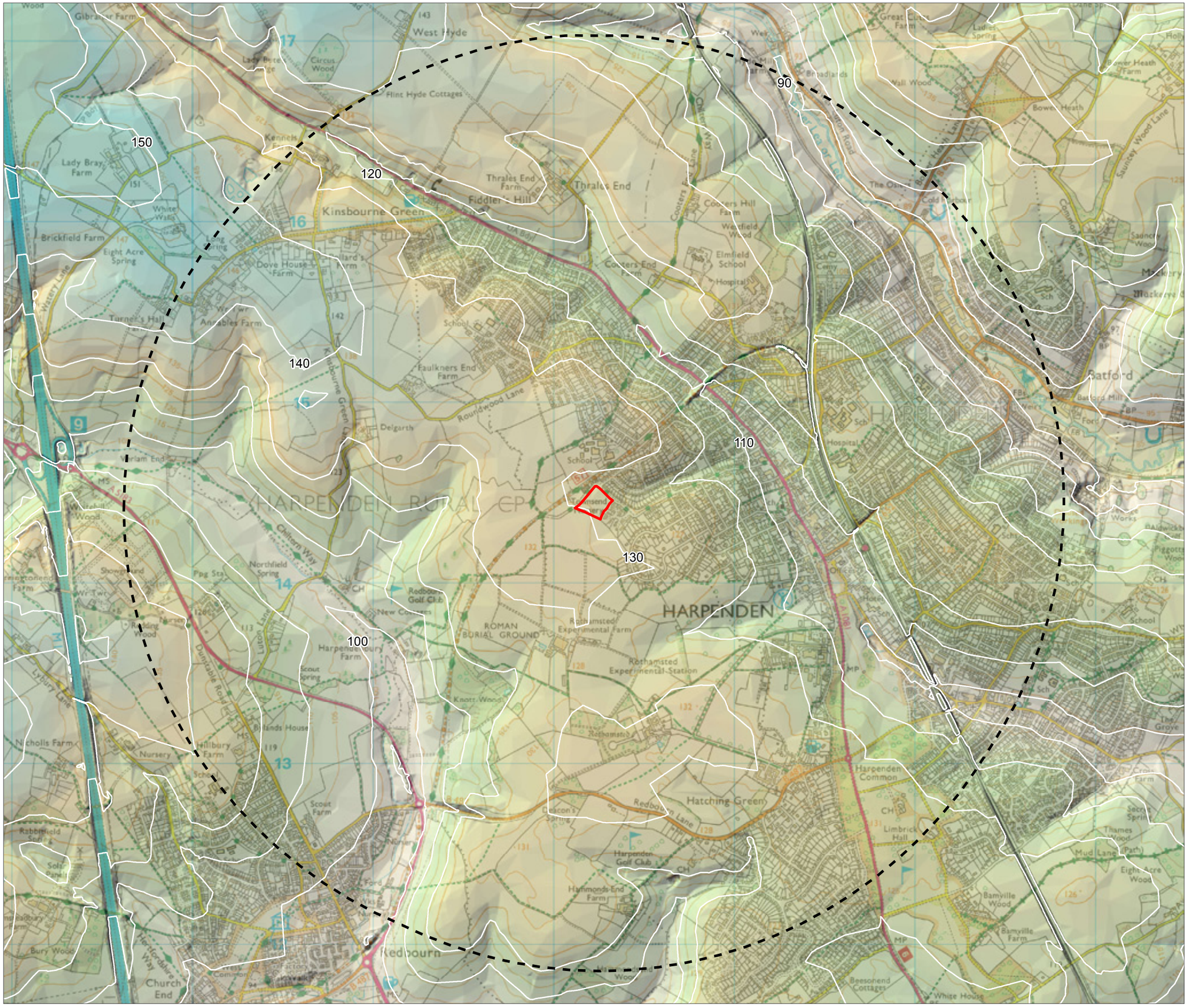

Figure 2: Topography

Land at Townsend Lane, Harpenden
Hill

0 480 m

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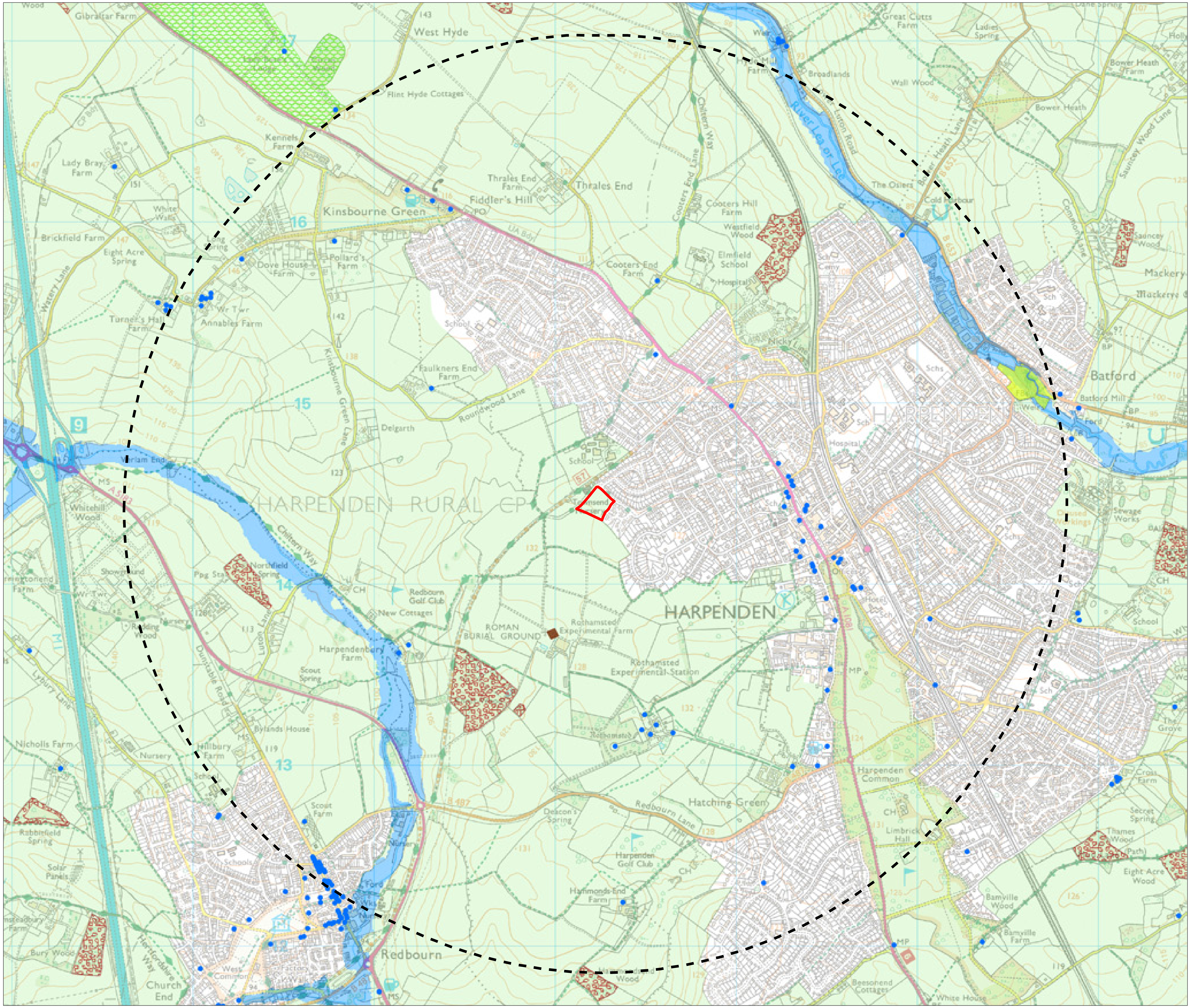

- Listed buildings
- Registered parks and gardens
- Scheduled monuments
- Local Nature Reserve
- Ancient woodland
- Risk of flooding from rivers and sea
- Green belt
- Site boundary
- 2.5km study area

Figure 3: Environmental designations

Land at Townsend Lane, Harpenden
Hill

0 550 m

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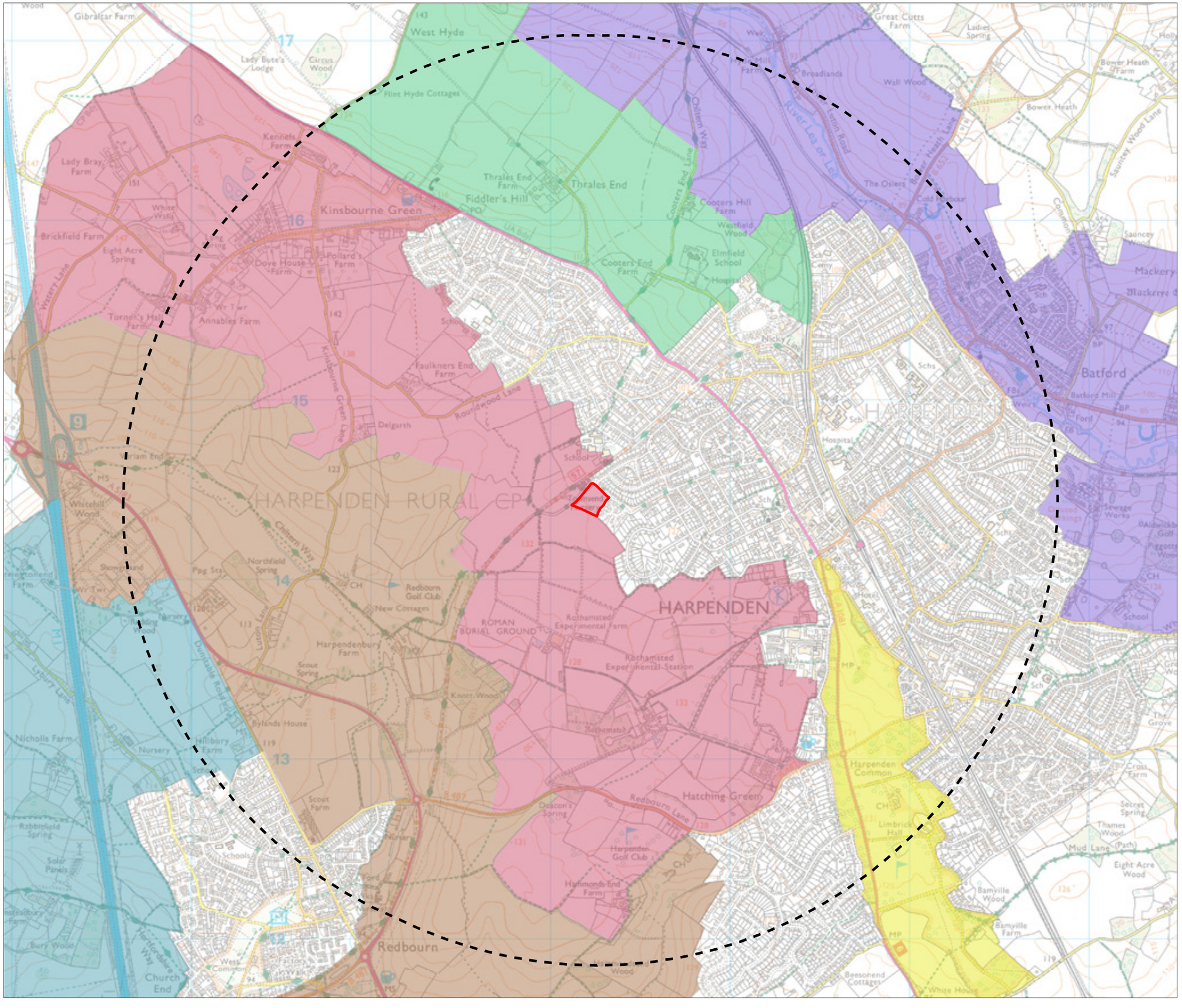

Figure 4: Landscape character areas

Land at Townsend Lane, Harpenden
Hill

0 550 m

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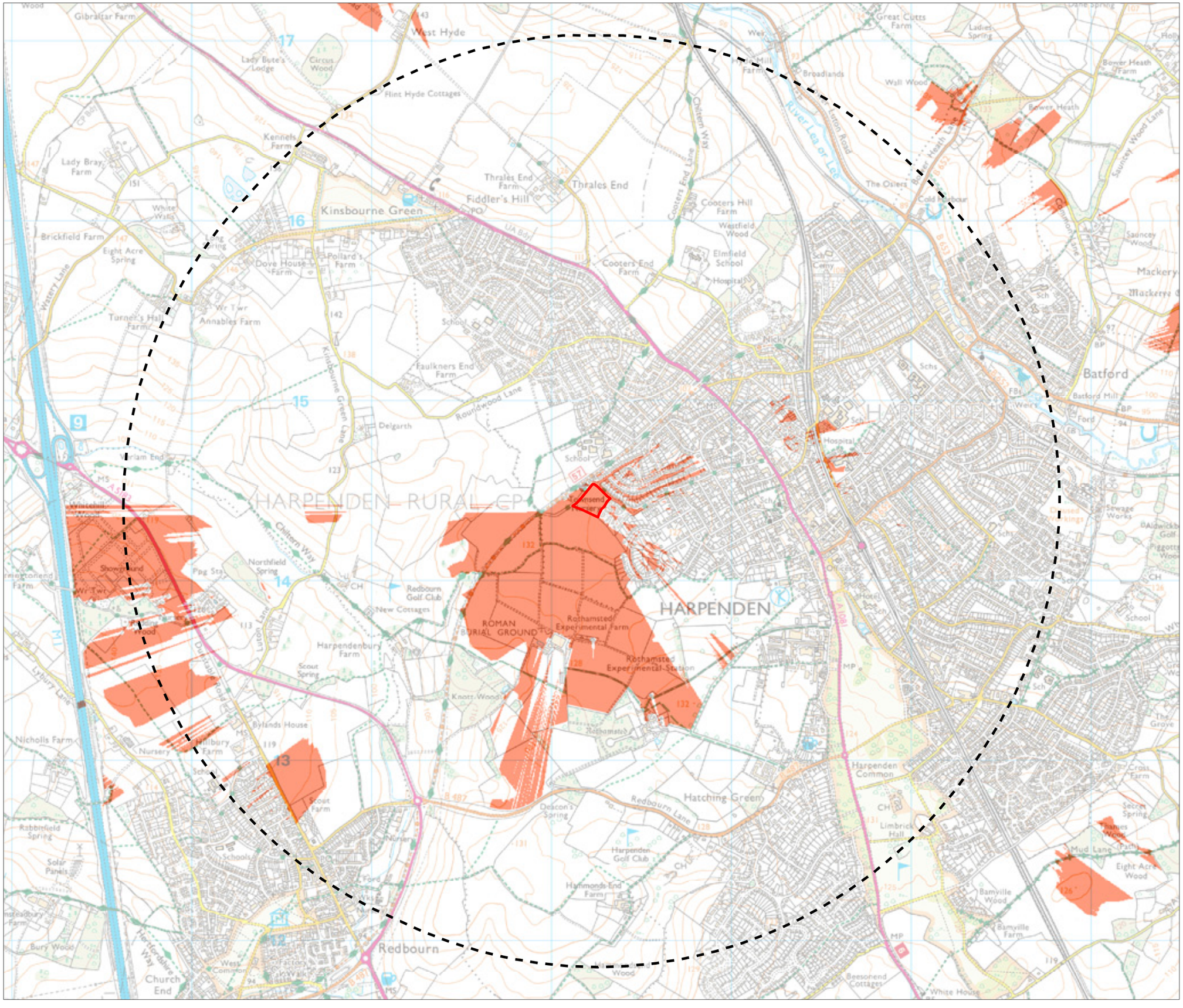

Figure 5: Zone of visual influence

Land at Townsend Lane, Harpenden
Hill

0 480 m

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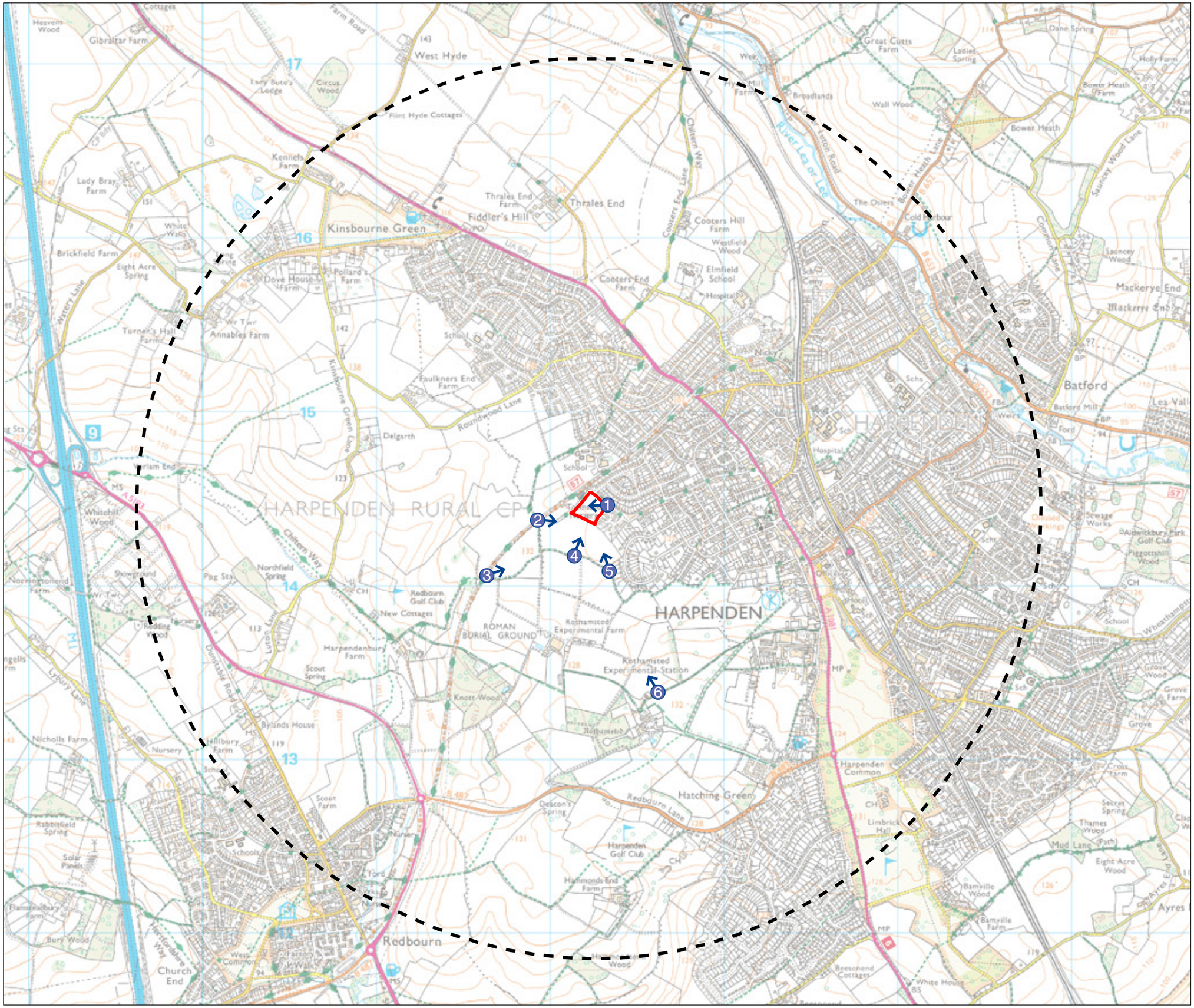

Key

Notes/Revisions

Figure 6: Viewpoint locations

Land at Townsend Lane, Harpenden
Hill

Dwg no.	Revision: -
Date issued: 17th March 2016	Drawn by: TF / Checked by: TF
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Viewpoint 1. Taken from Townsend Lane adjacent to the sites north eastern bounday looking west

Land off Townsend lane, Harpenden
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Figure 7
Viewpoint 1

March 2016

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Viewpoint 2. Taken from the southern end of Townsend Lane, at an intersection of The Nickey Line / The Chiltern Way and a public footpath (ref: Harpenden 013)

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Figure 8
Viewpoint 2

March 2016

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Viewpoint 3. Taken from a public right of way (ref: Harpenden Rural 011) adjacent to the Nickey Line / The Chiltern Way approximately 650m to the south west of the site looking north east

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Figure 9
Viewpoint 3

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Viewpoint 4. Taken from a public right of way (ref: Harpenden 013) / The Rothamsted Park Trail, approximately 250m to the south west of the site looking north east

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Figure 10
Viewpoint 4

March 2016

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Viewpoint 5. Taken from a public right of way (ref: Harpenden Rural 001) to the south of the site looking north

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Figure 11
Viewpoint 5

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Viewpoint 6. Taken from a public right of way (ref: Harpenden Rural 001) to the east of Rothamsted and approximateley 1km to the south east of the site

Land off Townsend lane, Harpenden
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Figure 12
Viewpoint 6

March 2016

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A report for

HILL RESIDENTIAL LIMITED

In respect of

Land off Townsend Lane, Harpenden

Access Appraisal

March 2016

DOCUMENT SIGNATURE AND REVIEW SHEET

Project Details

Project Title:	Land off Townsend Lane, Harpenden		
Project No.:	1602-26	**Report No.:**	1602-26/TN/01
Client:	Hill Residential Limited		

	Prepared By:	Checked By:	Approved for issue
Name	B. Burrows	S. Morse	S. Morse
Signature			
Date			

Document Review

Revision	Date	Description	Checked By
A	21/03/16	Revised to change in dwelling numbers	SM

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1 INTRODUCTION

1.1 Transport Planning Associates are instructed by Hill Residential Limited to undertake an Access Appraisal of a prospective development site at Land off Townsend Lane in Harpenden, Hertfordshire.

1.2 St Albans City and District Council are currently undertaking a review of their Strategic Local Plan and are inviting developers, land owners and other interested parties to submit potential sites for future allocation in the updated Strategic Local Plan.

1.3 As part of this process, Hill Residential Limited are making submissions for the residential development of the site in order to identify it for inclusion in this updated St Albans City and District Council Strategic Local Plan (public draft 2016), or for its prioritised delivery in the Detailed Local Plan (DLP).

1.4 The 1.65 hectare prospective development site has been assumed to be capable of delivering approximately 50 dwellings.

1.5 The location of the site is presented in Figure 1.1.

1.6 The purpose of this report is to assess the accessibility of the prospective site in transport terms and identify options for access. The details in this report will help to inform St Albans City and District Council when undertaking their review of the current Strategic Local Plan.

Report structure

1.7 The report is structured as follows:

- Chapter 2: *Existing site accessibility;*
- Chapter 3: *Access options; and*
- Chapter 4: *Summary.*

2 EXISTING SITE ACCESSIBILITY

2.1 This section of the report considers the existing travel opportunities within the vicinity of the site.

Location

2.2 The prospective site is located to the west of Harpenden and fronts the southern side of Townsend Lane.

2.3 The site is bounded by Townsend Lane to the north, existing residential development to the east, agricultural fields to the south and by Townsend Lane and commercial units to the west. It is an unused *Greenfield* site with boundaries formed by mature hedgerows and occasional mature trees on all its sides.

Pedestrian access

2.4 A footway approximately 1.8m in width is provided on the northern side of Townsend Lane. The footway benefits from street lighting and runs east, serving a number of residential dwellings until the junction with Alders End Lane where a formal crossing point is not currently provided. No footway is currently provided along the north and west sides of the site which front Townsend Lane.

2.5 Approximately 160m east of the junction with Alders End Lane, a footway on the southern side of Townsend Lane is also accommodated. The footway is approximately 1.8m in width and benefits from street lighting.

2.6 The footways on either side of Townsend Lane continue east, and provide a route through to the junction with Luton Road, where the town centre is located approximately 150m to the south east. Wide footways and controlled pedestrian crossings, by way of zebra crossings, provide for safe pedestrian movements around the town centre. No dropped kerb crossing facilities are currently provided at the junction with Aplins Close along this route.

2.7 An additional potential pedestrian route toward the town centre includes travel via Maple Road and Rothamsted Avenue. Wide footways are accommodated on either side of their respected carriageways that benefit from street lighting.

2.8 To the west of the site, the footway on the north side of Townsend Lane provides access to the wider residential network off Claygate Avenue. No footway is currently provided along the western extent of the site on Townsend Lane to provide for pedestrian movements toward the commercial units.

2.9 Footways along Claygate Avenue merge with those provided along Alders End Lane before providing access to Moreton End Lane, where a footway/cycleway is provided approximately 95m to the south west on the north side of the carriageway. The footway/cycleway provides access to Roundwood Park.

2.10 Footways along Roundwood Park benefit from street lighting, are approximately 1.8m in width, and provide access to a local bus stop, Roundwood Primary School and Roundwood Park (Secondary) School. These local schools could potentially provide for some of the future residents of the site.

Cycle access

2.11 Approximately 190m to the south west of the site, a bridleway passage off Townsend Lane provides access to the National Cycle Route 57. The route runs in a south west to north east alignment and connects Cricklade to Welwyn Garden City. The route is predominately traffic-free. The footway/cycle provided off Moreton End Lane also provides access to this route.

2.12 In addition, a number of on-road cycle routes are present throughout Harpenden, including the National Cycle Route 6 which runs in a north south alignment along Bowers Way, close to the town centre. The route connects Watford to Cumbria, and is clearly signposted on-road throughout Harpenden. A short distance south of Harpenden, the route becomes traffic-free alongside the A1081.

2.13 Whilst no specific cycle infrastructure is currently provided within the immediate vicinity of the site, the low traffic speeds and associated traffic volumes, good forward visibilities and modest carriageway widths that characterise the nearby streets make them generally conducive to cycling.

Public transport

Bus

2.14 The closest bus stop to the site is located approximately 645m to the north on Roundwood Park. No specific bus stop infrastructure is present.

2.15 Given the location of the bus stop opposite two local schools, services which can be accessed from this stop are predominately school services. As is to be expected, the services are infrequent and are limited to weekdays only. Bus routes 647, 846, 866 and HA1 can be boarded at this stop, providing passengers connections to a number of schools within, and outside of, Harpenden.

2.16 In addition a bus stop is located in Harpenden town centre on High Street approximately 1.4km east of the site. The bus stop incorporates a bus flag, shelter, digital information system and raised kerb heights for ease of access. A number of services can be accessed from this stop, generally connecting Harpenden to Luton, Hatfield, Watford and St Albans.

2.17 A summary of the most frequent local bus services accessible from this stop is provided in Table 2.1.

Table 2.1 Summary of local bus services

Service		Frequency		
Number	**Route**	**Monday – Friday**	**Saturday**	**Sunday**
321	Luton – Watford	1 every 30 minutes First – 06:17 Last – 23:36	1 every 20 minutes First – 07:32 Last – 23:36	1 every hour First – 09:02 Last – 23:36
636	Luton – Hatfield – London Colney	1 every hour First – 07:41 Last – 21:46	No service	No service

2.18 As can be seen from Table 2.1, bus routes 321 and 636 run at particularly high 30, and 60 minute frequencies from Monday to Friday, with route 321 also operating frequently on weekends.

Rail

2.19 The closest railway station is Harpenden located approximately 1.8km south east of the site. The station is operated by Thameslink and provides services toward key destinations including Bedford, Brighton (East Sussex) and Luton.

2.20 Services to Brighton (East Sussex) operate approximately every 30 minutes, with journey times of around 125 minutes. The service stops at a number of key destinations including St Albans City, London St Pancreas and Gatwick Airport.

2.21 Services to Bedford and Luton operate approximately every 10 minutes, with journey times of around 34 and 10 minutes respectively.

2.22 The proximity of Harpenden Railway Station from the site mean that it is within reasonable walking / cycling distance. As such, the site can be considered to be readily accessible via sustainable transport modes.

Vehicular

2.23 Along the northern site boundary, Townsend Lane is a single carriageway two-way road and is subject to a 30mph speed limit. A footway is provided on the northern side of the carriageway that benefits from street lighting.

2.24 Townsend Lane provides frontage access to a number of residential dwellings located within close vicinity of the site via vehicle crossover points. No parking restrictions are present along Townsend Lane meaning that on-street parking may intermittently restrict carriageway width. However, should on-street parking occur, the width of Townsend Lane will ensure that two-way vehicle movements can still operate.

2.25 To the west, Townsend Lane provides a connection to the wider residential network and Luton Road (A1081) to the north east via a simple T-junction with Claygate Avenue. To the east, Townsend Road provides access to a number of residential streets which typically accommodate wide footways and carriageways, as well as incorporating street lighting. Accesses off Townsend Road to the wider residential network are formed primarily of simple priority T-junctions and crossroads junctions.

2.26 At its eastern extent Townsend Lane joins Luton Road (A1081) via a simple priority T-junction. Within close vicinity of the site, Luton Road (A1081) is a single carriageway two-way road and is subject to a 30mph speed limit. Footways run along both sides of the carriageway which provide access to shops and services in the town centre, as well as a number of residential streets off Luton Road (A1081).

2.27 Luton Road (A1081) provides a primary route through to Luton to the northwest and to St Albans to the southeast where multiple shopping and employment opportunities are located.

2.28 Connections to the M1 of the primary road network, can be achieved via Luton Road (A1081) and London Road to the northwest of the site, and via Luton Road (A1081), B487 and the A5183 to the west of the site.

2.29 The standard of Townsend Lane and low speed limit provides opportunity to form a vehicular access that should be capable of accommodating additional traffic movements.

Key local services

2.30 The site on Townsend Road is located close to a number of facilities and services which residents are likely to use on a regular basis. Figure 2.1 contains a local facilities and services plan and Table 2.2 summarises the facilities available as well as approximate walking and cycling distances based on 3mph and 12mph respectively.

Table 2.2 Local facilities and services

Destination	Approximate distance from site (Kilometres)	Walk time, minutes (based on 3mph)	Cycle time, minutes (based on 12mph)
Roundwood Primary School	0.71	9	2
Roundwood Park (Secondary) School	0.77	10	2
St Hilda's (Independent) School	0.82	10	3
Waitrose	1.33	17	4
Sainsbury's	1.38	17	4
Harpenden Sports Centre	1.64	20	5
Harpenden Memorial Hospital	1.72	21	5
The Elms Medical Practice	1.75	22	6
Harpenden Railway Station	1.88	23	6

2.31 Table 2.2 highlights a number of key facilities and services which are available within a 2km radius of the site. The majority of these services can be reached within a 20 minute walk, or less than 10 minute cycle.

2.32 In addition, Harpenden town centre incorporates a number of additional services such as convenience stores, restaurants, and shops which any future residents of the site are likely to benefit from. Harpenden town centre can be reached within a 13 minute walk and so is readily accessible from the site via sustainable transport modes.

Existing travel patterns

2.33 The travel patterns of existing Harpenden residents has been considered through an analysis of Journey to Work travel information from the 2011 Census. The site falls within the

Harpenden West Ward, information for which provides a useful dataset against which forecast travel patterns can be assumed.

2.34 Journey to work travel patterns for the 2011 Census for existing Harpenden residents are presented in Table 2.3.

Table 2.3 Census 2011 Journeys to work by mode – Harpenden West Ward

Mode	Proportion of population
Train	39%
Bus	1%
Car driver	46%
Car passenger	2%
Cycle	1%
On foot	11%
Other	0%

2.35 It is clear from the details presented in Table 2.3 that the majority of journeys made to work by existing residents are by private car (46%). However a large proportion, 39%, travel by train. This suggests a high usage of the existing services from Harpenden Railway Station.

2.36 Active modes of transport are less well presented, with 11% of residents travelling on foot and only 1% travelling by cycle.

2.37 The high use of train services is supported through further scrutiny of the Census data. A total of 22% of residents work in Westminster or the City of London, both of which are accessible from Harpenden Railway Station. St Albans was the most popular workplace destination, a destination that also accessible via existing services at Harpenden Railway Station, or via existing bus services on Luton Road (A1081). Other popular workplace destinations include Luton (7%), which is also accessible via existing rail, or bus services.

3 ACCESS OPTIONS

3.1 This section of the report sets out options for accessing the site by all modes. Where improvements are required to ensure access by a particular travel mode, these are described and drawings presented where appropriate.

Forecast trip generation

3.2 The TRICs database has been interrogated in order to provide an initial indication of the number of vehicular trips that a future development off Townsend Lane may generate.

3.3 Residential sites of a similar location and scale have been selected in order to derive per dwelling trip rates for the morning and evening peak periods in addition to daily trip rates.

3.4 A copy of the TRICs output report is presented in **Appendix A**.

Table 3.1 Preliminary vehicle trip forecast

	AM Peak		PM Peak		12 Hour	
	Arrive	**Depart**	**Arrive**	**Depart**	**Arrive**	**Depart**
Trip rate per dwelling	0.121	0.334	0.341	0.145	2.223	2.193
Number of vehicle trips	6	17	17	7	111	110

3.5 The forecasts presented in Table 3.1 identify relatively low numbers of vehicles being generated by a 50 dwelling development during the morning and evening peak periods when the local highway is at its busiest.

3.6 As would be expected, departures are greatest in the morning peak with arrivals greatest in the evening peak. However, figures of 17 for each period respectively are not likely to cause a significant impact upon the local highway network as these figures generally relate to one car every 3-4 minutes.

Pedestrians and cyclists

3.7 Pedestrian access to the site could be provided through the connections afforded by the provision of two new site access junctions along the northern boundary of the site on Townsend Lane.

3.8 The preliminary design options for the junctions include 2m footways on both sides of the access roads which will run along the frontage of the site. These footways will provide connections with the existing footway on the northern side of Townsend Lane via dropped kerb pedestrian crossing points.

3.9 Footways running west along the site frontage will terminate approximately 30m to the west of Claygate Avenue, and footways running east along the site frontage will terminate where a formal pedestrian crossing point can be provided in a suitable location, i.e. where it is not directly opposite the driveways of existing dwellings on Townsend Lane.

3.10 Footways provided on both sides of the access roads will extend within the site's curtilage, providing access to dwellings within the site.

3.11 Away from the site, the wider footway network will allow pedestrian access to local facilities as described earlier in this report, ensuring that accessibility to the site on-foot can be achieved.

Public transport

3.12 Whilst a number of regular bus services providing access to destinations such as Luton, and St Albans, can be boarded at the bus stops located in Harpenden town centre and on Roundwood Park, the proximity of the site in relation to these bus stops is not within the minimum walking distance of 400m specified in Hertfordshire County Council's *Roads in Hertfordshire: Highway Design Guide 3rd Edition.*

3.13 As such, the need for a new bus stop and shelter within closer vicinity of the site could be considered as part of the wider access strategy. This would be in accordance to information regarding public transport infrastructure outlined in Hertfordshire County Council's *Roads in Hertfordshire: Highway Design Guide 3rd Edition.*

Vehicles

3.14 The nature of Townsend Lane provides opportunity to accommodate new junctions to facilitate vehicular access to the site. Two simple priority T-junctions could provide access to the site.

3.15 The proposed access junctions are presented in drawing number SK01 contained in **Appendix B**.

3.16 The first access junction could be located approximately 15m from the Claygate Avenue junction. The second access junction could be located 33m from the southern boundary to ensure adequate visibility.

3.17 Junctions located at these points will also allow for the minimum junction spacing requirements outlined in *Roads in Hertfordshire: Highway Design Guide* 3rd Edition.

3.18 Consistent with the requirements of Hertfordshire County Council's *Roads in Hertfordshire: Highway Design Guide* 3rd Edition for a *Minor Access,* the junctions will incorporate 4.8m wide carriageways with 2m wide footways provided on each side. Within the vicinity of the site, Townsend Lane demonstrates characteristics consistent with a *Minor or Major Access Road*. As such, visibility splays of 2.4m x 33m, which are in accordance with the design guide, are also shown on the proposed layout.

3.19 Formal crossing points, by way of dropped kerbs and tactile paving, could be accommodated at each access junctions to provide for pedestrian movements to the footways on Townsend Lane and along Claygate Avenue. These pedestrian crossing points would provide links to the wider residential network and local amenities located to the east of the site in Harpenden town centre.

3.20 Whilst the capacity of the proposed access has not been assessed, comparisons to other junctions located along the Townsend Lane corridor can be made.

3.21 Access from Townsend Lane to the residential streets of Claygate Avenue, Maple Road and Alders End Lane are similar to that proposed. As such, it can be inferred that the proposed access junctions will be suitable in capacity terms.

3.22 The scale of traffic generation arising from the development is unlikely to cause a material or significant effect at any off site junction on the local highway network that might require mitigation.

Waste collection and servicing

3.23 The site access junctions contained within **Appendix B** have been designed to facilitate movements associated with larger vehicles such as those that collect household waste or delivery vehicles.

4 SUMMARY

4.1 Transport Planning Associates is instructed by Hill Residential Limited to provide transport planning consultancy services in respect to the undertaking of an Access Appraisal for a prospective development site at Land off Townsend Lane in Harpenden, Hertfordshire.

4.2 The site has been assumed to be capable of delivering 50 dwellings.

4.3 The provision of footways and formal pedestrian crossings located at, and near, the proposed site access junctions will ensure immediate access to the site on foot can be achieved, with wider connections providing access to key destinations and facilities.

4.4 The proximity of Harpenden Railway Station, and frequency of bus services along Luton Road, will ensure public transport is a realistic option. Such travel patterns are evidenced through journey to work information for the local area obtained from the 2011 Census. This can also be further strengthened and supported through the planning process, such as through the implementation of a Travel Plan.

4.5 The potential improvements to bus service access will be considered as part of the wider access strategy in accordance with Hertfordshire County Council's design guide.

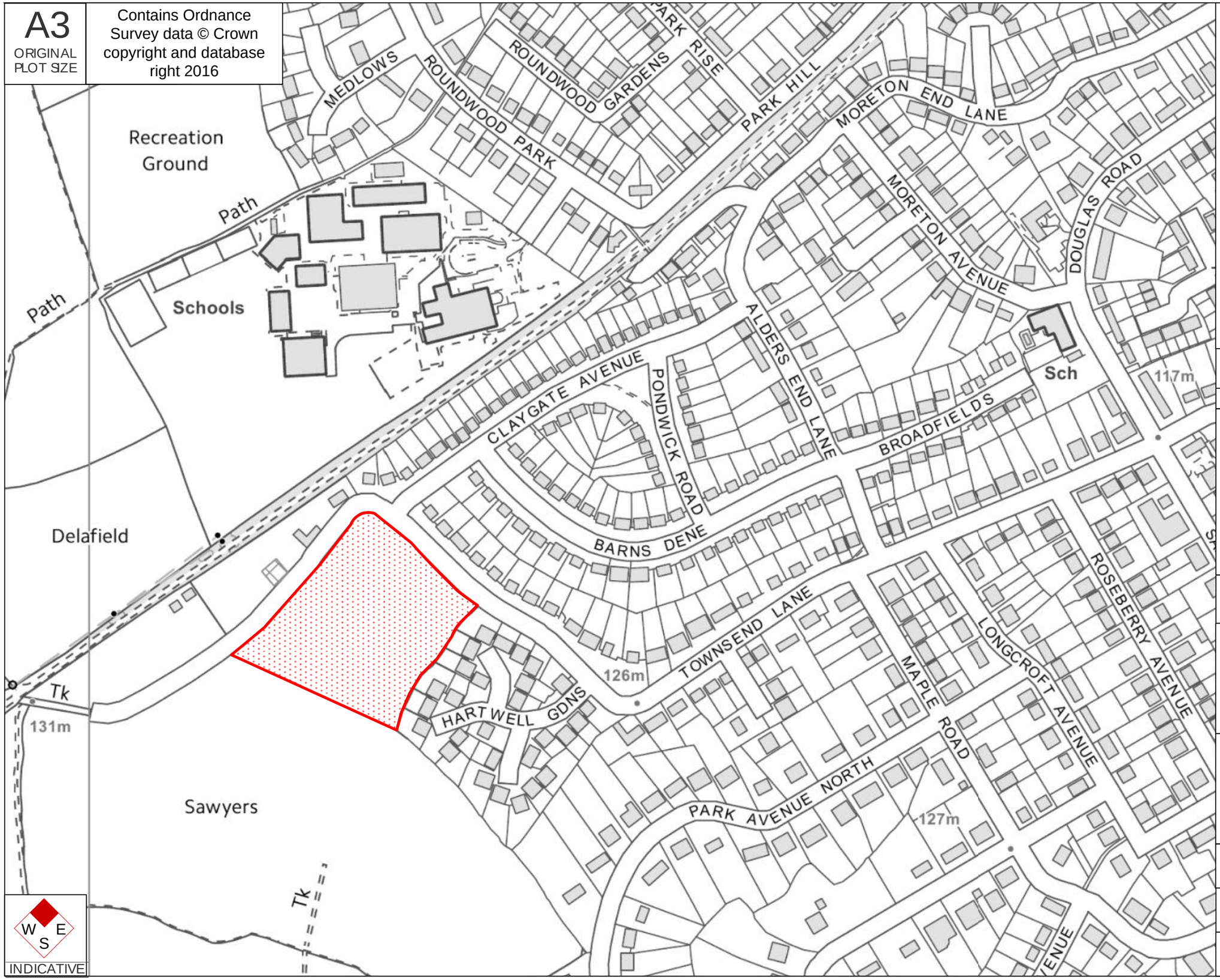
4.6 Vehicular access to the site can be achieved from Townsend Lane through the provision of two new simple priority T-junctions. The junction designs incorporate the principles of access to a minor access road in accordance with the details outlined in *Roads in Hertfordshire: Highway Design Guide* 3rd Edition.

4.7 The quantum of vehicular trips generated by a development would be accommodated by the proposed accesses and would not cause a significant effect on the wider highway network.

4.8 Moreover, suitable access to the site can be achieved with links to all modes of travel available to future residents and visitors. The scale of the development is unlikely to have a material impact on the wider highway and transport networks.

FIGURES

A3
ORIGINAL PLOT SIZE



Key

Indicative site location

Rev	Date	Details	Drawn by	Checked by

Bristol
Cambridge
Cardiff
London
Oxford
Welwyn Garden City

tpa Transport Planning Associates

Sheraton House
Castle Park
Cambridge
CB3 0AX

01223 370135
www.tpa.uk.com

Hill Residential Limited

Land off Townsend Road, Harpenden

Indicative site location plan

STATUS: INFORMATION

SCALE:	PREPARED BY:	CHECKED BY:	APPROVED BY:
NTS	BB	SM	SM

JOB NO:	DRAWING NO:	DATE:
1602-26	1.1	MARCH '16

A3
ORIGINAL PLOT SIZE

Indicative 400m radius (5 minute walk approx.)

Indicative 800m radius (10 minute walk approx.)

Indicative 1200m radius (15 minute walk approx.)

Indicative 1600m radius (20 minute walk approx.)

Key

- Indicative site location
- Roundwood Primay School & Roundwood Park (Secondary) School
- St Hilda's (Independent) School
- Sports & Leisure facilities
- Superstore
- St George's School
- Harpenden Memorial Hospital & The Elms Medical Practice
- Railway Station
- Local bus stops

Rev	Date	Details	Drawn by	Checked by

Bristol
Cambridge
Cardiff
London
Oxford
Welwyn Garden City

Transport Planning Associates

Sheraton House
Castle Park
Cambridge
CB3 0AX

01223 370135
www.tpa.uk.com

Hill Residential Limited

Land off Townsend Road, Harpenden

Local facilities and services plan

STATUS: INFORMATION

SCALE:	PREPARED BY:	CHECKED BY:	APPROVED BY:
NTS	BB	SM	SM

JOB NO:	DRAWING NO:	DATE:
1602-26	2.1	MARCH '16

INDICATIVE

APPENDIX A

Calculation Reference: AUDIT-219603-160321-0330

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
	SC	SURREY	2 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
	GS	GLOUCESTERSHIRE	1 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	2 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
	SY	SOUTH YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 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: 27 to 73 (units:)
Range Selected by User: 25 to 75 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 21/01/02 to 21/03/16

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	6 days
Wednesday	1 days
Thursday	4 days
Friday	1 days
Sunday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	14 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 undertaking using machines.

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	6
Edge of Town	6

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.

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.

Filtering Stage 3 selection:

Use Class:

C3	14 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	1 days
5,001 to 10,000	8 days
10,001 to 15,000	3 days
15,001 to 20,000	1 days
20,001 to 25,000	1 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	4 days
50,001 to 75,000	1 days
75,001 to 100,000	3 days
100,001 to 125,000	4 days
125,001 to 250,000	1 days
250,001 to 500,000	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	3 days
1.1 to 1.5	10 days
1.6 to 2.0	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:

Not Known	1 days
No	13 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.

LIST OF SITES relevant to selection parameters

1 CB-03-A-03 SEMI DETACHED CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40
Survey date: THURSDAY 20/11/08 Survey Type: MANUAL

2 CW-03-A-02 SEMI D./DETATCHED CORNWALL
BOSVEAN GARDENS

TRURO
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73
Survey date: TUESDAY 18/09/07 Survey Type: MANUAL

3 GS-03-A-01 SEMI D./TERRACED GLOUCESTERSHIRE
KINGSHOLM ROAD
KINGSHOLM
GLOUCESTER
Edge of Town Centre
No Sub Category
Total Number of dwellings: 73
Survey date: TUESDAY 25/05/04 Survey Type: MANUAL

4 HC-03-A-17 HOUSES & FLATS HAMPSHIRE
CANADA WAY

LIPHOOK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 36
Survey date: THURSDAY 12/11/15 Survey Type: MANUAL

5 HF-03-A-01 MIXED HOUSES HERTFORDSHIRE
LONGCROFT LANE

WELWYN GARDEN CITY
Edge of Town Centre
Residential Zone
Total Number of dwellings: 53
Survey date: FRIDAY 06/09/02 Survey Type: MANUAL

6 NF-03-A-01 SEMI DET. & BUNGALOWS NORFOLK
YARMOUTH ROAD

CAISTER-ON-SEA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 27
Survey date: TUESDAY 16/10/12 Survey Type: MANUAL

7 NY-03-A-09 MIXED HOUSING NORTH YORKSHIRE
GRAMMAR SCHOOL LANE

NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52
Survey date: MONDAY 16/09/13 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY 17/09/13 Survey Type: MANUAL

9 SC-03-A-03 DETACHED SURREY
A3050 HURST ROAD
HURST PARK
EAST MOLESEY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54
Survey date: TUESDAY 12/11/02 Survey Type: MANUAL

10 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD

BYFLEET
Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY 23/01/14 Survey Type: MANUAL

11 SH-03-A-02 DETATCHED SHROPSHIRE
GATCOMBE WAY
PRIORSLEE
TELFORD
Edge of Town
Residential Zone
Total Number of dwellings: 57
Survey date: SUNDAY 21/06/09 Survey Type: MANUAL

12 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
SUTTON HILL
TELFORD
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY 24/10/13 Survey Type: MANUAL

13 SY-03-A-01 SEMI DETACHED HOUSES SOUTH YORKSHIRE
A19 BENTLEY ROAD
BENTLEY RISE
DONCASTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54
Survey date: WEDNESDAY 18/09/13 Survey Type: MANUAL

14 WO-03-A-02 SEMI DETACHED WORCESTERSHIRE
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48
Survey date: TUESDAY 02/05/06 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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CA-03-A-03	too few dwellings
CH-03-A-04	too few dwellings
DC-03-A-08	too few dwellings
ES-03-A-02	too few dwellings
GM-03-A-10	too few dwellings
MS-03-A-02	too few dwellings

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	14	55	0.068	14	55	0.231	14	55	0.299
08:00 - 09:00	14	55	0.121	14	55	0.334	14	55	0.455
09:00 - 10:00	14	55	0.159	14	55	0.199	14	55	0.358
10:00 - 11:00	14	55	0.130	14	55	0.148	14	55	0.278
11:00 - 12:00	14	55	0.159	14	55	0.159	14	55	0.318
12:00 - 13:00	14	55	0.169	14	55	0.148	14	55	0.317
13:00 - 14:00	14	55	0.183	14	55	0.169	14	55	0.352
14:00 - 15:00	14	55	0.178	14	55	0.178	14	55	0.356
15:00 - 16:00	14	55	0.227	14	55	0.159	14	55	0.386
16:00 - 17:00	14	55	0.257	14	55	0.174	14	55	0.431
17:00 - 18:00	14	55	0.341	14	55	0.145	14	55	0.486
18:00 - 19:00	14	55	0.231	14	55	0.149	14	55	0.380
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.223			2.193			4.416

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.

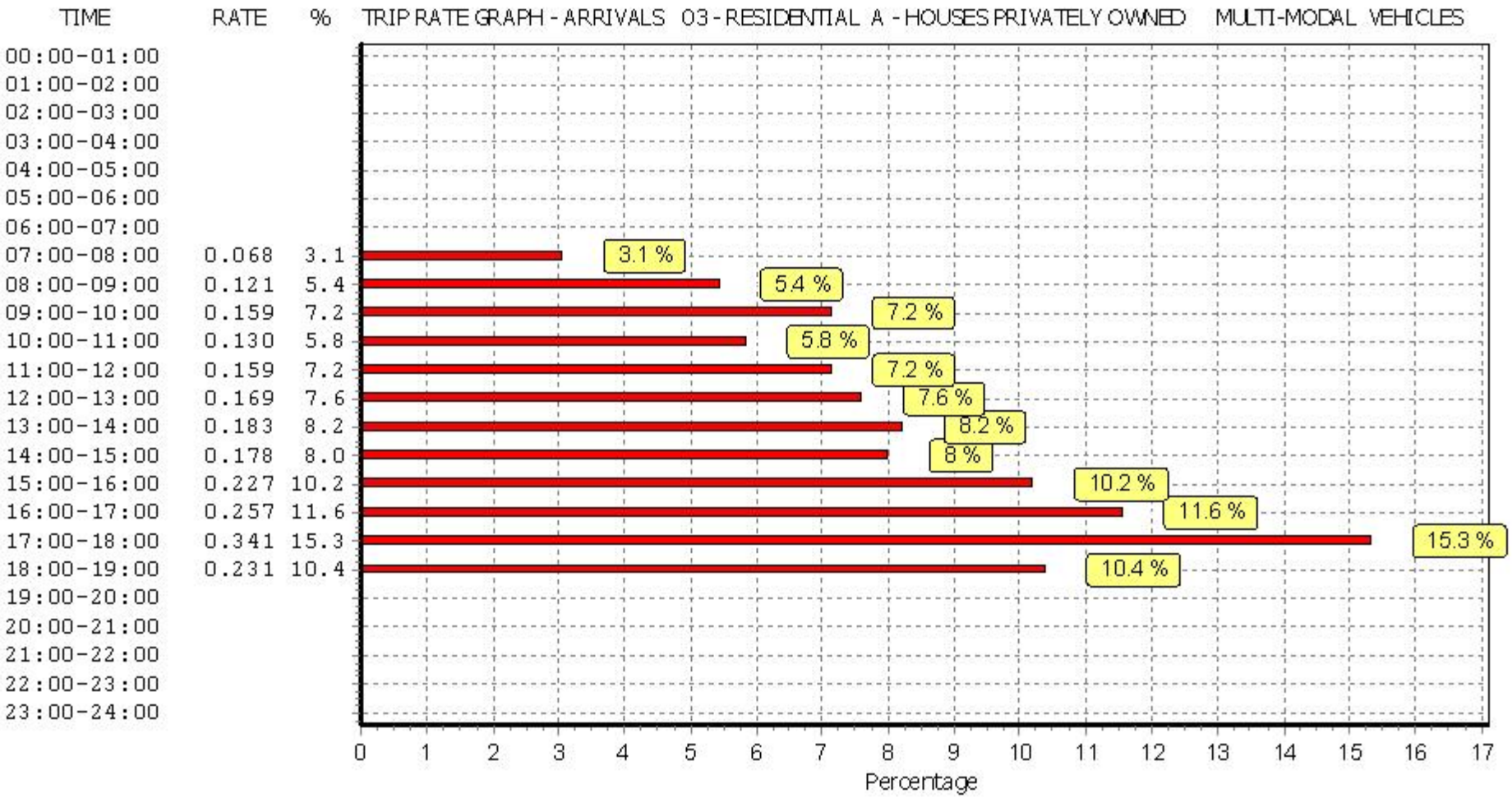
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.

Parameter summary

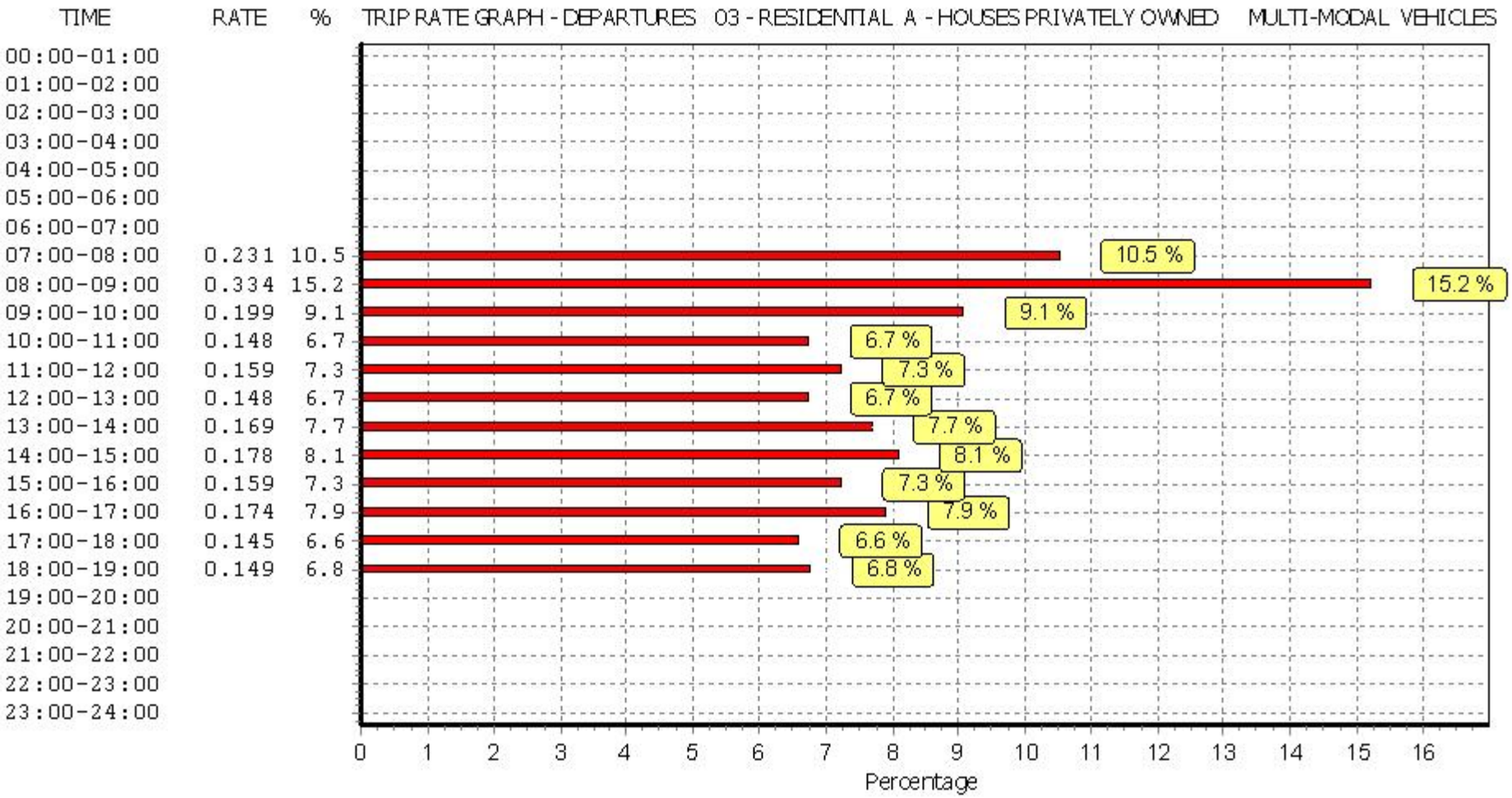
Trip rate parameter range selected:	27 - 73 (units:)
Survey date date range:	21/01/02 - 21/03/16
Number of weekdays (Monday-Friday):	13
Number of Saturdays:	0
Number of Sundays:	1
Surveys manually removed from selection:	9

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.

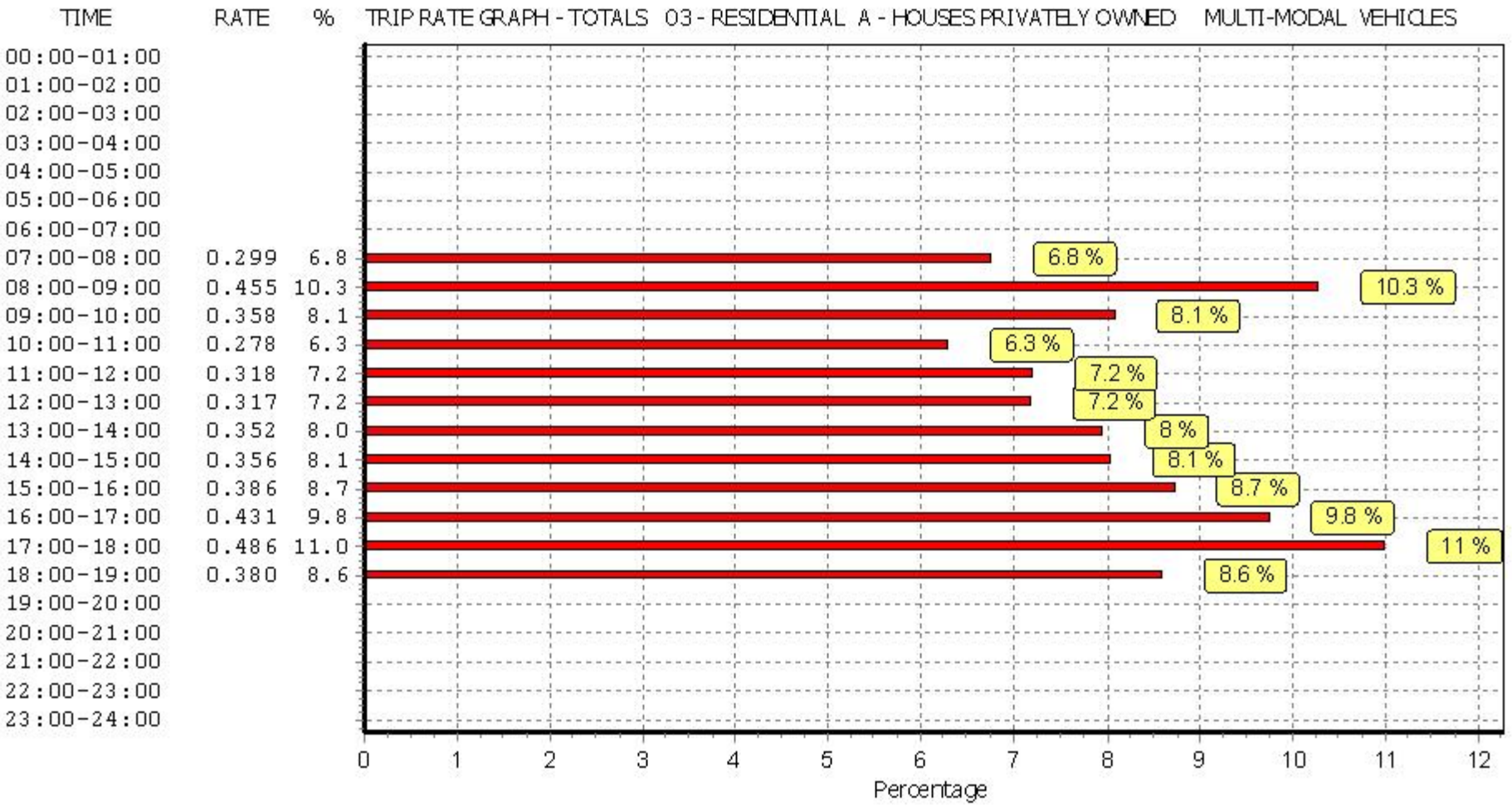
Transport Planning Associates Ltd Castle Park Cambridge Licence No: 219603



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	14	55	0.089	14	55	0.421	14	55	0.510
08:00 - 09:00	14	55	0.208	14	55	0.733	14	55	0.941
09:00 - 10:00	14	55	0.265	14	55	0.345	14	55	0.610
10:00 - 11:00	14	55	0.203	14	55	0.270	14	55	0.473
11:00 - 12:00	14	55	0.265	14	55	0.274	14	55	0.539
12:00 - 13:00	14	55	0.270	14	55	0.252	14	55	0.522
13:00 - 14:00	14	55	0.316	14	55	0.318	14	55	0.634
14:00 - 15:00	14	55	0.308	14	55	0.277	14	55	0.585
15:00 - 16:00	14	55	0.537	14	55	0.321	14	55	0.858
16:00 - 17:00	14	55	0.502	14	55	0.316	14	55	0.818
17:00 - 18:00	14	55	0.585	14	55	0.242	14	55	0.827
18:00 - 19:00	14	55	0.392	14	55	0.249	14	55	0.641
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.940			4.018			7.958

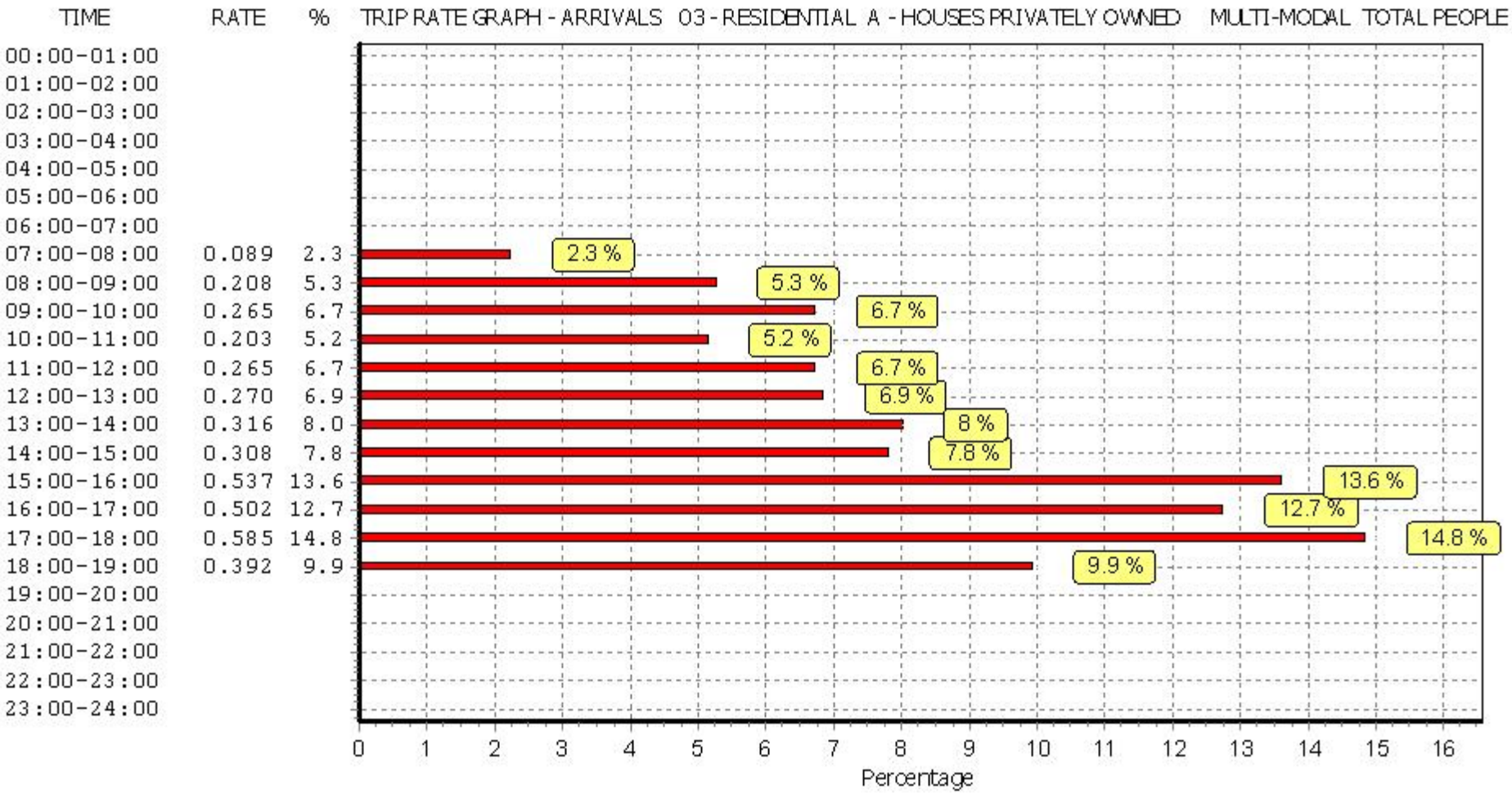
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.

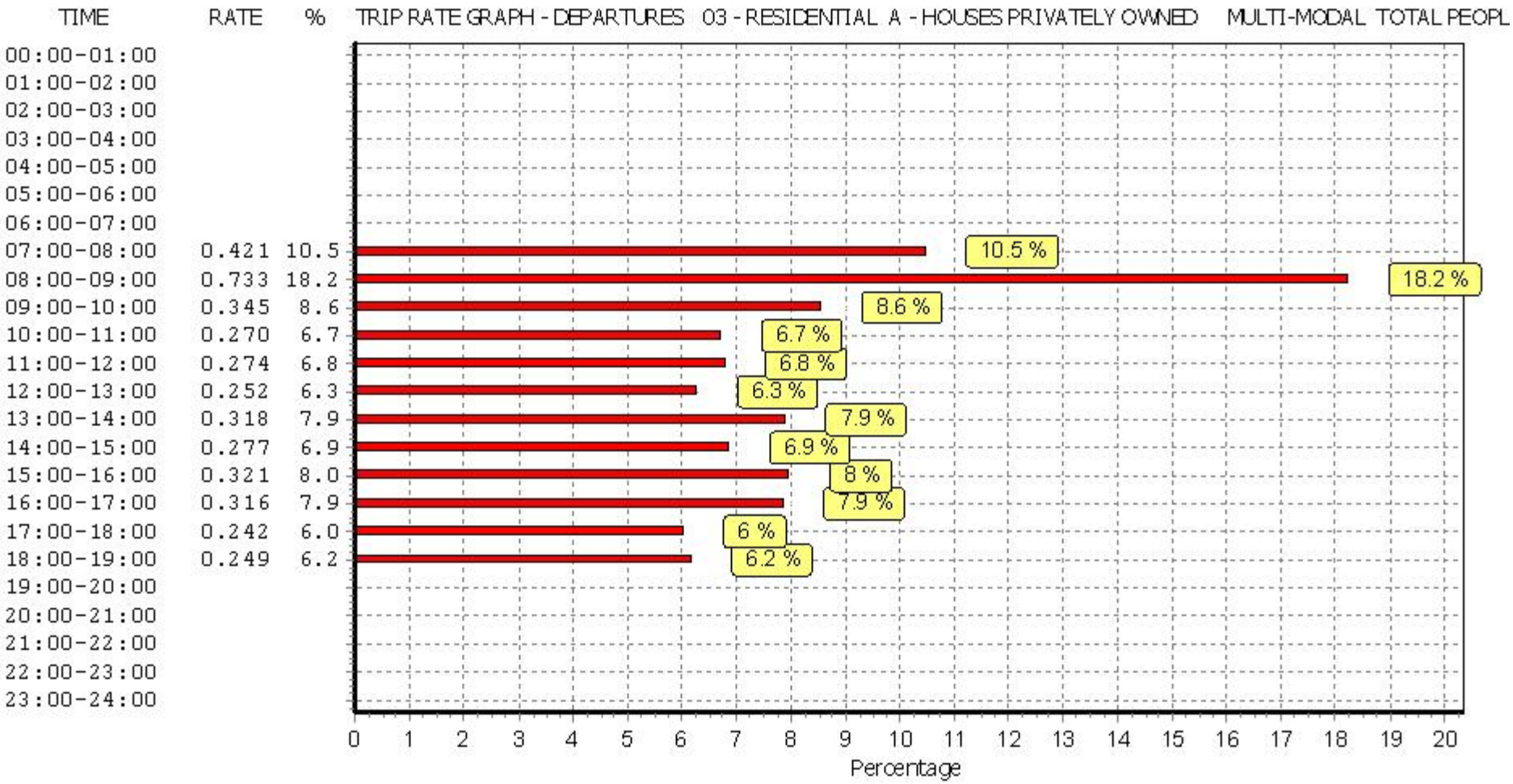
Parameter summary

Trip rate parameter range selected:	27 - 73 (units:)
Survey date date range:	21/01/02 - 21/03/16
Number of weekdays (Monday-Friday):	13
Number of Saturdays:	0
Number of Sundays:	1
Surveys manually removed from selection:	9

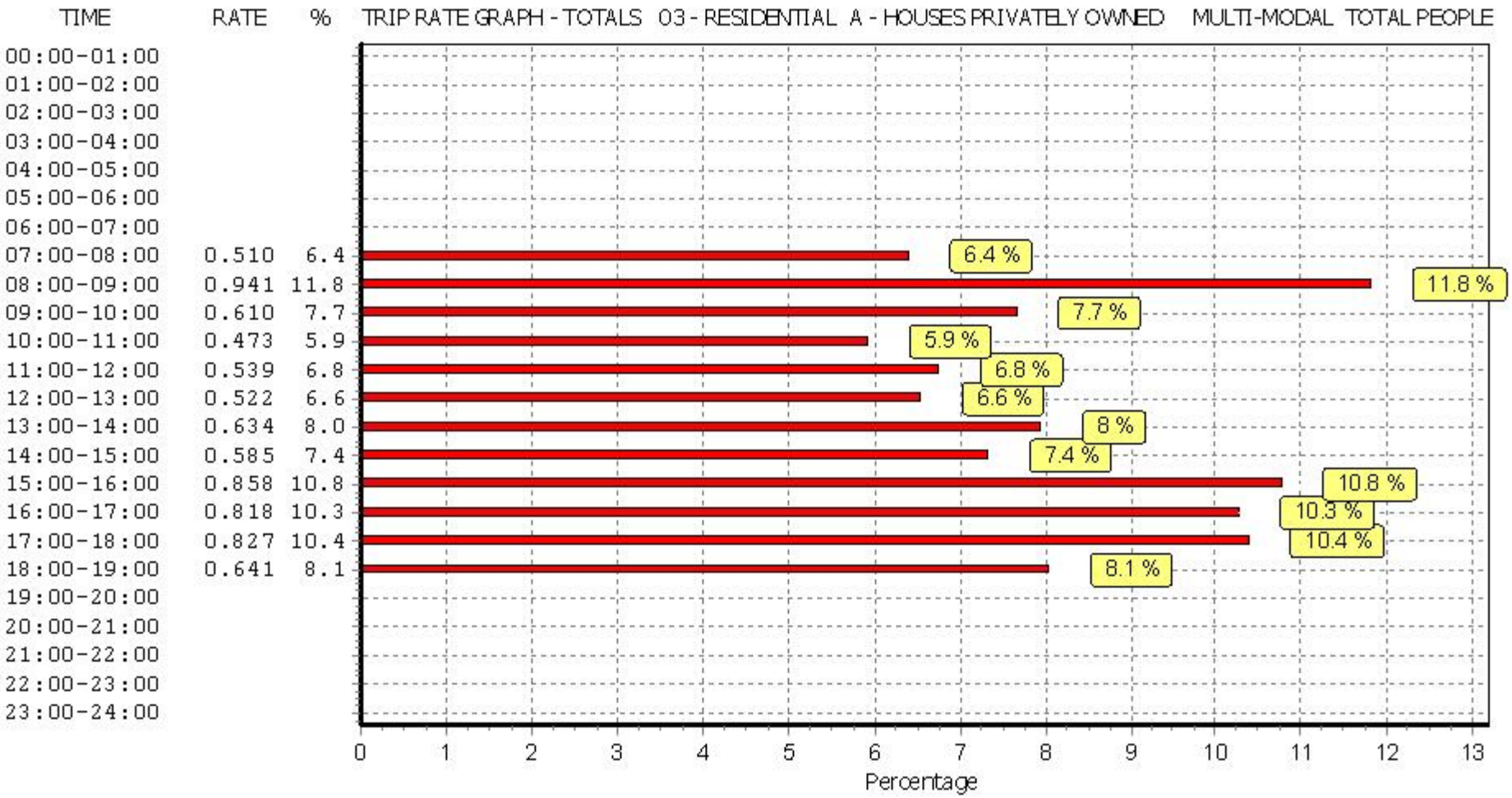
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



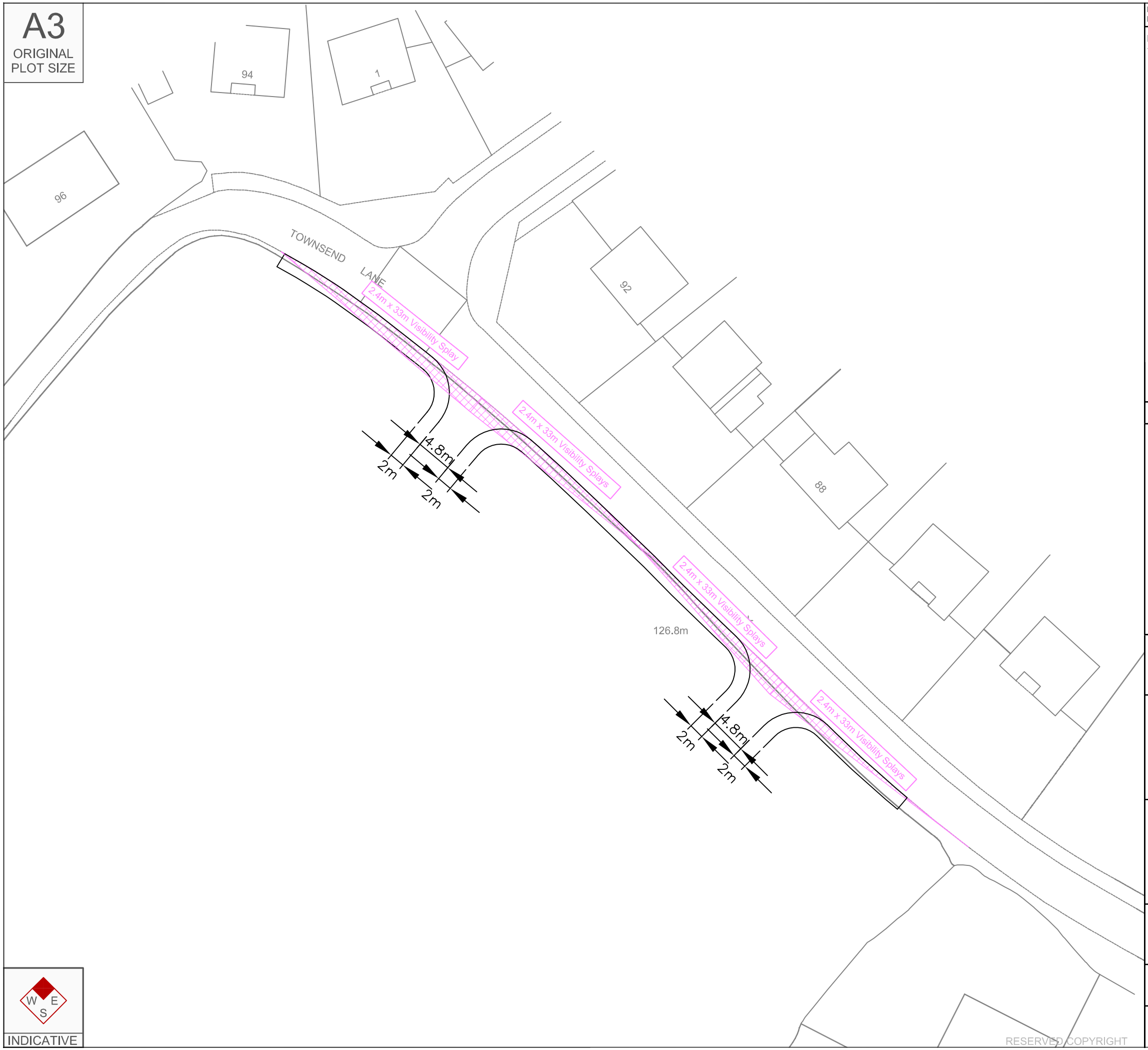
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

APPENDIX B

A3
ORIGINAL
PLOT SIZE



NOTES:
1. Subject to confirmation of Highway Boundary.

Rev	Date	Details	Drawn by	Checked by	Approved by
-	-	-	-	-	-

Bristol
Cambridge
Cardiff
London
Oxford
Welwyn Garden City

Transport Planning Associates

Sheraton House
Castle Park
Cambridge
CB3 0AX
01223 370135
www.tpa.uk.com

CLIENT:
Hill

PROJECT:
Land off Townsend Road, Harpenden

TITLE:
Site Access Option

STATUS:
FEASIBILITY

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:500	18.03.16	TH	SM	SM

JOB NO:	DRAWING NO:	REVISION:
1602-26	SK01	-

W E S

INDICATIVE

HILL RESIDENTIAL LIMITED

AGRICULTURAL LAND
CLASSIFICATION REPORT
ON LAND AT
TOWNSEND LAND
HARPENDEN

Richard Stock BSc. MIAgrE

August 2016

CONTENTS

1. INTRODUCTION

1.1 Hill Residential Limited instructed Richard Stock to prepare an Agricultural Land Classification report on approximately 1.8 hectares of land at Townsend Lane, Harpenden.

1.2 The report is based on a soil survey which was undertaken on 18th August 2016 by sampling soil at four locations using a 1.2 metre dutch auger and spade, and examining two soil profile pits. Further information has been obtained from the MAGIC website (multi-agency information of the Countryside, defra.gov.uk), and the Soil Survey of England and Wales.

1.3 The site is located on the western outskirts of Harpenden and was accessed from the south through Rothamsted Farm. It is centred on National Grid Reference TL 122 144 at an average altitude of approximately 130 m aod.

1.4 The soil survey details have been interpreted to grade the site in accordance with the Ministry of Agriculture, Fisheries and Food Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land) published in 1988. The system considers criteria relating to the **climate, site and soil.**

2. CLIMATE

2.1 Agroclimatic data for the site influences the agricultural land classification in respect of growing conditions for crops, and the soil reaction in terms of wetness and drought.

2.2 The meteorological office has published agroclimatic data for England and Wales on a five kilometre grid basis, which can be interpolated to produce data for specific grid points. Data for this site is presented in the table below.

Grid Reference	TL 122 144
Altitude - ALT	130 m
Average Annual Rainfall - AAR	703 mm
Accumulated Temperature - Jan to June - ATO	1348
Moisture Deficit Wheat - MDMWHT	101
Moisture Deficit Potatoes - MDMPOTS	91
Duration of Field Capacity - FCD	145

2.3 The climatic criteria are considered first when classifying land as climate can be overriding irrespective of soil and site conditions. The main parameters used in the assessment of climatic limitation are Average Annual Rainfall (AAR), as a measure of overall wetness, and Accumulated Temperature (ATO, Jan to June), as a measure of the relative warmth of the area.

2.4 On the basis of Rainfall and Accumulated Temperature, there is no climatic limitation to grade.

3 THE SITE

3.1 The site is a single arable field on the west side of Harpenden. It extends to approximately 1.8 hectares and is approximately square, orientated with its northwest and northeast boundaries on Townsend lane, the southeast boundary fronting rear gardens, and the south west boundary adjacent to open agricultural land. The site was accessed from the south through Rothamsted Farm along an internal farm track.

3.2 At the time of the survey the field comprised recently harvested cereal stubble and chopped straw.

3.3 The land is very gently undulating. There are no significant gradients, which might affect farming practice.

3.4 There is no evidence that the site is at risk of flooding or that micro-relief influences land use through frost risk.

3.5 On the basis of **site** characteristics relating to gradient, microrelief and flooding there is no limitation to grade.

4 THE SOILS

4.1 The soils are described in Soil Survey of England and Wales Bulletin 13 (Soils and Their Use in Eastern England), and identified on the 1:250,000 soil map of England and Wales Sheet 4. The information given in the Bulletin and maps is limited in several ways and is not a definitive soil description. Firstly, soil patterns in England and Wales are commonly complex and vary greatly in composition. Secondly, the minimum area that can be shown on the map is 0.5 km^2 and because of this many soil associations include small patches of soils which, at a larger scale, would be correlated with a different map unit. It is therefore noted that within the limitations of the map, the site is dominated by soils in the Batcombe Association.

4.2 The Batcombe Association is described as '*Fine silty over clayey and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk. Variably flinty'*. It includes soils in the Hornbeam, Carstens and Winchester soil series.

4.3 The detailed soil survey accords with the broad description of the Association and confirms that the land is predominantly non calcareous slightly stony (variable) sandy (medium) clay loam topsoil overlying non calcareous moderately stony sandy clay loam upper subsoil over slightly stony slowly permeable clay lower subsoil.

4.4 The schedule of auger borings and soil profile descriptions are at Appendix 1.

5. AGRICULTURAL LAND CLASSIFICATION

5.1 The site was graded by applying the survey details to the Ministry of Agriculture, Fisheries and Food Guidelines for Agricultural Land Classification (October 1988).

5.2 The current classification system was adopted in 1988 and was a refinement of the previous system. A series of Provisional ALC maps were produced at a scale of 1 inch to 1 mile between 1967 and 1974 based on the earlier classification system, and were intended to be for guidance only for strategic planning purposes. A new series of soil maps at a scale of 1:250,000 based on the same information are available on MAGIC, an interactive, geographical information website. The 1:250,000 map for the area shows the site to be undifferentiated Grade 3.

5.3 The agricultural land classification system provides a framework for classifying land according to the extent to which it's physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The principal factors considered are **Climate, Site and Soil**. These factors, together with interactions between them, form the basis for classifying land into one of five grades. Grade 1 is land of excellent quality and grade 5 is very poor. Grade 3 is divided into sub-grades 3a and 3b since

this grade covers about half of England and Wales. The grade or sub-grade is determined by the most limiting factor present.

5.4 On this site there is no limitation to grade according to **Climate**.

5.5 The assessment of **Site** factors considers the way the topography affects agricultural machinery use and crop production. This site comprises very gently graded land and fundamentally offers no restrictions to agricultural use and cropping potential.

5.6 The main **Soil** properties, which may affect cropping potential, are texture, structure, depth, stoniness and chemical fertility. The land has been actively farmed for generations and there are no overriding limitations caused by the individual soil factors with the exception of topsoil stone. The surface stone is masked by chopped straw but where it is visible the site would appear to be slightly stony (6-15%), but may occasionally be moderately stony (15-35%). The stone is small, medium and large flint. The variable stone content limits the grade to predominantly 3a. There may be small isolated patches where the higher stone content would be downgraded to 3b, but these would be too small to map.

5.7 The remaining consideration for ALC grading on this site relates to **Interactive** limitations, principally wetness and drought.

5.8 Regarding soil wetness, where a slowly permeable layer occurs above 39 cm the profile is assigned to wetness class IV, between 39 and 67 cm is assigned to wetness class III, and deeper than 67cm is wetness class II. In the prevailing climatic area (145 FCD) non calcareous sandy clay loam and medium clay loam topsoil in wetness classes III is classified as grade 3a, which applies to all the survey points where the slowly permeable clay starts at about 45cm.

5.9 Calculations of moisture balance for the two profile pits show that there is a drought limitation to grade 2. Therefore the wetness limitation is overriding.

5.10 The land is classified according to the most limiting factor. Despite the high level of flint in the upper subsoil droughtiness is not the most limiting factor and it is concluded that the site is grade 3a agricultural land based on wetness and surface stone.

APPENDIX 1

Schedule of Auger Borings and
Soil Pit Descriptions

KEY

Colour		Munsell
db	dark brown	10YR3/3
b	brown	10YR4/3
rb	reddish brown	5YR4/4
yr	yellowish red	5YR5/6
sb	strong brown	7.5YR5/8

Mottling and Gleying

0	none
x	few and faint
xx	common
xxx	many

Texture

scl	sandy clay loam
mcl	medium clay loam
c	clay
sc	sandy clay

Observations

nc	non calcareous
ns	no stone
spl	slowly permeable layer
sgmc	severe gley and manganese concretions
mn	manganese concretions
wc	wetness class

SCHEDULE OF AUGER BORINGS AND PROFILE PITS

LAND AT TOWNSEND LANE

Auger grid ref	Depth cm	Colour	Texture	Stone %	gley	Observations	WC	ALC Grade
1 TL 12245 14395	0-30 30-40 40-45 45-60 60-110	db b rb yb rb	scl scl/mcl c c c	5 7 3 2 2	0 x xx xx xx	variable flint 3-7 mn concretions. spl mn sgmc	III	3a
2 TL 12264 14437	0-28 28-45 45-55 55-80 80	db sb sb sb	scl scl c/sc c	10+ 50 2 2	0 x xx xx	 spl mn. spl Stop. Pit A	III	3a
3 TL 12231 14480	0-28 28-45 45-65 65	db sb sb	scl scl c	10+ 50 3	(x) x xx	As pit A above spl Pit B. struck flint.	III	3a
4 TL 12193 14444	0-28 28-45 45-65 65	db b sb	scl/mcl scl c	10+ 5 3	0 x xx	 spl struck flint	III	3a

PROFILE PIT DESCRIPTIONS

Pit A	0-28	dark brown (10YR3/3) non calcareous sandy clay loam. No gley. Flint est 10% >2cm, 5%>6cm. Very dry post harvest, cultivation layer.
	28-45	strong brown (7.5YR5/8) non calcareous sandy clay loam. Very stony (50%). Moderate medium angular blocky. Faint gley.
	45-55	strong brown (7.5YR5/8) non calcareous sandy clay. 5% stone. Firm moderate coarse angular blocky. Gleyed. Slowly permeable layer.
	55-80	strong brown (7.5YR5/8) non calcareous clay. 5% stone. Firm moderate coarse angular blocky. Gleyed. Slowly permeable layer.
	80	Pit ends.
	wetness	***Slowly permeable layer from 45cm is assigned to wetness class III, combined with non calcareous sandy clay loam topsoil places this profile in grade 3a.***
	drought	***mbwht - +29*** ***mbpots - +1*** ***drought grade 2***
	overall	***Overall Grade 3a***

Pit B	0-28	dark brown (10YR3/3) non calcareous sandy clay loam. No gley. Flint est 10% >2cm, 5%>6cm. Very dry post harvest, cultivation layer.
	28-45	brown (10YR4/3) non calcareous sandy clay loam. Very stony (60%). Moderate medium angular blocky.
	45-65	strong brown (7.5YR5/8) non calcareous clay. 5% stone. Firm moderate coarse angular blocky. Gleyed. Slowly permeable layer. As Pit A
	65	Pit ends.
	wetness	***Slowly permeable layer from 45cm is assigned to wetness class III, combined with non calcareous sandy clay loam topsoil places this profile in grade 3a.***
	drought	***mbwht - +27*** ***mbpots - -1*** ***drought grade 2***
	overall	***Overall Grade 3a***

LAND AT TOWNSEND LANE, HARPENDEN, HERTFORDSHIRE: AN HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT

MARCH 2016

PRE-CONSTRUCT ARCHAEOLOGY

R12419

Land at Townsend Lane, Harpenden, Hertfordshire:
An Historic Environment Desk-Based Assessment

Local Planning Authority: **St Albans City and District Council**

Report No.: **R 12419**

Central National Grid Reference: **TL 512241 214462**

Written and Researched by: **Mary-Anne Slater**

Project Manager: **Taleyna Fletcher**

Commissioning Client: **Hill Residential Limited**

Contractor: **Pre-Construct Archaeology Ltd**
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Brewery Road, Pampisford
Cambridgeshire CB22 3EN
TEL: 845 522
FAX: 845 522
Web: www.pre-construct.com

March 2016

CONTENTS

Figure List

1 NON-TECHNICAL SUMMARY

1.1.1 Pre-Construct Archaeology Limited (PCA) was commissioned by Hill Residential Limited to undertake an historic environment desk-based assessment of land at Townsend Lane, Harpenden, Hertfordshire (Figures 1 and 2).

1.1.2 The archaeological assessment has established that the study area has a low-negligible potential for Saxon activity, low potential for prehistoric and medieval activity, a low-moderate potential for post-medieval activity and moderate-high potential for Roman activity. It is expected that the proposed development will penetrate below the upper level of the natural drift geology and accordingly have an adverse impact upon any extant archaeological remains. Given the scale of the proposed development and the number and range of archaeological sites recorded in the vicinity of the site, it is thought that an appropriate investigation strategy, to fully assess the potential impacts of the proposed development on any surviving heritage assets, may be required by the Local Planning Authority.

2 INTRODUCTION

2.1 Outline

2.1.1 Pre-Construct Archaeology Limited (PCA) was commissioned by Hill Residential Limited to undertake an historic environment desk-based assessment of land at Townsend Lane, Harpenden, Hertfordshire.

2.1.2 The archaeological assessment has established that the study area has a low-negligible potential for Saxon activity, low potential for prehistoric and medieval activity, a low-moderate potential for post-medieval activity and moderate-high potential for Roman activity.

2.1.3 An historic environment desk-based assessment (DBA) is required as part of the planning application and accords with policies set out in the National Planning Policy Framework which was published in March 2012. Section 12: 'Conserving and enhancing the historic environment' states 'Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation'.

2.1.4 This report has been written following guidelines issued by English Heritage (now Historic England) (2009) and in accordance with the standards specified by the Chartered Institute for Archaeologists (CIfA, 2008).

2.1.5 An historic environment desk-based assessment is undertaken in order that the Local Planning Authority (LPA) may formulate an appropriate response to proposals which may impact upon any identified archaeological resource. This report aims to assess the archaeological potential of the site and to examine the likely impact of the proposals upon the archaeological resource.

2.1.6 This archaeological desk-based assessment was written and researched by Mary-Anne Slater of Pre-Construct Archaeology Limited. The research included visits to the Hertfordshire Archives and Local Studies (HALS) to examine historical maps and secondary sources and a 1-2km radius area search of the holdings of the Hertfordshire Historic Environment Record (HHER).

2.2 Report Objectives

2.2.1 As defined by the Chartered Institute for Archaeologists (CIfA 2008), an archaeological desk-based assessment aims to:

> *Determine as far as is reasonably possible from existing records, the nature of the archaeological resource within a specified area. It will be undertaken using appropriate methods and practices which satisfy the stated aims of the project, and which comply with the Code of Conduct, Code of approved practice for the regulation of contractual arrangements in field archaeology, and other relevant by-laws of the CIfA.*

2.2.2 A desk-based assessment should consist of:

> *A collation of existing written, graphic, photographic and electronic information in order to*

identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate.

2.2.3 The desk-based assessment is required in order to assess the merit of the archaeological resource and lead towards one or more of the following:

- The formulation of a strategy to ensure the recording, preservation or management of the resource.
- The formulation of a strategy for further investigation, whether or not intrusive, where the character and value of the resource is not sufficiently defined to permit a mitigation strategy or other response to be devised.
- The formulation of a proposal for further archaeological investigation within a programme of research

2.2.4 The degree to which archaeological deposits survive on site will depend upon previous land-use and so consideration is given to the destructive effect of past and present activity from a study of the information available. In order that the appropriate archaeological response may be identified the impact of the proposed development is also considered.

3 THE SITE AND PROPOSED SCHEME

3.1 The Study Site

3.1.1 The study site lies toward the north-western most extent of the built-up area of Harpenden and to the south of Townsend Lane (Figure 1). It presently comprises a field bounded by Townsend Lane to the north-west and north-east, a housing development to the south-east and fields to the south-west (Figure 2).

3.1.2 The proposed site covers an area of approximately 1.8ha for development.

4 PLANNING BACKGROUND

4.1 National Planning Policy Framework (NPPF)

4.1.1 The National Planning Policy Framework (NPPF) was adopted on 27 March 2012, and now supersedes the Planning Policy Statements (PPSs). The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.

4.1.2 Chapter 12 of the NPPF concerns the conservation and enhancement of the historic environment, with the following statements being particularly relevant to the proposed development:

128. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

129. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

Additionally:

141. Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

4.1.3 In considering any planning application for development, the local planning authority will now be guided by the policy framework set by the NPPF.

4.1.4 The NPPF also states that:

214. For 12 months from the day of publication, decision-takers may continue to give full weight to relevant policies adopted since 2004 even if there is a limited degree of conflict with this Framework.

215. In other cases and following this 12-month period, due weight should be given to relevant policies in existing plans according to their degree of consistency with this framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given).

4.1.5 As such the Local Planning Authority will continue to also be guided by the existent Development Plan policy and by other material considerations.

4.2 St Albans District Local Plan Review (1994)

4.2.1 **Archaeological Sites and Monuments**

6.16.1 Archaeological sites are of considerable importance academically, educationally, as tourist attractions, as landscape or townscape features and as places of local interest. However, valuable remains are under constant threat from developments in town and countryside. Measures must be taken to ensure conservation or recording of these features before they are destroyed.

6.16.2 The District is rich in archaeological heritage, spanning the whole range of British prehistory and history. The best known sites include Verulamium Roman Town, Beech Bottom, Devils Dyke and the monastic earthworks of St. Albans Abbey. Finds range from Palaeolithic hand axes to items of industrial archaeology. Few upstanding sites have survived, but the number of buried sites is always increasing as discoveries are made as a result of construction works or aerial photography.

6.16.3 Areas of archaeological significance in Hertfordshire are graded according to their importance:

i) Scheduled Ancient Monuments. Sites of national importance, such as Verulamium, are 'scheduled' by the Secretary of State for the Environment and have statutory protection under the provisions of the Ancient Monuments Acts 1913-53. It is an offence to carry out any works which could destroy or damage a scheduled ancient monument unless 'Scheduled Monument Consent' has been obtained from the Secretary of State.

Scheduled sites are relatively few in number, but the County Council has identified other areas of local archaeological significance. They are categorised as:

ii) Sites for Local Preservation. Sites, other than Scheduled Ancient Monuments, which are worthy of conservation. There is a presumption against any development which might damage the site;

iii) Sites where planning permissions may be subject to a recording condition. Areas where preservation is not necessary, but recording prior to any proposed development may be essential.

6.16.4 The District Council will seek to ensure the conservation of remains designated as Scheduled Ancient Monuments and Sites for Local Preservation and to resist their destruction through development works. Some developments near to archaeological sites and monuments can damage the character and historic atmosphere of remains. These will also be restricted, especially where the site has potential as a tourist attraction.

4.3 Policy 109 – Scheduled Ancient Monuments

4.3.1 Planning applications for development which would adversely affect a Scheduled Ancient Monument, will be refused on archaeological grounds unless prior scheduled monument consent has been obtained from the Secretary of State for the Environment. If scheduled monument consent has been granted, the District Council will seek to preserve the amenity of ancient monuments by resisting proposals within scheduled areas which would detract from their character.

4.4 Policy 110 – Archaeological Sites for Local Preservation

4.4.1 Planning permissions will not be granted for development which would adversely affect the remains within, or the character of, the sites for local preservation. Development may be permitted in exceptional circumstances, following evaluation, if the Council is satisfied that important remains would not be destroyed or the character of the site adversely affected. The evaluation, which may involve limited excavation or other work (e.g. geophysical survey) is to be carried out by the Council or an archaeologist approved by the Council. Planning permissions will normally be subject to conditions requiring facilities for the Council to record remains by excavation in advance of construction and/or during construction.

4.4.2 Voluntary agreements will be sought to cover the cost of the work, including any initial evaluation, and to ensure that finds made during the course of such work are donated to the Council. Voluntary agreements will also be sought to ensure the continued preservation and management of important remains.

4.5 Policy 111 – Archaeological Sites Where Planning Permissions May Be Subject To A Recording Condition

4.5.1 Following evaluation, planning permissions may be subjected to a condition requiring facilities for the Council to record remains by excavation in advance of construction and/or during construction. The evaluation, which may involve limited excavation or other work (e.g. geophysical survey) is to be carried out by the Council or an archaeologist approved by the Council.

4.5.2 Voluntary agreements will be sought to cover the cost of the work, including any initial evaluation, and to ensure that finds made during the course of such work are donated to the Council.

4.6 Scheduled Monuments

4.6.1 In terms of designated heritage assets, no World Heritage Sites, Scheduled Ancient Monuments, Historic Battlefield or Historic Wreck designations lie within the study area or within its immediate vicinity.

4.7 Listed Buildings

4.7.1 There are no statutory listed buildings within the boundary of the proposed development site. The majority of listed buildings lie in the historic core of Harpenden, along Luton Road.

4.8 Conservation Areas

4.8.1 The proposed development lies to the west of the Harpenden Conservation Area.

4.9 Registered Parks and Gardens

4.9.1 The site does not fall within or affect a registered park and garden.

5 GEOLOGY AND TOPOGRAPHY

5.1 Geology

5.1.1 The underlying geology of the site is Lewes Nodular Chalk Formation and Seaford Chalk Formation - Chalk (British Geological Survey; Website 1). A Sedimentary Bedrock formed approximately 84 to 94 million years ago in the Cretaceous Period when the local environment was dominated by warm chalk seas.

5.1.2 The superficial deposits in this area are comprised of Clay-with-flints Formation – Clay, Silt, Sand and Gravel (BGS; Website 1). Superficial deposits formed up to 5 million years ago in the Quaternary and Neogene Periods when the local environment was dominated by weathering processes.

5.1.3 No known geotechnical work has been undertaken on the site.

5.2 Topography

5.2.1 The site lies between c.129-131m above Ordnance Datum (AOD).

6 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

6.1 Introduction

6.1.1 In order to assess the potential of the archaeology within the development area, an examination of all archaeological entries in the Hertfordshire Historic Environment Record (HHER) has been made within a 1-2km radius from central point TL 512241 214462 (Figure 3). The search area is defined as the 'study area' for the purposes of this assessment. A list of the most relevant / significant entries ("sites" 1-16) is provided in Appendix 1.

6.1.2 The purpose of the HER search is to identify known archaeological sites and finds in the vicinity in order to predict the likely archaeological conditions within the development area itself. It is important to understand that many of the entries on the HER result from chance discoveries, and therefore, at best, are a small and unrepresentative sample of the total buried heritage.

6.1.3 The information derived from the HER is supplemented by other archaeological, documentary and cartographic resources, including the English Heritage Extensive Urban Survey Project for Wheathampstead and Harpenden (Thompson 2002).

6.2 Prehistoric

6.2.1 The site lies within an area which was conducive to settlement during the prehistoric periods. Many early prehistoric flint and lithic scatters, along with Palaeolithic and Neolithic hand axes, have been identified throughout the region, particularly in the river gravels. Cropmarks have been recorded at two possible major ritual sites, a long barrow at Wheathampstead (SMR 7959) and a henge (wood) at Amwell (SMR 6008). From the Bronze Age there is an increased amount of well-established settlement over much of the area of the historic parish of Wheathampstead, particularly along the river in the vicinity of Wheathampstead itself as well as on the higher ground south-east of modern Harpenden. Cropmarks of possible Bronze Age ring-ditches are known on the outskirts of the parish and worked flint tools have been found over a large area at Cross Farm, Harpenden (SMR 9767). As in southern Hertfordshire in general, there is little evidence for the earlier Iron Age. Material remains from the late Iron Age are abundant, with numerous sites in the vicinity of Harpenden and Wheathampstead. An earthwork enclosure was constructed in the late Iron Age, between Devil's Dyke and the Slad (SMR 0048) and similarly dated chieftain burial is located between Harpenden and Wheathampstead.

6.2.2 Despite the good evidence in the wider area, there is little evidence for prehistoric activity closer to the proposed site. An isolated late Iron Age gold quarter stater was found c.900m south-east of the site (**MHT22373 Site 1**) and late Iron Age pottery was recovered from a ditch underneath a Roman mausoleum c.600m south-west of the site (**MHT58 Site 2**). The paucity of prehistoric evidence within a 1km radius of the site may not reflect activity in the area, but rather a lack of archaeological work.

6.3 Roman

6.3.1 Roman occupation in the general area was on a considerable scale. Verulamium, the third

largest town in Roman Britain (later known as St Albans), lies c.7.3km to the south of the site, and the Roman road of Watling Street, which ran from Dover or Richborough, through St Albans and Harpenden to Wroxeter.

6.3.2 Scheduled Ancient Monument 27903 is situated approximately 600m south-west of the proposed site and comprises a Roman mausoleum and cemetery (**MHT58 Site 2**). A funerary enclosure, with internal building, probably represents the private burial ground of a local high status family. The enclosure is almost square, about 30m each side, and had a flint rubble wall, with an external ditch. In the centre of the enclosure was a circular masonry structure and fragments of a draped figure in limestone indicated a statue. Two cremations excavated within the enclosure were 2nd century. The west side of the circular building stood over a ditch containing late Iron Age pottery.

6.3.3 Monitoring of construction at Roundwood School, c.200m to the north-west of the site, recorded two ditches, a pit and a spread of mortar (**MHT9737 Site 3**). The ditches may have marked the entrance to a farmstead enclosure, which the pottery assemblage dated to the 1st to 4th century. Three mid-late 3rd century coins were found in Harpenden churchyard and pottery and gaming counters have been found close to the site at Park Avenue and Moreton End Lane (**MHT665 Site 4, MHT673 Site 5, MHT674 Site 6**). Roman pottery and a late Roman coin have also been found c.640m to the south-west and c.700m to the north-east (**MHT9726 Site 7, MHT20933 Site 8**).

6.4 Saxon

6.4.1 There is little evidence for continuity of settlement in south-west Hertfordshire from the late Roman period. The earliest Saxon evidence in this area shows a gradual re-settling along the rivers and surviving remnants of the Roman road system from the later 6th century. Grass-tempered pottery of 6th -7th century date has been found in several places in the valley of the river Colne south of St Albans and in the Lea Valley between Wheathampstead and Harpenden. At least one 7th century high-status Saxon burial with rich grave goods was present just north of the river crossing at Wheathampstead (SMR 1637) and the early form of Harpenden, *Herpeden(e),* may derive from the Old English *herepaeð,* referring to the St Albans-Luton road on which Harpenden lies. A church was present at Wheathampstead and several mid-late Saxon burials have been recorded in the churchyard (SMR 9730), but no similarly dated finds have been made in the Harpenden area. In 1060 Edward the Confessor gave the whole area of Wheathampstead and Harpenden to Westminster Abbey.

6.4.2 There are no Saxon results from the HER search in the area of the proposed site at Townsend Lane.

6.5 Medieval

6.5.1 There is no Domesday Book entry for Harpenden. Harpenden and Wheathampstead formed part of the Westminster Abbey estate, with one manor at Wheathampstead and one, Kinsbourne or Harpenden, at the west end of the parish with its manor house at Harpendenbury. The earliest known feature of Harpenden is the chapel built by the abbey in the earlier 12th century on the highway from St Albans to Luton. The present church dates

largely from 1862, but Early Norman capitals survive in the window ledges and watercolours from the 1830s show an early 12th century nave and chancel with transepts, and later aisles and south porch.

6.5.2 Harpenden emerged as a distinct place from Wheathampstead during the medieval period. The Court Rolls recorded it as *Wheathampstead cum Harpenden* from the 13th century. Westminster built a barn to receive tithes next to the chapel. The area around the chapel and the highway slowly emerged as the core of Harpenden.

6.5.3 There are no medieval results from the HER search in the area of the site.

6.6 Post-Medieval - Modern

6.6.1 The historic core of Harpenden continued to focus along the St Albans to Luton Road during the post-medieval period. After the Dissolution several large estates were built up from the sub-manors parcelled out by the medieval Westminster Abbey. By the mid-17th century Harpenden parish was managed by the Wittewronges of Rothamsted. This period also saw an increase in the population of Harpenden. In 1563 Harpenden had 62 families and by 1673 it contained at least 118 families with approximately 65 paying tax. The highway from Bedford and Luton to St Albans saw Harpenden become a stop for travellers. In 1743 it became a turnpike, with a toll gate at the foot of Sun Lane, and its importance continued until the arrival of the railway lines in the 1860s.

6.6.2 By 1900 Harpenden had become larger than Wheathampstead. This was a result of Harpenden becoming an official parish in 1859, the opening of the Hatfield, Luton & Dunstable Railway in 1860 and the Midland Railway in 1868. Harpenden had two railway stations (Harpenden and Harpenden East) and by the end of the century new churches, schools and other facilities were clustered between the High Street and the main station.

6.6.3 There are numerous post-medieval records present in the HER search around the site. The Old Bell Public House is a later 17th century timber-framed building which lies approximately 850m to the north-east of the site (**DHT8477 Site 9**). The gardens of Rothamsted Manor lay c.1km to the south of the site (**MHT9596 Site 10**). Shown on maps from 1766 onwards, the formal gardens probably date to the alterations to the house in the 1860s and after. Approximately 850m to the south of the site is the pioneering experimental farmstead established in 1834 and still in operation (**MHT9744 Site 11**). Rothamsted Experimental Farm was one of the first of its kind, ascertaining the effect of chemicals as manures upon different crops and plants. The post-medieval farmsteads of New Farm, Townsend Farm and Moreton End lay c.900m to the north-west and north-east (**MHT17858 Site 12, MHT18203 Site 13, and MHT18770 Site 14**).

6.6.4 The Harpenden to Hemel Hempstead Railway branch line of the Midland Railway opened in 1877, running almost immediately to the north-west of the site, but was closed in 1947 (**MHT9809 Site 15**). Roundwood Halt Station was opened in 1927 on this branch line, but was also closed in 1947 (**MHT9813 Site 16**).

6.7 Cartographic Sources

6.7.1 The earliest available mapping showing the proposed site, at a reasonable scale is an 18th

century map (dated 1766) of Harpenden (Figure 4). It depicts the core of the village along the Luton to St Albans road, to the east of the site. The area of the site is shown as fields.

6.7.2 Bryant's Map of 1822 (Figure 5) shows fairly little change to the earlier 1766 map. The core of Harpenden is still along the Luton to St Albans road, but has expanded slightly to the east and west. Townsend Lane is shown surrounded by open fields.

6.7.3 The Ordnance Survey First Edition, dated 1878, (Figure 6) depicts the core of the village and church to the east. The development site is the northern part of an irregular shaped field, bounded by Townsend Lane to the north-east and north-west. The Midland Railway (Hemel Hempstead Branch) runs to the north-west of the site.

6.7.4 The Ordnance Survey maps of 1898 and 1924 (Figures 7-8) show no change to the site from the 1878 map. However, the 1924 map shows a new housing development immediately to the east of the site (beyond the eastern extent of Figure 8) extending south from Townsend Lane. This shows the development of Harpenden's 20th century urbanisation.

6.7.5 The next Ordnance Survey maps of 1967 and 1978-83 (Figures 9-10) show no change to the site, but the surrounding area has changed. Immediately to the north-east of the site is a housing development and on the western side of Townsend Lane is Townsend Nurseries. The site is now on the western extent of Harpenden.

7 IMPACTS ON BURIED ARCHAEOLOGICAL DEPOSITS

7.1 Previous Land Use

7.1.1 The study site lies toward the north-western most extent of the built-up area of Harpenden and to the south of Townsend Lane. It presently comprises a field bounded by Townsend Lane to the north-west and north-east, a housing development to the south-east and fields to the south-west.

7.1.2 Although archaeological activity on the site cannot be precluded for the prehistoric, Saxon and medieval periods, the DBA suggests that Roman and post-medieval activity is most likely to be encountered within the site boundary.

7.1.3 It is assessed that the proposed residential development will have an adverse impact upon any surviving archaeological remains within the site boundary.

7.2 Results of Earlier Investigations

7.2.1 There have been no archaeological interventions within the site boundary.

7.3 Ground Soil Contamination

7.3.1 No known geotechnical investigations have been undertaken upon the site and no contamination reports have been provided. However, it is unlikely that there will be ground soil contamination or disturbance on the site which will have impacted upon any extant remains.

7.4 Services

7.4.1 It might be assumed that much of the site will be free from services. All services searches should be undertaken and results provided prior to any excavation taking place.

8 CONCLUSIONS

8.1.1 This report aimed to identify the potential for the presence of archaeological remains which may be encountered on land at Townsend Lane, Harpenden, Hertfordshire, the probable period from which they date and the type of remains that may be expected. In addition, the likelihood for the survival of these remains has been assessed, as has the impact of the proposed development on those heritage assets identified.

8.1.2 The Hertfordshire HER search data shows that there is a wide spread of sites within the study area with the principal concentrations of activity focused around the historic core of Harpenden village to the north-west and north-east and around Rothamsted Experimental Farm to the south.

8.1.3 The assessment has confirmed that there are no HER records within the proposed development boundary.

8.1.4 The assessment of the HHER information has shown that the site, despite its proximity to discoveries of prehistoric settlement and farming activities from the early prehistoric through to the late Iron Age, has a **low** potential for surviving prehistoric remains. The case for Roman activity is more convincing, with much Roman activity in the area meaning that there is a **moderate-high** chance for Roman remains. There is no evidence of Saxon activity within the area, the potential for settlement or activity within the site for this period is assessed as **low-negligible**. Harpenden village developed during the medieval and post-medieval periods along the Luton to St Albans Road. Given the agricultural character of much of the evidence, relating to field boundaries, and the presumption that the main focus of medieval settlement is more likely to have been concentrated within the historic core of the village, close to the church, it is thought there is a relatively **low** potential for remains of medieval settlement, although a higher, **moderate** potential for the survival of evidence for field boundaries or ridge and furrow cultivation. The site is shown as undeveloped farmland since the 18th century, remaining as such until present day. Accordingly it is thought to have a **low-moderate** potential for significant post-medieval remains.

8.1.5 It is expected that the proposed development will penetrate below the upper level of the natural drift geology and thus have an adverse impact upon any extant archaeological remains. Given the scale of the proposed development and the number and range of archaeological sites recorded in the vicinity, it is thought that an appropriate investigation strategy, to fully assess the potential impacts of the proposed development may be required by the Local Planning Authority.

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9.2 Websites Consulted

British Geological Survey Accessed 16/03/2016

http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Open Domesday Accessed 22/03/2016

http://opendomesday.org/search/?geo=harpenden

9.3 Cartographic Sources Consulted

1766 Drury and Andrews Map of Hertfordshire (Map 5)

1822 Bryant Map (Map 3)

1878 Ordnance Survey Six Inch First Edition (XXVII.6)

1898 Ordnance Survey Six Inch Second Edition (XXVII.6)

1924 Ordnance Survey Six Inch (XXVII.6)

1967 Ordnance Survey (TL1214-1314)

1978-83 Ordnance Survey (TL 11 SW)

10 ACKNOWLEDGEMENTS

10.1 Pre-Construct Archaeology Ltd would like to thank Hill Residential Limited for commissioning this report. The author would like to thank the staff at the Hertfordshire Historic Environment Record for their assistance with the cartographic and historical research. The desk-based assessment was managed by Taleyna Fletcher and the figures were produced by Hayley Baxter of PCA's CAD department.

11 APPENDIX 1 HER SUMMARY DESCRIPTIONS

Ref	Name	Mon Type	Evidence	Date	Site
MHT22373	LATE IRON AGE GOLD QUARTER STATER, HARPENDEN	FINDSPOT	A gold quarter stater of Late Iron Age date. Obverse description: Double band of pointed-oval segments extending diagonally across centre; four to five 'flame-like' motifs extending at 90 degrees to one side, pellet between two of the motifs; on other side, double 'M-shaped' symbol with single pellet in each curve; crossing at 90 degrees, line with two pellets along its length, pellet-in-ring at one end, lobed terminal at other. Reverse description: Horse right, transverse band at centre of body; below body, spoked wheel; below tail, pellet-in-ring; above, sun motif, three pellet-in-ring motifs surrounding; extending from front of horse, line terminating in larger pellet-in-ring, further symbol below. Reverse inscription: No legend.	IRON AGE	1
MHT58	ROMAN MAUSOLEUM AND CEMETERY, ROTHAMSTED EXPERIMENTAL STATION, HARPENDEN	MON	Scheduled Ancient Monument 27903. Area of Archaeological Significance 3. Funerary enclosure, with internal building, apparently a Roman mausoleum, representing the private burial ground of a local high status family. The enclosure is almost square, about 30m each side, and had a flint rubble wall, with an external ditch. In the centre of the enclosure was a circular masonry structure, the solidity of the foundations suggesting a height of perhaps 6m or more. Fragments of a draped figure in limestone indicated a statue. Two cremations excavated within the enclosure were 2nd century; otherwise there was little dating evidence. The west side of the circular building stood over a ditch containing late Iron Age pottery.	ROMAN	2
MHT9737	ROMAN DITCHES, ROUNDWOOD SCHOOL, HARPENDEN	MON	Evaluation on the site of a new teaching block in 2008 found nothing, but monitoring of a new sports hall at the SW side of the school buildings in 2010 recorded two ditches, a pit, and a spread of mortar. The ditches may have marked 'the entrance to a farmstead enclosure'. The pottery assemblage dated from the 1st to the 4th century, half (from one ditch) being mid/late 3rd to mid 4th century. It included some Verulamium Region products and some late Iron Age grog-tempered ware (which does not have to be pre-conquest). There was also a third century bronze coin, as well as tile fragments, animal teeth, fragments of ironstone andmetalworking slag, and a fragment of lead.	ROMAN	3
MHT665	THREE ROMAN COINS, ST NICHOLAS' CHURCHYARD,	SITE	Three mid-late 3rd century coins found in the churchyard c.1860	ROMAN	4

	HARPENDEN				
MHT673	ROMAN POTTERY, PARK AVENUE, HARPENDEN	SITE	Roman pottery found in a garden in Park Avenue	ROMAN	5
MHT674	ROMAN FINDS, 11 MORETON END LANE, HARPENDEN	FINDSPOT	A mortarium sherd, a small greyware sherd and a stone or glass gaming counter with counting marks were found in the garden of 11 Moreton End Lane	ROMAN	6
MHT9726	ROMAN POTTERY, HOOS FIELD, HARPENDEN	SITE	Roman pottery found in hoos field	ROMAN	7
MHT20933	LATE ROMAN COPPER-ALLOY COIN, HARPENDEN	FINDSPOT	Late roman copper-alloy coin, Harpenden	ROMAN	8
DHT8477	THE OLD BELL PUBLIC HOUSE	LISTED BUILDING	17th century beer house beside the highway. The Old Bell is in origin a timber-framed building put up in the later 17th century, two storeys and attics, this original range now with stucco coating, and a central ridge chimney stack. It was altered in the early 19th century, and given a rear wing in the late 19th century; this new wing may incorporate an early wing. There are also large mid to late 20th century additions. The Old Bell stands on the west side of the Luton Road, at the point where it forks into Roundwood Lane. It is shown on the c.1880 OS map with a range of outbuildings around a yard to the west, like a small farmstead; one had a wagon porch and another was open-fronted. East of the house was an orchard. Little alteration to this layout had taken place by 1924. By 1966 the outbuildings had gone and the house had been enlarged. The empty site of the outbuildings is now occupied by early 21st century housing.	POST-MEDIEVAL	9
MHT9596	ROTHAMSTED MANOR GARDENS, HARPENDEN	ORNAMENTAL GARDEN	Significant grounds shown from 1766 onwards. The 1990 aerial photomap shows an attractive garden west of the house - simple layout with long view/walk through mature trees to a circular lawn, walled garden, ?terrace. The present house [2870] largely dates from the 17th century. Pevsner considered that the formal garden probably dates from the alterations to the house in the 1860s and after. The main gates, drive and lime avenue were laid out and planted in 1880; previously the main drive had been from Hatching Green. 53 acres of the park were sold to the local Council in 1938 for public access.	POST-MEDIEVAL	10

MHT9744	ROTHAMSTED EXPERIMENTAL FARM, HARPENDEN	FARMSTEAD	Pioneering experimental farmstead set up in 1834 and still in operation. Rothamsted Experimental Farm was the first of its kind, apart from a site in Alsace. It was 'begun on a small scale in 1834, and carried on systematically from 1843 by the late Sir John Bennet Lawes to ascertain the effect of chemicals as manures upon different crops and plants'. Lawes owned Rothamsted Manor, and the farm was set up in his grounds. It was a joint enterprise with Sir J Henry Gilbert and in the 19th century was 'of world-wide renown'. In 1889 Lawes set up a trust fund with capital and land. In 1893 a Shap granite boulder, bearing an inscription, 'was erected by public subscription opposite the laboratory, to commemorate the completion of fifty years of continuous experiments'. The farm is still used for unique long-term experiments in the effects of chemicals on the soils, of international importance. The NGR is for the farm buildings; these are modern, but include an early 20th century petrol pump. The memorial boulder is outside the laboratories at TL 1353 1358, facing Harpenden Common; for the 20th century laboratories see. The Testimonial Laboratory was built in 1853 as a tribute to Sir John Bennet Lawes, and was rebuilt in 1913.	POST-MEDIEVAL	11
MHT17858	SITE OF NEW FARM, ROUNDWOOD LANE, HARPENDEN	FARMSTEAD	Post-medieval farmstead, renamed Woodend Farm in the early 20th century and demolished to make way for housing in the later 20th century New Farm is shown on the 1878-79 OS map as a neatly arranged farmstead possibly of 19th century date. The house stood behind the farmstead itself, within a garden. Between the house and the road the farm buildings, some open-fronted, stood in regular lines with a pond by the road. By 1898 new buildings had been added at the west side nearest the road, some in the centre had been demolished, and those on the east had been rearranged into a planned layout around a small compartmented yard. By 1924 the layout was unaltered although the compartments had gone and the farm was now Woodend Farm. Expansion of suburban housing after the war brought the demolition of the farm; its (recent) name is preserved in Wood End Road and the school. New Farm is also shown on the c.1840 tithe map	POST-MEDIEVAL	12
MHT18203	SITE OF TOWNSEND FARM, LUTON ROAD, HARPENDEN	FARMSTEAD	Post-medieval farmstead at the north end of Harpenden. Townsend Farm is shown on the 1879 OS map as a small farmstead on the east side of the Luton road, beyond the north end of Harpenden. At this date it consisted only of three buildings on two sides of a rectangular yard; these appeared to be a barn, a smaller adjacent building, and an open-fronted shed. By 1898 these buildings had disappeared, and the land incorporated within the grounds of a new detached house on the corner of Luton Road and the new Townsend Road (which had been a field track in 1879). The farmstead is also shown on the c.1840 tithe map, and as Towns End Farm on Bryant's 1822 map.	POST-MEDIEVAL	13

MHT18770	SITE OF MORETON END, 53-55 LUTON ROAD, HARPENDEN	FARMSTEAD	Post-medieval farmstead, replaced by a Victorian house and garden. Moreton End is shown on the 1766 map as Mutton End, which is also the spelling in a 1750 rental document. It was a farmstead beside the road from Harpenden to Luton, with the road now called Moreton End Lane a track leading into the fields to the west. In 1840 the house had a barn and other farm buildings to the north and more buildings to its south and SW, making an irregular yard. By 1879 all these had been demolished and the house either extended or rebuilt, with a small conservatory at the back. It was now surrounded by a garden with a carriage sweep at the front, assorted trees, and a quadrangle of outbuildings in the far western corner of the plot. Only 100m to the NW the branch railway line to Hemel Hempstead [9809] now crossed the Luton road on an embankment. By 1898 its setting had changed from rural isolation to suburban Harpenden, with a row of houses along the east side of the road opposite and new roads being laid out beyond. The 19th century house is now 53-55 Luton Road.	POST-MEDIEVAL	14
MHT9809	HARPENDEN TO HEMEL HEMPSTEAD RAILWAY ('THE NICKY LINE')	RAILWAY	1877 branch line, closed in 1947. This line was a branch of the Midland Railway, running from Harpenden Central station on the main line through Redbourn and Hemel Hempstead to the gasworks [5843] near Boxmoor on the LNWR. A connection into the LNWR was never completed. The line was opened by an independent company in 1877 and was taken over by the Midland Railway in 1886. It closed in 1947; the route survives in part, as a path for cyclists and pedestrians known as the Nicky Way. The Redbourn bypass also makes use of it. When the line first opened Hemel Hempstead station [5465] was the passenger terminus, as the connection towards the LNWR at Boxmoor had not been built. In 1880 the gasworks at Boxmoor was enlarged and the Midland Railway was persuaded to use the line between Hemel Hempstead station and Boxmoor to deliver coal, and from 1905 passengers as far as Heath Park Halt [9821]. Much of this part of the line has been destroyed by modern development. At the Harpenden end, the line as originally built emerged from the Midland main line from the north, so was not accessible from Harpenden station. Following the Midland Railway's takeover of the branch line in 1886 a new spur from the south was built, opening in 1888. This left the short-lived spur from the north as an abandoned cutting	POST-MEDIEVAL	15
MHT9813	SITE OF RAILWAY STATION, ROUNDWOOD HALT, HARPENDEN	RAILWAY STATION	1927 halt on branch line closed in 1947. Roundwood Halt was opened in 1927 on the Harpenden to Hemel Hempstead branch line [9809] to serve residents of new housing in what had been open farmland when the railway was opened in 1877. The halt had a single platform and a wooden shelter, and a footbridge over the line. The line closed in 1947; the shelter was removed to a local garden in 1956.	MODERN	16

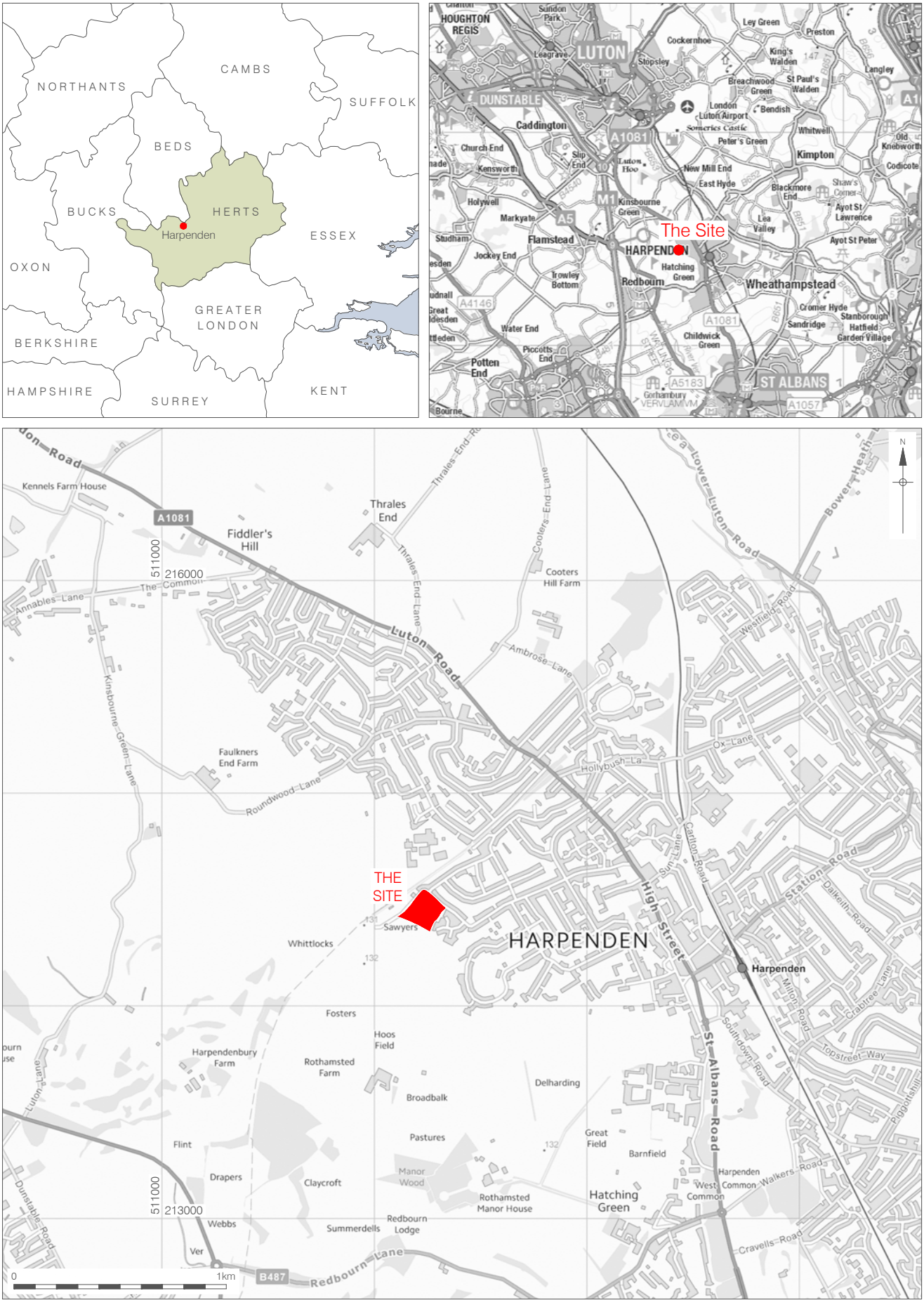

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Figure 1
Site Location
1:2,000,000; 250,000 & 25,000 at A4

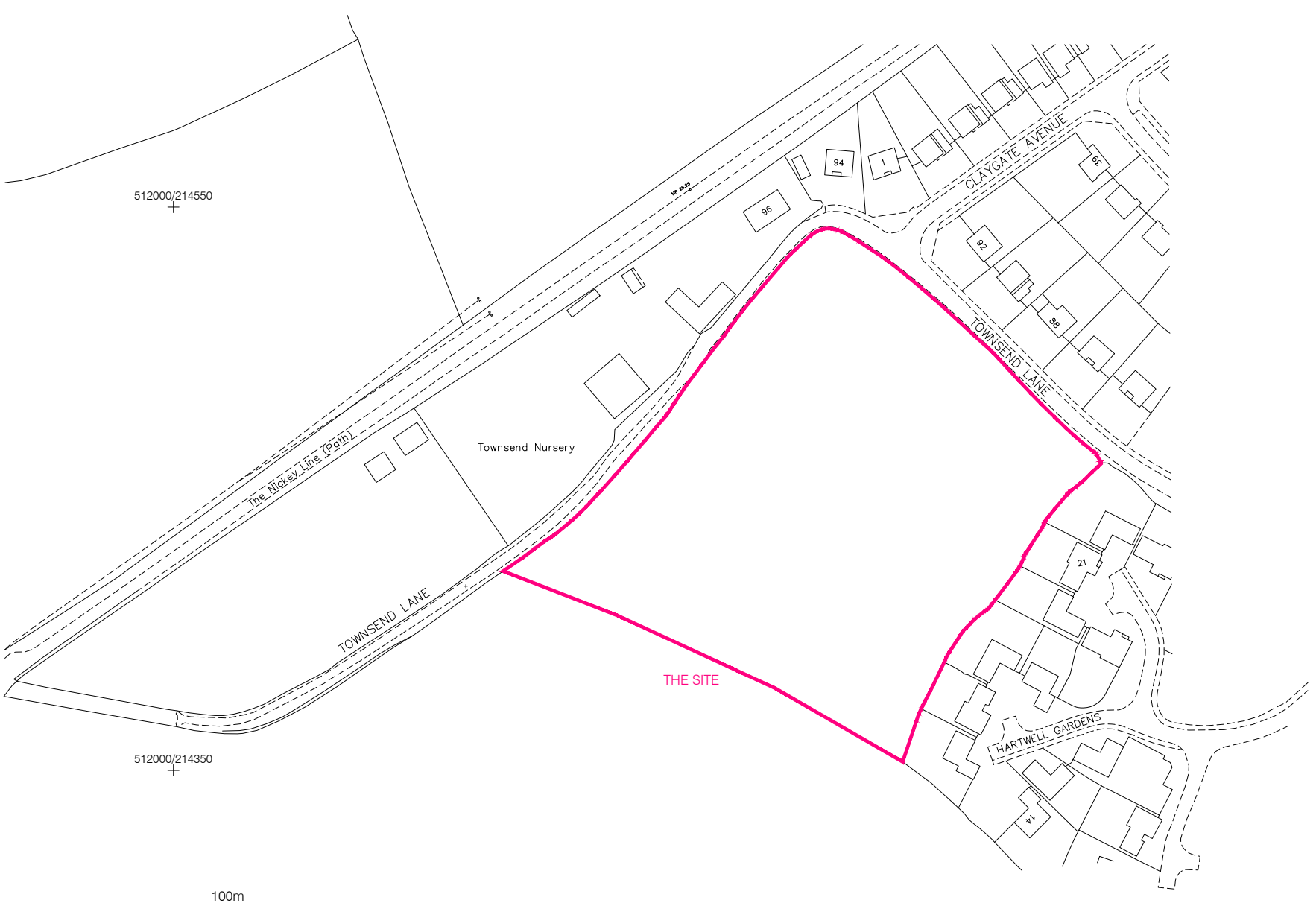

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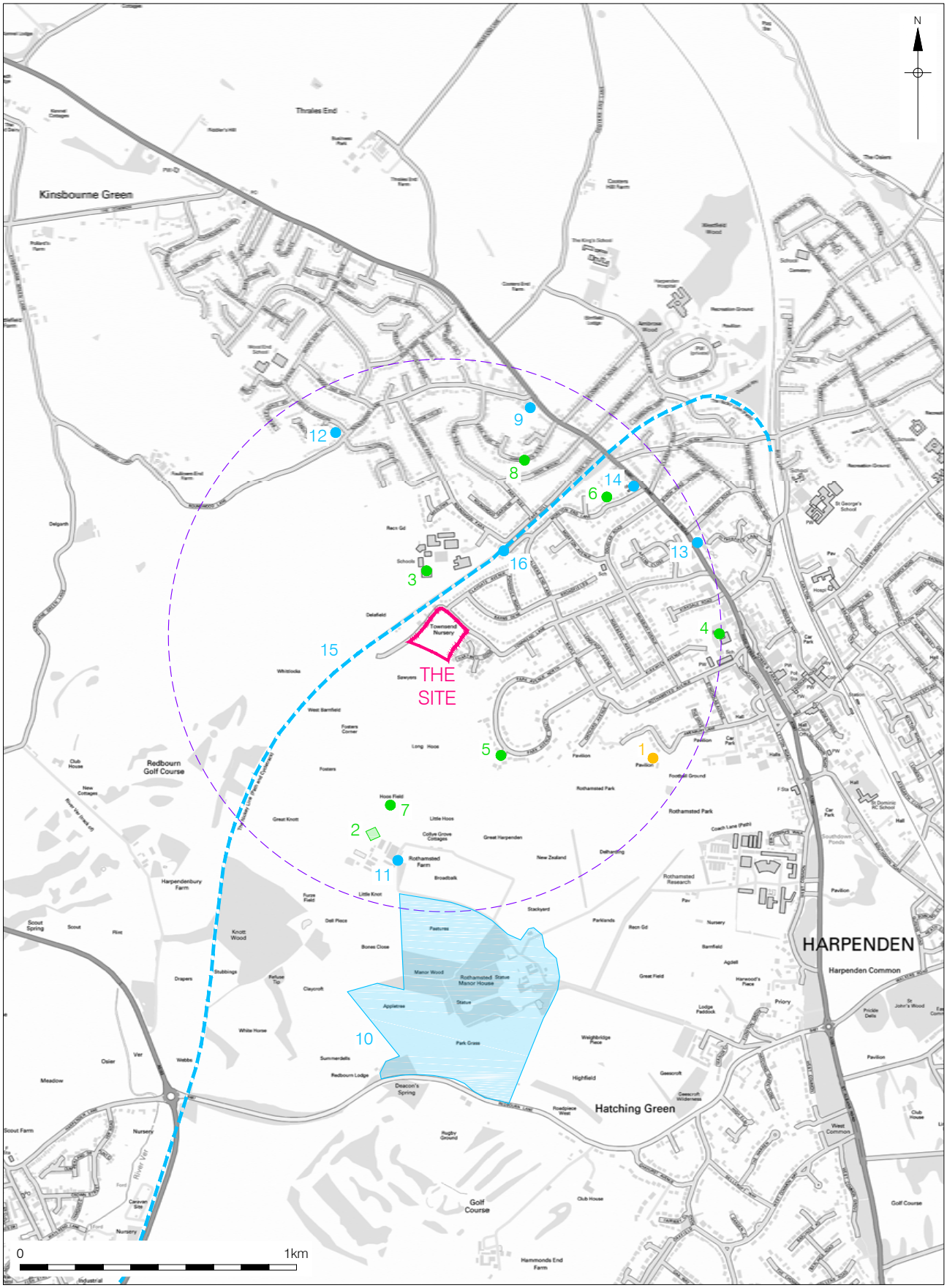
Figure 2
Detailed Site Location
1:2,000 at A4



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Iron Age (1)

Roman (2 - 8)

Post-Medieval (9 - 16)

1km Search Radius

Figure 3
HHER Locations
1:20,000 at A4

22/03/16 HB

Figure 4
Dury & Andrews, 1766
not to scale