



Land to the North East of KGV Playing Fields, Cuffley

Transport Assessment and Travel Plan
June 2015

KGV-TA-2015-001



Lands Improvement

Lands Improvements

Land to the north east of King George V Playing
Fields,
Cuffley

Transport Assessment

June 2015

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EXECUTIVE SUMMARY

1. Vectos has been appointed by Lands Improvement to provide traffic and transport advice in support of a planning application for a residential development of up to 121 dwellings, associated infrastructure on the land to the north east of King George V Playing Fields, Hertfordshire.
2. This report has been prepared following a following an extensive consultation process with local residents and stakeholders. In relation to transport, this included:
 - Two Design Workshops;
 - Two rounds of public consultation through exhibitions;
 - Parish Council Meetings; and
 - Discussions and meetings with highways officers from Hertfordshire County Council (HCC).
3. The Site is ideally located to promote walking and cycling to and from the village centre. Pedestrian and cycle access will be provided from footways adjacent to the new access road. This will connect with the existing footway along the south-eastern side of Northaw Road East and provide a connection to the local facilities in Cuffley.
4. There will also be a new pedestrian and cycle link through the Site from the King George V Playing Fields car park to South Drive via Greenfields. The proposed route will provide a convenient route from the Site to the Cuffley Primary School via South Drive in the location of the existing maintenance access. In addition, this will provide a route towards Cuffley village centre and the railway station further afield to the north via Theobalds Road. The route has been designed to ensure the link is only for pedestrians and cyclists.
5. Following discussions with the HCC Rights of Way team it is proposed to provide a contribution towards upgrading the route to a Bridleway. This contribution will allow improvements to surfacing and vegetation clearance with any measures ensuring that the rural nature of the route is not affected. In addition, it is proposed to provide permissive paths for dog walkers around the fields to the south of the Site.
6. The Site is in a sustainable location for public transport, with bus stops located on both the east bound and west bound side of Northaw Road East. From these stops there is one service

that runs hourly during the week between Waltham Cross and Potters Bar. The development of the Site will generate more bus passengers which will make the service more viable. Cuffley Railway station is located approximately 850m from the Site. Cuffley is situated on the Great Northern service that runs a frequent service between London and Hertford North. The station provides a link to London with a journey time of less than 30mins to and from Finsbury Park station.

7. A Travel Plan has been prepared to encourage travel to/from the Site by non-car modes (walking/cycle/bus/train). The Travel Plan will include a Welcome Pack to all dwellings that provides sustainable transport information and the provision of subsidised sustainable travel will be considered such as vouchers for bus travel.
8. The developer will provide a sustainable transport contribution towards improvements to public transport or walking and cycling infrastructure in the vicinity of the Site. A proportion of this contribution could be used to provide improved pedestrian facilities at the Theobalds Road junction with Northaw Road (E). This will be discussed with HCC.
9. Vehicular access to the development will be from a new priority junction with Northaw Road East. An improvement to the existing gateway feature adjacent to the proposed site access at the start of the 30 mph speed limit is proposed. The principles of this has been discussed with HCC.
10. It has been calculated that the development will generate a maximum of 83 vehicle trips two-way during the weekday AM peak hour and 76 vehicle trips two-way during the weekday PM Peak hour. Percentage impact assessments have been undertaken at two off-site junctions (Cattlegate Road / Northaw Road East and Station Road / Northaw Road East junctions) and this has shown that the development will not have a material impact. It has been demonstrated that the impact of the proposed development traffic on the strategic road network (M25 junction 24 and 25) will be negligible.
11. Notwithstanding the low percentage impact of the proposed development, the junctions are currently experiencing some peak period congestion, particularly during the PM peak hour
12. In recognition of this it is proposed to provide a contribution that can be used to mitigate the impact of the development. The contribution could be used to mitigate the impact of the development in one of the following ways:

- Modifications to the junctions to increase vehicular capacity and allow higher traffic flows to pass through the junctions, including potentially changing the priority of one of the junctions to allow the movement with the highest traffic flow to be the main arm; and/or
 - Mitigation measures elsewhere to reduce the traffic at the junctions such as public realm enhancements on Station Road.
13. Flexibility has been retained at this stage as either could form part of the mitigation package associated with the proposed development.
14. In conclusion, it is considered that the development proposals are appropriate for the location and that there are no traffic or transportation reasons why planning permission should not be granted.

1 INTRODUCTION

- 1.1 Vectos have been appointed by Lands Improvements to provide traffic and transport advice in support of a planning application for a residential development at the land to the north east of King George V Playing Fields, Cuffley.
- 1.2 The Site is located to the south of Cuffley and is currently in agricultural use. It is bound by existing residential development to the north and north-west; the grounds of Cuffley Primary School also adjoin the Site along its northern boundary.
- 1.3 The planning application seeks permission for a residential development of up to 121 dwellings, associated infrastructure and a change of use from agricultural land to an extension of the King George V playing fields. All matters reserved except for new vehicular access to serve the site, the provision of surface water discharge points and the levels of the development level platforms.
- 1.4 The change of use of the agricultural land to an extension of the King George V Playing Fields will result in no material changes to the transport proposals.
- 1.5 This Transport Assessment (TA) has been prepared in accordance with national guidance on Transport Assessments and the Scoping Report submitted to Hertfordshire County Council (HCC) in October 2014. Further discussions and meetings have been held with HCC officers since the submission of the Scoping Report and these have considered in the TA.
- 1.6 An extensive consultation process has been undertaken with local residents and stakeholders. In relation to transport, this included:
- Two Design Workshops;
 - Two rounds of public consultation; and
 - Parish Council Meetings.
- 1.7 Following this introduction section, the TA report is structured as follows:
- **Section 2: Existing Conditions** – A review of transport conditions at the Site and surrounding area, with reference to junction and traffic flow surveys, accident collision data, existing pedestrian and cycle routes, public transport provision and the highway network.

- **Section 3: Policy Context** – A review of key current and emerging transport and land use planning policy at national and local level.
- **Section 4: Development Proposals** – A description of the Proposed Development with a focus on Site-based transport infrastructure measures, access hierarchy and parking.
- **Section 5: Sustainable Transport Strategy** – The strategy for supporting sustainable travel to/from the Site with reference to the Interim Travel Plan, which is appended to this document.
- **Section 6: Trip Generation** – An assessment of anticipated vehicular trip generation based on agreed trip rates.
- **Section 7: Traffic Distribution** – The assignment of Proposed Development trips to the local and strategic highway network
- **Section 8: Impact on the Highway Network** – An assessment of the impact of the Proposed Development on localised junctions within the defined study area.
- **Section 9: Summary & Conclusions** – A review of the key points described in this report.

2 EXISTING CONDITIONS

- 2.1 This section of the TA report provides a description of the transport conditions at the Site and the surrounding area. It has been informed by a desk based study and numerous Site visits undertaken.

Site Location

- 2.2 The strategic location of the Site in it's the wider context can be seen in **Figure 2.1**. The local context is shown in **Figure 2.2**.
- 2.3 The Site location plan is included at **Appendix A**.
- 2.4 The Site (4.89ha) is located to the south of Cuffley and is currently in agricultural use. It is bound by existing residential development to the north and north-west; the grounds of Cuffley Primary School also adjoin the Site along its northern boundary. The railway line and Northaw Road East (B156) form strong eastern and western boundaries respectively. The southern boundary is defined by a mature hedgerow and tree belt lining the Hertfordshire Way footpath. Beyond the footpath to the south west of the Site is King George V Playing Fields, which contains three sports pavilions, a recreation area with hard surfaced Multi Use Games Areas (MUGA), sports pitches and a small area of formal play equipment.
- 2.5 The Site also includes a rectangular parcel of land (0.63ha), in agricultural use, which is located to the south west of the King George V Playing Fields. Northaw Road East forms the western boundary of the land, beyond which lies a small number of residential properties and buildings associated with agricultural use. Further agricultural land lies to the south whilst tennis courts, sports pavilions and a bowling green are located to the north east and south east of the Site.

Accessibility by Non-Car Modes

Walking and Cycling

- 2.6 The public right of ways in the vicinity of the Site are shown in **Figure 2.3**.

- 2.7 A public footpath (PRoW number 6) runs along the southern boundary of the Site. There is a further footpath to the south west of the Site; this is also a recreational footpath that heads further west.
- 2.8 Northaw Road East has a footway running along its southern edge; this is well lit and well surfaced, and creates a safe footway for pedestrians towards the centre of Cuffley.
- 2.9 It is reasonable to expect that typical able bodied people are capable of walking at least 2km for day to day activities. The thrust of sustainable policy is that there will be an increasing propensity for people to use non-single car occupancy modes of which walking is one. People will choose their mode based upon their journey purpose and it is reasonable to conclude that residents will choose to walk for a fair proportion of their journey.
- 2.10 A 2km walk isochrone is included within this report as **Figure 2.4**. This figure demonstrates that a number of services and facilities can be accessed within this distance, including centre of Cuffley and Cuffley railway station.
- 2.11 Central Government research states that cycling has the potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport.
- 2.12 Cycling is an attractive form of travel and it is reasonable to expect that for typical able bodied people a cycle distance of 5km is readily achievable and attractive. The propensity for people to choose to cycle will depend on journey purpose and individual ethos as well as having a safe place to store their bicycle at the end of their journey.
- 2.13 A 5km cycle isochrone is included within this report as **Figure 2.5**, which shows the whole of the village is within 5km.

Public Transport

Bus Provision

- 2.14 There are bus stops located on both the east bound and west bound side of Northaw Road East; these are approximately 60m and 100m respectively from the Site. From these stops there is one service that runs hourly during the week and a weekly service that runs only on Wednesday morning. Service number 242 runs hourly between Waltham Cross and Potters Bar. The Sunday service is extended as far as Waltham Cross to Welwyn Garden City.

Rail Provision

- 2.15 Cuffley Railway station is located approximately 850m from the Site. Cuffley is situated on the Great Northern service that runs a frequent service between London and Hertford North. The station provides a link to London with a journey time of less than 30mins to and from Finsbury Park station. During the weekday AM and PM peak periods there are circa 5 trains per hour to London.

Existing Facilities

- 2.16 The Site's proximity to key facilities such as education, retail, healthcare and recreation is key in maintaining a sustainable development.
- 2.17 There a number of facilities within walking distance of the Site that are located within the village of Cuffley. These are shown in **Figure 2.6**.
- 2.18 For educational purposes there is a Primary school located approximately 300m from the frontage of the Site on Northaw Road East which adjoins the northern boundary of the Site.
- 2.19 Within the village centre there are several facilities including two retail units, a health centre and a public house.

Local Highway Network

- 2.20 The Site is bound to the west by the Northaw Road East, which leads into Cuffley village centre to the north. Northaw Road East consists of a single carriageway with one lane in both directions. Upon leaving Cuffley approximately 50m to the south of the Site the road becomes de-restricted.
- 2.21 To the north there is the small cul-du sac of South Drive which provides access to the residential units situated there. There is an existing, gated maintenance access to the Site from South Drive. Lands Improvement has access rights over this land.
- 2.22 Northaw Road East is classified as a secondary distributor road within Hertfordshire County Council's (HCC) road hierarchy and links Cuffley to Potter Bar and the M25 to the west. To the east, Northaw Road East travels through Cuffley High Street and allows access to Goff's Oak, Chestnut and Waltham Cross.

- 2.23 Through the entirety of Cuffley the speed limit is 30mph. This increases to 40mph in the east upon leaving Cuffley and up to 60mph in the south.

Personal Injury Accident Data

- 2.24 Personal Injury Accident data was obtained from HCC for the section of highway network in the vicinity of the Site. These roads include the Northaw Road East/B156, Theobald's Drive, Station Road and Cattlegate Road. The accident data covers the five year period between July 2009 and March 2014, and is included at **Appendix B**.
- 2.25 The data showed that there were 24 Personal Injury Accidents reported over the five year period. Four of these were deemed serious accidents with the remaining 20 recorded as slight accidents.
- 2.26 The serious accidents are summarised below:
- Pedestrian crossed in front of oncoming vehicle on Station Road. The accident report noted that the pedestrian failed to look properly.
 - A cyclist was hit by an oncoming vehicle while trying to overtake other cyclists. The accident report noted that the accident was caused by the cyclist failing to look properly.
 - A car pulled out of the Cattlegate junction with Northaw Road East and collided with a bus travelling westbound. The accident report noted that the driver of the car failed to look properly and was travelling too fast for conditions
 - Cyclist turning right from Northaw Road East into Kingsway collided with car travelling southwest on Northaw Road East. The accident report stated that the accident was caused by the cyclist failing to look properly.
- 2.27 The summary above shows that all the serious accidents can be attributed to driver or cyclist error rather than issues with the road layout. The recorded accidents do not indicate that there is an existing accident problem on the local highway network.

3 POLICY CONTEXT

- 3.1 This section of the TA addresses the relevant national and local policy, in the context of the Site and the proposed development.

National Policy

National Planning Policy Framework (NPPF)

- 3.2 The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied.

- 3.3 One of the 12 core land-use principles within the NPPF includes:

"[to] actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable."

- 3.4 Section 4 of the NPPF deals with 'Promoting sustainable transport.' Paragraph 29 states that:

"the transport systems needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel."

- 3.5 Paragraph 32 sets out the transport issues which should be addressed within Development Plans and decisions. These are:

- *"the opportunities for sustainable transport modes have been taken up depending on the nature and location of the Site, to reduce the need for major transport infrastructure;*
- *safe and suitable access to the Site can be achieved for all people; and*
- *Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*

National Planning Practice Guidance (NPPG), 2014

- 3.6 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance web-based resource. One section relates specifically to Transport and is titled 'Travel Plans, Transport Assessments and Statements in decision-taking' and this provides the overarching principles of Travel Plans, Transport Assessments and Statements.
- 3.7 The guidance explains the role of Transport Assessments and Statements as: "ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans)". The guidance also states that Travel Plans are "long term management strategies for integrating proposals for sustainable travel into the planning process". They should be brought forward in parallel with development proposals and should be integrated in to the design of developments.
- 3.8 The guidance explains that when preparing Transport Assessments and Travel Plans the following key principles should be taken into account:
- *"proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;*
 - *established at the earliest practicable possible stage of a development proposal;*
 - *be tailored to particular local circumstances (other locally-determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally);*
 - *be brought forward through collaborative ongoing working between the Local Planning Authority/ Transport Authority, transport operators, Rail Network Operators, Highways Agency where there may be implications for the strategic road network and other relevant bodies. Engaging communities and local businesses in Travel Plans, Transport Assessments and Statements can be beneficial in positively supporting higher levels of walking and cycling (which in turn can encourage greater social inclusion, community cohesion and healthier communities)."*
- 3.9 The guidance demonstrates that Transport Assessments and Statements and Travel Plans can positively contribute in the following ways:

- *“encouraging sustainable travel;*
- *lessening traffic generation and its detrimental impacts;*
- *reducing carbon emissions and climate impacts;*
- *creating accessible, connected, inclusive communities;*
- *improving health outcomes and quality of life;*
- *improving road safety; and*
- *reducing the need for new development to increase existing road capacity or provide new roads.”*

Local Policy

Welwyn Hatfield District Local Plan (2005)

3.10 Local policy is contained within the Welwyn Hatfield District Plan adopted in 2005, with saved policies in place until they are replaced by the adoption of the emerging Local Plan.

3.11 Transport policy is set out in the Movement chapter. Policy M1 relates to integrating movement and land use and states:

“Through the development process the Council will take every opportunity to integrate different modes of travel. Development proposals, except for those which are necessary in rural areas, will be permitted only in locations with accessibility to pedestrian and cycle routes and passenger transport services, or where this can be created, and where the environment and infrastructure can accommodate the amount and type of transport movement likely to be generated. In considering development proposals, the Council will give priority to walking and more sustainable modes of travel.

Internal layouts in development schemes must demonstrate priority to non-car users. They must include safe and effective routes for pedestrians and cyclists, with appropriate facilities, as well as catering for people with mobility difficulties and making provision for passenger transport and where appropriate the needs of horse riders.”

3.12 Policy M5 relates to pedestrian facilities and states:

“The Council will require proposals for new development to give priority to pedestrian access in their layouts through the inclusion of safe and direct routes linking to existing or proposed footpath networks and facilities.”

Section Summary

- 3.13 The development of the Site is considered to be consistent with national and local adopted policies as the proposed residential units would be accessible by all modes of transport and are well located in terms of connections to existing local facilities.

4 DEVELOPMENT PROPOSALS

Overview of Development

- 4.1 The planning application seeks permission for a residential development of up to 121 dwellings, associated infrastructure and a change of use from agricultural land to an extension of the King George V playing fields. All matters reserved except for new vehicular access to serve the site, the provision of surface water discharge points and the levels of the development level platforms.
- 4.2 It is proposed to access the Site via a new 3-arm priority junction with the B156 Northaw Road East. Further detail of the proposed Site access is provided below.
- 4.3 The illustrative Masterplan for the Site is included at **Appendix C**.

Pedestrian and Cycle Access

- 4.4 Pedestrian and cycle access will be provided from footways adjacent to the new access road. This will connect with the existing footway along the south-eastern side of Northaw Road East and provide a connection to the local facilities in Cuffley.
- 4.5 It is proposed to provide a pedestrian and cycle link through the Site from the King George V Playing Fields car park to South Drive via Greenfields.
- 4.6 The proposed link will provide a convenient route from the Site to the Cuffley Primary School via South Drive in the location of the existing maintenance access. In addition, this will provide a route towards Cuffley village centre and the railway station further afield to the north via Theobalds Road.
- 4.7 The link connecting the Site to South Drive will be a 3.0m wide path designed for use by pedestrian and cyclists only. The pedestrian route will link into the existing footpath on South Drive. Cyclists will pass onto the existing vehicle turning area and then onto the road at this point, to avoid conflict with pedestrians. The width of the route will be constrained at the site boundary using a fence in a similar style to the existing gate and new planting. This is shown in the drawing included at **Appendix D**. The potential use of this link is considered in more detail in Section 5 below.

- 4.8 Discussions have been held with the HCC Rights of Way team to establish their aspirations for the adjacent PRoW footpath number 6. The applicant welcomes further discussion on this matter in advance of determination of the planning application.
- 4.9 In addition, it is proposed to provide a permissive path for dog walkers around the fields to the south of the Site. This is shown in the illustrative landscape plan included at **Appendix E**.

Vehicular Access

- 4.10 Whilst the application is in outline and the layout is indicative, access is not a reserved matter and plans have been submitted specifically showing the key access arrangements which are proposed to be determined as part of the application.
- 4.11 The development will be accessed via a new priority junction with Northaw Road East.
- 4.12 Traffic speeds were recorded by ATC surveys in the approximate locations shown in **Figure 4.1**. The 85th percentile wet weather speeds approaching the location of the proposed junction are summarised in **Table 4.1**. It should be noted that the speeds on the road are likely to reduce as a new junction will be introduced and there will be an active frontage on the road rather than open fields. In addition, research from Kent County Council has shown that Gateway Features usually reduce traffic speeds by 2-3mph. This has not been accounted for in the speeds shown in Table 4.1.

Table 4.1: Traffic Speeds Approaching Proposed Site Access

Direction	85 th Percentile Speed (mph)	85 th Percentile Wet Weather Speed (mph)
Eastbound	39.5	37
Westbound	36.5	34

- 4.13 The Site access junction has been designed with reference to these measured wet weather speeds.
- 4.14 Drawings showing the design of the main access junction that is proposed to be determined as part of this application and associated swept path analysis can be found in **Appendix F**.
- 4.15 A Stage 1 Road Safety Audit has been undertaken and this is included at **Appendix G** along with the associated Designers Response.

- 4.16 The Stage 1 Road Safety Audit did not raise any fundamental concerns with the access.
- 4.17 An improvement to the existing gateway feature adjacent to the proposed site access at the start of the 30 mph speed limit is proposed. A drawing showing the potential design of the gateway feature is included at **Appendix H**.

Parking

- 4.18 Parking will be provided for each dwelling within the Site, whilst each unit will also be provided with appropriate cycle parking.
- 4.19 The relevant parking standards are included within the Welwyn Hatfield District Review Supplementary Planning parking standards (2004).
- 4.20 Cuffley is located in Zone 4 and the relevant standards are summarised in **Table 4.2**.

Table 4.2: Maximum Parking Standards

Development	Maximum Car parking Standards (outside Zone 1-2)	Cycle Parking
Bedsit	1.25 spaces	1 space per unit if no garage or shed provided.
1 Bedroom Dwellings	1.25	
2 Bedroom Dwellings	1.5	
3 Bedroom Dwellings	2.25	
4 or more Bedroom	3	

- 4.21 It should be noted that at a meeting in August 2014, it was agreed to treat all car parking standards as guidelines rather than maximum.
- 4.22 Car and cycle parking will be provided with reference to the standards provided above. The detail of the proposed parking provision will be determined as part of any Reserved Matters application.

Off-Site Mitigation

- 4.23 By agreement with HCC, the study area for the Transport Assessment included the following two off-site junctions:
- Station Road / Northaw Road East / Plough Hill junction; and

- Northaw Road East / Cattlegate Road / Northaw Road West.
- 4.24 The assessment in **Chapter 8** demonstrates that the proposed development will result in a low percentage impact at the junctions.
- 4.25 Notwithstanding the low percentage impact of the proposed development, it is acknowledged that the junctions are currently experiencing some peak period congestion, particularly during the PM peak hour.
- 4.26 In recognition of this it is proposed to provide a contribution that can be used to mitigate the impact of the development. The contribution could be used to mitigate the impact of the development in one or potentially more of the following ways:
- Modifications to the junctions to increase vehicular capacity, including potentially changing the priority of one of the junctions to allow the movement with the highest traffic flow to be the main arm; and/or
 - Mitigation measures elsewhere to reduce the traffic at the junctions such as public realm enhancements on Station Road.
- 4.27 Plans showing the potential modifications to change the priority of the junctions are included at **Appendix I**.
- 4.28 Flexibility has been retained at this as either could form part of the mitigation package associated with the proposed development.

5 SUSTAINABLE TRANSPORT STRATEGY

- 5.1 One of the main transport objectives for a development proposal is to demonstrate that it will be accessible by non-car modes such as walking, cycling and public transport. Not only does this help to limit car use, but it will also assist with social inclusion for those people who do not drive or have access to a car.
- 5.2 The developer will provide a sustainable transport contribution that will be calculated in line with the 'Planning obligations guidance – toolkit for Hertfordshire'. It is proposed that this contribution is used towards improvements to public transport or walking and cycling infrastructure in the vicinity of the Site. A proportion of this contribution could be used to provide improved pedestrian facilities at the Theobalds Road junction with Northaw Road East. This will also make the route less attractive for 'rat running', which was highlighted as a concern from residents at the consultation. Potential improvements to the junction are shown in the drawing included at **Appendix I**.
- 5.3 This section of the report assesses the accessibility of the Site by sustainable travel options.

Walking

- 5.4 A person's willingness to walk is dependent on many factors including access to a car, safety, road congestion, weather, gradients, parking, health, direction of route and purpose of journey.
- 5.5 Government guidance suggests that walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2km. **Figure 2.4** displays a 2km pedestrian isochrone for the Site.
- 5.6 The proposed Site benefits from being approximately 850m walking distance from the train station, which is within close proximity to the village centre and its range of facilities necessary for residential development. Existing bus services are also easily reached by foot and are approximately 100m from the Site.
- 5.7 In addition, the Site is easily accessible to all local facilities and the adjacent Cuffley Primary School, which provides an excellent opportunity for potential residents to access these facilities by foot.

- 5.8 **Figure 2.6** (referred to earlier) displays the facilities in the vicinity of the Site and illustrates that a large number of these are within walking distance of the Site.
- 5.9 As previously described, it is proposed to provide a pedestrian link through the Site from the King George V Playing Fields car park to South Drive.
- 5.10 The proposed route will provide a convenient route from the Site to the Cuffley Primary School via South Drive in the location of the existing maintenance access. In addition, this will provide a route towards Cuffley village centre and the railway station further afield to the north via Theobalds Road.
- 5.11 There would also be some movements from existing residents to the KGV playing fields and to the existing footpaths, but this would not be significant.
- 5.12 As previously described, discussions have been held with the HCC Rights of Way team to establish their aspirations for the adjacent PRow footpath number 6. The applicant welcomes further discussion on this matter in advance of determination of the planning application.
- 5.13 In addition, it is proposed to provide a permissive path for dog walkers around the fields to the south of the Site.
- 5.14 A “Safe Routes to School” audit has not been undertaken for the Site as there would be a direct connection provided to Cuffley Primary School, which is immediately adjacent to the Site, via South Drive.

Cyclists

- 5.15 Guidance on cycling can be found in ‘Cycle Friendly Infrastructure’ guidelines published by the Institution of Highways & Transportation. This guidance highlights previous research by the DfT that three quarters of all journeys are less than 5 miles (8km), of which 60% are by car. The guidelines highlight that there is a ‘substantial potential for substituting cycling for driving’ for distances of up to 5 miles.
- 5.16 Government guidance also states that cycling has the potential to substitute for short car trips, particularly those less than 5km. **Figure 2.5** displays a 5 km cycling isochrone for the Site.

- 5.17 The whole of the town is within 5km of the Site, and the Travel Plan proposed as part of this development will seek to encourage the use of this sustainable mode. Cycling will be an attractive method of travel to the rail station and village centre to the north.

Public Transport

Bus Provision

- 5.18 There are bus stops located on both the east bound and west bound side of Northaw Road East; these are approximately 60m and 100m respectively from the Site. From these stops there is one service that runs hourly during the week and a weekly service that runs only on Wednesday morning. Service number 242 runs hourly between Waltham Cross and Potters Bar. The Sunday service is extended as far as Waltham Cross to Welwyn Garden City.
- 5.19 The development of the Site will generate more bus passengers which will make the service more viable.

Rail Provision

- 5.20 Cuffley Railway station is located approximately 850m from the Site. Cuffley is situated on the Great Northern service that runs a frequent service between London and Hertford North. The station provides a link to London with a journey time of less than 30mins to and from Finsbury Park station. During the weekday AM and PM peak periods there are circa 5 trains per hour to London. .
- 5.21 Using the criteria in the Institute of Highways and Transport guidance the railway station is within an acceptable distance to walk. This is further emphasised by the fact that if this Site were in London and a PTAL calculation were being undertaken the railway station would be included as it is less than 960m from the Site.

Travel Plan

- 5.22 A Travel Plan has been prepared to encourage travel to the Site by sustainable modes. **Appendix J** contains a draft Travel Plan for the proposed development.

Aims and Objectives

- 5.23 The primary objective of the Travel Plan is to set out a long term strategy to facilitate and encourage modes of travel to the Site by means other than the private car, which reflects current central and local government policy.
- 5.24 The strategy needs to be long term as changing travel habits takes time and will only occur through a combination of incentives, improved facilities, government initiatives and changes in individual's attitudes.

Measures and Initiatives

- 5.25 The initiatives and measures that form part of the draft Travel Plan are a mixture of 'hard' and 'soft' measures.
- 5.26 The 'hard' measures include the provision of facilities such as safe and secure cycle parking.
- 5.27 The 'soft' measures include initiatives such as providing information on public transport services.
- 5.28 The Travel Plan will include a Welcome Pack to all dwellings that provides sustainable transport information and the provision of subsidised sustainable travel will be considered.
- 5.29 The Travel Plan will be finalised, and agreed prior to the occupation of the proposed development.

Summary of Accessibility

- 5.30 The above demonstrates that the development proposal is accessible by non-car modes of transport for potential residents to a wide variety of local facilities including the town centre and primary school. It is well located for both bus and train services.
- 5.31 Furthermore, the production and implementation of a Travel Plan will ensure that residents are aware of their travel options, and encouraged to choose the sustainable travel modes.

6 TRIP GENERATION

6.1 This section of the report describes the likely traffic generation and distribution onto the network for the proposed development.

Residential Use

6.2 Reference has been made to the TRICS database to obtain multi modal trip rates suitable for the proposed scheme. The following selection criteria was used:

- Type: Houses Privately Owned;
- Regions: All England, except London;
- Days: Weekdays;
- Between 90 – 180 dwellings.

6.3 The TRICS database identified nine Sites meeting the above criteria. The total people trips are demonstrated in **Table 6.1**. The TRICS output is included at **Appendix K**.

Table 6.1 Trip Rates – Houses privately owned

Peak Period	Trip Rate (Vehicle Trip/Dwelling)		
	Arrival	Departure	Total
Weekday AM PEAK	0.232	0.758	0.99
Weekday PM PEAK	0.577	0.329	0.906

6.4 Method of Travel to Work data from 2011 Census Data for the super output areas surrounding the Site (E00121603, E00121606 and E00121607) has been used to calculate the modal split of trips to the Site. The Census data is included at **Appendix L**.

6.5 The total person trips were then used to derive the trips by each mode and this is summarised in **Table 6.2**

Table 6.2 Resultant Traffic Generation Based on 128 Units

	Peak AM 0800-0900			Peak PM 1700-1800			Weekday Total		
	Arrival	Departure	Total	Arrival	Departure	Total	Arrival	Departure	Total
Train	7	23	30	18	10	28	122	129	251
Bus	0	1	2	1	1	2	7	7	14
Taxi	0	0	0	0	0	0	2	2	3
Motorcycle	0	1	1	0	0	1	3	4	7
Driving a car	19	63	83	48	28	76	334	354	688
Passenger in a car	1	2	3	2	1	3	12	12	24
Bicycle	0	0	0	0	0	0	2	2	3
On foot	1	4	6	3	2	5	23	25	48
Other	0	1	2	1	1	2	7	7	14
Total	30	97	127	74	42	116	511	541	1052

*Note: Train includes those listed as underground in the census and minor discrepancies in numbers relate to rounding

- 6.6 The residential units will generate 83 vehicle trips two way during the AM Peak and 76 vehicle trips two way during the PM Peak.
- 6.7 The predicted levels of vehicular traffic do not take account of the potential shift from car usage to non-car modes of transport that could be achieved through the Travel Plan and the initiatives to encourage walking, cycling and the use of public transport. As such, these numbers can be considered very robust, when considered against the sites close proximity to the bus stops and train station, and the links to the numerous facilities by walking within 2km and cycling within 5km.

7 TRAFFIC DISTRIBUTION

7.1 This section of the report sets out the distribution of development trips onto the surrounding road network and the resultant impact on the capacity of various junctions in the vicinity of the Site.

Census Data

7.2 In order to understand the distribution of vehicular development trips onto the wider road network, consideration has been given to the 2001 Census data for the 'journey to work' category. This allows an understanding of where existing residents travel to for work trips, and where those working in the ward travel from. This assessment has been based on the '*Northaw and Cuffley ward*', which represents the closest ward to the Site.

7.3 It is noteworthy that whilst some data has been released for the 2011 census, the journey to work data at local ward level has not been released at the time of production of this report.

7.4 The destinations are based on car driver trips and these have been summarised and ranked for journeys to each local authority or ward. The assessment takes account of all destinations, although **Table 7.1** below only summarises those destinations that attract 6 trips or more (Ward level for Northaw and Cuffley, and Local Authority is Welwyn Hatfield). The distribution information is included at **Appendix M**.

Table 7.1 – Proposed Traffic Distribution

Destination LA	Destination Ward	%
Barnet	East Barnet	2%
Barnet	High Barnet	2%
Barnet	Underhill	1%
Barnet	West Finchley	1%
Barnet	Woodhouse	1%
Broxbourne	Cheshunt Central	3%
Broxbourne	Cheshunt North	2%
Broxbourne	Goffs Oak	2%
Broxbourne	Theobalds	1%
Broxbourne	Waltham Cross	3%
City of London	Farringdon Within	1%
East Hertfordshire	Hertford Castle	3%
East Hertfordshire	Hertford Kingsmead	1%
Enfield	Chase	2%

Enfield	Cockfosters	2%
Enfield	Enfield Highway	2%
Enfield	Grange	4%
Enfield	Highlands	4%
Enfield	Ponders End	3%
Enfield	Southbury	4%
Enfield	Southgate	1%
Enfield	Town	3%
Haringey	Northumberland Park	2%
Hertsmere	Potters Bar Furzefield	1%
Hertsmere	Potters Bar Oakmere	2%
Hertsmere	Potters Bar Parkfield	7%
Islington	Clerkenwell	1%
St Albans	St Peters	2%
Tower Hamlets	Millwall	1%
Tower Hamlets	St Katherine's and Wapping	1%
Welwyn Hatfield	Brookmans Park and Little Heath	2%
Welwyn Hatfield	Haldens	1%
Welwyn Hatfield	Handside	2%
Welwyn Hatfield	Hatfield Central	1%
Welwyn Hatfield	Hatfield East	2%
Welwyn Hatfield	Hatfield West	1%
Welwyn Hatfield	Northaw + Cuffley	21%
Welwyn Hatfield	Peartree	2%
Welwyn Hatfield	Welham Green	2%
Westminster	West End	1%

- 7.5 The traffic distribution has then been assigned to routes using Google Maps journey planner. The resulting distribution and associated vehicle trips are shown **Traffic Figures 1 to 3**.
- 7.6 It should also be noted that all trips to the Northaw and Cuffley Ward have been assigned to Cuffley centre, which is in accordance with comments received from HCC in their response to the scoping report.
- 7.7 The census data indicates that 62% of all traffic travels west from the Site access junction. The remaining 38% will turn east towards Cuffley.

8 IMPACT ON THE HIGHWAY NETWORK

Scope of Assessment Work

- 8.1 The following assessment considers the impact of the development proposals on the surrounding road network. As part of the discussions with HCC, it was established that the junctions requiring consideration are as follows:
- Station Road/Plough Hill/Northaw Road East; and
 - Cattlegate Road/Northaw Road East.
- 8.2 Traffic surveys at the junctions were conducted on the 10th July 2014 and the survey data is included in **Appendix N**.
- 8.3 The assessments have been undertaken for the following peak hours:
- AM weekday peak hour (0800 - 0900); and
 - PM weekday peak hour (1700 - 1800).
- 8.4 It should be noted that this section of the report assesses the impact of a slightly larger scheme of 128 units and is therefore robust.
- 8.5 Traffic flow diagrams illustrating the movement of observed and development traffic on the surrounding road network is included within **Traffic Figures 4-9**.

Assessment Years

- 8.6 The future year assessments have been undertaken for 2018 as this is when the development is anticipated to be completed. This has been agreed with HCC as part of the scoping of the assessment.
- 8.7 TEMPRO growth factors were applied to account for background growth between 2014 and 2018.
- 8.8 The TEMPRO database has been interrogated in order to deduce relevant uplift factors to apply to the observed traffic flows. The growth factors are set out below:
- 2014-2018 AM = 1.0635

- 2014-2018 PM = 1.0606

Assessment Scenario's

8.9 The impact of the development proposals have been assessed using a two-step approach as follows:

- Firstly, a percentage impact assessment has been undertaken at each off-site junction. If this impact is material in the context of current policy, then no further assessment is undertaken.
- If the percentage effect is material, then traffic modelling will be undertaken using Junctions version 8, the industry standard modelling software for priority junctions.

8.10 The percentage effects for the junctions set out previously are shown in **Table 8.1**.

Table 8.1 Percentage Effect – Development Case compared to Baseline – External Network

Junction	AM Peak Hour			PM Peak Hour		
	2018 Base	With Dev	% Impact	2018 Base	With Dev	% Impact
Plough Lane / Station Road / Northaw Road East	1,581	1,613	2%	1,731	1,760	2%
Northaw Road East / Cattlegate Road / Northaw Road West	1,323	1,374	4%	1,441	1,488	3%

- 8.11 The analysis in Table 8.1 shows that the development will result in an increase in traffic of only 2% at the Plough Lane / Station Road / Northaw Road East junction in both the weekday AM and PM peak hours. This level of additional traffic will not materially impact the operation of the junction and, therefore, no further assessment work is required.
- 8.12 For the Northaw Road East / Cattlegate Road / Northaw Road West junction, the proposed development will result in an increase in traffic of only 4% and 3% in the weekday AM and PM peak hours respectively. This level of additional traffic will not materially impact the operation of the junction and, therefore, no further assessment work is required.
- 8.13 Therefore, it is only necessary to undertake capacity assessments of the proposed site access junction.

Detailed Junction Assessment

Proposed Site Access

- 8.14 The proposed Site access has been modelled under the loading of the 2018 Base plus Development traffic flows. The junction modelling output is included at **Appendix O**
- 8.15 **Table 8.2** below provides a summary of the results of the assessment.

Table 8.2: 2018 Base plus Development Scenario

Arms	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	RFC (%)	Queue	RFC (%)	Queue
B- AC	0.20	0	0.09	0
C-AB	0.03	0	0.08	0
<i>Arm A = Northaw Road East, Arm B = Site Access, Arm C = Proposed Site Access</i>				

- 8.16 The analysis demonstrates that the proposed site access junction will operate well within capacity under the loading of the 2018 Base plus Development traffic flows.
- 8.17 Therefore the proposed junction is adequate and appropriate to accommodate the traffic from the development.

Impact on the Strategic Road Network

- 8.18 The strategic road network can be accessed from the Site via M25 Junction 24 and 25 to the west and east respectively.
- 8.19 The impact of the proposed development at these junctions can be determined using the travel to work data shown in Table 7.1. Using journey planner software, only trips to St Albans and Westminster would use the M25 Junction 24; and only trips to Hertsmere would use the M25 Junction 25. This equates to only 3% and 10% of the development trips on M25 Junction 24 and 25 respectively.
- 8.20 Based on this information, the maximum increase in two way traffic flows at the M25 junctions is summarised in **Table 8.3** below.

Table 8.3: Impact on the Strategic Road Network

Junction	Maximum Increase in Two-Way Traffic Flows	
	AM Peak Hour	PM Peak Hour
M25 Junction 24	2	2
M25 Junction 25	8	8

- 8.21 The analysis above demonstrates that there will not be a material impact at the junctions as a result of the proposed development. Therefore no further assessment work is required.

Sensitivity Test

- 8.22 As stated within the scoping report submitted to HCC in advance of the preparation of this Transport Assessment, a sensitivity test of the of the local highway network with the inclusion of the traffic flows associated with the nearby Metropolis application has been included. The Metropolis application is currently under determination by the local planning authority and the proposals are for a mixed use site to the north west of Northaw Road that includes residential units, a retirement home, health centre, primary school, care centre and a swimming pool.
- 8.23 As it has been demonstrated that the impact of the proposed development on the off-site junctions will be minimal, only the proposed site access junction and proposed Metropolis access junctions have been assessed in the sensitivity test.
- 8.24 The Metropolis application traffic flows are shown in **Traffic Figure 10 to 13** and the modelling outputs are included at **Appendix O**.

Proposed Site Access – Sensitivity Test

- 8.25 The proposed Site access has been modelled under the loading of the 2018 Base plus Development and Metropolis traffic flows.
- 8.26 **Table 8.4** below provides a summary of the results of the assessment.

Table 8.4: 2018 Base plus Development and Metropolis Scenario

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
Arms	RFC (%)	Queue	RFC (%)	Queue
B- AC	0.21	0	0.10	0
C-AB	0.03	0	0.08	0
<i>Arm A = Northwaw Road East, Arm B = Site Access, Arm C = Proposed Site Access</i>				

- 8.27 The analysis demonstrates that the proposed Site access junction will operate well within capacity under the loading of the 2018 Base plus Development and Metropolis traffic flows.

Metropolis Site Access – Sensitivity Test

- 8.28 The proposed Metropolis site access has been modelled under the loading of the 2018 Base plus Development and Metropolis traffic flows. The drawing showing the Metropolis site access junction is included at **Appendix P**.

- 8.29 **Table 8.5** below provides a summary of the results of the assessment.

Table 8.5: 2018 Base plus Development and Metropolis Scenario

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
Arms	RFC (%)	Queue	RFC (%)	Queue
Metropolis Site Access	0.24	0	0.18	0
Northaw Road East	0.58	1	0.47	1
Northaw Road West	0.21	0	0.55	1

- 8.30 The analysis demonstrates that the proposed Metropolis site access junction will operate well within capacity under the loading of the 2018 Base plus Development and Metropolis traffic flows.

Summary

- 8.31 Percentage impact assessments have been undertaken at two off-site junctions (Cattlegate Road / Northaw Road East and Station Road / Northaw Road East junctions) and this has shown that the development will not have a material impact.
- 8.32 It has been demonstrated that the impact of the proposed development traffic on the strategic road network (M25 junction 24 and 25) will be negligible.

- 8.33 Notwithstanding the low percentage impact of the proposed development, it is acknowledged that the junctions are currently experiencing some peak period congestion, particularly during the PM peak hour.
- 8.34 In recognition of this it is proposed to provide a contribution that can be used to mitigate the impact of the development. The contribution could be used to mitigate the impact of the development in one of the following ways:
- Modifications to the junctions to increase vehicular capacity, including potentially changing the priority of one of the junctions to allow the movement with the highest traffic flow to be the main arm; and/or
 - Mitigation measures elsewhere to reduce the traffic at the junctions such as public realm enhancements on Station Road.
- 8.35 During recent discussions with Hertfordshire County Council highway authority, it has been indicated that changing the priority of one of the junctions would be their preferred solution. However, some local representatives and residents would prefer not to improve the junctions which could attract more traffic to pass through the village. There is also concern from some local residents that the changes to the junction priority could lead to rat-running via Vineyards in the south and in the north via Hanyards Lane/Tolmers Road to avoid the amended junctions.
- 8.36 The alternative approach is a public realm improvement to Station Road to enhance the shopping area which is the heart of the village and would improve parking opportunities and access to the station. This would allow traffic to flow, but would discourage the use of Cuffley as a through route. The alternative approaches were the subject of discussion through the public consultation with some local residents supporting each of them.
- 8.37 Flexibility has been retained at this stage as either could form part of the mitigation package associated with the proposed development.

9 SUMMARY & CONCLUSIONS

Summary

- 9.1 Vectos has been appointed by Lands Improvements to provide traffic and transport advice in support of a planning application for the land to the north east of King George V Playing Fields, Hertfordshire.
- 9.2 The Site is located to the south of Cuffley and is currently in agricultural use. It is bound by existing residential development and Cuffley Primary School to the north, the railway line to the east, Northaw Road East (B156) to the west and an existing footpath adjacent to King George V playing fields to the south.
- 9.3 This report has been prepared following a following an extensive consultation process with local residents and stakeholders. In relation to transport, this included:
- Two Design Workshops;
 - Two rounds of public consultation including exhibitions;
 - Parish Council Meetings; and
 - Discussions and meetings with highways officers from Hertfordshire County Council (HCC).
- 9.4 It considers the transport matters relating to the proposed development that have been identified by HCC and local residents, including provision for pedestrians, cyclists and other non-car users and how to best utilise and enhance existing facilities. The report also considers the effects of the development on the local highway network.
- 9.5 The proposed development is consistent with the relevant national, regional and local policy guidance. This is demonstrated by the approach that has been taken to holding extensive pre-application discussion about a variety of matters including highways and transport.
- 9.6 The planning application seeks permission for a residential development of up to 121 dwellings, associated infrastructure and a change of use from agricultural land to an extension of the King George V playing fields. All matters reserved except for new vehicular access to serve the site, the provision of a surface water discharge point and the levels of the development level platforms.

- 9.7 Whilst the application is in outline and the layout is indicative, access is not a reserved matter and plans have been submitted specifically showing the key access arrangements which are proposed to be determined as part of the application.
- 9.8 The development will be accessed via a new priority junction with Northaw Road East. An improvement to the existing gateway feature adjacent to the proposed site access at the start of the 30 mph speed limit is proposed.
- 9.9 Pedestrian and cycle access will be provided from footways adjacent to the new access road. This will connect with the existing footway along the south-eastern side of Northaw Road East and provide a connection to the local facilities in Cuffley.
- 9.10 It is proposed to provide a pedestrian link through the Site from the King George V Playing Fields car park to South Drive. This will provide a convenient pedestrian and cycle link from the Site to Cuffley Primary School to the north.
- 9.11 Discussions have been held with the HCC Rights of Way team to establish their aspirations for the adjacent PRoW footpath number 6. As a result of these discussions it is proposed to provide a contribution towards upgrading the route to a Bridleway.
- 9.12 In addition, it is proposed to provide a permissive path for dog walkers around the fields to the south of the Site.
- 9.13 The Site is served by two bus services via Northaw Road East and is within a walk distance of approximately 850m from Cuffley Railway station, which provides a frequent service with a journey time of less than 30mins to London.
- 9.14 The developer will provide a sustainable transport contribution that will be calculated in line with the 'Planning obligations guidance – toolkit for Hertfordshire'. It is proposed that this contribution is used towards improvements to public transport or walking and cycling infrastructure in the vicinity of the Site. A proportion of this contribution could be used to provide improved pedestrian facilities at the Theobalds Road junction with Northaw Road East. This will also make the route less attractive for 'rat running', which was highlighted as a concern from residents at the consultation.
- 9.15 A Travel Plan has been prepared to encourage travel to the Site by sustainable modes. The primary objective of the Travel Plan is to set out a long term strategy to facilitate and

encourage modes of travel to the Site by means other than the private car, which reflects current central and local government policy.

- 9.16 The development will generate a maximum of 83 vehicle trips two way during the weekday AM peak hour and 76 vehicle trips two way during the weekday PM Peak hour.
- 9.17 It has been demonstrated that the impact of the proposed development traffic on the strategic road network (M25 junction 24 and 25) will be negligible.
- 9.18 Percentage impact assessments have been undertaken at two off-site junctions (Cattlegate Road / Northaw Road East and Station Road / Northaw Road East junctions) and this has shown that the development will not have a material impact.
- 9.19 Notwithstanding the low percentage impact of the proposed development, it is proposed to provide a contribution that can be used to mitigate the impact of the development. The contribution could be used to mitigate the impact of the development in one of the following ways:
- Modifications to the junctions to increase vehicular capacity, including potentially changing the priority of one of the junctions to allow the movement with the highest traffic flow to be the main arm; and/or
 - Mitigation measures elsewhere to reduce the traffic at the junctions such as public realm enhancements on Station Road.
- 9.20 Flexibility has been retained at this stage as either could form part of the mitigation package associated with the proposed development.
- 9.21 The assessment has demonstrated that the proposed Site access junction is adequate and appropriate for the proposed development.

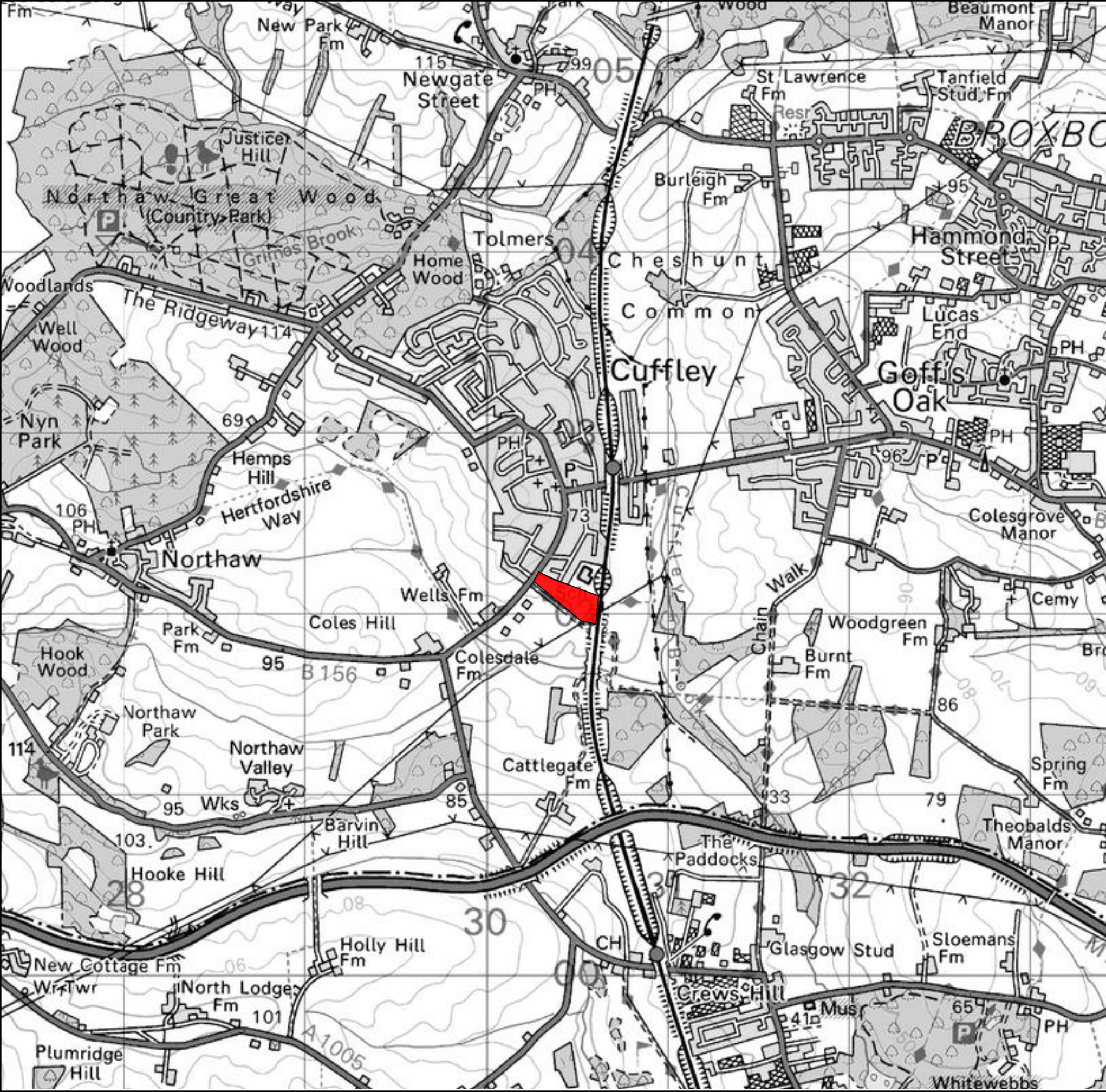
Conclusion

- 9.22 The analysis demonstrates that the Site is accessible by non-car modes and that the impact of the development traffic is not severe.
- 9.23 The proposed development passes the key tests set out in the NPPF, i.e.
- Safe and suitable access to the Site can be achieved for all people; and

- The residual cumulative impacts of the development are not severe.

9.24 In conclusion, it is considered that the development proposals are appropriate for the location and that there are no traffic or transportation reasons why planning permission should not be granted.

FIGURES



Key



Site Location

Land to the north east of King George V Playing Fields

Lands Improvement

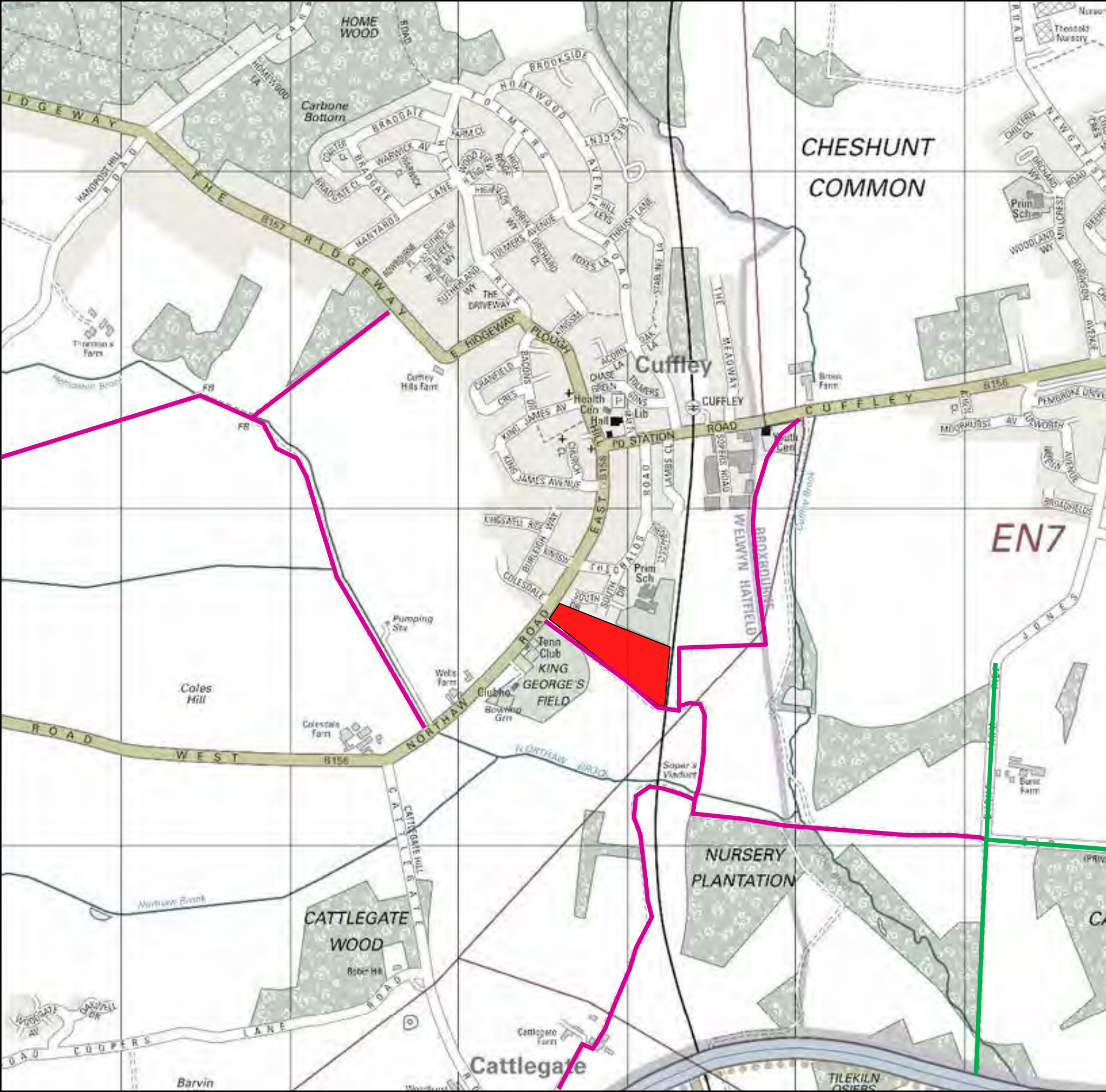
Strategic site location

SCALES: NTS




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H.J	M.M	24/07/14	.



DRAWING REFERENCE: Figure 2.1



Key

-  Site Location
-  Footpath
-  Bridleway

Land to the northeast of King George V Playing Fields

Lands Improvement

Public rights of way

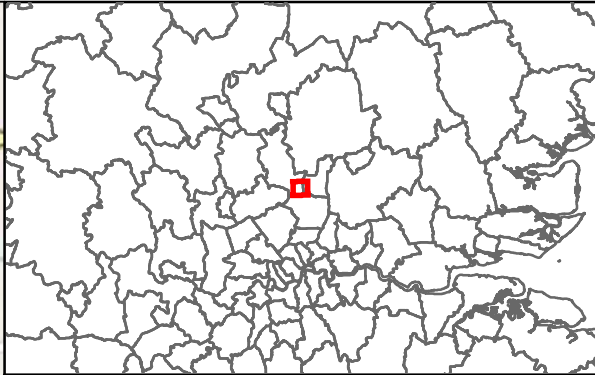
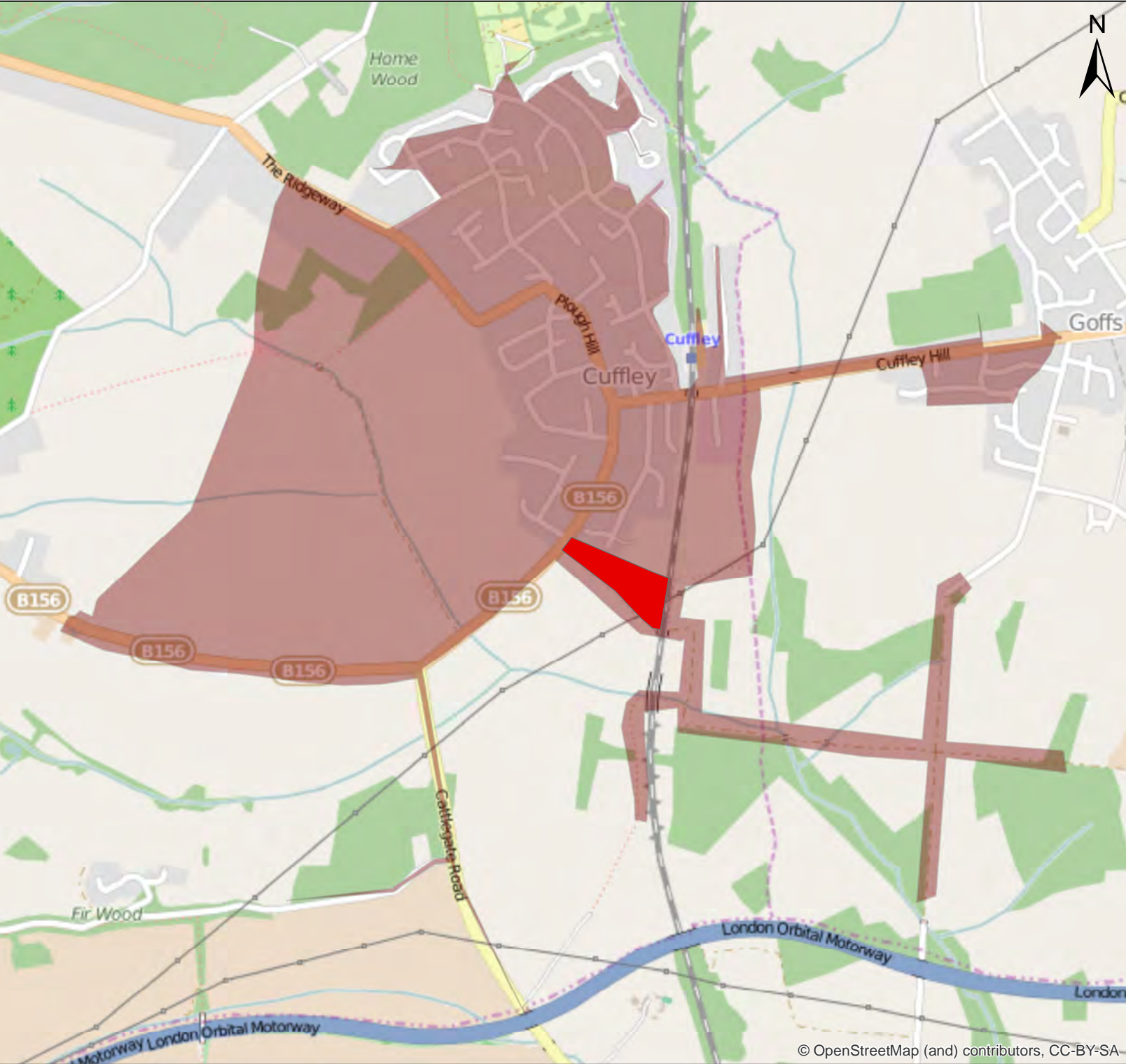
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H.J	M.M	24/07/14	.



Network Building, 97 Tottenham Court Road, London W1T 4TP
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DRAWING REFERENCE: Figure 2.3



Legend

Site Location

2km Walking Catchment

Land to the north east of King George V Playing Fields

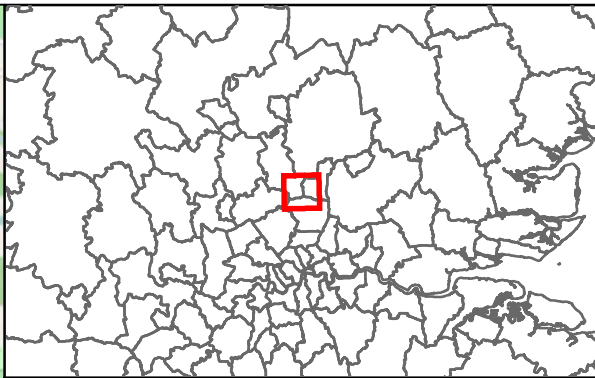
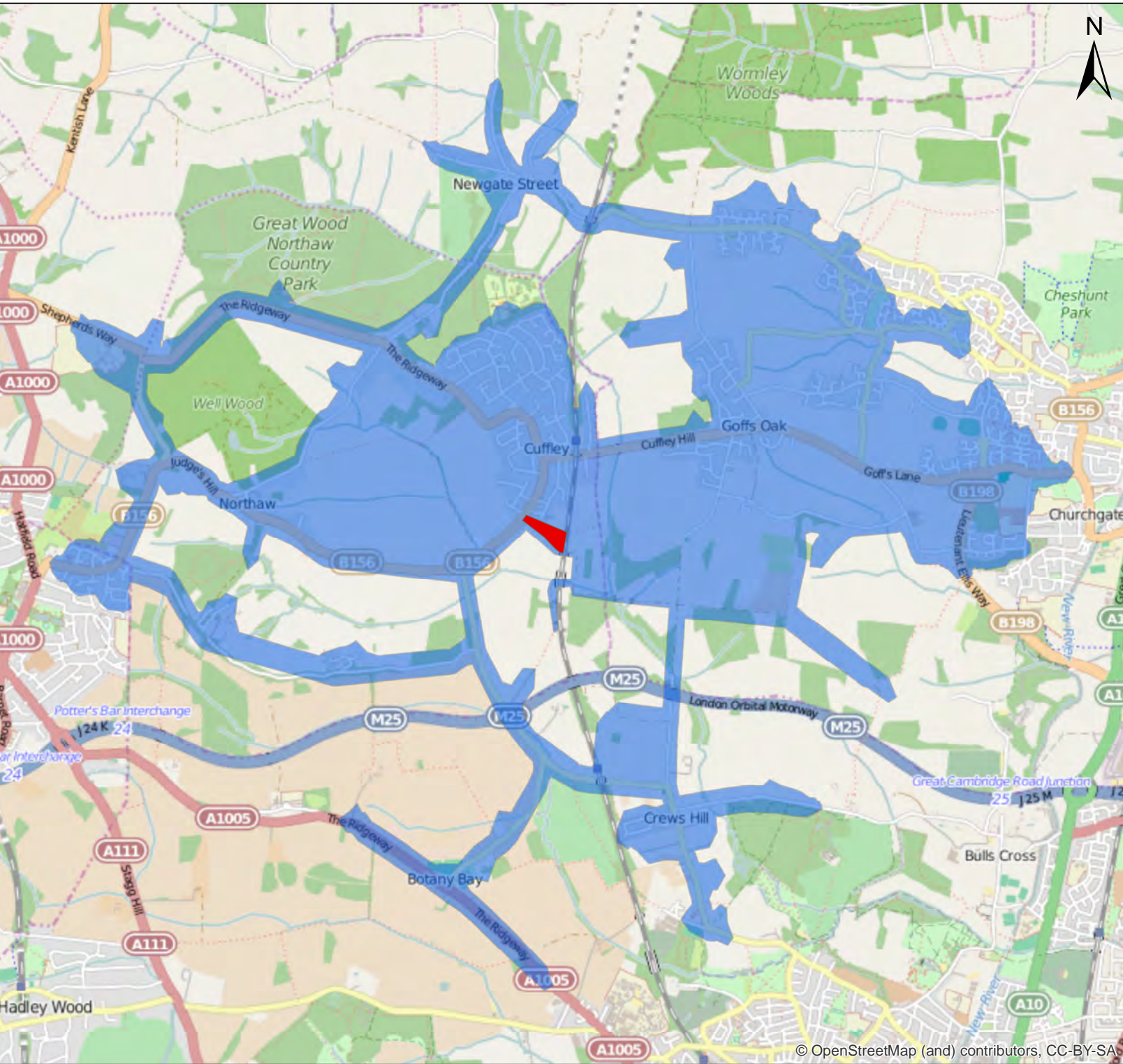
Lands Improvements

2km Walking Isochrone



Figure 2.4

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Legend

Site Location

5km Cycling Catchment

Land to the north east of King George V Playing Fields

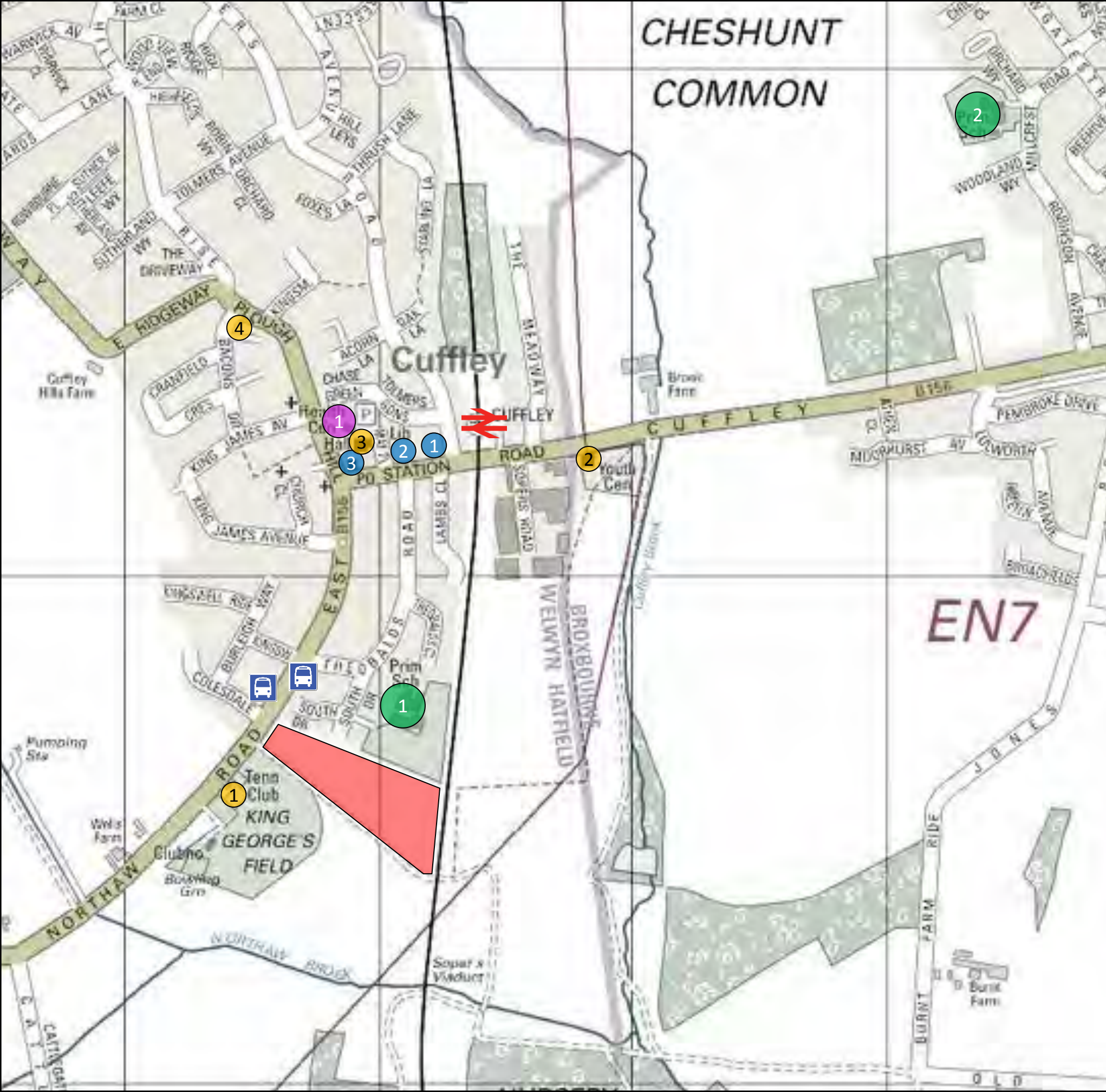
Lands Improvements

5km Cycling Isochrone



Figure 2.5

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Key

- Site Location
- Bus stop
- Railway
- Education
 - 1 Cuffley Primary School
 - 2 Goffs Oak Primary School
- Retail
 - 1 Tescos Express
 - 2 The Co-operative Food
 - 3 Hallmark Post office
- Recreational
 - 1 Cuffley football and tennis club
 - 2 Cuffley Youth Centre
 - 3 Cuffley Village Hall and Library
 - 4 The Plough Public House
- Healthcare
 - 1 Cuffley Health Centre and surgery

Land to the northeast of King George V Playing Fields

Lands Improvement

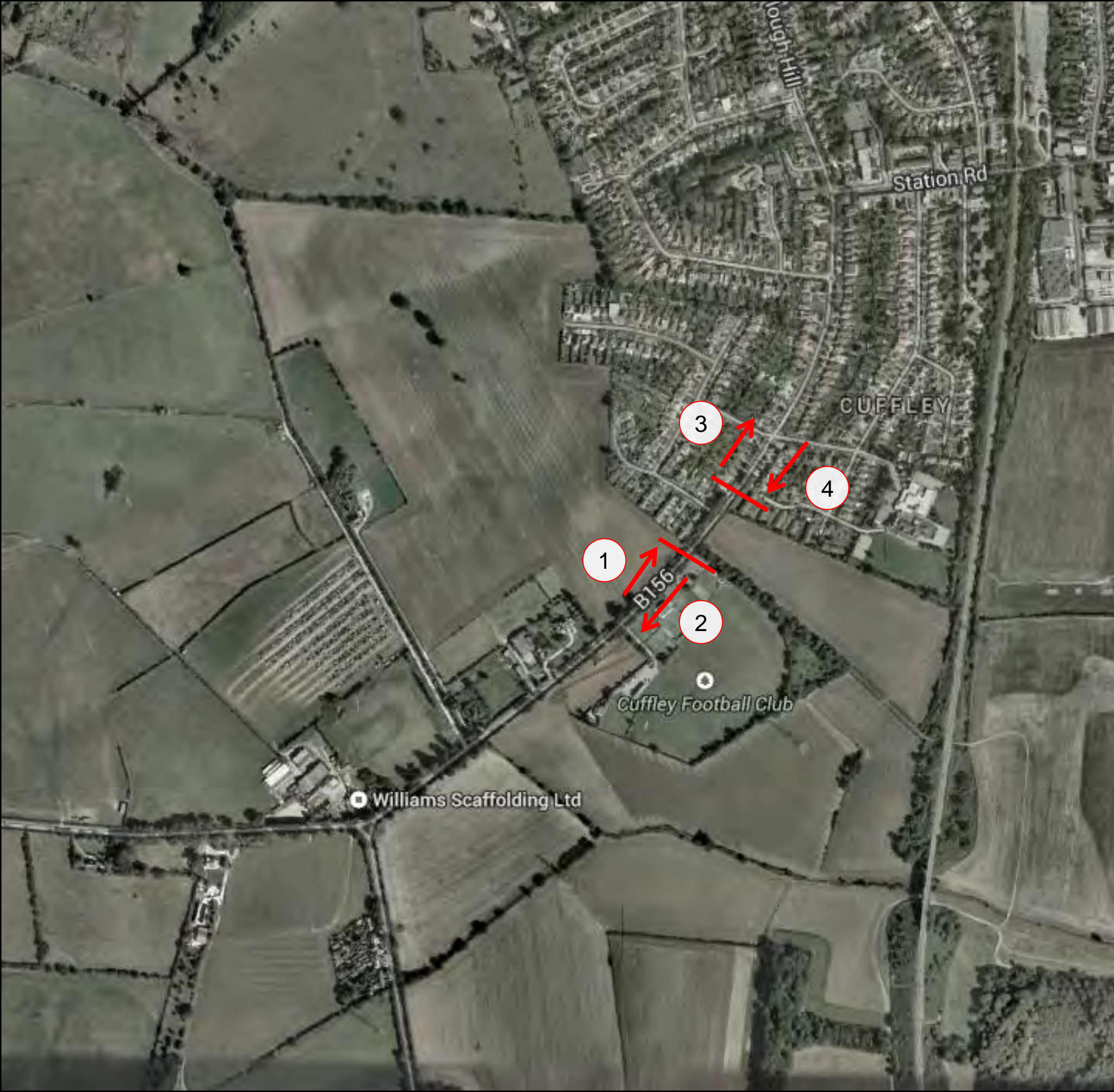
Facilities Plan

SCALES:		NTS	
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
vectos
transport planning specialists


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DRAWING REFERENCE: **Figure 2.6**



Key

  Direction of movement

 Location of ATC

Land to the north east of King George V Playing Fields

Lands Improvement

ATC location Plan

SCALES: NTS

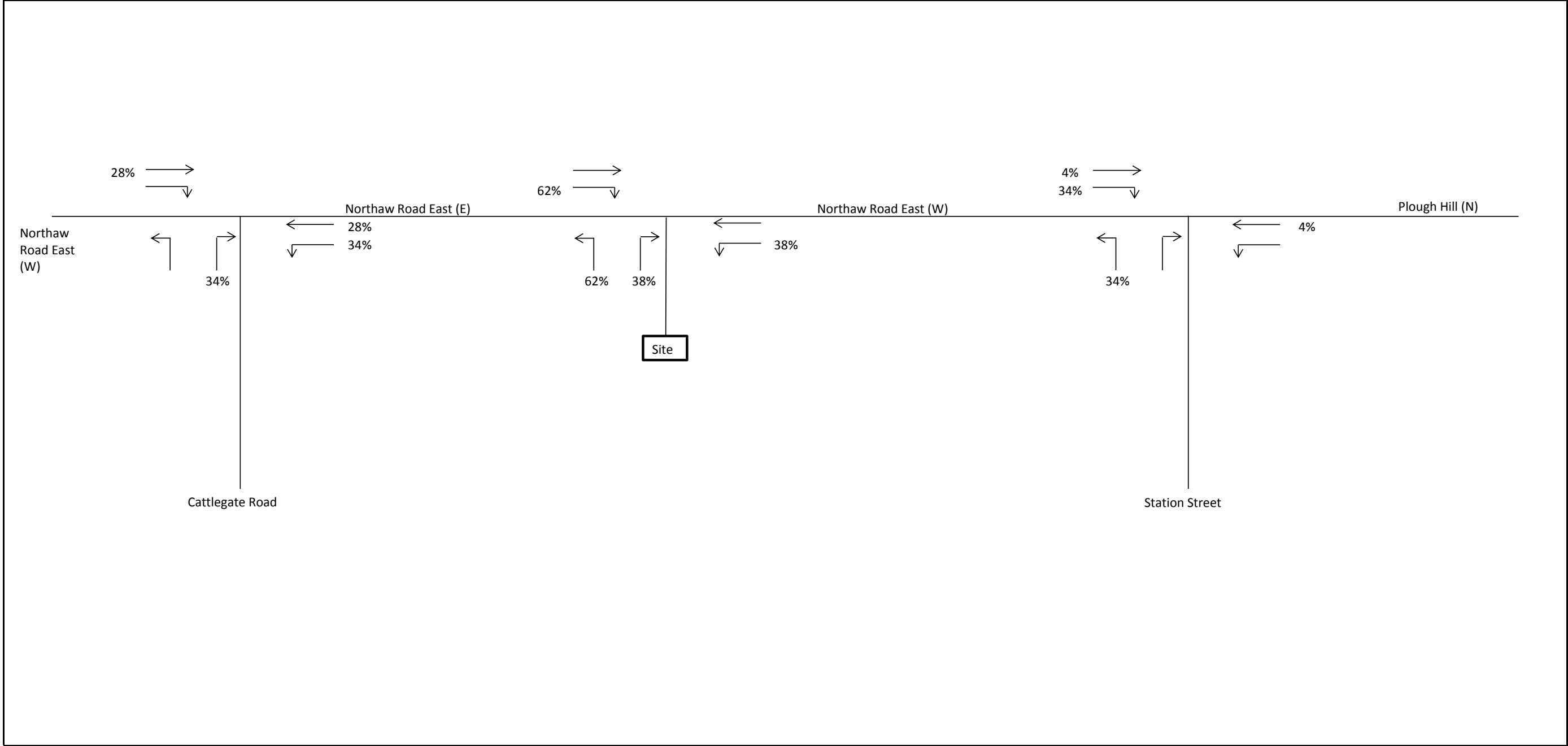
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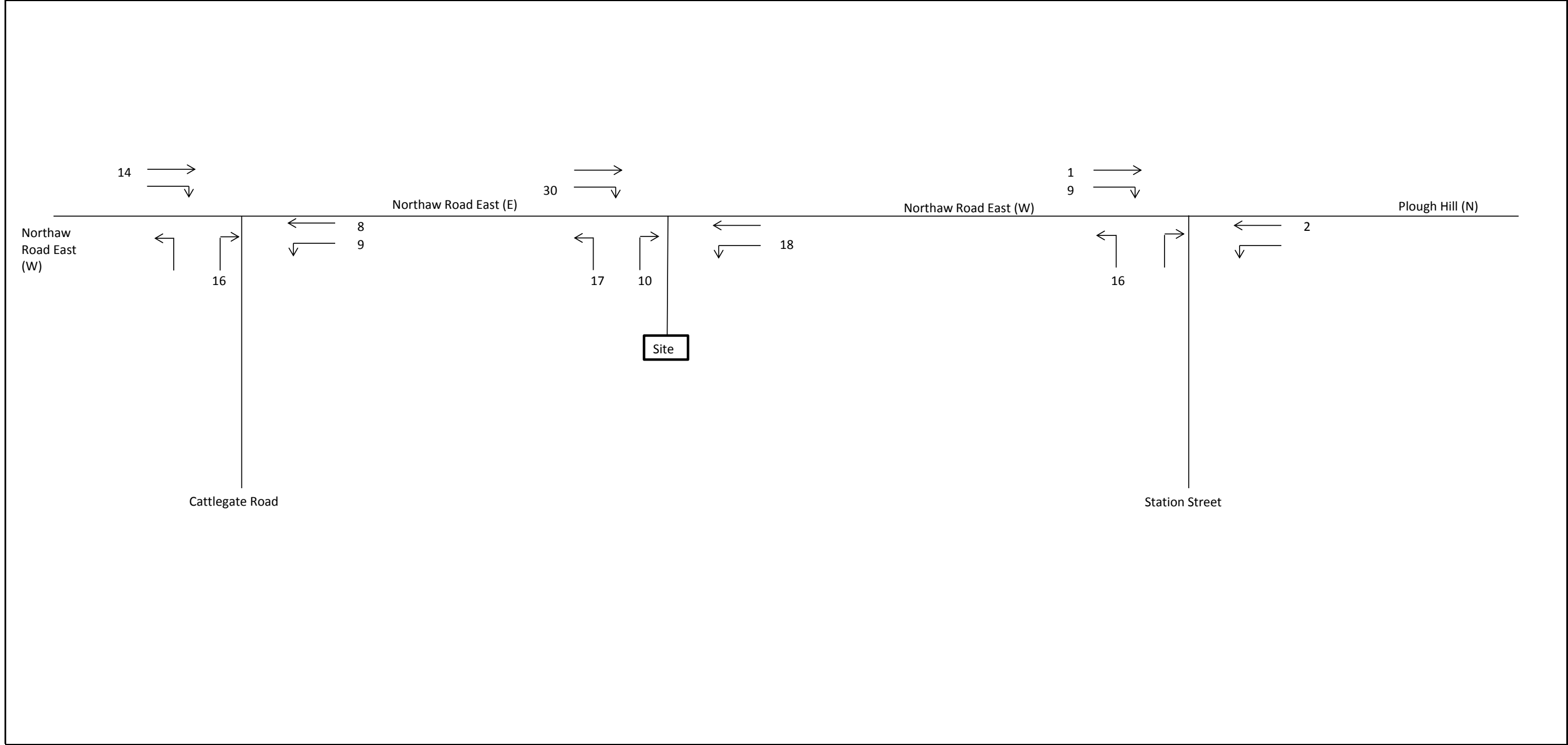
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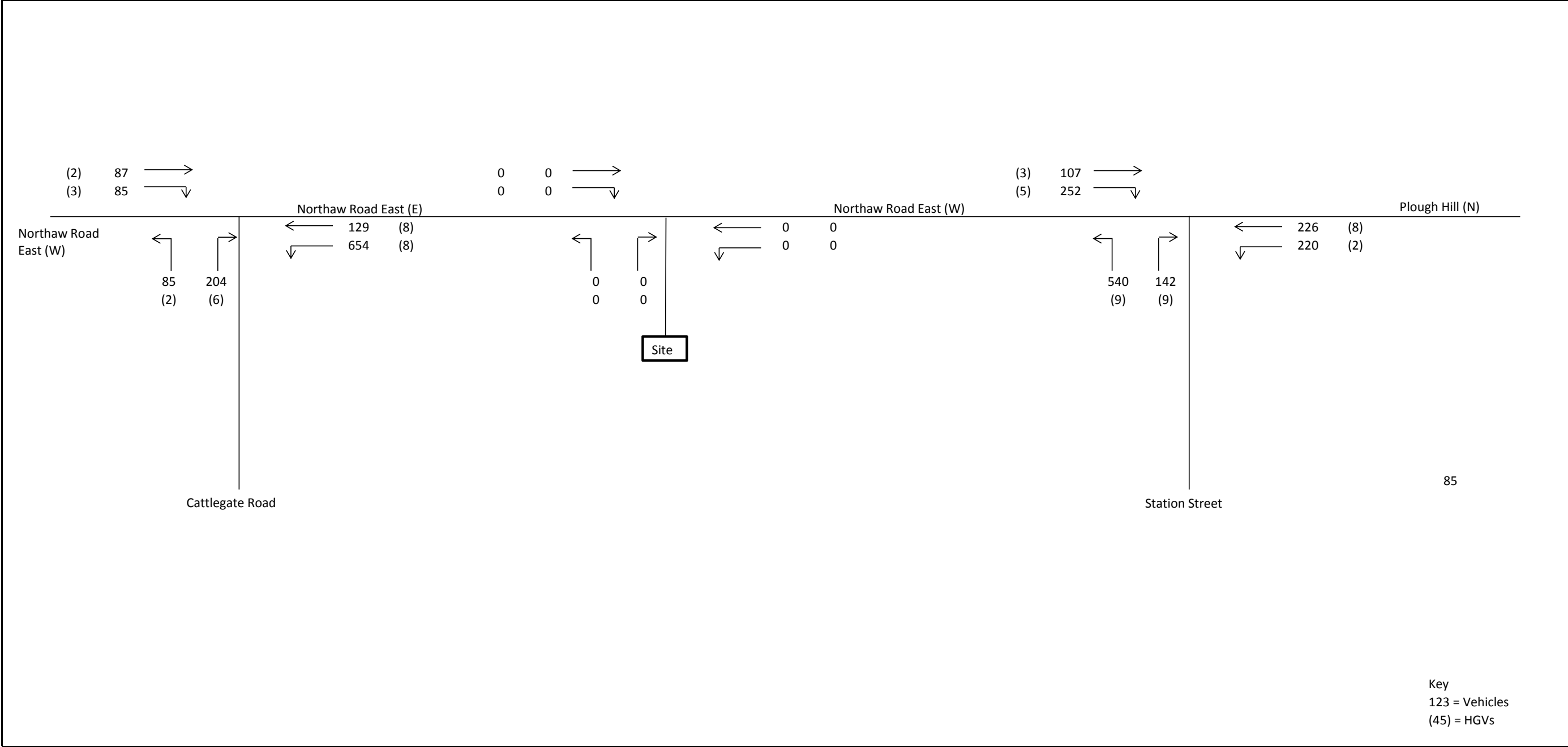
TRAFFIC FIGURES



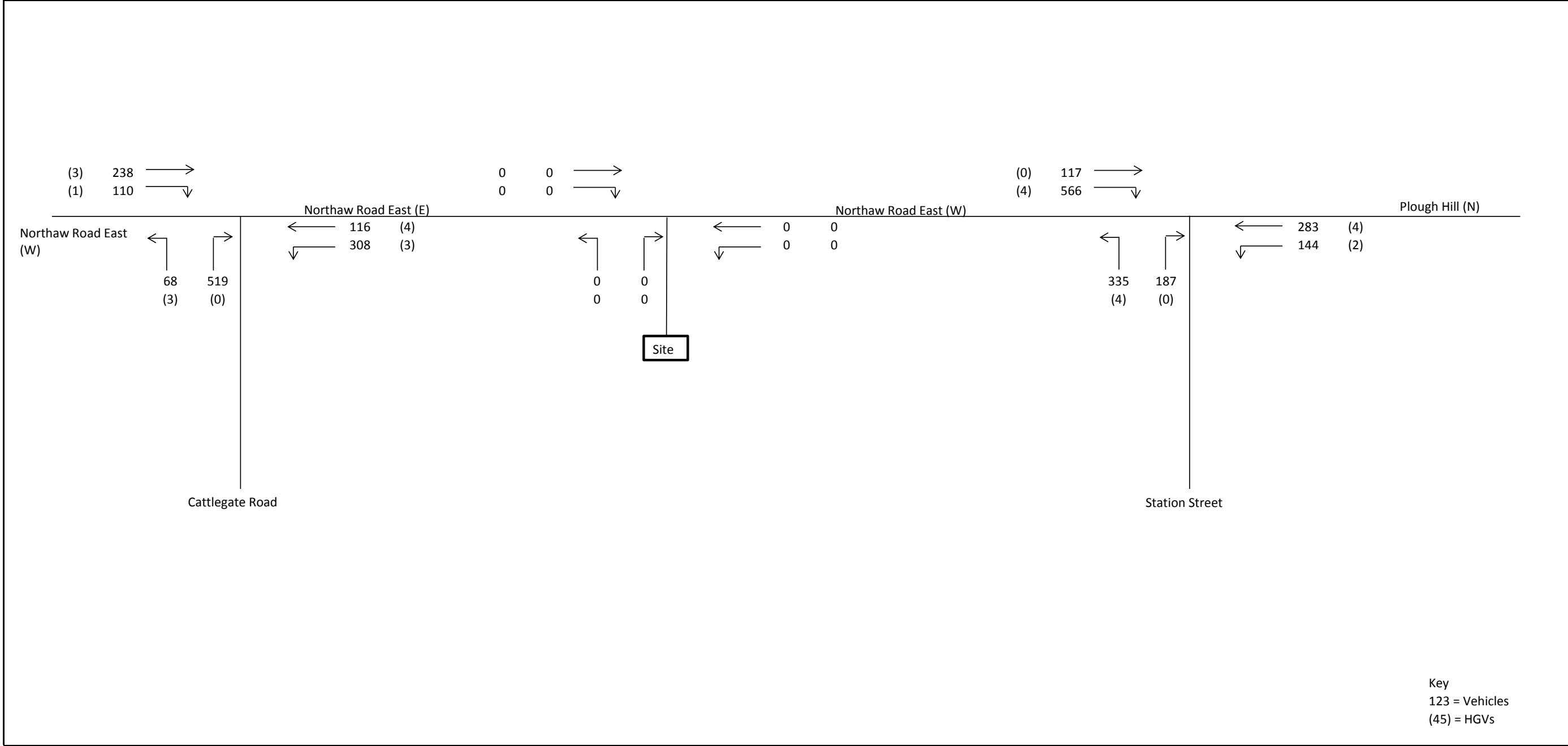
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	Client: Lands Improvement	Figure Title: Distribution				Figure No: 1




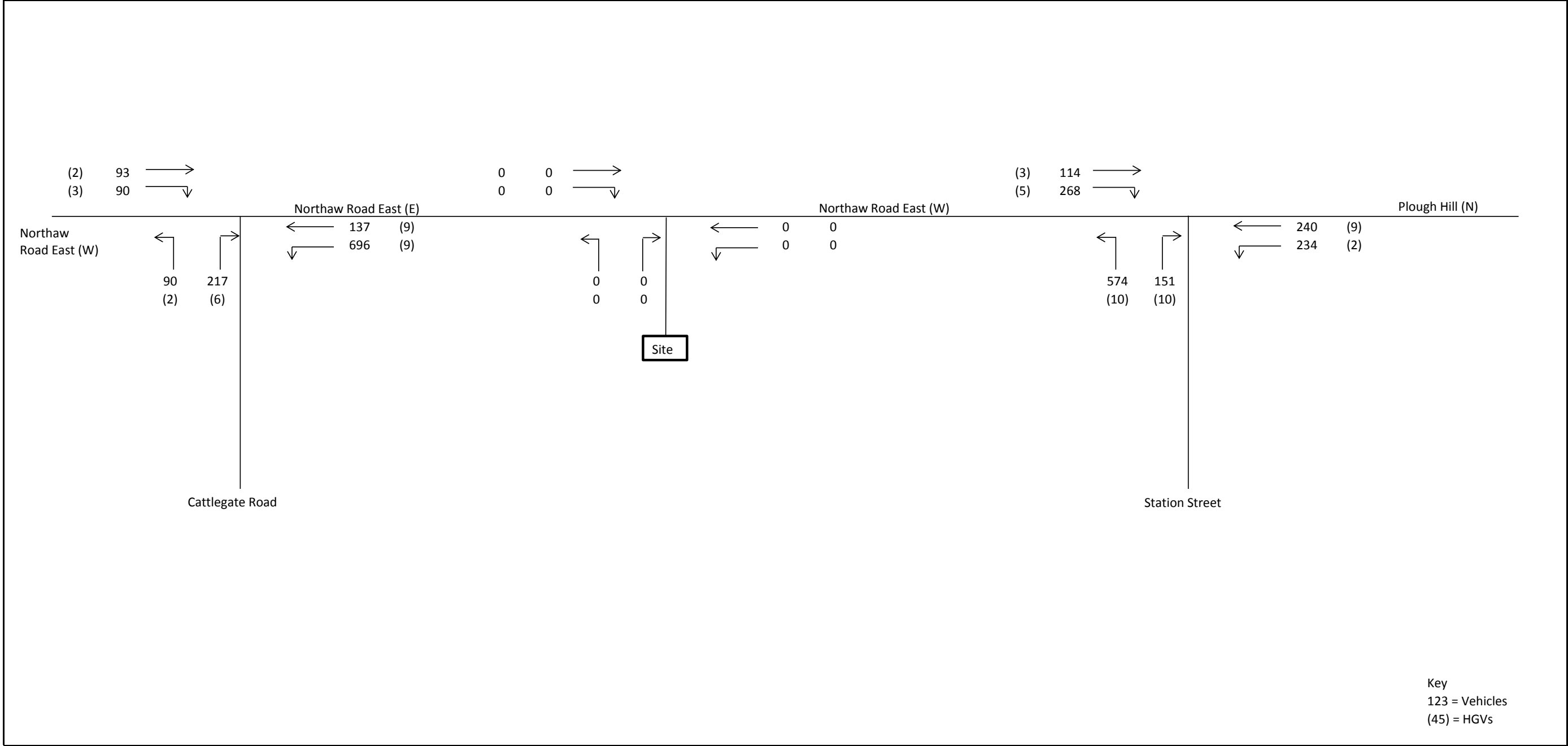
 Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk	Project Title: Cuffley	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Land Improvements Holdings	Figure Title: PM Development Trips (0800-0900)				Figure No: 3



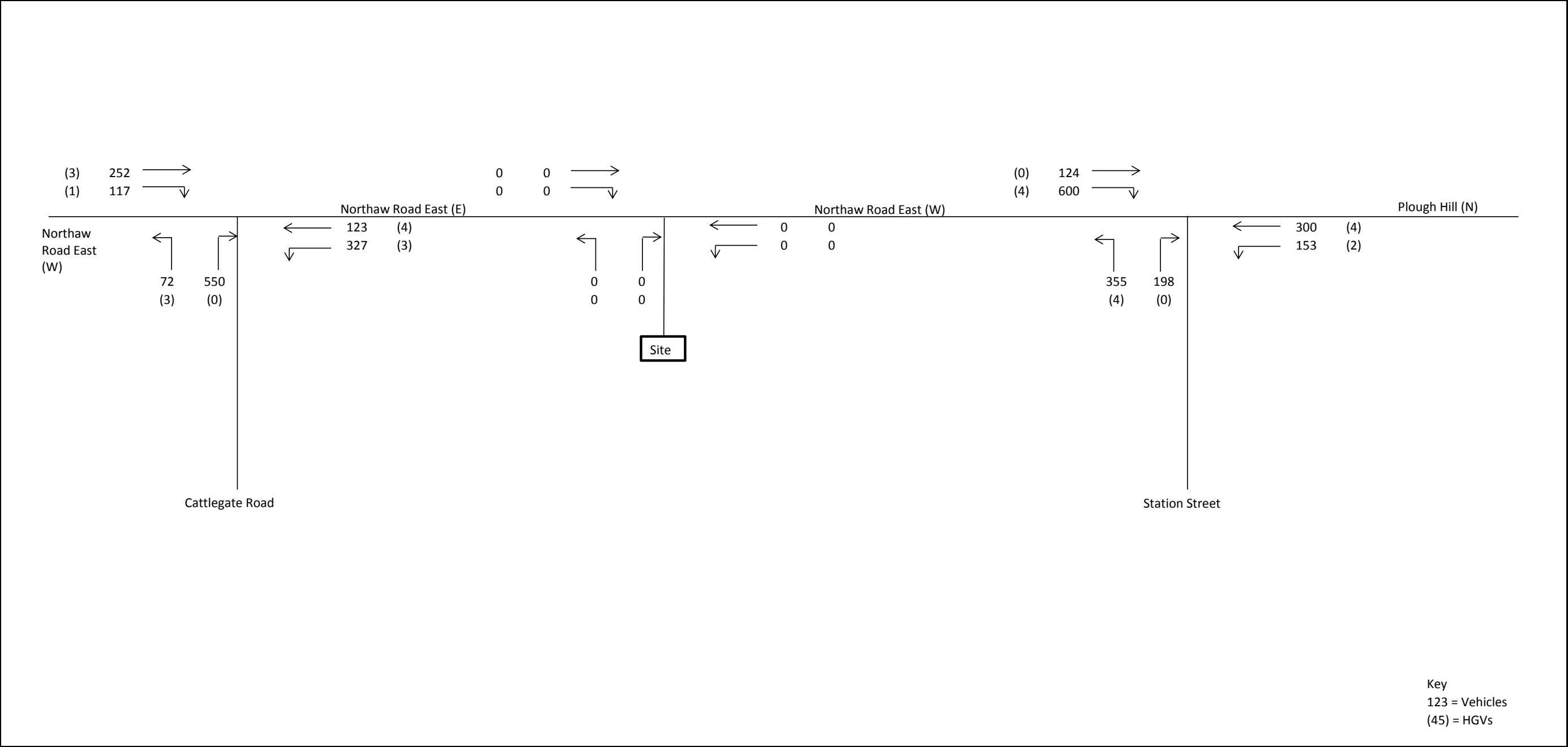
 <small>Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email:london@vectos.co.uk www.vectos.co.uk</small>	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: AM Peak Hour (0800-0900) Surveyed Traffic Flows				Figure No: 4



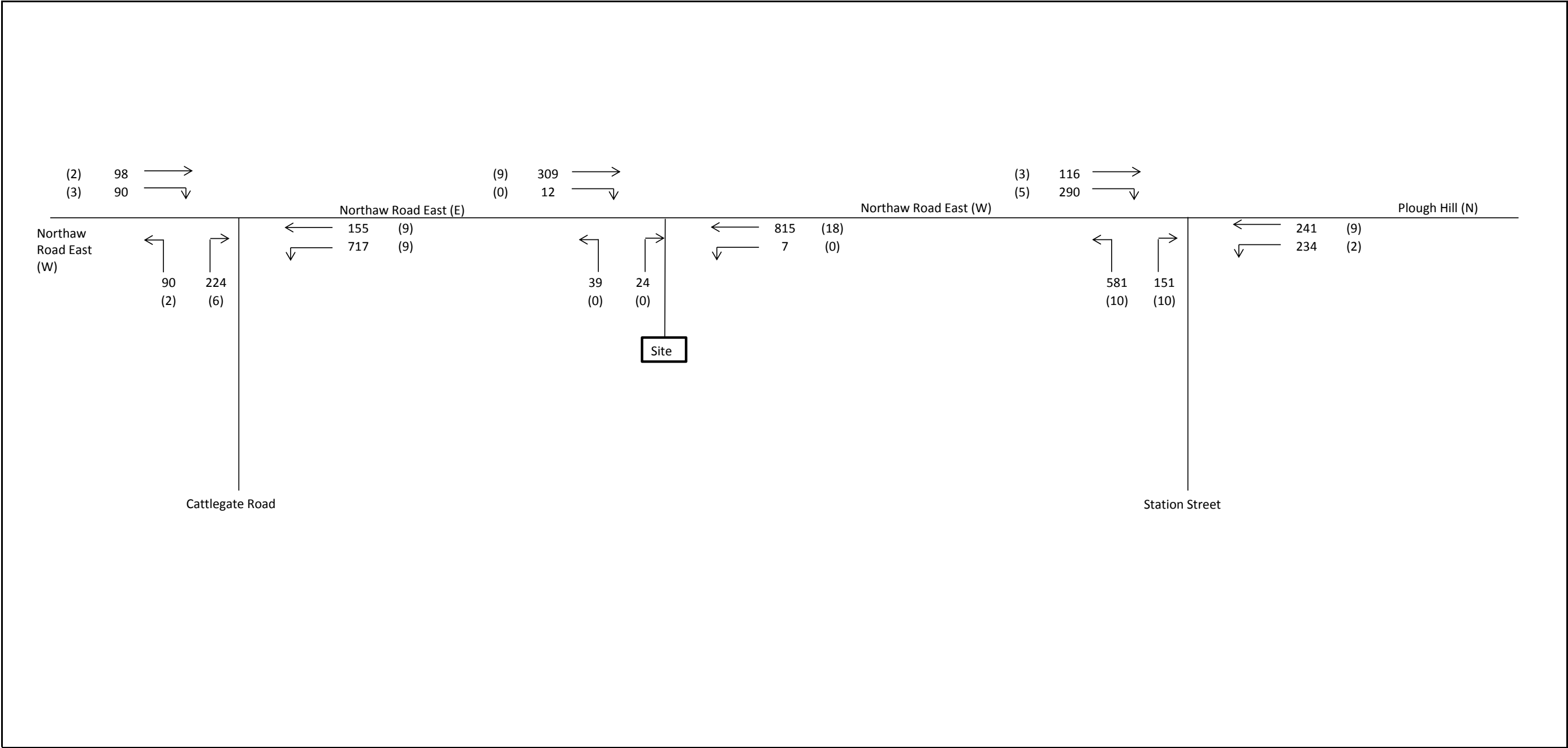
 Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email: london@vectoros.co.uk www.vectoros.co.uk	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: PM Peak Hour (1700-1800) Surveyed Traffic Flows				Figure No: 5



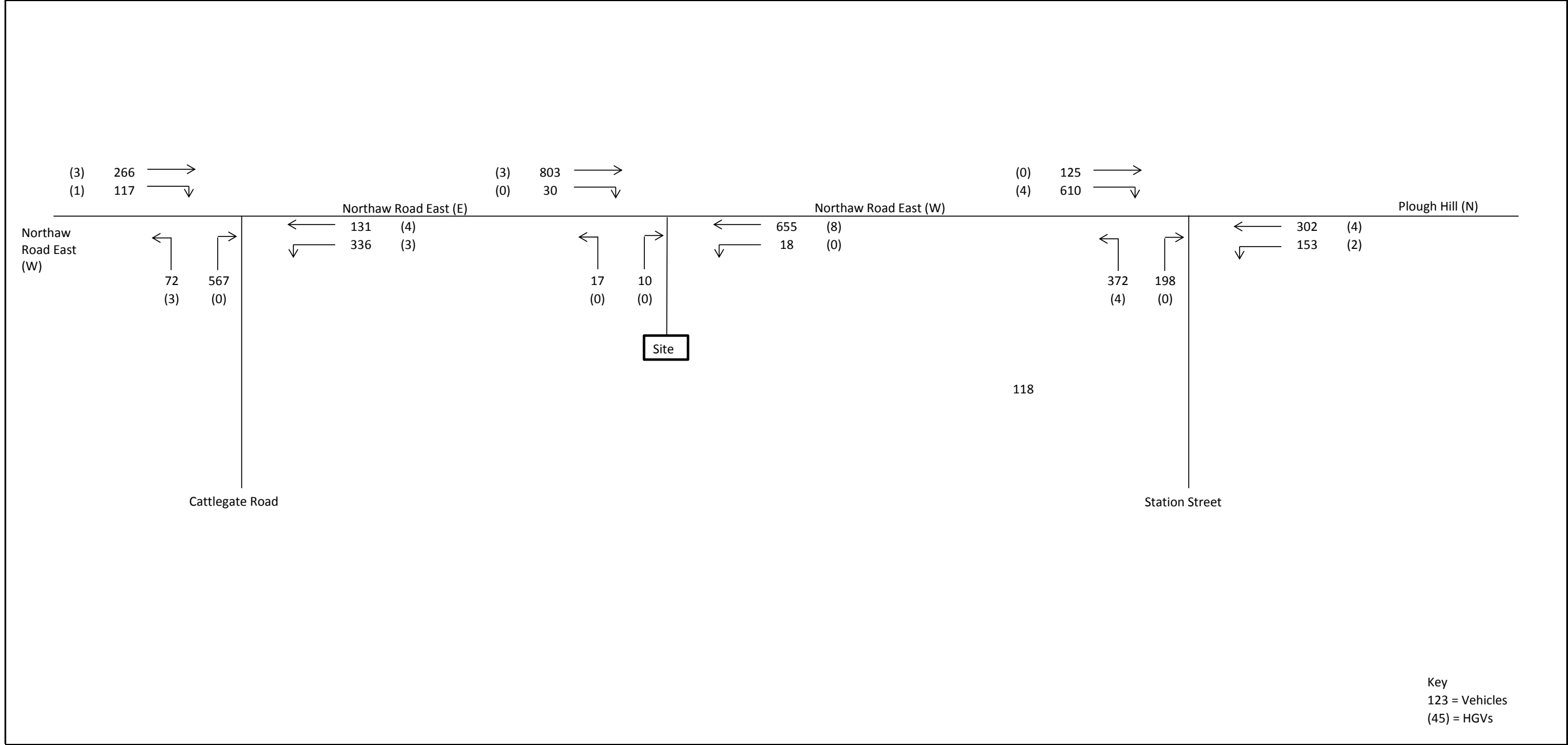
<div><p>transport planning specialists</p><p>Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email:london@vectos.co.uk www.vectos.co.uk</p></div>	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: AM Base 2018 (0800-0900)				Figure No: 6




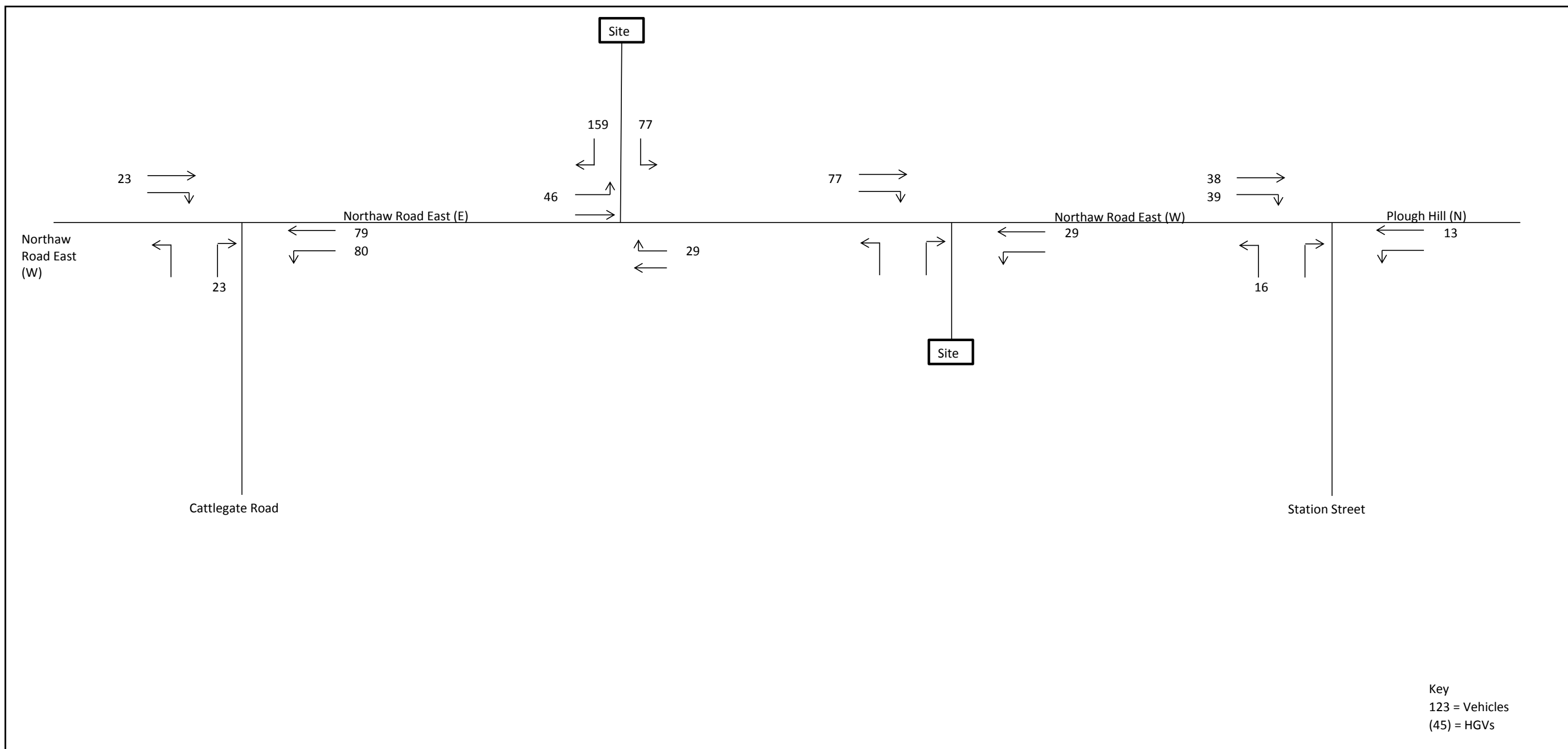
<div><p>Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk</p></div>	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: PM Base 2018 (1700-1800)				Figure No: 7




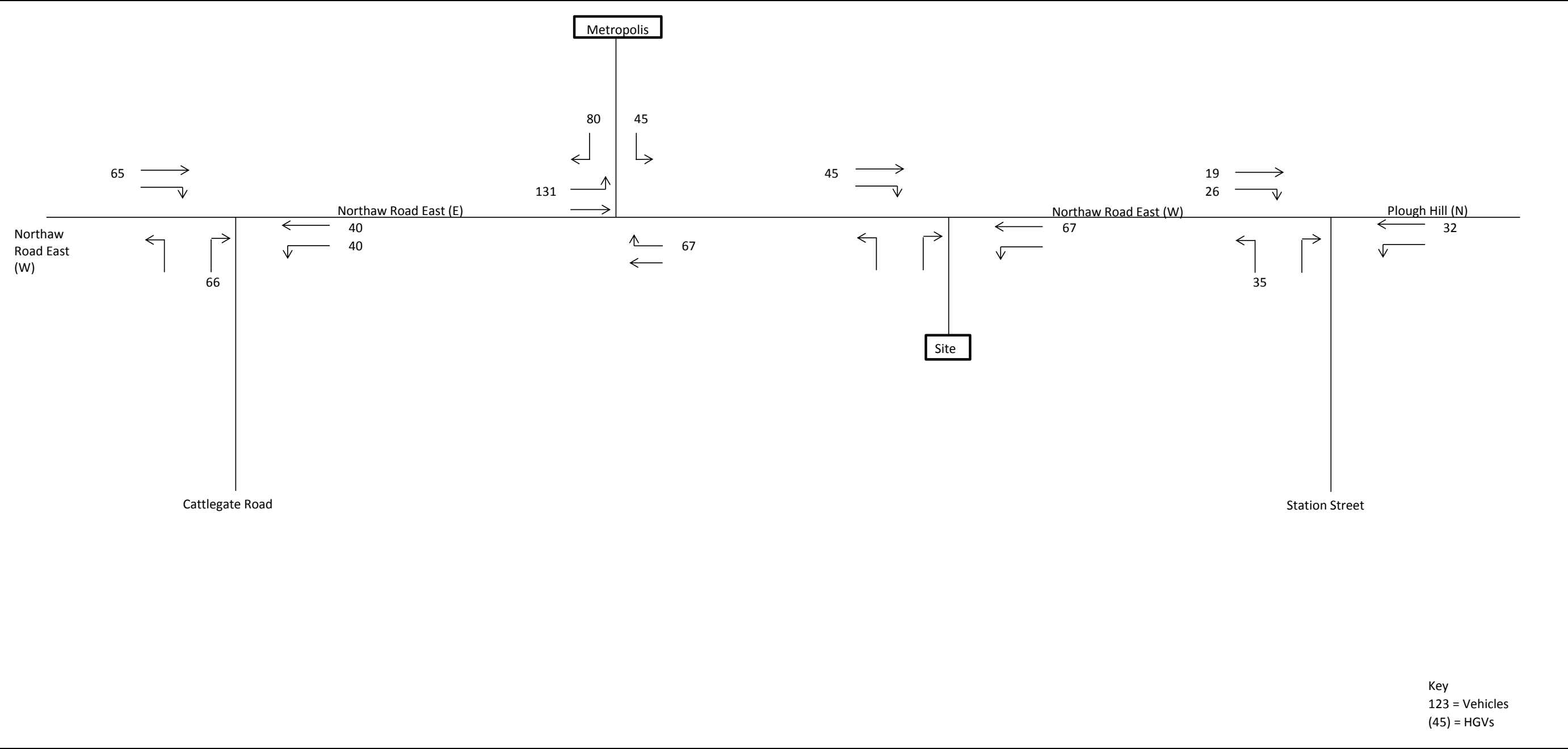
<div><p>Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email:london@vectos.co.uk www.vectos.co.uk</p></div>	<div>Project Title: Land to the north east of King George V Playing Fields</div>	<div>Scale: NTS</div>	<div>Drawn: H.J</div>	<div>Date: 07/2014</div>	<div>Checked: M.M</div>	<div>Rev:</div>
	<div>Client: Lands Improvement</div>	<div>Figure Title: AM Base 2018 + Development (0800-0900)</div>				<div>Figure No: 8</div>




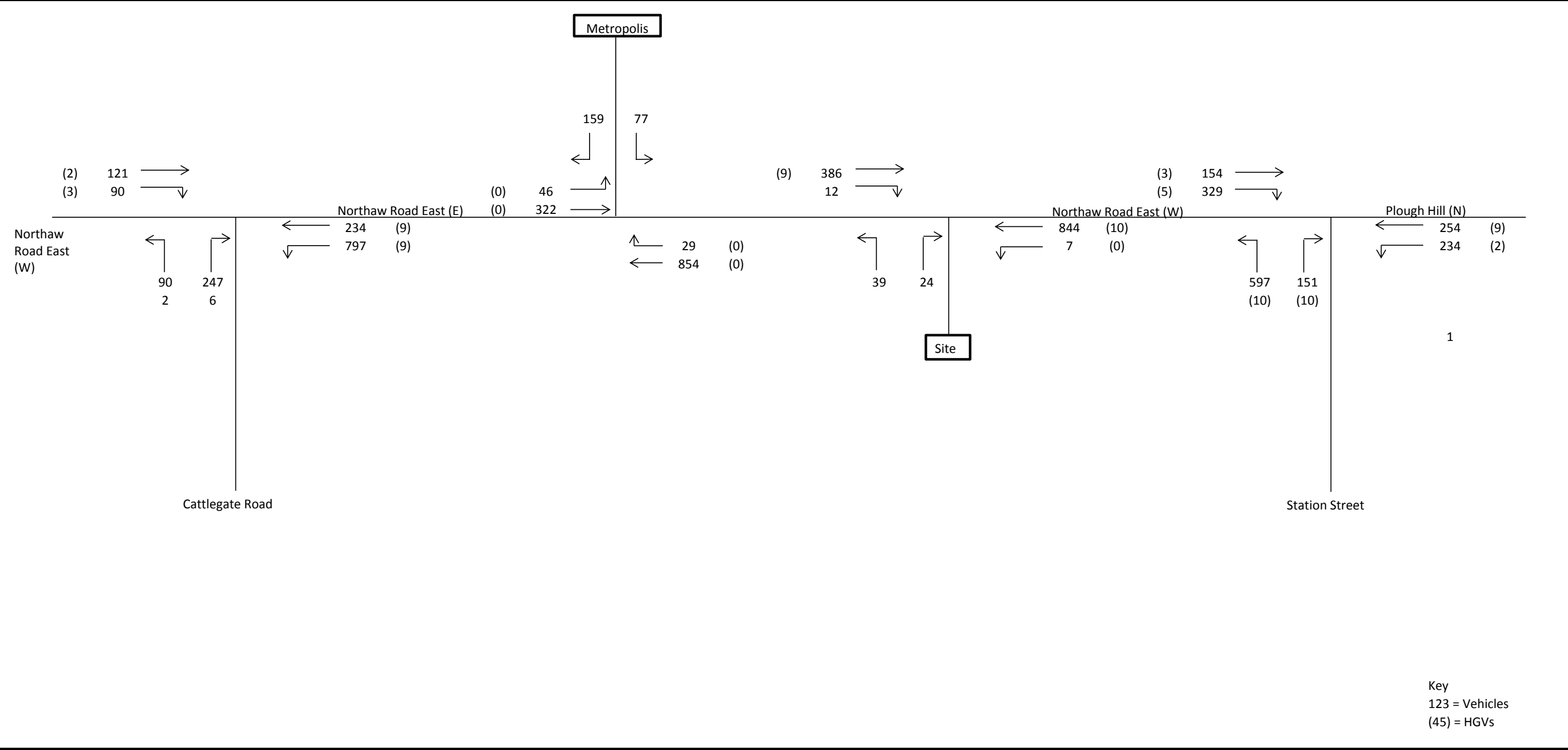
 Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: PM Base 2018 + Development (1700-1800)				Figure No: 9



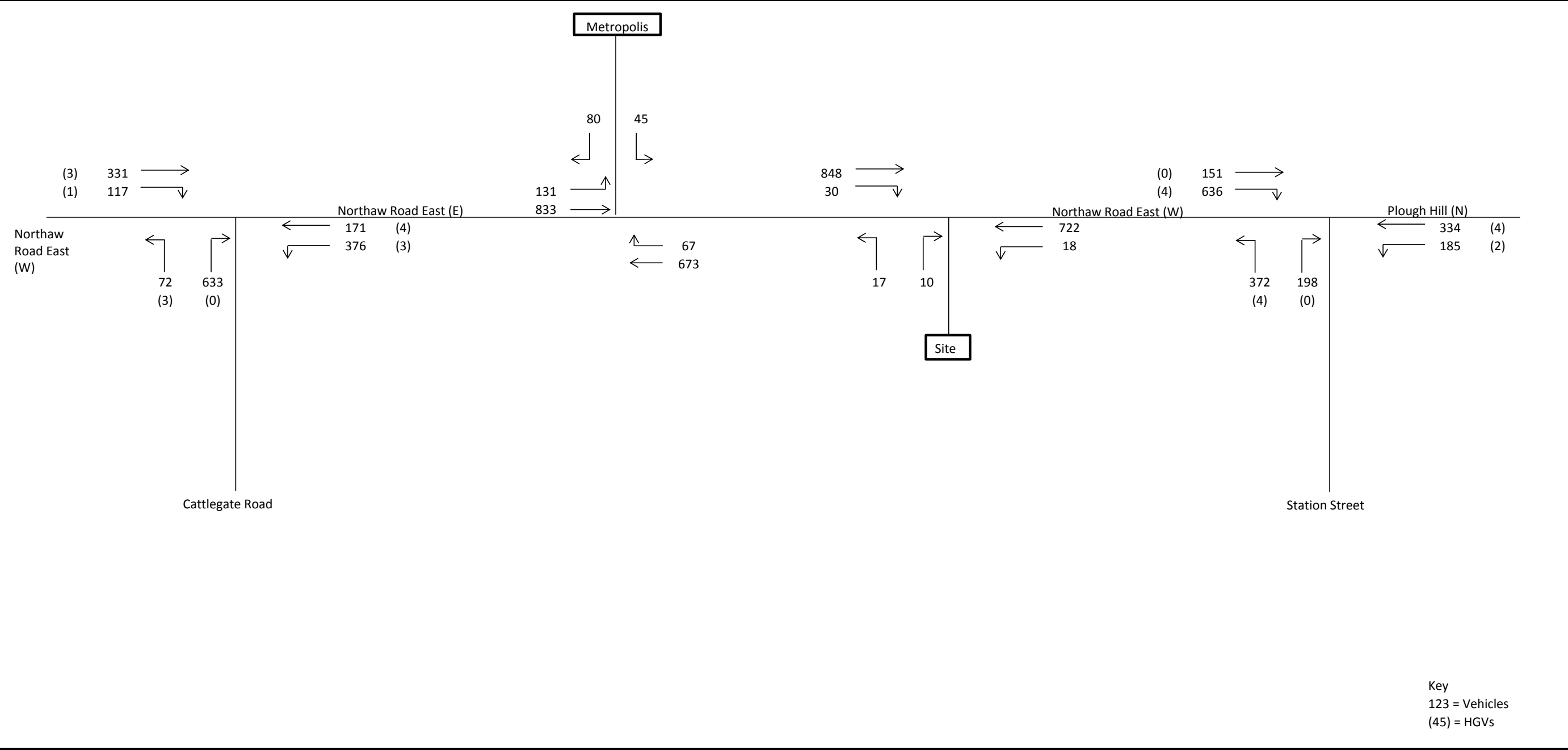
 <p>Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk</p>	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: Metropolis Developemt AM			Figure No: 10	




 <p>Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk</p>	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: Metropolis Developemt PM				Figure No: 11



 Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email:london@vectos.co.uk www.vectos.co.uk	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: Proposed Development + Metropolis Developemt 2018 AM				Figure No: 12



 Network Building, 97 Tottenham Court Road, London, W1T 4TP Tel: 020 7580 7373 Email:london@vectos.co.uk www.vectos.co.uk	Project Title: Land to the north east of King George V Playing Fields	Scale: NTS	Drawn: H.J	Date: 07/2014	Checked: M.M	Rev:
	Client: Lands Improvement	Figure Title: Proposed Development + Metropolis Developemt 2018 PM				Figure No: 13