

Persimmon Homes Ltd
Land North of Keresforth Road, Dodworth

Transport Assessment - Volume 1

10 April 2018
Version 1.0
Issue





Contents

1	Introduction	1
1.1	Commission	1
1.2	The Site	1
1.3	The Development Proposal	1
1.4	Purpose of this Report	2
1.5	Structure of the Report	2
2	Local Highway Network	3
2.1	Introduction	3
2.2	B6099 Keresforth Road	3
2.3	Water Royd Drive / Rose Hill Drive	3
2.4	Bark Meadows	4
2.5	B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / B6099 Station Road	4
2.6	A6133 Broadway	4
2.7	M1	5
3	Sustainable Access	6
3.1	Pedestrian Access	6
3.2	Cycle Access	9
3.3	Public Transport	10
3.4	Travel Plan	12
4	Transport Planning Policy	13
4.1	Introduction	13
4.2	National Policy	13
4.3	Local Policy	15
5	Development Proposals	23
5.1	Introduction	23
5.2	The Development Proposal	23
5.3	Vehicular Access	23
5.4	Parking	24
6	Baseline Traffic Conditions	26
6.1	Introduction	26
6.2	Study Highway Network	26
6.3	2016 Base Traffic Flows	26

6.4	Committed Development	27
6.5	2023 Future Assessment Year	28
7	Traffic Generation and Mode Share	29
7.1	Introduction	29
7.2	Person Trip Generation	29
7.3	Person Trip Generation by Mode	30
7.4	Vehicle Trip Distribution and Traffic Assignment	31
7.5	Impact on Highway Network	32
8	Junction Capacity Assessments	33
8.1	Introduction	33
8.2	B6099 High Street / B6449 Dodworth Green Road Junction	33
8.3	B6099 High Street / Rose Hill Drive Three-Arm Priority Junction	35
8.4	B6099 Keresforth Road / Water Royd Drive Three-Arm Priority Junction	36
9	Personal Injury Accident Data	38
9.1	Introduction	38
9.2	Road Traffic Accidents	38
9.3	Summary	42
10	Summary and Conclusions	44

Figures

- Figure 1: Site Location
- Figure 2: Local Highway Network
- Figure 3: Pedestrian Catchment and Local Amenities
- Figure 4: Cycle Catchment
- Figure 5: Public Transport
- Figure 6: 2016 Base Traffic Flows - AM Peak Hour
- Figure 7: 2016 Base Traffic Flows - PM Peak Hour
- Figure 8: 2023 Do Minimum Traffic Flows - AM Peak Hour
- Figure 9: 2023 Do Minimum Traffic Flows - PM Peak Hour
- Figure 10: Vehicle Trip Distribution
- Figure 11: Development Trips - AM Peak Hour
- Figure 12: Development Trips - PM Peak Hour
- Figure 13: 2023 With Development Traffic Flows - AM Peak Hour
- Figure 14: 2023 With Development Traffic Flows - PM Peak Hour

Drawings

3143/SK003/001: Swept Path Analysis of FTA HG Rigid Vehicle
3143/SK003/002: Swept Path Analysis of FTA Design Articulated Vehicle
3143/SK003/003: Swept Path Analysis of Low Loader
3143/SK004/001: Swept Path Analysis of Large Refuse Vehicle

Appendices (See Volume 2)

Appendix A: Planning Layout
Appendix B: NTM / Temprow Growth Factors
Appendix C: TRICS Output
Appendix D: Gravity Model
Appendix E: Junctions9 Output - B6099 High Street / B6499 Dodworth Green Road Junction
Appendix F: Junctions9 Output - B6099 High Street / Rose Hill Drive Junction
Appendix G: Junctions9 Output - B6099 Keresforth Road / Water Royd Drive Junction
Appendix H: Personal Injury Accident Data

1 Introduction

1.1 Commission

Persimmons Homes Ltd is bringing forward a full planning application for a proposed residential development on land to the north of Keresforth Road, Dodworth.

Fore Consulting Limited (Fore) has been commissioned by Persimmon Homes Ltd to prepare a Transport Assessment to accompany the planning application. A Travel Plan has also been prepared under a separate cover.

The scope of assessment was discussed and agreed with Barnsley Metropolitan Borough Council's Highways Officer, Barbara Wilson at a meeting on 5 August 2016 and through subsequent email correspondence.

1.2 The Site

The site is an area of some 10.4ha in total, located approximately 2.2km (direct measurement) southwest of Barnsley Town Centre.

The site is currently in use as agricultural land and is bordered by a mixture of fences, woodland and hedgerows. The site is bound by the M1 to the immediate east, with recreational grassland to the north and an established residential estate to the west. There is also a beck and small areas of woodland along this boundary. To the south, the site is bound by the B6099 Keresforth Road along with a cluster of residential properties accessed off Woodend Court.

Dodworth is a village in the Metropolitan Borough of Barnsley in South Yorkshire. The central area of Dodworth is located approximately 0.8km (direct measurement) to the west of the site. Within the locality of the site there is a mixture of modern and historic development and a wide range of retail, education, leisure and healthcare facilities.

The location of the site is shown on Figure 1.

1.3 The Development Proposal

The proposal is to develop the site to provide a maximum of 146 privately owned houses.

The site is to be accessed by extending Bark Meadows (which is currently a cul-de-sac serving 18 dwellings) in to the development site.

1.4 Purpose of this Report

This report is the Transport Assessment. It has been prepared to provide the necessary information to assist Barnsley Metropolitan Borough Council (BMBC) as the Local Planning and Highway Authority in determining the planning application.

The structure and content of this Transport Assessment follows the National Planning Policy Framework¹ and Planning Practice Guidance².

1.5 Structure of the Report

This report is structured as follows:

- Section 2 describes the local highway network within the vicinity of the site.
- Section 3 describes the opportunities to access the site by sustainable modes of travel including walking, cycling and public transport.
- Section 4 identifies national and local transport policies that are relevant to the proposed development.
- Section 5 sets out the development proposals, including the proposed access arrangements.
- Section 6 describes the approach taken to identify the existing and future traffic flows on the highway network in the vicinity of the site.
- Section 7 provides an estimate of the predicted vehicle trip generations and distributions associated with the proposed development.
- Section 8 provides an estimate of the predicted total person trip generations and mode share associated with the proposed development.
- Section 9 details the capacity assessments undertaken at the junctions identified as part of the study highway network.
- Section 10 summarises personal injury accident data on the highway network in the study area, and considers the potential impacts of the development.
- Section 11 summarises and concludes the findings of the Report.

¹ *National Planning Policy Framework*, Department of Communities and Local Government, 2012.

² *Planning Practice Guidance*, Department of Communities and Local Government, 2014.

2 Local Highway Network

2.1 Introduction

This Section describes the local highway network within the vicinity of the site, comprising a number of key links and junctions which are identified on Figure 2 and discussed in turn below.

2.2 B6099 Keresforth Road

B6099 Keresforth Road serves as a local distributor road, connecting the western fringes of Barnsley with Dodworth. It provides access to Water Royd Drive and Rose Hill Drive, respectively, each via a three-arm simple priority junction; in turn, these roads effectively form a loop providing access to Bark Meadows. Approximately 380m east of the junction with Water Royd Drive, a three-arm simple priority junction provides access to Gilroyd Lane to the south.

Within the vicinity of the site B6099 Keresforth Road is single lane two-way carriageway and is subject to a 30mph speed limit. To the immediate east of Gilroyd Lane the speed limit of the road increases to 40mph. The road is lit and has a carriageway width of approximately 6.0m within the vicinity of the site. There are no waiting restrictions are present within the vicinity of the site frontage.

A 2m wide footway is provided on the northern side of the road which continues in a east-west alignment.

2.3 Water Royd Drive / Rose Hill Drive

Water Royd Drive and Rose Hill Drive take access from the B6099 Keresforth Road via three-arm simple priority junctions. In effect, the two roads combine to serve primarily as a loop road for an existing residential estate to the immediate west of the site. The road is a single-lane two way carriageway of varying width subject to a 30mph speed limit. The road is lit and waiting restrictions are currently not present.

Water Royd Drive provides access to a number of residential cul-de-sacs, before linking with Rose Hill Drive to the far west of the site. Rose Hill Drive continues southwards and forms the minor arm of a three-arm simple priority junction with the B6099 High Street.

All local roads within the estate are lit and footways are present on both the eastern and western side of the road.

2.4 Bark Meadows

Bark Meadows forms a residential cul-de-sac, providing direct driveway access to 18 dwellings from a simple three-arm priority junction with Water Royd Drive. It is a two-way road, with a carriageway width of 5.5m immediately north of the junction with Water Royd Road, although varies between 5.2m and 5.5m further to the north.

Street lighting and footways are provided on both sides of the carriageway.

2.5 B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / B6099 Station Road

Heading westwards the B6099 Keresforth Road becomes the B6099 High Street and forms a four-arm priority junction with the B6449 Barnsley Road / B6449 Dodworth Green Road and the B6099 Station Road.

The B6099 High Street and B6099 Station Road form the two minor arms of the junction and a pedestrian splitter island segregates left and ahead / right turning traffic on approach from the B6099 High Street arm.

The B6099 Station Road forms the western arm of the junction and is a single lane two-way carriageway subject to a 30mph speed limit. Within the vicinity of the junction the road is lit and there are footways provided on both sides of the road.

Waiting restrictions, in the form of double yellow lines, are present on both the B6099 High Street and B6099 Station Road arms of the junction.

Within the vicinity of the junction the B6449 Barnsley Road / B6449 Dodworth Green Road mainline carriageway is a single lane two-way carriageway and is subject to a 30mph speed limit. The road is lit and footways are provided on both sides of the road.

To the immediate north of the junction a controlled pedestrian crossing (Zebra) with dropped kerbs and tactile paving is present.

2.6 A6133 Broadway

The A6133 Broadway lies to the far east of the site beyond the M1 and serves as a local distributor road connecting the southern suburbs of Barnsley with the A628 Dodworth Road and ultimately Junction 37 of the M1.

The A6133 Broadway meets the B6099 Keresforth Hill Road at a three-arm signalised junction, with the B6099 Keresforth Hill Road forming the southern arm of the junction.

The junction includes controlled pedestrian crossings across the eastern and southern arms of the junction.

Within the vicinity of the junction the A6133 Broadway is a dual-lane two way carriageway, separated by a raised kerbed central reserve. The road is lit and subject to a 30mph speed limit.

A shared footway and cycleway is present on the southern side of the road heading west and on the northern side of the road heading east. Pedestrian footways also feature on northern and southern side of the road.

2.7 M1

The M1 forms part of the Strategic Road Network and runs to the immediate east of the site, connecting London to Leeds.

The A628 forms the eastern and western arms of the grade separated roundabout at Junction 37 of the M1. Slip roads permit all northbound and southbound movements to / from the M1.

3 Sustainable Access

This Section describes the opportunities to access the site by sustainable modes of travel including walking, cycling and public transport.

3.1 Pedestrian Access

3.1.1 Pedestrian Catchment

Although walking distances vary between individuals and circumstances the Chartered Institution of Highways & Transportation (CIHT) suggests acceptable walking distances for commuting as follows³:

- Desirable: 500m.
- Acceptable: 1.0km.
- Preferred Maximum: 2.0km.

Figure 3 presents isochrones of a 2.0km walking distance threshold, measured from an indicative central point within the site. Only formal road crossings and designated footways / footpaths have been used as part of the walking catchment analysis. The 2.0km isochrone covers the following range of local amenities:

Retail

- The nearest supermarket to the site (Budgens) is located on the eastern side of the B6449 Barnsley Road, adjacent to the junction with the B6099 High Street. The supermarket is accessible on foot within approximately 1.4km of the site. Additional provision (Costcutter) is located on the southern side of the B6449 Barnsley Road, and is accessible within 700m of the site.
- A small convenience store is located on the northern side of B6099 High Street adjacent to the junction with Park View, within 1km of the site.
- The nearest Post Office is situated within a promenade of shops on the northern side of B6099 High Street, within 1.2km walking distance of the site.

³ *Guidelines for Providing for Journeys on Foot*, Chartered Institution of Highways & Transportation, 2000, p49.

Education

- The nearest school to the site (Keresforth Primary School) is located on the northern side of the B6099 Keresforth Road. The school is accessible on foot within 800m of the site.
- Horizon Community College is situated to the northeast of the site on the southern side of A628 Dodworth Road, within approximately 1.6km walking distance.
- Further education provision is situated to the east of the site, namely, Greenacre School (2.0km) and Joseph Locke Primary School (3.0km).

Leisure

- The Thornley Arms Public House and Dodworth Social Club are located on the northern side of the B6099 High Street adjacent to Strafford Walk. Both are accessible within 1.1km walking distance of the site. A number of other public houses are located within a 2.0km walk of the site.
- The nearest restaurant (Toby Carvery) is located on the northern side of Whinby Road, adjacent to the Dodworth Roundabout. The restaurant is accessible on foot within 900m of the site.
- The nearest health club is situated on the southern side of the B6449 Barnsley Road (Bannatyne Health Club and Spa), a walk of 1.1km from the site.
- Penny Pie Park is located to the north of the site on the northern side of the A628 Dodworth Road. The recreational grounds are accessible within approximately 1.6km walking distance of the site.
- An outdoor activity area is located on the southern side of Saville Road, a walk of 1.1km from the site.
- A number of takeaway food outlets are situated at the eastern end of the B6099 High Street and are accessible from between 1.3km and 1.4km of the site, or on the southern side of the B6099 Station Road, accessible within 1.3km of the site.

Health

- The nearest medical centre to the site (Apollo Court Medical Centre) is located on the northern side of the B6099 High Street. The medical centre is accessible on foot within approximately 1.2km of the site. Further provision is located to the east of

Woodland Drive (Woodland Drive Medical Centre) and is accessible within approximately 1.5km of the site.

- The nearest pharmacy to the site is located adjacent to the Apollo Medical Court (Cohens Chemist), on the northern side of the B6099 High Street. The pharmacy is accessible within approximately 1.2km the site.

3.1.2 Pedestrian Routes & Facilities

The pedestrian routes and facilities within the immediate vicinity of the site are shown on Figure 3 and outlined as follows:

- Footways are present on both sides of Water Royd Drive which serve the residential properties to the immediate west of the site. The footways continue northwards through the residential estate connecting to further provision at a number of cul-de-sacs and residential access roads. In particular the footway on the northern side of Water Royd Drive connects to further provision on the eastern and western side of Bark Meadows.
- An existing Public Right of Way traverses the site and provides a connection heading eastwards beyond the M1 (via a pedestrian bridge) towards the western fringes of Barnsley. Heading westwards the footpath provides a direct connection to a footway on the eastern side of B6099 High Street. An additional short stretch of footpath provides a connection heading southwest towards a footway located on the northern side of the B6099 Keresforth Road.
- Within the immediate vicinity of the site a number of uncontrolled (dropped kerbs and tactile paving) crossing points are present at junctions and other locations where there is an adjacent footway.

3.1.3 Proposed Pedestrian Infrastructure

Pedestrian access to the site will be provided from new 2.0m wide footway connections extending into the site from both sides of the proposed access road connecting to the existing footway provision on Bark Meadows.

The internal layout of the site will ensure that an attractive pedestrian environment is provided within the site, to encourage journeys to be made on foot.

3.2 Cycle Access

3.2.1 Cycle Catchment

The Cycling England document *Integrating Cycling into Development Proposals*⁴ suggests acceptable cycling distances of commuting and non-work purposes, as follows:

“Most cycle journeys for non-work purposes and those to rail stations are between 0.5 miles [0.8km] and 2 miles [3.2km], but many cyclists are willing to cycle much further. For work, a distance of 5 miles [8 km] should be assumed.”

With regards to these distances, Figure 4 shows that a number of towns and public amenities can be accessed within 8km of the site.

- The whole of Dodworth can be reached within approximately 1.8km cycling distance of the site. Dodworth provides access to a range of retail, health and educational facilities and a railway station.
- The majority of Barnsley (including the city centre) is accessible within 8km cycling distance of the site. Barnsley provides access to a large range of retail, leisure, healthcare and educational facilities. Access is also provided to a number of larger supermarkets and Barnsley Railway Station.
- The northern suburbs of Redbrook and Gawber are accessible to the north of the site between 3.5km and 4.5km cycling distance of the site. Collectively they provide access to a small range of retail, leisure and educational facilities.
- To the far north of the site cycle access is provided towards the areas of Darton (approximately 6.2km cycling distance), Staincross (approximately 6.6km cycling distance) and Athersley (approximately 7.3km cycling distance). While the areas are primarily residential in nature, access is provided to a number of retail amenities and primary and secondary education facilities.
- Worsbrough (approximately 5.2km cycling distance) and the northern fringes of Hoyland (approximately 8km cycling distance) are accessible to the southeast of the site. Both areas provide access to a number of retail, leisure, healthcare and educational facilities.

⁴ *Integrating Cycling into Development Proposals*, Cycling England, 2009, p4.

3.2.2 Cycle Routes

A number of cycle routes are accessible from within close proximity of the site, outlined as follows:

- National Cycle Route 62 passes to the south of the site. The route connects Fleetwood on the Fylde region of Lancashire with Selby in North Yorkshire. It forms the west and central sections of The Trans Pennine Trail which is a long distance path running from coast to coast across northern England. Locally the route provides a connection between Wombell and Oxspring via Worsbrough, Dodworth and Silkstone Common.
- National Cycle Route 67 passes to the northeast of the site. The route runs from Long Whatton near Loughborough to join National Route 71 near Northallerton in Yorkshire. Locally the route connects with National Cycle Route 62 north of Wombwell before continuing northwards towards the eastern suburbs of Barnsley.

3.3 Public Transport

3.3.1 Bus

The nearest bus stops are on Keresforth Road approximately 550m walking distance (6 minutes) from the site access. The bus stops are accessible via continuous footway on Wareham Grove, South Road and the B6449 Barnsley Road and provide access to the Number 21A and 22 bus services. More services can be accessed from stops on Barnsley Road and from Keresforth Hill Road/Gilroyd Lane. Both of these are a 12 minute walk from the development.

Table 1 sets details of the bus service from these stops.

Table 1: Bus Services

Bus Stop	No.	Operator	Destinations Served	Daytime frequency per hour (each way)	
				Monday - Saturday	Sunday
Keresforth Road	21a	Stagecoach	Barnsley - Crow Edge (Barnsley - Millhouse Green on Saturday)	1 (evening)	1
	22	Stagecoach	Barnsley - Gilroyd	2	0
Barnsley Road	20	Stagecoach	Barnsley - Cubley	1	0
	21	Stagecoach	Barnsley - Crow Edge (Barnsley - Millhouse Green on Saturday)	1 (daytime)	0
Keresforth Hill Road/Gilroyd Lane	23a	Yorkshire Tiger	Barnsley - Deepcar	1 to Barnsley in AM peak. 2 from Barnsley in PM peak.	0
	24	Yorkshire Tiger	Barnsley - Ingbirchworth	Every 2 hours (daytime)	0
	24a	TM Travel	Barnsley - Penistone	2 services each evening	Every 2 hours
Services per hour				At least 4	1-2

Valid on 10 April 2018

As can be seen, the bus service in the vicinity of the development will offer residents a sustainable travel option.

3.3.2 Rail

Dodworth Station is the nearest railway station, located approximately 1.3km west of the site (direct measurement). The station is a 20 minute walk, a 7 minute cycle and 17 minute bus journey from the site on the 22 bus from the development.

The station is situated on the Penistone Line between Huddersfield and Sheffield. Services towards Huddersfield and Sheffield run hourly on Monday to Saturday, with a reduced service operating on a Sunday. Trains connect with Huddersfield (approximately 50 minutes), Barnsley (approximately 7 minutes) and Sheffield (approximately 40 minutes).

3.4 Travel Plan

In accordance with national and local policy requirements, a Travel Plan has been prepared to accompany the planning application and this is submitted under separate cover.

The Travel Plan is to be read in conjunction with this Transport Assessment and has been based on the best practice guidance set out in PPG.

The Travel Plan combines the delivery of ‘hard’ measures (such as improvements to infrastructure and services), with ‘soft’ measures (such as marketing and information) to lock in the benefits by changing attitudes and encouraging people to use sustainable travel modes.

The overall aim of the Travel Plan is to reduce the number of single occupancy car trips made to the site and to encourage travel by more sustainable modes including walking, cycling and public transport.

4 Transport Planning Policy

4.1 Introduction

This Section identifies national and local transport policies that are relevant to the proposed development and sets out how the development proposals respond to, and accord with, these policies.

4.2 National Policy

4.2.1 National Planning Policy Framework

The National Planning Policy Framework⁵ (NPPF) was published by the Department of Communities and Local Government (DCLG) on 27 March 2012. The NPPF sets out how the planning system will contribute to achieving sustainable development. In effect, this means planning is required to perform the following three specific roles:

- An economic role, contributing to building a strong, responsive and competitive economy.
- A social role, supporting strong, vibrant and healthy communities.
- An environmental role, protecting and enhancing the natural, built and historic environment.

The NPPF sets out a presumption in favour of sustainable development. This means that development proposals that accord with the development plan should be approved without delay. Where the development plan is out-of-date or absent, proposals should be approved unless the adverse impacts would significantly and demonstrably outweigh the benefits when assessed against the NPPF, or specific policies in the NPPF indicate development should be restricted (for example, if the site is subject to certain environmental designations).

The NPPF sets out twelve core land-use planning principles that should be taken into account when making planning decisions, including:

“planning should....actively manage patterns of growth to make fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable”

⁵ National Planning Policy Framework, Department of Communities and Local Government, 2012.

Paragraph 32 of the NPPF states that:

“All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- *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 the development are severe.”*

Furthermore, Paragraph 34 of the NPPF states that:

“Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.”

The proposed development is consistent with the NPPF. The site offers opportunities to travel by sustainable modes including walking, cycling and public transport. A suitable vehicle access arrangement has been identified onto Keresforth Road and a robust Transport Assessment has been prepared for the proposed development. The residual impacts of the development are not considered to be severe.

4.2.2 Planning Practice Guidance

Planning Practice Guidance⁶ (PPG) was launched by the DCLG on 6 March 2014. It brings together many areas of English planning guidance into a new stream-lined format, which is linked to the NPPF. PPG replaces previous planning practice guidance documents. The guidance is a key material consideration in the decision making process, set within the overarching NPPF.

PPG provides advice on when Transport Assessments and Transport Statements are required and what they should contain⁷:

⁶ *Planning Practice Guidance*, Department of Communities and Local Government, 2014.

⁷ *Planning Practice Guidance: Travel Plans, transport assessments and statements in decision-taking*, Department of Communities and Local Government, Revision Date: 06/03/2014, Paragraph 005.

“Transport Assessments are thorough assessments of the transport implications of development, and Transport Statements are a ‘lighter-touch’ evaluation to be used where this would be more proportionate to the potential impact of the development (i.e. in the case of developments with anticipated limited transport impacts).”

Furthermore, it states that:

“Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be “severe”, which may be a reason for refusal, in accordance with the National Planning Policy Framework.”

And:

“The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or “severe” impacts.”

The content and structure of this Transport Assessment has been prepared in accordance with PPG.

4.3 Local Policy

4.3.1 Background

Barnsley Metropolitan Borough Council (BMBC) is the Local Planning Authority for the village of Dodworth in Barnsley, South Yorkshire.

In 2014 BMBC resolved to bring the Local Development Scheme (LDS) into effect, which would involve the preparation of a new Local Plan. The LDS, when taken as a whole, will set out the authority’s policies relating to the development of land and set out the strategy on how Barnsley is developed over the time period of the Local Plan (2014 - 2033). The new Local Plan will contain detailed policies on various topics that will be used in determining planning applications.

Once adopted the Local Plan will form the statutory development plan for Barnsley and replace the following three documents:

- Core Strategy (adopted 2011).
- Education Sites (adopted 2009).
- Unitary Development Plan (UDP) saved policies (adopted 2000).

At the time of writing the Local Plan Publication Consultation document was being examined in public by the Planning Inspector. Until formal adoption of the new Local Plan, the BMBC Statutory Development Plan will act as principal planning policy guidance for all planning applications within the borough. The Statutory Development Plan consists of two planning policy documents, as follows:

- Core Strategy⁸.
- Unitary Development Plan (UDP).
 - Volume 1 Strategy, Policy and Justification⁹.
 - Volume 2: Community Areas¹⁰.

The Core Strategy considers the key elements of the planning and transportation framework for Barnsley, and the approach to its long term physical development to achieve the council's vision of what sort of place Barnsley wants to become. The Core Strategy is one of several Local Development Framework (LDF) documents, comprising the Core Strategy, Town Centre Area Action Plan and Development Sites and Places and Proposals Map. The document was adopted in September 2011.

The UDP was adopted in December 2000 and replaced the former South Yorkshire Structure Plan, existing Local Plans and the West Riding Development Plan. The adopted Core Strategy supersedes a number of UDP Policies, though some parts of the UDP are being 'saved' to ensure comprehensive planning policy coverage remains in place. Saved parts of the UDP remain in force and will be used in determining planning applications until replaced.

A number of Supplementary Planning Documents (SPDs) and Supplementary Planning Guidance (SPG) have been produced, which aim to provide further guidance on a range of planning and development issues. This report has considered the following SPD and SPG:

- Supplementary Planning Document - Parking (Adopted March 2012).
- Supplementary Planning Guidance - Planning Advice Note 30 Sustainable Location of Housing Sites (Adopted July 2011).

Where policy documents were originally adopted some time ago, it is likely that material considerations, in particular the emergence of new national policy and also new evidence,

⁸ *Core Strategy*, Barnsley Metropolitan Borough Council, 2011.

⁹ *Unitary Development Plan Volume 1 - Strategy, Policy and Justification*, Barnsley Metropolitan Borough Council, 2000.

¹⁰ *Unitary Development Plan Volume 2 - Barnsley Urban Community Area*, Barnsley Metropolitan Borough Council, 2000.

will be afforded considerable weight in decisions on planning applications. The NPPF is a material consideration in the decision-making process.

For the purpose of this Transport Assessment significant consideration has also been given to the Local Plan Publication Draft 2016.

4.3.2 Core Strategy

The Core Strategy was adopted by the Council in September 2011 and aims to set out the key elements of the planning framework for Barnsley, and the approach to its long term physical development to achieve the Council's vision.

The following policies and strategic objectives are of relevance to the development proposals from a transportation perspective:

Strategic Objective 1: To be the spatial interpretation of the Sustainable Community Strategy by:

- *Ensuring new development is in places where it will be accessible and inclusive.*

Strategic Objective 2: To improve access, movement and connectivity with sustainable travel by:

- *“Reducing the reliance on the private car and encouraging walking and cycling.*
- *Improving public transport links between settlements within the borough and to Barnsley Town Centre.*
- *Working with City Region partners to promote good quality public transport linking the Accessibility Improvement Zone to significant places of business, employment and international interchange on the Leeds to Sheffield City Region corridors, including Wakefield and Rotherham.*
- *Improving direct public transport and freight links to London, Manchester, other Core Cities and the Humber ports.*
- *Considering the improvement of road links where evidence indicates significant improvements for businesses and local residents.*
- *Ensuring new developments reduce the need for car parking provision to a minimum.*
- *Reducing transport emissions of green house gases in order to tackle climate change and minimising other pollutants to improve air quality”.*

Strategic Objective 3: To secure safe, healthy and inclusive communities and promote wellbeing by:

- *Making sure development takes place in settlements, and helping to create places where people want to live with convenient access to good quality local services (including shops, education, health, open space, leisure, culture and the countryside) in order to engender community pride and spirit.*

CSP 25 New Development and Sustainable Travel

“New development will be expected to:

- *Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists*
- *Provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people, and should not provide more than the maximum number of car parking spaces set out in a Supplementary Planning Document*
- *Provide a transport statement or assessment in line with the thresholds and guidance set out in Department for Transport 'Guidance on Transport Assessments' as published March 2007 (or any subsequent version)*
- *Provide a travel plan statement or a travel plan in accordance with the thresholds and guidance set out in Department for Transport 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process' as published April 2009 (or any subsequent version). Travel plans will be secured through a planning obligation or a planning condition.*
- *Where levels of accessibility through public transport, cycling and walking are unacceptable, we will expect developers to take action or make financial contributions in accordance with policy CSP 42. If it is not possible or appropriate for the minimum amount of parking for cycles motorbikes, scooters and mopeds to be met on site, the developer must provide, or contribute towards, off-site parking, or improve or provide other forms of travel”.*

CSP 26 New Development and Highway Improvement

“New development will be expected to be designed and built to provide safe, secure and convenient access for all road users.

If a development is not suitably served by the existing highway, or would create or add to highway safety problems or the efficiency of the highway for all road users, we will expect developers to take mitigating action or to make a financial contribution to make sure the necessary improvements go ahead. Any contributions will be secured through a planning obligation or planning condition”.

CSP 29 Design

Development should:

- *Contribute to place making and be of a high quality, that contributes to a healthy, safe and sustainable environment*
- *Help to transform the character of physical environments that have become run down and are lacking in distinctiveness*
- *Enable all people to gain access safely and conveniently, providing, in particular, for the needs of families and children, and of disabled people and older people*
- *Contribute towards creating attractive, sustainable and successful neighbourhoods*

The proposed development is compliant with the Strategic Objectives, offering housing in an accessible and inclusive location which is conveniently located in relation to local services and amenities. It is considered that the proposed development will not have a detrimental impact on highway safety. It is demonstrated within the Transport Assessment that the traffic impact of the development is not considered to be severe and that there is sufficient capacity within the study network to accommodate the predicted peak hour traffic generations. A suitable access solution has been arrangement has been identified, which accommodates pedestrian movement between the development and its wider setting. The development promotes accessibility and sustainability through design, with good pedestrian and cycle links to the wider area. Guidance on Parking Standards for developments has been applied.

4.3.3 Unitary Development Plan (UDP)

The UDP was adopted by the Council in December 2000. Some of the policies have been ‘saved’ and the UDP will continue to form part of the policy context for planning decisions, together with national policies. For the purpose of this report the ‘saved’ policies referenced have been taken from the latest ‘Saved Part 1 and Part 2 UDP Policies’ document, available online.

While it is recognised that a number of policies have been ‘saved’, most have been superseded by the Core Strategy and therefore no current UDP policies are of relevance to the development proposals from a transportation perspective.

4.3.4 Supplementary Planning Document (SPD) - Parking

The Parking SPD¹¹ offers guidance to developers, architects, agents and landowners considering submitting a planning application. It supplements Core Strategy Policy CSP 25 New Development and Sustainable Travel (as outlined above) by setting out the parking standards that the Council will apply to all new development.

Section 5 of this report provides further detail of how the development proposals respond to the SPD.

4.3.5 Supplementary Planning Document (SPD) - Designing New Housing Development

The Designing New Housing Development SPD¹² was adopted by the Council in March 2012. The document primarily supports policy CSP 29 Design (as outlined in Section 4.3.2) and sets out the principles that will apply to the consideration of planning applications for new housing development.

For technical requirements the document states that development should reflect the principles of Manual for Streets (Mfs) and the South Yorkshire Residential Design Guide.

The following key policies are of relevance to the development proposals from a transportation perspective:

- *“The design of the street pattern should form a connected network of streets. There should be enough connections with surrounding streets and neighbourhoods and within new development to create a layout that is walkable, offers direct connections, choice and flexibility.”*

¹¹ *Supplementary Planning Document - Parking*, Barnsley Metropolitan Borough Council, 2012.

¹² *Supplementary Planning Document - Designing New Housing Development*, Barnsley Metropolitan Borough Council, 2012.

- *Direct pedestrian connections should be provided to local services where possible.*
- *Management and maintenance of the public highway, as well as private street spaces, must be considered from the outset and general principles agreed with the adopting authority at the concept stage.*
- *All streets should be designed to achieve the appropriate vehicular speeds:*
 - *No more than 20mph where principally serving residential areas*
 - *No more than 15mph for shared space streets where segregation between motor vehicles and other road users is reduced*
 - *Higher design speeds of up to 30mph may be appropriate on existing routes within built up areas, on bus routes and on larger developments where the extent of 20mph streets would exceed around 1km but proposals for design speeds exceeding 20-mph will be determined on a case by case basis.*
- *We expect residential developments to incorporate access for buses where reasonable and practical”.*

The proposed access arrangements promote pedestrian and cycle accessibility to the wider local area and to the local services located within reasonable walking distance of the site. The internal layout of the site will be designed to promote low traffic speeds, with shared space areas to be jointly used by pedestrians, cyclists and vehicular traffic. The proposed access arrangements are to be designed and tracked accordingly.

4.3.6 Sheffield City Region (SCR) Transport Strategy (South Yorkshire Local Transport Plan) LTP3

The SCR Transport Strategy, or Local Transport Plan (LTP), is a statutory document which sets out how transport will help support the advancement of the SCR over the fifteen year period from 2011 - 2016. The strategy defines the transport priorities and acts as the LTP Strategy for South Yorkshire, but covers the wider SCR, which functions as a coherent economic area. The SCR Transport Strategy has four main goals, as follows:

- To support the economic growth of the SCR through improving connectivity, supporting regeneration and linking people to jobs.
- Enhancing social inclusion and health, ensuring that people in all parts of the SCR have access to a variety of activities.
- Reducing the emissions from vehicles by encouraging sustainable travel choices.

- Make transport increasingly safe and secure.

In order for the strategy to meet its intended goals, a set of twenty-six policies summarise the highest priorities for transport improvements over the next fifteen years. The policies are designed so that they can be translated into actions and provide a framework for delivery and implementation. The key policies of relevance to the development proposals are as follows:

- To focus development along key public transport corridors and in places adjacent to existing shops and services.
- To ensure public transport is accessible to all.
- To encourage active travel and develop high quality cycling and walking networks.
- To provide information and travel advice for the users of all modes of transport, so that they can make informed travel choices.

The proposed development supports the aspirations of the SCR Transport Strategy and BMBC SPG guidance by delivering housing in a sustainable location.

5 Development Proposals

5.1 Introduction

This Section provides an overview of the development proposals and provides a summary of the proposed access, parking and servicing arrangements.

5.2 The Development Proposal

The proposal is to develop the site to provide a total of 146 dwellings. The proposed layout is presented on the layout drawing at Appendix A of this report.

5.3 Vehicular Access

Vehicular access to the development will be taken by extending Bark Meadows, at the southern boundary of the site. In this way, the development will form a natural extension to the existing residential area.

5.3.1 Construction Traffic

Swept path analysis of construction vehicles that are likely to access the site has been undertaken; for the purposes of this assessment, articulated vehicles and low loaders have been assumed as the largest vehicles that are typically used as part of the construction. The swept path analysis is demonstrated on Fore Consulting drawings 3143/SK003/001, 3143/SK003/002 and 3143/SK003/003 respectively.

The assessment demonstrates that low loaders (which are likely to access the site on an occasional basis) may overrun the kerb. Other rigid and articulated vehicles would be accommodated satisfactorily, although it is accepted that on-street parking may need to be restricted at certain stages of the construction period.

As part of the construction process, a Construction Management Plan (CMP) will be prepared; this will include provision for managing construction traffic, including measures to minimise the impact of construction traffic for local residents. Such measures would include the provision of banksmen to manage the movement of low loaders into and out of the site safely, when required. Completion of a CMP (to be discussed and agreed with CMBC) can be secured by means of a planning condition.

It is proposed that condition surveys of Bark Meadows will be undertaken prior to, and following completion of, the construction phase, with the public highway reinstated as required.

5.3.2 Operational Phase

The proposed arrangements are illustrated on the layout plan provided at Appendix A, and are considered to be acceptable given that the existing width of the carriageway on Bark Meadows is approximately 5.5m wide, which would be adequate to serve a residential development of the scale proposed.

The existing junction between Water Royd Drive and Bark Meadows is considered appropriate to serve the level of existing and proposed development (fewer than 175 dwellings in total). A junction capacity assessment has been undertaken for the junction¹³, which demonstrates that the junction will operate satisfactorily. Adequate visibility is currently available at the junction, and therefore no further changes to the layout are necessary.

Refuse vehicles will be able to access the site via Bark Meadows, consistent with the existing situation. Swept path analysis of the internal layout of the development has been undertaken. This is presented on Fore Consulting drawing 3143/SK004/001, and demonstrates that the layout will allow refuse vehicles to enter, undertake the necessary manoeuvres and exit the site in forward gear.

5.4 Parking

It is proposed that car and cycle parking provision within the site is provided in accordance with the adopted local guidelines and standards.

Table 2 of BMBC's Parking Supplementary Planning Document¹⁴ provides standards to guide the appropriate level of parking provision for different types of land use. These standards are reproduced in the Table below for new residential developments.

Table 2: BMBC Car Parking Standards – Residential Developments

Use	Borough Wide (Excluding Barnsley Urban)	Threshold above which standard applies
Housing and flats	1 space for dwellings with 1 or 2 bedrooms 2 spaces for dwellings with three or more bedrooms	All development

With regards to the standards set out in the Table above and guidance published in the South Yorkshire Residential Design Guide¹⁵, dedicated car parking provision will be provided for each residential dwelling in the form of detached or integral private garages and driveways.

¹³ Presented in section 10 of this report.

¹⁴ *Supplementary Planning Document - Parking*, Barnsley Metropolitan Borough Council, 2012.

¹⁵ *South Yorkshire Residential Design Guide*, Transform South Yorkshire, 2011.

Additional visitor parking will be provided at suitable locations, interspersed throughout the proposed development.

No specific requirements for cycling parking provision is set out in the Council's SPD, though the proposed development will ensure that cycle parking can be adequately accommodated within the curtilage of the residential dwellings. Dwellings without garages will provide adequate internal storage space for cycles. Dwellings with garages will be designed so that access to and from the cycle storage is not hindered by parked cars or other stored items.

6 Baseline Traffic Conditions

6.1 Introduction

This Section describes the approach taken to identify the existing Weekday AM and PM peak hour traffic flows on the study highway network. The Section also identifies the predicted growth in baseline traffic for each peak period, up to a projected Future Year of 2023.

6.2 Study Highway Network

The extent of the study highway network to be considered as part of this Transport Assessment has been discussed BMBC Highways. The study highway network includes:

- B6099 Keresforth Road / Gilroyd Lane three-arm priority junction.
- B6099 Keresforth Road / Water Royd Drive three-arm priority junction.
- B6099 High Street / Rose Hill Drive three-arm priority junction.
- B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / Station Road four-arm priority junction.
- B6099 Keresforth Hill Road / A6133 Broadway three-arm signalised junction.

6.3 2016 Base Traffic Flows

Fully classified junction turning counts were undertaken on Tuesday 28 June 2016 at 15 minute intervals between 0700 - 1000 hours and 1600 - 1900 hours at the following four junctions. Analysis of the survey data identified the respective peak hours at each of the junctions outlined below.

B6099 Keresforth Road / Gilroyd Lane Three-Arm Priority Junction

- Weekday AM: 0745 - 0845 hours.
- Weekday PM: 1645-1745 hours.

B6099 Keresforth Road / Water Royd Drive Three-Arm Priority Junction.

- Weekday AM: 0745 - 0845 hours.

- Weekday PM: 1645 - 1745 hours.

B6099 High Street / Rose Hill Drive three-arm priority junction.

- Weekday AM: 0800 - 0900 hours.
- Weekday PM: 1700 - 1800 hours.

B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / Station Road four-arm priority junction.

- Weekday AM: 0800 - 0900 hours.
- Weekday PM: 1700 - 1800 hours.

Fully classified junction turning counts were also undertaken at the B6099 Keresforth Hill Road / A6133 Broadway three-arm signalised junction on Tuesday 6 (Weekday PM) and Wednesday 7 (Weekday AM) September 2016.

Analysis of the survey data has determined the following peak hours at the junction:

- Weekday AM: 0800 - 0900 hours.
- Weekday PM: 1645 - 1745 hours.

The 2016 base peak hour traffic flows at the junctions outlined above are shown on Figure 6 and Figure 7 for the weekday AM and PM peak hours respectively.

6.4 Committed Development

BMBC have requested that the following committed developments are reviewed as part of the traffic analysis:

- Various employment developments around J37 of the M1. A number of existing historic consents, of which a number have not been built out to date. We are allowing for traffic growth based on NTM/Tempo growth factors, and since Tempo takes into account employment growth based on Local Authority projections, it is considered that these sites are effectively already accounted for within the baseline growth factors - see below.
- Green Road, Dodworth - residential development of 50 dwellings. A review of the Transport Assessment submitted with the application confirms this is unlikely to

represent a significant impact on the study area and hence has not been included as part of the analysis.

- Swithywood Lane, Dodworth - residential development of 36 dwellings. A review of the Transport Assessment submitted with the application confirms this is unlikely to represent a significant impact on the study area and hence has not been included as part of the analysis.

6.5 2023 Future Assessment Year

A Future Year of 2023 has been considered as part of this Transport Assessment, in line with the projected development build out timeframe.

Background traffic growth factors have been taken from TEMPRO for all road types in the Barnsley 019 zone. The full output is presented in Appendix B and is summarised in the Table below.

Table 3: Local Traffic Growth Factors

Peak Period	Local Traffic Growth 2016 to 2023
Weekday AM peak period (0700-0959)	1.1154
Weekday PM peak period (1600-1859)	1.1123

2023 do minimum traffic flows are shown on Figures 9 and 10. It should be noted that these traffic flows include the growth in baseline traffic.

7 Traffic Generation and Mode Share

7.1 Introduction

This Chapter sets out an estimate of the likely traffic generation and mode share associated with the development proposals and the methodology used.

The weekday AM and PM peak hours have been considered as these scenarios represent the maximum traffic impact expected on the highway network from the proposed development.

7.2 Person Trip Generation

Average person trip rates have been derived from the TRICS database, following interrogation for multi-modal survey sites based on the criteria set out in Table 4

Table 4: TRICS Database Query

TRICS Land Use Category	Residential (03) / Houses Privately Owned (A)
Location	Edge of Town
Parameter	Trips per Dwelling
Survey Days	Monday to Friday

Person trip generation is set out in Table 5 for the weekday AM and PM peak hours (08:00 to 09:00 and 17:00 to 18:00 respectively), based on the resulting person trip rates and the number of dwellings proposed (146). The full TRICS output is at Appendix C.

Table 5: Average Weekday Peak Hour Person Trip Generation

Time		Person Trip Rates		Person Trip Generation (Person Trips)		
		Arrivals	Departures	Arrivals	Departures	Two-Way
Weekday AM Peak	07:00-08:00	0.093	0.364	14	55	69
	08:00-09:00	0.239	0.823	36	123	159
	09:00-10:00	0.234	0.361	35	54	89
Weekday PM Peak	16:00-17:00	0.589	0.326	88	49	137
	17:00-18:00	0.599	0.343	90	51	141
	18:00-19:00	0.463	0.345	69	52	121

For the purposes of this assessment, the development peak hours are considered to be:

- **Weekday development AM peak hour ('AM peak hour'):** 08:00 to 09:00 hours.
- **Weekday development PM peak hour ('PM peak hour'):** 17:00 to 18:00 hours.

7.3 Person Trip Generation by Mode

2011 Census data¹⁶ has been used to derive an estimate of the likely mode share for the development proposals. The mode share for Barnsley 019 Medium Layer Super Output Area (MSOA), within which the site is located has been assumed as a reasonable proxy for the likely travel characteristics of future residents of the development.

It should be noted that the mode share presented above does not specifically account for the implementation of travel planning measures to encourage the use of sustainable modes to travel to and from the proposed development site, and can therefore be considered robust.

The assumed mode share and resulting peak hour trip generation by mode is summarised in Table 6.

Table 6: Person Trip Generation by Mode

Mode	Mode Share (% of total)	AM Peak Hour		PM Peak Hour	
		Arrivals	Departures	Arrivals	Departures
Train	2%	1	3	2	1
Bus	4%	1	4	3	2
Taxi	0%	0	1	0	0
Motorcycle	1%	0	1	0	0
Car Driver	80%	29	99	73	41
Car Passenger	7%	3	9	6	4
Bicycle	1%	0	1	1	1
On foot	5%	2	6	4	3
Total	100%	36	123	90	51

¹⁶ Dataset reference 'QS701EW - Method of travel to work'. The categories 'Not in employment', 'Work mainly at or from home' and 'Other method of travel to work' have been excluded for the purposes of this assessment.

7.4 Vehicle Trip Distribution and Traffic Assignment

The distribution of vehicle trips associated with the development has been estimated based on the 2011 Census data¹⁷. The destination of travel to work for people who live in the Barnsley 019 MSOA have been considered, which represents a reasonable proxy for future residents of the development.

Where a choice of more than one route of similar distance, time or convenience was available, the proportion of trips using each route has been split equally over the available routes. The number of trips to each destination zone has been expressed as a percentage of the total trips made from the vicinity of the site. This then gave a distribution of vehicles on each route. The distribution has been applied to outgoing and incoming journeys in both the AM and PM peak hours.

The distribution of vehicle trips departing and arriving at the site is presented on Table 7 below and in Figure 10. The full distribution model is included in Appendix D.

Table 7: Vehicle Trip Distribution

Ref.	Route	Trip Distribution
1	A628 Whinby Road (West)	6%
2	Higham Lane	6%
3	M1 North	15%
4	Pogmoor Road	6%
5	A628 Dodworth Road (East)	8%
6	M1 South	20%
7	Racecommon Road	15%
8	A6133 Park Road (East)	11%
9	Keresforth Hall Road	3%
10	Gilroyd Lane	3%
11	Dodworth Green Road	2%
12	Internal Network	6%
Total		100%

Vehicle trip generation associated with the proposed development has been assigned to the highway network using the vehicle trip distribution set out in Table 7. The resulting traffic flows are demonstrated on Figure 11 and Figure 12 for the weekday development AM and PM peak hour, respectively.

¹⁷ Dataset reference 'WU03EW - Location of usual resident and place of work by method of travel to work'.

7.5 Impact on Highway Network

Based on the traffic flows associated with the development (as demonstrated above),

Table 8 demonstrates the impact of the development on key junctions in the vicinity of the site during the weekday peak hours.

Table 8: Two Way Development Traffic Flows and Percentage Impact

Junction	Arm	Development Traffic Flows <i>Two-Way Flows</i>		% of Do Minimum Scenario	
		AM	PM	AM	PM
B6099 Keresforth Road / Water Royd Drive	B6099 Keresforth Road	54	48	7%	6%
	Water Royd Drive	54	48	54%	52%
B6099 High Street / B6449 Dodworth Green Road / B6099 Station Road	B6099 High Street	74	66	8%	7%
	B6449 Barnsley Road	49	44	8%	5%
	B6099 Station Road	23	21	7%	6%
	B6449 Dodworth Green Road	2	2	0%	0%
B6099 High Street / Rose Hill Drive	B6099 High Street	74	66	9%	7%
	Rose Hill Drive	74	66	49%	39%
B6099 Keresforth Road / Gilroyd Ln	B6099 Keresforth Road	54	48	5%	5%
	Gilroyd Lane	17	15	5%	4%
B6099 Keresforth Hill Rd / A6133	B6099 Keresforth Road	37	33	4%	3%
	A6133 Broadway	37	33	2%	2%

The assessment demonstrates that the impact of traffic associated with the development beyond the following junctions will be relatively limited, and small in proportional terms compared with the future do minimum scenario. However, for the purposes of this Transport Assessment, the impact of the development at the following junctions has been assessed in further detail:

- B6099 Keresforth Road / Water Royd Drive Junction.
- B6099 High Street / B6449 Dodworth Green Road / B6449 Barnsley Road / B6099 Station Road junction.
- B6099 High Street / Rose Hill Drive three-arm priority junction.

8 Junction Capacity Assessments

8.1 Introduction

This Chapter provides an assessment of the capacity of the key junctions in the Transport Assessment study area, as identified in the previous chapter.

Junctions9 software has been used to build models of each junction. Amongst other performance indicators and statistics, the program calculates the maximum Ratio of Flow to Capacity (RFC) and the maximum average queue length (Q) on each approach (measured in PCU).

The RFC is a key indicator of the likely performance of a turning movement at a junction under a given set of traffic flows. An RFC of 0.85 is widely accepted as being the level at which a junction's operational capacity is reached. Whilst its functional capacity is not breached (i.e. it is not operating above an RFC of 1.00), queues and delay can increase disproportionately to the flow of traffic approaching the junction once an RFC of 0.85 is exceeded.

8.2 B6099 High Street / B6449 Dodworth Green Road Junction

8.2.1 Base 2016

The Base 2016 results from the Junctions9 model are summarised in Table 9 and presented in full at Appendix E.

Table 9: 2016 Base Flows Junctions9 Results: B6099 High Street / B6449 Dodworth Green Road Junction

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	DoS	MMQ	DoS	MMQ
Existing Layout - 2016 Base				
B6099 High Street (LT/AH)	0.39	0.6	0.60	1.5
B6099 High Street (RT/AH)	0.51	1.1	0.51	1.0
B6449 Barnsley Road (LT/AH/RT)	0.03	0.0	0.08	0.2
B6099 Station Road (LT/RT)	0.22	0.3	0.18	0.2
B6099 Station Road (AH/RT)	0.21	0.3	0.16	0.2
B6449 Dodworth Green Road (AH/RT/LT)	0.32	0.5	0.16	0.2

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The assessment indicates that the junction currently operates with significant spare capacity. This is consistent with observations of the junction operation, and the videos collected as part of the traffic surveys.

8.2.2 Future Year Capacity Assessment

An assessment of the impact of the proposed development on the 2023 future year operation of the B6099 High Street / B6449 Dodworth Green Junction has been undertaken, using the Junctions9 model from the 2016 base year assessment, the results are shown in Table 10.

Table 10: 2023 Future Year Junctions9 Results: B6099 High Street / B6449 Dodworth Green Road Junction

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Existing Layout - 2023 Do Minimum				
B6099 High Street (LT/AH)	0.46	0.9	0.72	2.5
B6099 High Street (RT/AH)	0.57	1.4	0.59	1.4
B6449 Barnsley Road (LT/AH/RT)	0.04	0.1	0.10	0.2
B6099 Station Road (LT/RT)	0.25	0.4	0.20	0.2
B6099 Station Road (AH/RT)	0.24	0.3	0.18	0.2
B6449 Dodworth Green Road (AH/RT/LT)	0.36	0.6	0.18	0.2
Existing Layout - 2023 With Development				
B6099 High Street (LT/AH)	0.53	1.1	0.76	3.1
B6099 High Street (RT/AH)	0.64	1.9	0.65	1.7
B6449 Barnsley Road (LT/AH/RT)	0.04	0.1	0.10	0.2
B6099 Station Road (LT/RT)	0.26	0.4	0.23	0.3
B6099 Station Road (AH/RT)	0.24	0.4	0.20	0.3
B6449 Dodworth Green Road (AH/RT/LT)	0.36	0.6	0.19	0.3

The assessment indicates that the impact of the development on the operation of the development is small. Spare capacity would remain available, with negligible queuing modelled.

8.3 B6099 High Street / Rose Hill Drive Three-Arm Priority Junction

8.3.1 Base 2016

The 2016 base results from the Junctions9 model are summarised in Table 11 and presented in full at Appendix F.

Table 11: 2016 Base Flows Junctions9 Results: B6099 High Street / Rose Hill Drive Junction

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	DoS	MMQ	DoS	MMQ
Existing Layout - 2016 Base				
Rose Hill Drive (LT)	0.06	0.1	0.03	0.0
Rose Hill Drive (RT)	0.21	0.3	0.11	0.1
B6099 High Street (RT)	0.03	0.0	0.06	0.1

The assessment indicates that the junction currently operates with significant spare capacity. This is consistent with observations of the junction operation, and the videos collected as part of the traffic surveys.

8.3.2 Future Year Capacity Assessment

The impact of the proposed development on the 2023 future year operation of the B6099 High Street / B6449 Dodworth Green Junction has been assessed using the Junctions9 model from the 2016 base year assessment and is summarised in Table 12.

Table 12: 2023 Future Year Junctions9 Results: B6099 High Street / Rose Hill Drive Junction

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Existing Layout - 2023 Do Minimum				
Rose Hill Drive (LT)	0.07	0.1	0.03	0.0
Rose Hill Drive (RT)	0.24	0.3	0.13	0.2
B6099 High Street (RT)	0.03	0.0	0.07	0.1
Existing Layout - 2023 With Development				
Rose Hill Drive (LT)	0.07	0.1	0.03	0.0
Rose Hill Drive (RT)	0.25	0.3	0.13	0.2
B6099 High Street (RT)	0.03	0.0	0.07	0.1

The assessment indicates that the impact of the development on the operation of the development is small. Spare capacity would remain available, with negligible queuing modelled.

8.4 B6099 Keresforth Road / Water Royd Drive Three-Arm Priority Junction

8.4.1 2016 Base

The 2016 base results from the Junctions9 model are summarised in Table 13 and are presented in full at Appendix G.

Table 13: 2016 Base Flows Junctions9 Results: B6099 Keresforth Road / Water Royd Drive

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	DoS	MMQ	DoS	MMQ
Existing Layout - 2016 Base				
Water Royd Drive (LT)	0.10	0.1	0.01	0.0
Water Royd Drive (RT)	0.03	0.0	0.05	0.0
B6099 Keresforth Road (RT)	0.03	0.0	0.08	0.1

The assessment indicates that the junction currently operates with significant spare capacity. This is consistent with observations of the junction operation, and the videos collected as part of the traffic surveys.

8.4.2 Future Year Capacity Assessment

An assessment of the impact of the proposed development on the 2023 future year operation of the B6099 High Street / B6449 Dodworth Green Junction has been undertaken, using the Junctions9 model from the 2016 base year assessment and are summarised in Table 14.

Table 14: 2023 Future Year Assessment Junctions9 Results: B6099 Keresforth Road / Water Royd Drive

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Existing Layout - 2023 Do Minimum				
Water Royd Drive (LT)	0.12	0.1	0.01	0.0
Water Royd Drive (RT)	0.04	0.0	0.05	0.1
B6099 Keresforth Road (RT)	0.04	0.0	0.09	0.1
Existing Layout - 2023 With Development				
Water Royd Drive (LT)	0.20	0.2	0.04	0.0
Water Royd Drive (RT)	0.04	0.0	0.06	0.1
B6099 Keresforth Road (RT)	0.06	0.1	0.14	0.2

The assessment indicates that the impact of the development on the operation of the development is small. Spare capacity would remain available, with negligible queuing modelled.

9 Personal Injury Accident Data

9.1 Introduction

This Section identifies all road traffic accidents that have been recorded during the latest five year period (2011-2015) as supplied by BMBC at, or within close proximity to, the junctions that represent the study area for this Transport Assessment.

The accident data has been examined in order to determine whether there are any ‘cluster spots’ that could indicate a particular issue at a location and if so, to determine the potential cause (s) of these accidents through analysis of the dataset provided.

The road traffic accident data, detailing the precise locations and dates of accidents recorded is attached as Appendix H. A summary of this information is set out in the Table below and described in the following section.

Table 30: Road Traffic Accident Summary

Location	Accident Severity		
	Slight	Serious	Fatal
B6099 Keresforth Road / Water Royd Drive Junction	1	1	0
B6099 Keresforth Road / Gilroyd Lane Junction	3	1	0
B6099 High Street / Rose Hill Drive Junction	1	0	0
B60999 Keresforth Hill Road / A6133 Broadway Junction	4	0	0
B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / Station Road Junction	7	0	0
Total	16	2	0

9.2 Road Traffic Accidents

9.2.1 B6099 Keresforth Road / Water Royd Drive Junction

Two accidents were recorded at the B6099 Keresforth Road / Water Royd Drive Junction during the latest five year period. Of the accidents, one was classed as serious and one was slight. A summary of accidents is provided below:

- An accident of serious severity occurred on the main carriageway of the B6099 Keresforth Road to the west of the junction with Water Royd Drive. The accident occurred between a vehicle travelling eastbound and a pedestrian intending to cross the carriageway from the nearside to offside. The accident resulted from the pedestrian being struck by the vehicle as it overtook a parked vehicle. 'Stationary or parked vehicle(s)', 'Crossed road masked by stationary or parked vehicle' (pedestrian only), and 'Failed to look properly' (pedestrian only) were recorded as contributory factors to the accident.
- An accident of slight severity occurred between two vehicles at the junction between the B6099 Keresforth Road and Water Royd Drive. The accident resulted from a westbound vehicle colliding with a cyclist crossing the carriageway from the nearside footway. 'Cyclist entering road from pavement' was recorded as a contributory factor to the accident.

9.2.2 B6099 High Street / Rose Hill Drive Junction

One slight accident was recorded at the B6099 High Street / Rose Hill Drive Junction during the latest five year period. A summary of the accident is provided below:

- An accident of slight severity occurred between a vehicle travelling westbound towards Dodworth and a vehicle travelling eastbound, within proximity of the B6099 High Street / Rose Hill Drive Junction. The accident resulted from the westbound vehicle losing control, failing to negotiate a left-hand bend and crossing into the opposite carriageway, colliding with an oncoming eastbound vehicle. 'Loss of control' and 'Slippery road (due to weather)' were recorded as contributory factors to the accident.

9.2.3 B6099 Keresforth Road / Gilroyd Lane Junction

A total of four accidents were recorded at the B6099 Keresforth Road / Gilroyd Lane Junction during the latest five year period. Of the accidents three were classed as slight and one as serious. A summary of the accidents is provided below:

- An accident of serious severity occurred on the main carriageway of the B6099 Keresforth Road approximately 5 metres from the junction with Gilroyd Lane. The accident involved a vehicle travelling westbound from Barnsley towards Dodworth. The accident resulted from the driver of the vehicle overcorrecting a manoeuvre, spinning round and colliding with kerb, sign post and lighting column. 'Slippery road (due to weather)', 'Road layout (eg bend, hill, narrow carriageway)', 'Travelling too fast for conditions', 'Loss of control' and 'Inexperienced or learner driver/rider' were recorded as contributory factors to the accident.

- An accident of slight severity occurred between two vehicles, one of which was stationary and waiting to turn right from Gilroyd Lane. The accident resulted from a second vehicle failing to stop and colliding with the rear of the stationary vehicle. 'Poor turn or manoeuvre' and 'Dazzling sun' were recorded as contributory factors to the accident.
- An accident of slight severity occurred on the main carriageway of the B6099 Keresforth Road, to the west of the junction with Gilroyd Lane. The accident resulted in a vehicle losing control and colliding with a lighting column and roadside barrier. 'Impaired by alcohol' and 'Careless/Reckless/In a hurry' were recorded as contributory factors to the accident.
- An accident of slight severity occurred on the main carriageway of the B6099 Keresforth Road, approximately 50 metres to the west of the junction with Gilroyd Lane. The accident occurred between two vehicles, one of which was travelling westbound on the B6099 Keresforth Road and the other reversing onto the carriageway. The accident resulted from the westbound vehicle hitting the nearside kerb and colliding with the reversing vehicle, ultimately coming to rest in a ditch at the side of the road. 'Inexperienced or leaner driver/rider', 'Inexperience with type of vehicle' and 'Exceeding speed limit' were recorded as contributory factors to the accident.

9.2.4 B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / Station Road Junction

A total of seven accidents were recorded at the B6449 Barnsley Road / B6449 Dodworth Green Road / B6099 High Street / Station Road Junction during the latest five year period. All of the accidents were classed as slight. A summary of the accidents is provided below:

- An accident of slight severity occurred between a vehicle and a pedestrian on the Station Road arm of the junction, approximately three metres from the B6099 High Street. The accident resulted from the pedestrian stepping out into the path of an oncoming vehicle, clipping the wing mirror and falling backwards. 'Failed to look properly' (pedestrian only) and 'Careless/Reckless/In a hurry' (pedestrian only) were recorded as contributory factors to the accident.
- An accident of slight severity occurred between two vehicles on the B6099 High Street arm of the junction, one of which was stationary waiting to run right onto the B6499 Barnsley Road. The accident resulted from a further vehicle failing to stop and colliding with the rear of the stationary vehicle. 'Failed to look properly' was recorded as a contributory factor to the accident.

- An accident of slight severity occurred adjacent to the junction with Cliff Crescent, approximately 70m to the north of the junction between the B6499 Barnsley Road, B6499 Dodworth Green Road, B6099 High Street and Station Road. The accident occurred between a vehicle travelling from the B6099 High Street onto the B6499 Barnsley Road and a cyclist. The accident resulted from the cyclist crossing into the path of the oncoming vehicle, where a collision occurred. 'Failed to look properly' and 'Poor turn or manoeuvre' were recorded as contributory factors to the accident.
- An accident of slight severity occurred between two vehicles, one of which was intending to turn right onto the B6099 High Street. The accident resulted from a further vehicle travelling on Station Road leaving the junction and colliding with the right turning vehicle. 'Failed to look properly' was recorded as a contributory factor to the accident.
- An accident of slight severity occurred on the B6099 High Street at the junction with the B6449 Dodworth Green Road. The accident resulted from a vehicle (bus) braking to avoid an unknown vehicle, causing a passenger to fall from their seat. 'Sudden braking' was recorded as a contributory factor to the accident.
- An accident of slight severity occurred between two vehicles on the B6449 Barnsley Road, with its junction with Station Road. The accident resulted from a southbound vehicle colliding with a further vehicle emerging from the junction with Station Road. 'Disobeyed Give Way or Stop sign or markings' was recorded as a contributory factor to the accident. One of the vehicles failed to stop and only partial accident data was recorded.
- An accident of slight severity occurred between a vehicle intending to turn right from Station Road and a vehicle travelling northbound on the B6449 Dodworth Green Road / B6449 Barnsley Road. The accident resulted from the right turning vehicle failing to obey the stop signal and colliding with an oncoming vehicle. 'Disobeyed Give Way or Stop sign or markings' was recorded as a contributory factor to the accident.

9.2.5 B6099 Keresforth Hill Road / A6133 Broadway Junction

A total of four accidents were recorded at the B6099 Keresforth Hill Road / A6133 Broadway Junction during the latest five year period. All of the recorded accidents were classed as slight. A summary of the accidents is provided below:

- An accident of slight severity occurred between two vehicles travelling southbound on the main carriageway of the B6099 Keresforth Hill Road, one of which was situated in the centre of the carriageway waiting to turn left into a driveway. The accident resulted from a further vehicle failing to stop and colliding with the rear of

the stationary vehicle. 'Dazzling sun' and 'Failed to judge other person's path or speed' were recorded as contributory factors to the accident.

- An accident of slight severity occurred between a vehicle exiting a driveway onto the A6133 Broadway and a pedestrian. The accident occurred to the east of the B6099 Keresforth Hill Road / A6133 Broadway Junction. The accident resulted from the vehicle reversing and colliding with a passing pedestrian. 'Aggressive driving' and 'Slippery road (due to weather)' were recorded as contributory factors to the accident.
- An accident of slight severity occurred between two vehicles, one of which was stationary, on the A6133 Broadway (eastern) arm of the junction. The accident resulted from a second vehicle failing to stop and colliding with the rear of the stationary vehicle. 'Failed to look properly' was recorded as a contributory factor to the accident.
- An accident of slight severity occurred between two vehicles on the A6133 Broadway, one of which was travelling northbound and the other southbound. The accident resulted from the southbound vehicle turning right from the A6133 Broadway onto the B6099 Keresforth Hill Road and into the path of an oncoming vehicle. 'Disobeyed Give Way or Stop signs or markings' was recorded as a contributory factor to the accident.

9.3 Summary

A total of eighteen accidents have occurred over the latest five year study period at the junctions / extent of highway considered to be the study area as part of this Transport Assessment. Of these accidents, sixteen were classed as slight and two as serious. There have been no fatal accidents.

There have been no recorded accidents along the B6099 Keresforth Road, within the vicinity of the proposed site access junction.

The most notable trend in the data provided by BMBC, is that the majority of the accidents appear to be the result of driver error, typically involving collisions on entry / rear shunts on approach to the junction with contributory factors including 'Failed to look properly', 'Poor turn or manoeuvre', 'Careless/Reckless/In a hurry' and 'Failed to judge other person's path or speed'.

Of the accidents, two involved a cyclist and three involved a pedestrian. Two of these accidents appear to have been caused directly as a result of the pedestrian / cyclist encroaching into the path of an oncoming vehicle with failed to look properly being amongst the contributory factors. Two of the accidents appear to have been caused by a

combination of driver and pedestrian / cyclist error whilst only one of the accidents would appear to be solely attributed to the driver (reversing aggressively from a driveway into the path of the pedestrian).

Overall, the number of accidents occurring on the study highway network over the latest five year period is considered to be low and the proposed development is unlikely to have a detrimental impact on the accident rate on the network.

10 Summary and Conclusions

This Transport Assessment has been prepared to accompany a planning application for the proposed development of 146 dwellings on land to the north of Keresforth Road, Dodworth. The report provides a robust assessment of the transportation implications of the development proposals. It demonstrates that:

- The proposed development accords with both national and local transport policy.
- Opportunities exist to travel to the site by modes other than single occupancy car trips, including walking, cycling and public transport. It has been demonstrated that the development lies within the preferred maximum walking and cycling catchment distances to a number of residential areas as well as a range of local attractors. It has also been demonstrated that the site offers the opportunity to travel to the development using the bus stops and services along the B6099 Keresforth Hill Road and B6449 Barnsley Road. Footways will be provided along the site's access road, tying into the existing provision at Bark Meadows.
- A Travel Plan has been prepared as a separate document to this Transport Assessment, aimed at further encouraging sustainable travel to the site and reducing the number of single occupancy car trips.
- Suitable access arrangements can be accommodated, and development traffic can be safely and efficiently accommodated by the existing highway network.

The residual cumulative impacts of the proposed development are not considered to be severe within the context of Paragraph 32 of the NPPF. It is therefore concluded that, in terms of highways, the development proposals are acceptable.

Figures



Key:

 Site Location

Contains:

- Ordnance Survey data © Crown copyright and database right 2018

- Contains Google Maps data © Crown copyright and database right 2018

Fore Consulting Limited

2nd Floor, Queens House

34 Wellington Street

Leeds

LS1 2DE

0113 246 0204

enquiries@foreconsulting.co.uk

www.foreconsulting.co.uk



Client:

Persimmon Homes Ltd

Project:

Land North of Keresforth Road, Dodworth

Figure Title:

Site Location

Scale:

Not to Scale

Figure Status:

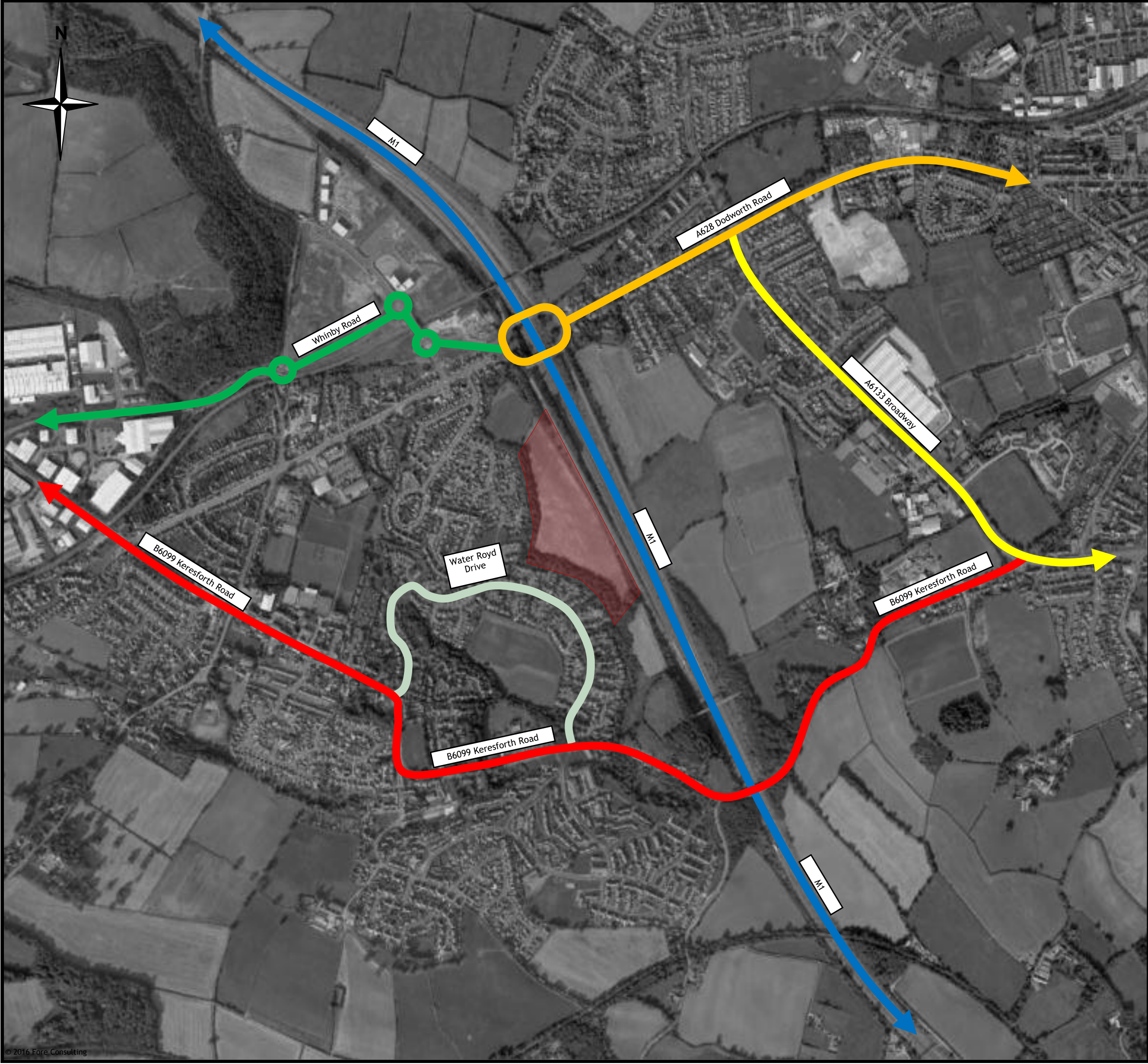
Issue

Job Number:

3143

Figure Number:

Figure 1



Key:

Site Location

Local Links

Contains Google Maps data © Crown copyright and database right 2016

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Persimmon Homes Ltd

Project:
Land North of Keresforth Road, Dodworth

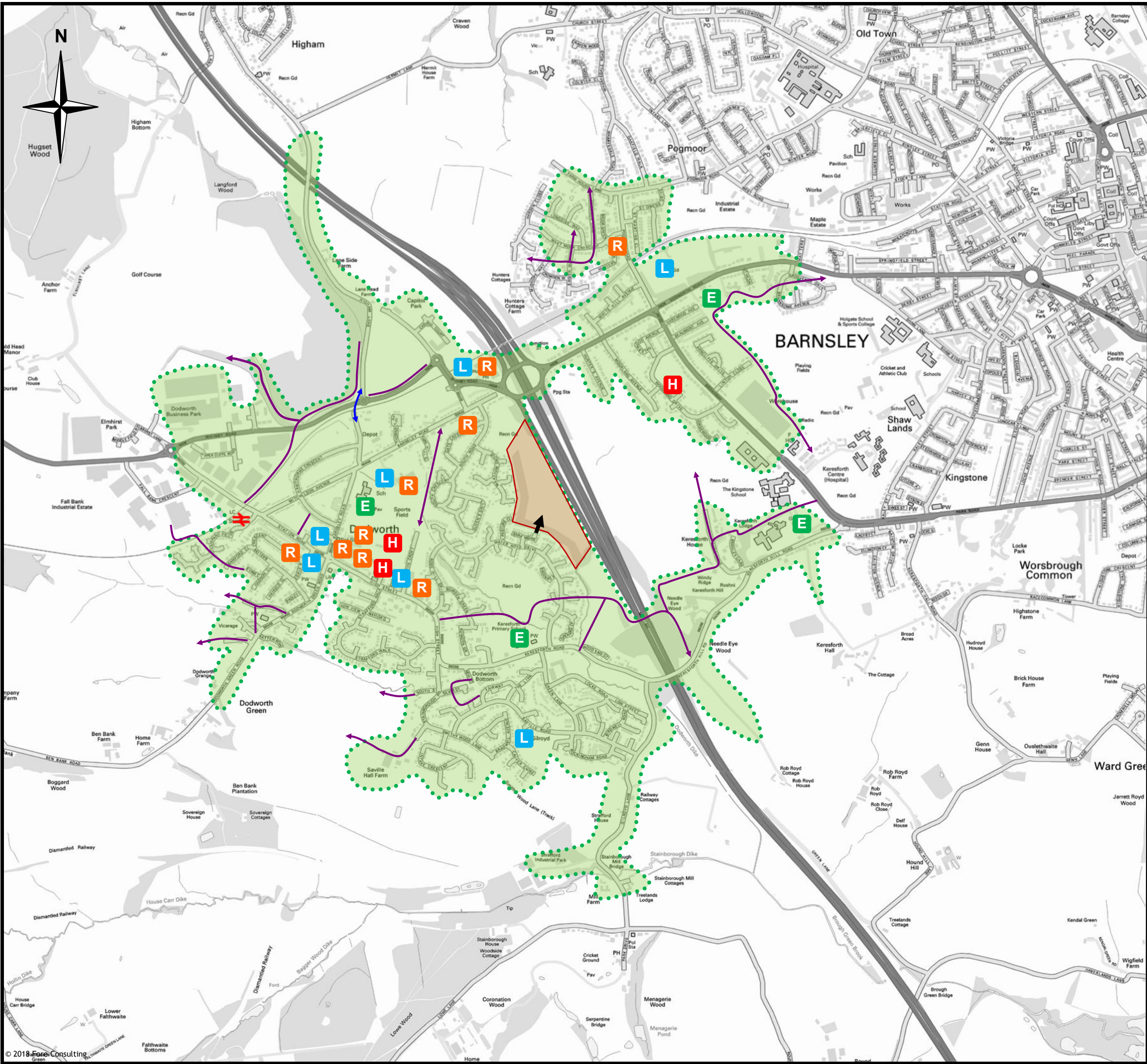
Figure Title:
Local Highway Network

Scale:
Not to Scale

Job Number:
3143

Figure Status:
Issue

Figure Number:
Figure 2



Key:

-  Site Location
-  Access
-  2.0km Walking Distance Isochrone
- Note: Isochrone measured from indicative central point of site.
-  Retail Site (eg shops and restaurants)
-  Leisure Site (eg public houses and leisure centres)
-  Healthcare Site (eg medical centres and pharmacies)
-  Education Site (eg schools and colleges)
-  Public Right of Way (Footpath)
-  Public Right of Way (Bridleway)
-  Railway Station

Contains Ordnance Survey data © Crown copyright and database right 2018

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Persimmon Homes Ltd

Project:
Land North of Keresforth Road, Dodsworth

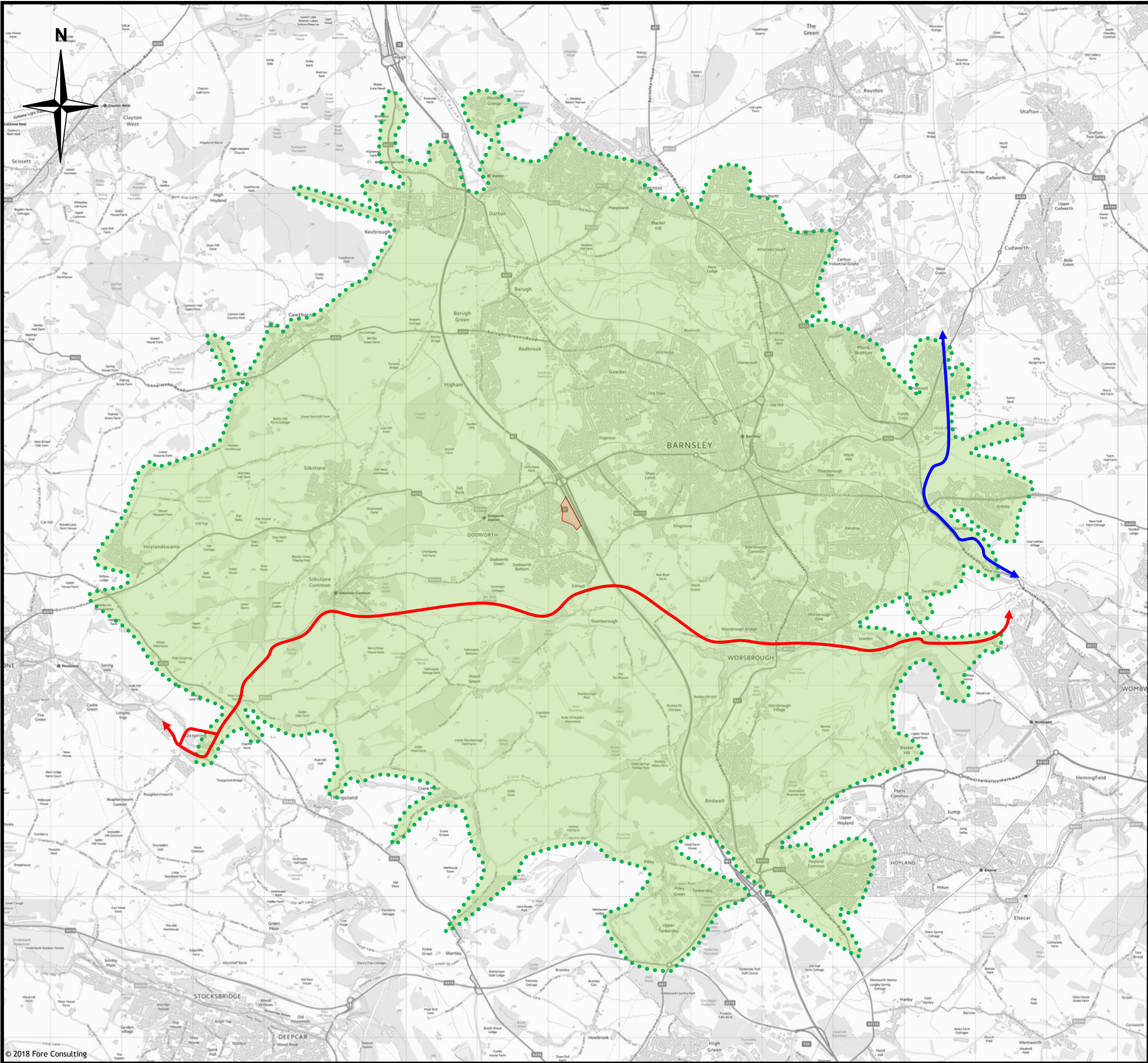
Figure Title:
Pedestrian Catchment and Local Amenities

Scale:
Not to Scale

Figure Status:
Issue

Job Number:
3143

Figure Number:
Figure 3



Key:

- Site Location
- 8km Cycling Distance Isochrone

Note: Isochrone measured from indicative points of site access.

- National Cycle Route 67
- National Cycle Route 62

Contains Ordnance Survey data © Crown copyright and database right 2018

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Fore

Client:
Persimmon Homes Ltd

Project:
Land North of Keresforth Road, Dodworth

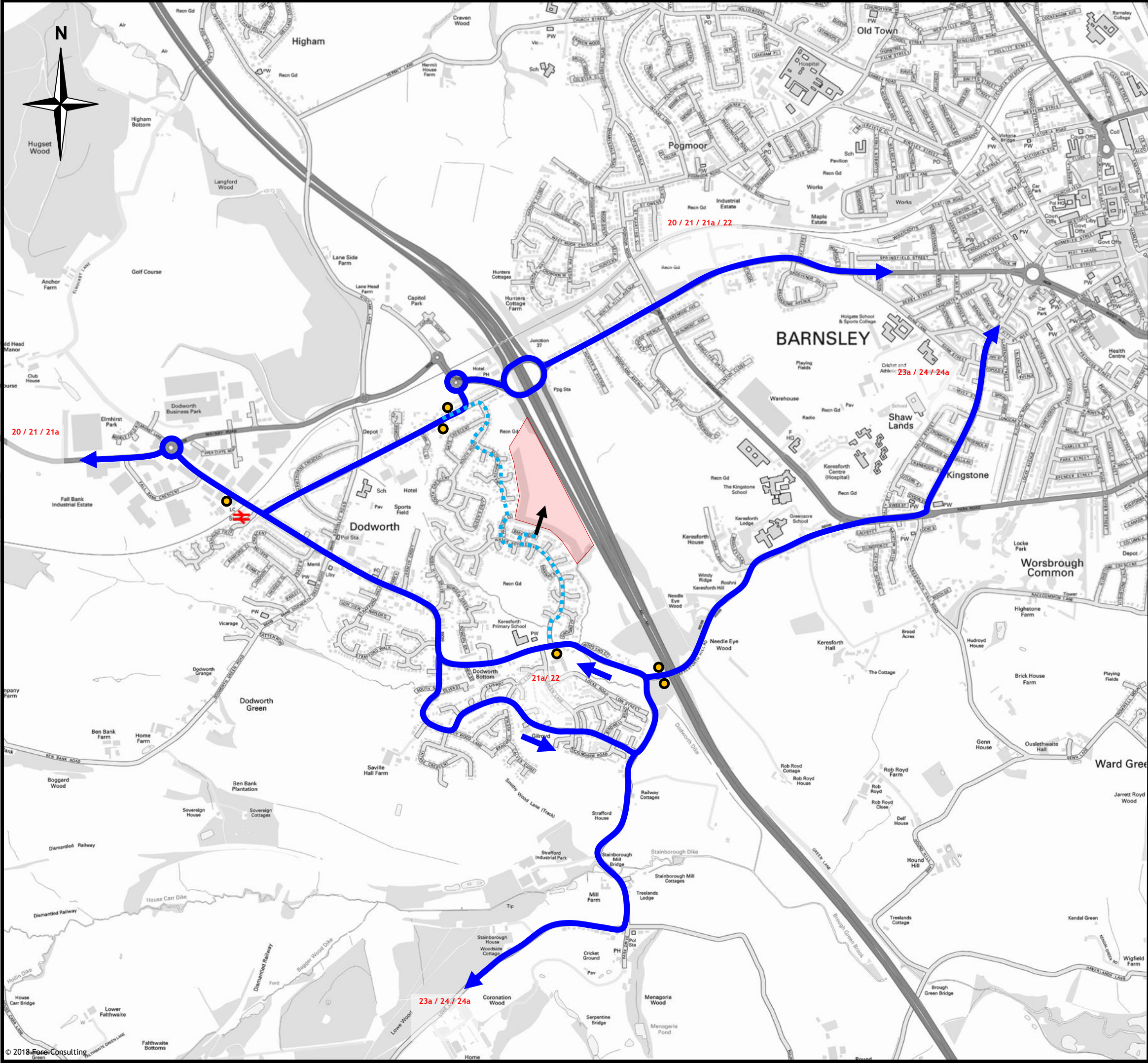
Figure Title:
Cycle Catchment

Scale:
Not to Scale

Job Number:
3143

Figure Status:
Issue

Figure Number:
Figure 4



Key:

- Site Location
- Bus Route
- Bus Stop
- Route Number
- Walking route to bus stop
- Railway Station

Bus Services

- 20: Barnsley–Cubley
- 21: Barnsley–Crow Edge/Millhouse Green
- 21a: Barnsley–Crow Edge/Millhouse Green
- 22: Barnsley–Gilroyd
- 23a: Barnsley–Deepcar
- 24: Barnsley–Ingbirchworth
- 24a: Barnsley–Penistone

Contains Ordnance Survey data © Crown copyright and database right 2018

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Persimmon Homes Ltd

Project:
Land North of Keresforth Road, Dodworth

Figure Title:
Public Transport Network

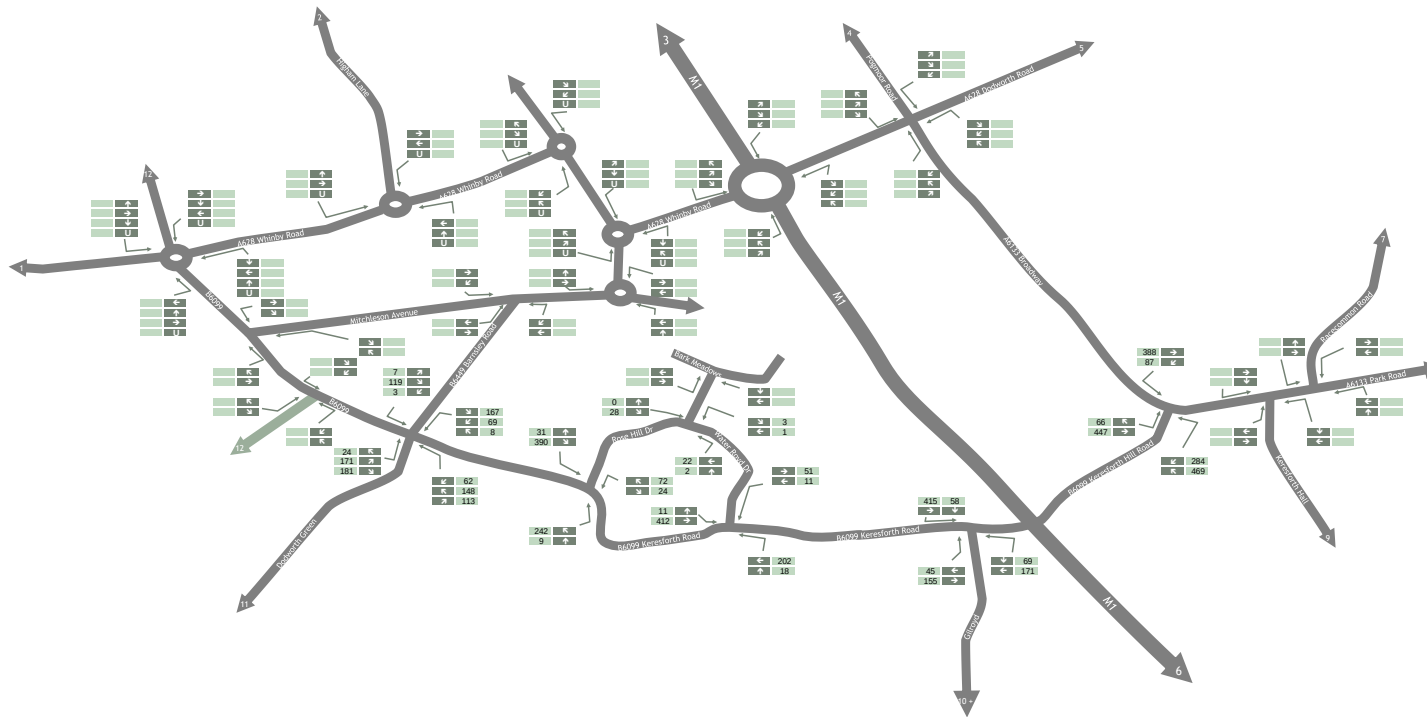
Scale:
Not to Scale

Job Number:
3143

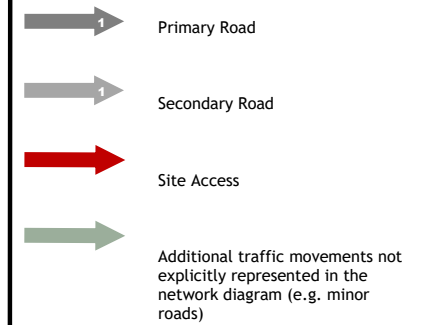
Figure Status:
Issue

Figure Number:
Figure 5

© 2018 Fore Consulting



Key:



Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk

Client:

Persimmon Homes Ltd

Project:

Land North of Keresforth Road, Dodworth

Figure Title:

2016 Base Traffic Flows AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3143

Figure Number:
Figure 6



	Primary Road
	Secondary Road
	Site Access
	Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

Fore Consulting Limited 2nd Floor, Queens House 34 Wellington Street Leeds LS1 2DE		
0113 246 0204 enquiries@foreconsulting.co.uk		
Client:		
Persimmon Homes Ltd		
Project:		
Land North of Keresforth Road, Dodworth		
Figure Title:		
2016 Base Traffic Flows PM Peak Hour		
Scale:		Figure Status:
Not to scale		Issue
Job Number:		Figure Number:
3143		Figure 7



Key:

Primary Road

Secondary Road

Site Access

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk

enquiries@foreconsulting.co.uk



Client:

Persimmon Homes Ltd

Project:

Land North of Keresforth Road, Dodworth

Figure Title:

2023 Do Minimum Traffic Flows AM Peak Hour

AM Peak Hour

Scale:

Not to scale

Figure Status:

Issue

Job Number:

3143

Figure Number:

Figure 8



	Primary Road
	Secondary Road
	Site Access
	Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk

The logo for Fore Consulting Limited, featuring a dark green square above the word "Fore" in a white, bold, sans-serif font.

Job Number:
3143

Figure Number:
Figure 9



Key:

- Primary Road
- Secondary Road
- Site Access
- Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE
0113 246 0204
enquiries@foreconsulting.co.uk



Client:

Persimmon Homes Ltd

Project:

Land North of Keresforth Road, Dodworth

Figure Title:

Vehicle Trip Distribution

Scale:

Not to scale

Figure Status:

Issue

Job Number:

3143

Figure Number:

Figure 10



Key:

-  Primary Road
-  Secondary Road
-  Site Access
-  Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE
0113 246 0204
enquiries@foreconsulting.co.uk



Client:
Persimmon Homes Ltd

Project:
Land North of Keresforth Road, Dodworth

Figure Title:
Development Traffic Flows
AM Peak Hour

Scale: Not to scale	Figure Status: Issue
Job Number: 3143	Figure Number: Figure 11



Key:

Primary Road

Secondary Road

Site Access

Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk

Homes Ltd

Client:

Persin

Project:

Land North of Keresforth Road, Dodworth

Figure Title:

Development Traffic Flows
PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:

Figure Number:
Figure 12



Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

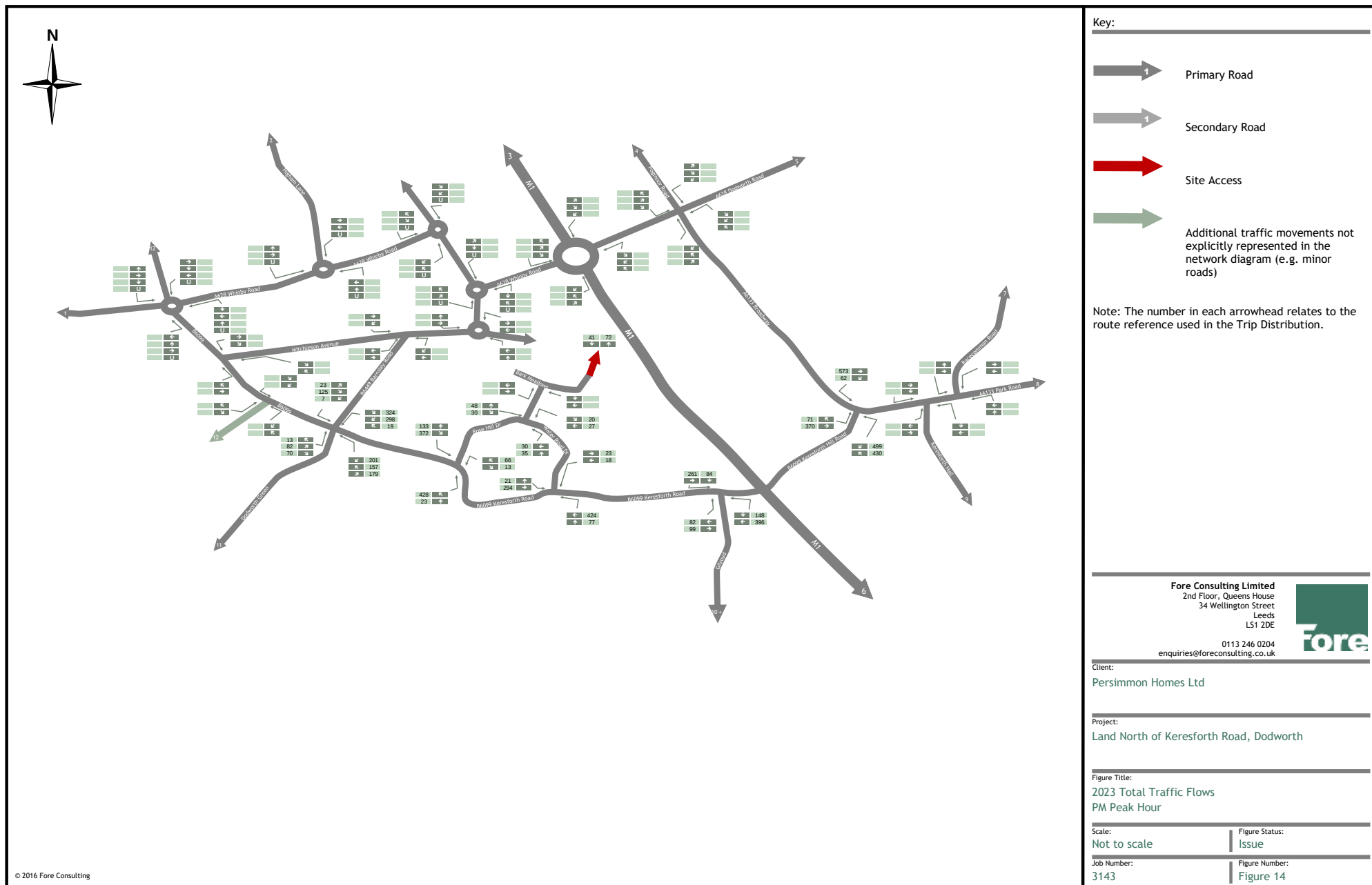
Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk

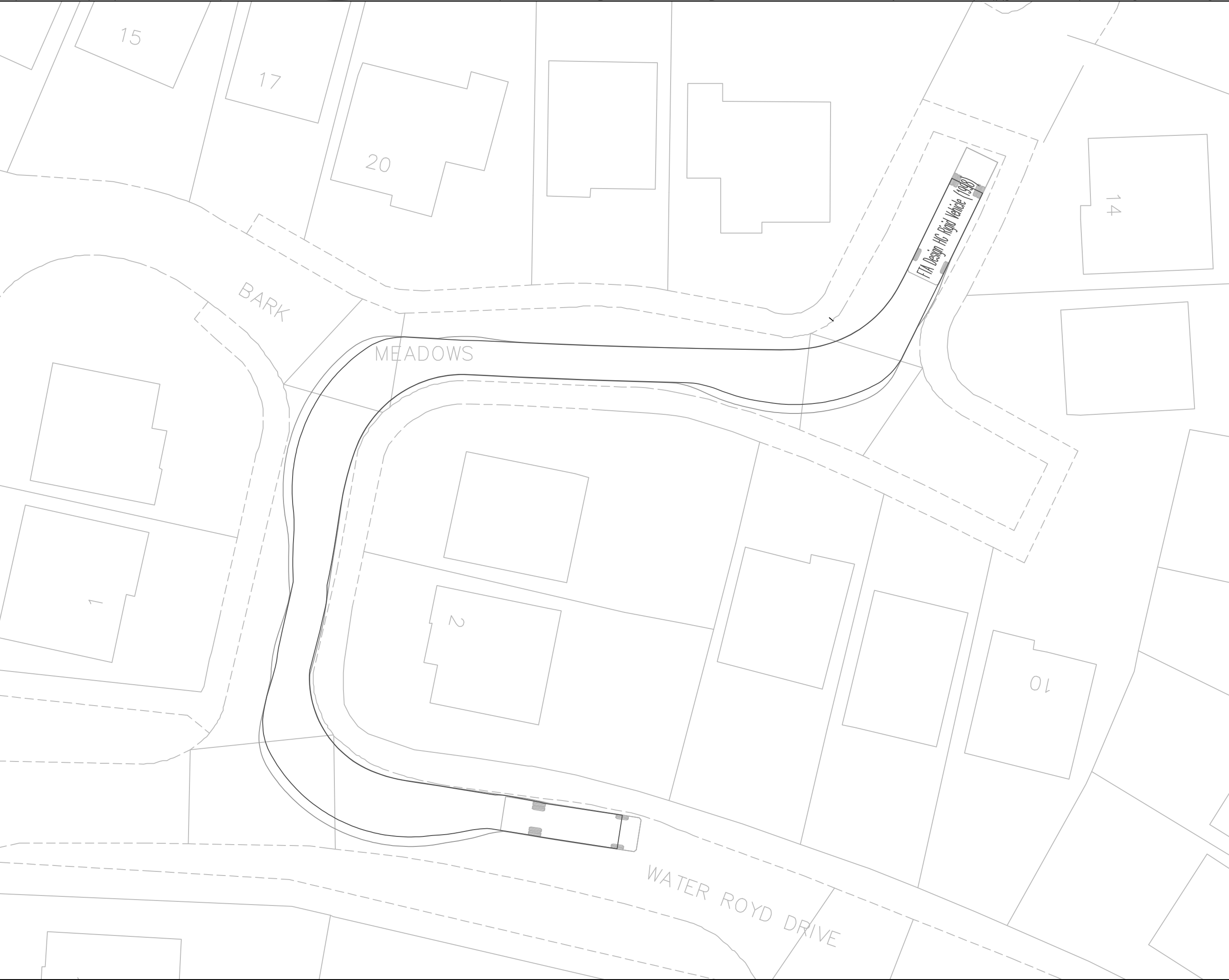
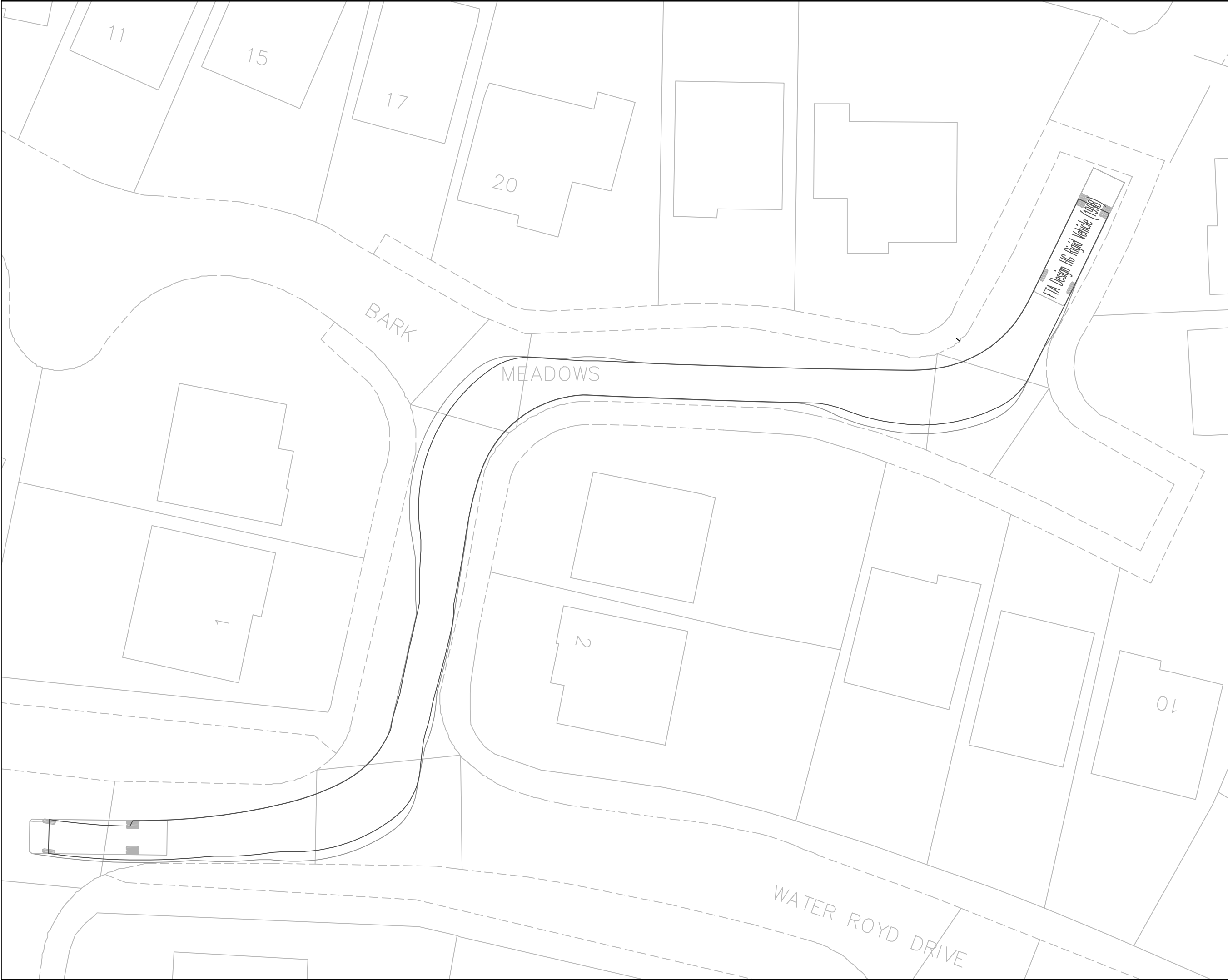


Job Number:
3143

Figure Number:
Figure 13



Drawings



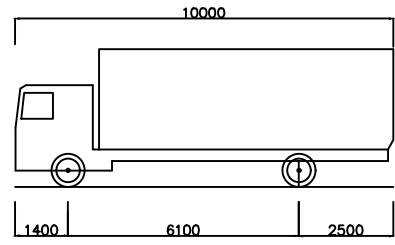
© THIS DRAWING IS THE PROPERTY OF FORE CONSULTING
REGISTERED IN ENGLAND NO 7291952 COPYRIGHT RESERVED

DO NOT SCALE

NOTES

- PRELIMINARY LAYOUT SUBJECT TO FULL TOPOGRAPHICAL SURVEY & DETAILED DESIGN INCLUDING CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH, DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY AND LOCAL AUTHORITY APPROVAL.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS AND SPECIFICATIONS.

AUTOTRACK DATA:



FTA DESIGN HG RIGID VEHICLE (1998)

OVERALL LENGTH	10.000M
OVERALL WIDTH	2.500M
OVERALL BODY HEIGHT	3.645M
MIN BODY GROUND CLEARANCE	0.440M
TRACK WIDTH	2.470M
LOCK TO LOCK TIME	3.00S
KERB TO KERB TURNING RADIUS	11.000M

REV	DESCRIPTION	DATE	BY
-----	-------------	------	----

CLIENT:
PERSIMMON HOMES LTD

PROJECT:
LAND NORTH OF KERESFORTH ROAD, DODWORTH

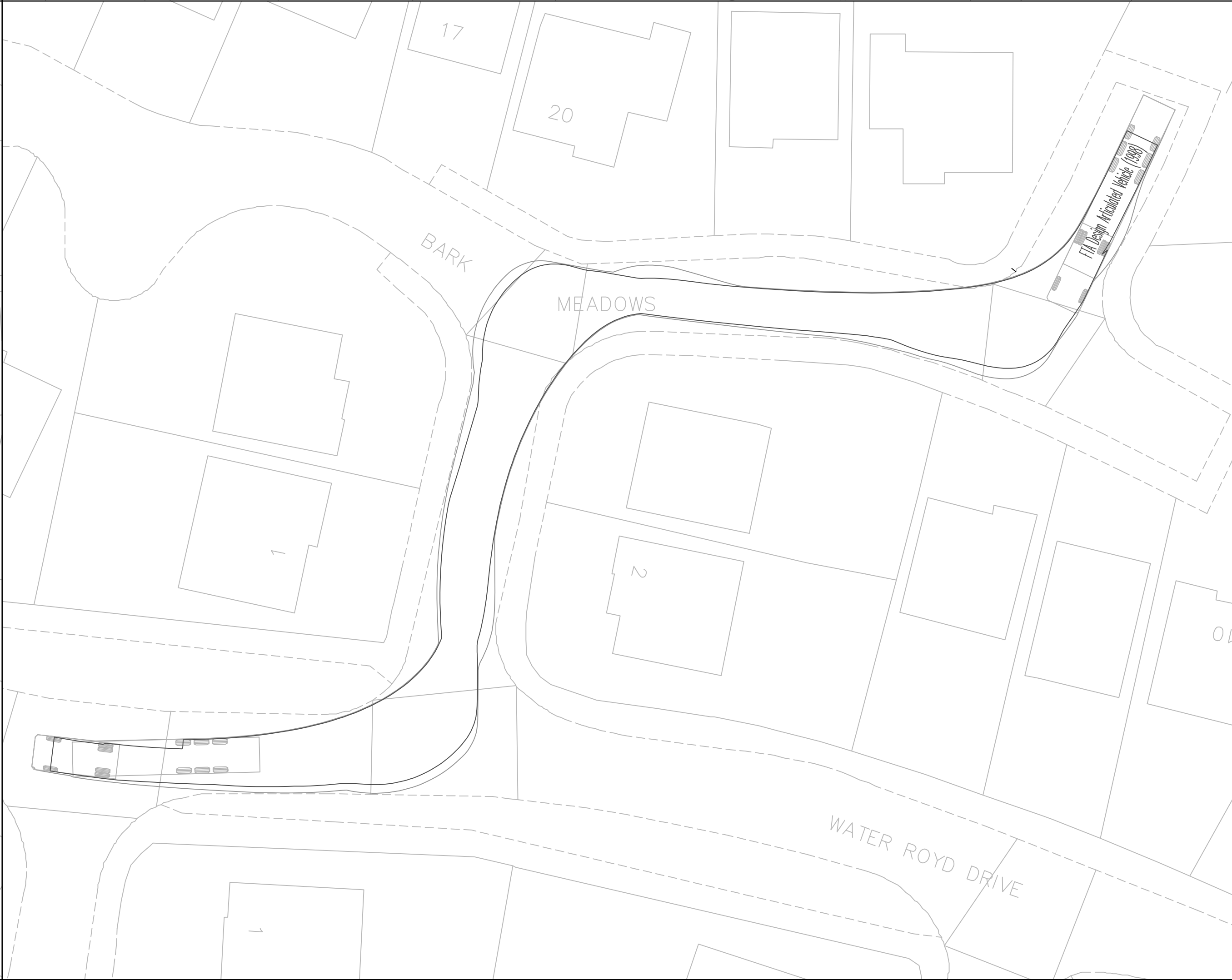
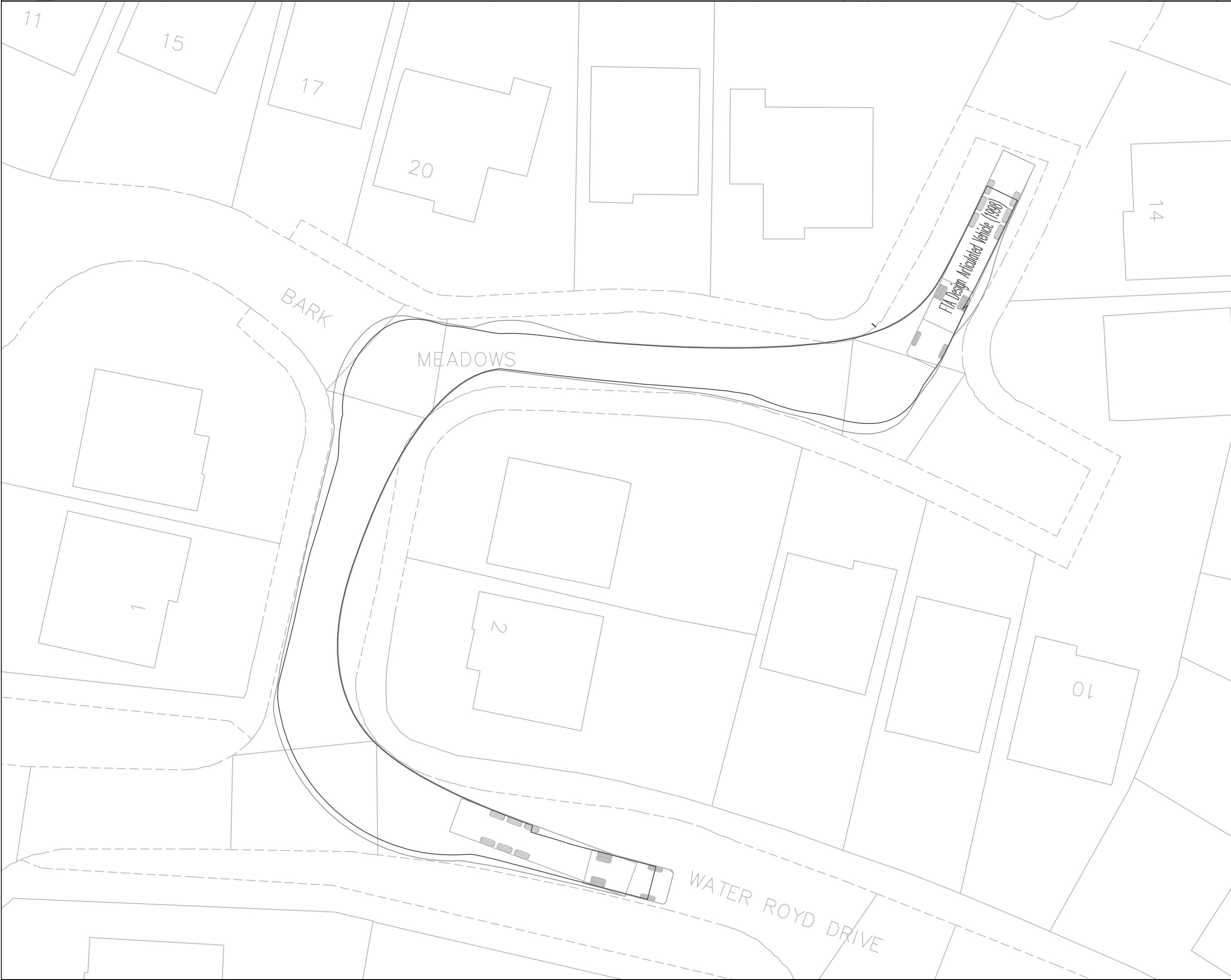
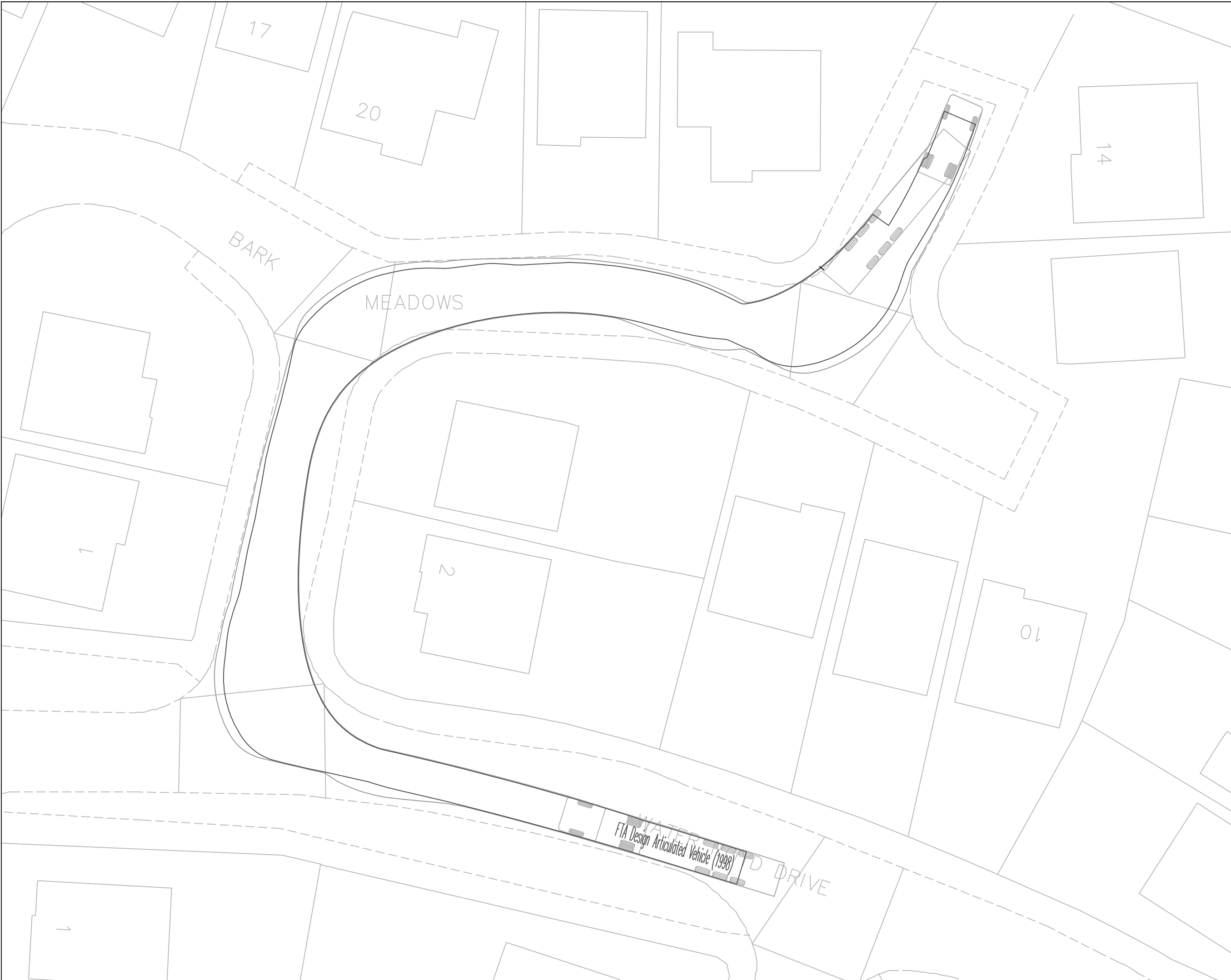
DRAWING TITLE:
AUTOTRACK ANALYSIS OF FTA HG RIGID VEHICLE (1998)

PRELIMINARY

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE
0113 2460204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Drawn by	Checked by	Date	Scale	Format
VP	PI	07/02/2018	1:250	A1
Job Number	Drawing Number	Revision		
3143	3143 SK003 001	-		



© THIS DRAWING IS THE PROPERTY OF FORE CONSULTING
REGISTERED IN ENGLAND NO 7291952 COPYRIGHT RESERVED

DO NOT SCALE

NOTES

1. PRELIMINARY LAYOUT SUBJECT TO FULL TOPOGRAPHICAL SURVEY & DETAILED DESIGN INCLUDING CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH, DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY AND LOCAL AUTHORITY APPROVAL.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS AND SPECIFICATIONS.

AUTOTRACK DATA:

1300

4680

1600

6150

13000

6470

1330

1330

2870

FTA DESIGN ARTICULATED VEHICLE (1998)

OVERALL LENGTH

OVERALL WIDTH

OVERALL BODY HEIGHT

MIN BODY GROUND CLEARANCE

MAX TRACK WIDTH

LOCK TO LOCK TIME

KERB TO KERB TURNING RADIUS

16.480M

2.550M

3.870M

0.515M

2.470M

3.00S

6.550M

REV	DESCRIPTION	DATE	BY	
CLIENT:				
PERSIMMON HOMES LTD				
PROJECT				
LAND NORTH OF KERESFORTH ROAD, DODWORTH				
DRAWING TITLE				
AUTOTRACK ANALYSIS OF FTA DESIGN ARTICULATED VEHICLE (1998)				
PRELIMINARY				
Fore Consulting Limited 2nd Floor, Queens House 34 Wellington Street Leeds LS1 2DE 0113 2460204 enquiries@foreconsulting.co.uk www.foreconsulting.co.uk				
Drawn by	Checked by	Date	Scale	Format
VP	PI	07/02/2018	1:250	A1
Job Number	Drawing Number	Revision		
3143	3143 SK003 002	-		

DO NOT SCALE

NOTES

1. PRELIMINARY LAYOUT SUBJECT TO FULL TOPOGRAPHICAL SURVEY & DETAILED DESIGN INCLUDING CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH, DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY AND LOCAL AUTHORITY APPROVAL.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS AND SPECIFICATIONS.

REV	DESCRIPTION	DATE	BY
-----	-------------	------	----

CLIENT:

PERSIMMON HOMES
LTD

PROJECT

LAND NORTH OF KERESFORTH ROAD, DODWORTH

DRAWING TITLE

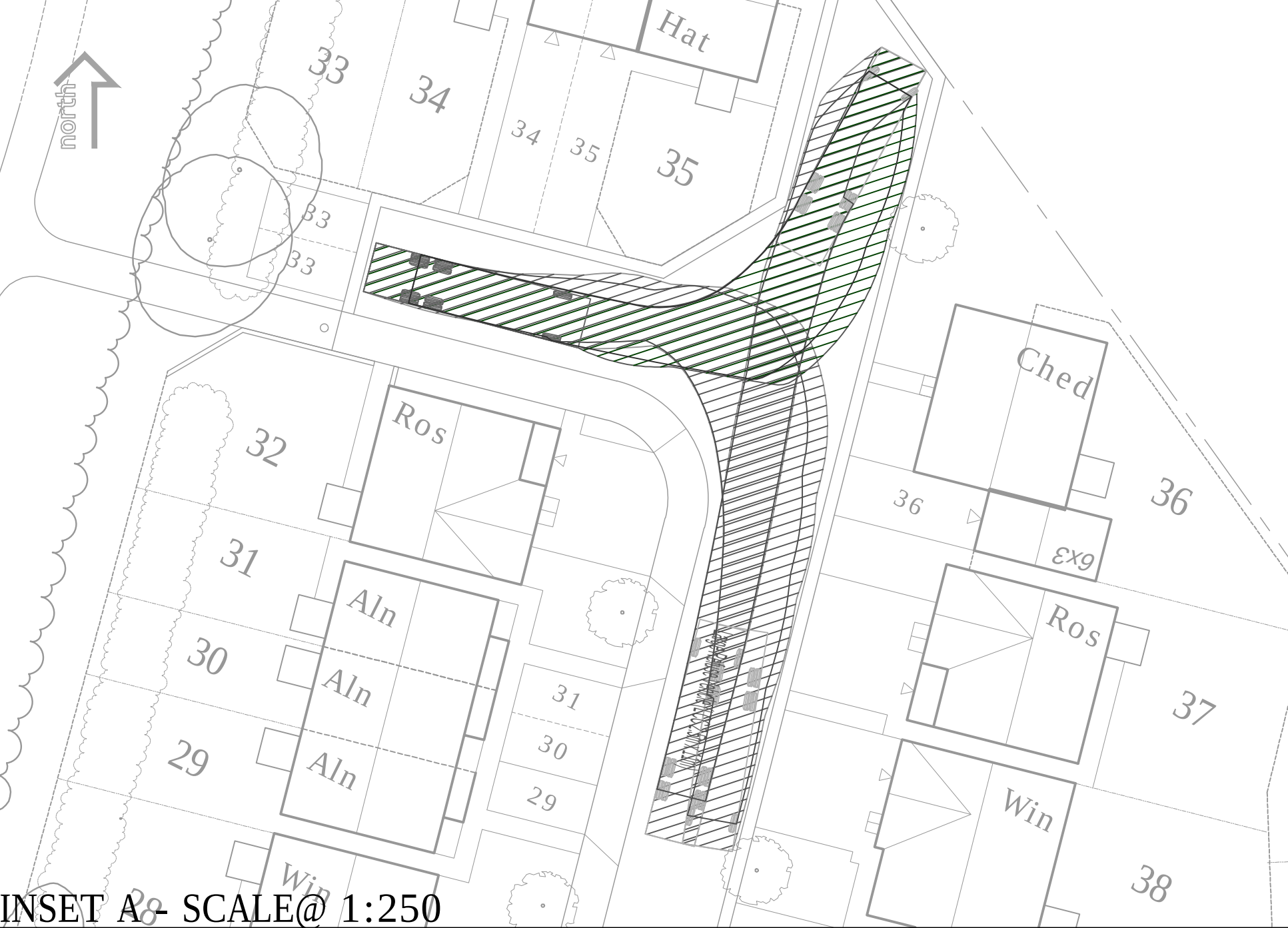
AUTOTRACK ANALYSIS - CUSTOM LOW LOADER (2.5m
x 17.5m)

PRELIMINARY

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE
0113 2460204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Drawn by PJ	Checked by PI	Date 03/2018	Scale 1:250	Format A1
Job Number 3143	Drawing Number 3143 SK003 003			Revision -



INSET A - SCALE@ 1:250



INSET B - SCALE@ 1:250



INSET F - SCALE@ 1:250



INSET E - SCALE@ 1:250



INSET D - SCALE@ 1:400



INSET C - SCALE@ 1:1000

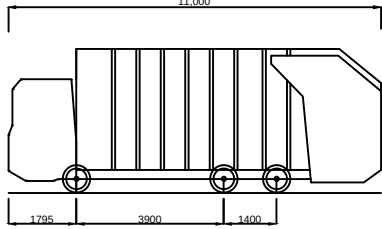
© THIS DRAWING IS THE PROPERTY OF FORE CONSULTING
REGISTERED IN ENGLAND NO 7291952 COPYRIGHT RESERVED

DO NOT SCALE

NOTES

- PRELIMINARY LAYOUT SUBJECT TO FULL TOPOGRAPHICAL SURVEY & DETAILED DESIGN INCLUDING CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH, DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY AND LOCAL AUTHORITY APPROVAL.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS AND SPECIFICATIONS.

VEHICLE TRACKING DATA:



LARGE REFUSE VEHICLE (LCC 2.5M X 11M)
OVERALL LENGTH 11.0M
OVERALL WIDTH 2.450M
OVERALL BODY HEIGHT 3.814M
MIN BODY GROUND CLEARANCE 0.366M
TRACK WIDTH 2.450
LOCK TO LOCK TIME 4.00S
KERB TO KERB TURNING RADIUS 9.500M

REV	DESCRIPTION	DATE	BY
-----	-------------	------	----

CLIENT:
PERSIMMON HOMES LTD

PROJECT:
LAND NORTH OF KERESFORTH ROAD, DODWORTH

DRAWING TITLE:
AUTOTRACK ANALYSIS - LARGE REFUSE VEHICLE

PRELIMINARY

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE
0113 2460204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Drawn by	Checked by	Date	Scale	Format
VP	AS	2018	AS SHOWN	A1
Job Number	Drawing Number	Revision		
3143	3143 SK004 01	D		

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Fore Consulting Limited. Registered in England and Wales No. 7291952.
Registered Address: Gresham House, 5 - 7 St Pauls Street, Leeds LS1 2JG, United Kingdom
VAT Registration No. 105 0341 75