

Harworth Group Plc

**PROPOSED RESIDENTIAL DEVELOPMENT
STOPES ROAD, LITTLE LEVER
BOLTON**

Transport Assessment

VN201653

October 2020

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1 INTRODUCTION

1.1 Introduction

1.1.1 Vectos have been appointed by Harworth Group Plc to provide highways and transport advice in support of a planning application for a residential development of up to 140 houses on land adjacent to Stopes Road, Little Lever, Bolton. The application consists of:

‘Outline planning application for the demolition of the existing structures on the Site, and redevelopment of the Site for a future residential development of up to 140 no. dwellings and associated public open space, with all matters reserved except for access’.

1.1.2 The site lies within the jurisdiction of Bolton Council who act as both the planning authority and the highway authority. However, the site access junction that will serve the site leads onto Stopes Road, which forms part of the adopted highway that is under the control of Bury Council.

1.1.3 As a result, a full planning application is being submitted to both Bolton Council and Bury Council for review. The proposals will also be reviewed by Transport for Greater Manchester as part of the consultation process.

1.1.4 This Transport Assessment provides information on the traffic and transport planning aspects of the development proposals and forms supplementary information to assist in the determination of a planning application.

1.2 Development Site

1.2.1 Harworth Group Plc acquired the Site in January 2020, prior to which the Site was in use for concrete block manufacture and aggregate recycling. The Site subsequently benefits from planning permission for the manufacturing of concrete blocks (planning application ref. 33522/89) and as an aggregate recycling facility (planning application ref. 78009/07). Whilst the site is not currently in use, these permissions have been implemented and form the baseline against which the transport impacts of this development should be compared. Details of this are set out in the Planning Statement at paragraphs 2.14-2.15 with the decision notices appended at Appendix II, site photographs taken in March 2020 at Appendix I.

- 1.2.2 The site access is currently provided onto Stopes Road, which will be updated to provide enhanced pedestrian facilities as part of this application.
- 1.2.3 The location of the development site is shown in a wider context in **Figure 1.1**, and in greater in detail in **Plan 1**.



Figure 1.1 – Site Location (Wider Context)

1.3 Development Proposals

- 1.3.1 The development proposals for the site are as follows:
- A total of up to 140 dwellings;
 - A network of residential streets that include street lighting, pedestrian footpaths and some shared surface areas;
 - Adequate car parking; and
 - An enhanced site access junction onto Stopes Road with enhanced pedestrian facilities.
- 1.3.2 The proposed site layout in full is contained in **Appendix A**. A plan showing the proposed site access junction is also provided at **Appendix A**.

1.4 Scope of Assessment

This Transport Assessment has been prepared in accordance with guidance provided by the Department for Transport on '*Travel Plans, Transport Assessment and Statements*' (2014) document, as well as paying due notice to the now superseded DfT '*Guidance on Transport Assessments*' document.

1.4.1 In preparing this Transport Assessment, highway officers from Bolton Council, Bury Council and Transport for Greater Manchester have been consulted to assist with the scoping of the report.

1.4.2 Following this introduction, this report provides the following information:

- **Section 2: Policy Context** – outlines the national policy relevant to the proposed development;
- **Section 3: Baseline Conditions** – discusses the existing site, local highway network, and reviews accident records on the immediate highway network;
- **Section 4: Accessibility by Sustainable Modes of Travel** – describes the accessibility of the site by foot, cycle, bus and rail;
- **Section 5: Development Proposals** – sets out the development proposals and also the access and servicing strategies for the proposed development;
- **Section 6: Traffic Impact Assessment** – outlines the trip generation of the proposed scheme and discusses the impact of development traffic on the operation of the wider highway network; and
- **Section 7: Summary and Conclusions** – summarises the findings of the Transport Assessment and provides the report conclusions.

2 POLICY CONTEXT

2.1 Introduction

2.1.1 This section of the report outlines the national policy relevant to the proposed development.

2.2 Local Planning Policy

2.2.1 Bolton Council and its partners will ensure that developments take the following into account:

- Accessibility by different types of transport, prioritising pedestrians, cyclists, public transport users over other motorised vehicle users;
- The design of developments to enable accessibility by public transport;
- Freight movement for industrial and storage uses;
- Servicing arrangements;
- Parking, including parking for cycles and powered two-wheelers, in accordance with the parking standards set out in Appendix 3;
- The transport needs of people with disabilities; and
- The requirement for a Transport Assessment and Travel Plan with major trip generating developments.

2.2.2 In accordance with its Core Strategy Policy S1, Bolton Council and its partners will also:

- Ensure that the design of new development will take into account the need to reduce crime and the fear of crime;
- Promote road safety in the design of new development;
- Target expenditure on road safety to locations with the worst safety record.

2.2.3 Policy HT4 of Bury Council's Adopted UDP notes that the Council will encourage proposals which:

- support the principles of sustainable development;
- assist the implementation of a balanced transportation strategy;
- minimise the environmental impact of traffic.

2.2.4 In particular, new development will be encouraged where use can be made of public transport or spare capacity in the existing highway network, provided that this is also in accordance with other policies of the Plan.

2.3 National Planning Policy

2.3.1 The main source of national policy regarding the transport planning aspects of new development can be found in the Department of Communities and Local Government (DCLG) 'National Planning Policy Framework'. This document replaces previous planning guidance and policy notes.

2.4 National Planning Policy Framework (2019)

2.4.1 The latest National Planning Policy Framework (NPPF) was published in February 2019 by the Ministry of Housing, Communities and Local Government, replacing the previous versions published in March 2012 and July 2018. The NPPF sets out the government's planning policies for England and how these are expected to be applied. At the heart of the Framework is a presumption in favour of sustainable development.

2.4.2 As part of promoting sustainable transport, paragraph 108 of the revised NPPF states that in assessing applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location.*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

2.4.3 Paragraph 109 goes on to state that '*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe*'.

3 BASELINE CONDITIONS

3.1 Introduction

3.1.1 This section of the report discusses the existing site, local highway network, and reviews accident records on the immediate highway network.

3.2 Site Location

3.2.1 The site is located in Little Lever, located to the south-east of Bolton. The site itself is within the area administered by Bolton Council, who are the planning authority. However, the sole site access passes onto Stopes Road, which forms part of the highway network that is maintained by Bury Council as the highway authority.

3.2.2 To the south of the site are existing residential properties on Stopes Road and Bexhill Close. To the south east of the site is an existing haulage business. There is open land to the north, east and west.

3.2.3 The location of the development site, including the approximate application red line boundary, is shown in a local context in **Figure 3.1**, and in greater detail in **Plan 2**.



Figure 3.1 – Site Location (Local Context)

3.3 Existing Development

- 3.3.1 Whilst currently vacant, the majority of the site currently benefits from planning permission to store aggregate material and to undertake industrial processes, namely the manufacturing of concrete blocks and the recycling of aggregate material. As previously mentioned, the Site benefits from planning permission for the manufacturing of concrete blocks (planning application ref. 33522/89) and as an aggregate recycling facility (planning application ref. 78009/07).
- 3.3.2 Noting that these uses could return, the current planning application will result in the permanent removal of this industrial business and its replacement by residential development. This will remove the requirement for HGV's to regularly access the site, bringing and removing material and manufactured produce, and replace these vehicles with car movements.
- 3.3.3 A comparison of the traffic generating potential of the existing and proposed uses of the site can be found in Section 6 of this report.

3.4 Local Highway Network

- 3.4.1 The local highway network in the vicinity of the site, including the approximate application red line boundary, is shown in **Figure 3.2**.



Figure 3.2 – Local Highway Network

- 3.4.2 As shown in **Figure 3.2**, Stopes Road runs along and close to the site's south-eastern boundary. The site is served by a wide priority-controlled junction. Whilst a pedestrian gate into the site is provided, there are no designated or safe segregated routes from Stopes Road into the site. Parking for staff cars associated with the industrial use of the site are provided to the south of the junction.
- 3.4.3 This section of Stopes Road forms a cul-de-sac, terminating approximately 250m to the east of the site access. A pedestrian footpath along Stopes Road continues east from the end of the cul-de-sac onto the A6053. It has a speed limit of 30 mph.
- 3.4.4 Stopes Road connects to the A6053 Stopes Road approximately 80m south-east of the existing site access, forming a priority-controlled junction. Dropped kerbs and a pedestrian refuge island are located on the minor arm of this priority junction, opposite the Stopes Tavern, aiding the movement of pedestrians.

3.4.5 Travelling west from the site, the A6053 Stopes Road runs for approximately 900m before ending at a mini-roundabout with Market Street and Mytham Road. Market Street, which is the western arm of the mini-roundabout, provides access to Little Lever town centre. Market Street then merges into the A6053, which then runs towards Bolton.

3.4.6 Travelling east from the site, the A6053 Stopes Road runs for approximately 500m before ending at the mini-roundabout with the A665 Bolton Road, A665 Countess Road and Milton Road. A665 Bolton Road, which is the southern arm of the mini-roundabout, then provides access to Radcliffe and onwards to Bury.

3.5 Accident Data Record

3.5.1 To consider the safety of the highway network in the vicinity of the site, the Crashmap website has been interrogated for the most recently available five-year period (between 2015 and 2019).

3.5.2 Crashmap uses accident data collected by the police. This data is approved by the National Statistics Authority and reported on by the Department for Transport each year.

3.5.3 The accident data analysis has been undertaken for the key junctions and roads on the local highway network in the vicinity of the site. These are:

- Stopes Road/A6053 Stopes Road
- A6053 Stopes Road/Market Street/Mytham Road
- A6053 Stopes Road/A665 Bolton Road/A665 Countess Road/Milton Road

Stopes Road/A6053 Stopes Road junction

3.5.4 A summary of the Crashmap data in the vicinity of the priority junction between Stopes Road and the A6053 Stopes Road is presented in **Figure 3.3**.

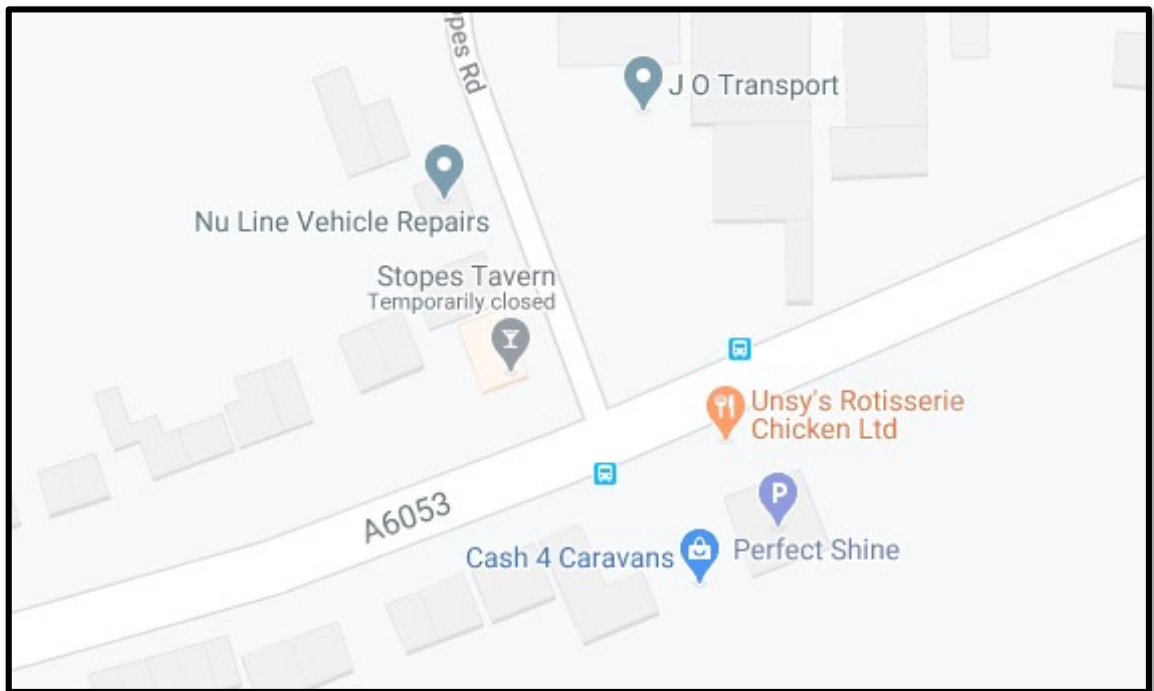


Figure 3.3 – Accident Data Analysis – Stopes Road/A6053 Stopes Road junction

- 3.5.5 The accident data analysis shows that no accidents resulting in an injury have occurred at or close to the Stopes Road/A6053 Stopes Road priority junction during the five-year review period.
- 3.5.6 It is therefore not considered that there are any material safety issues with the design or operation of this section of highway.

A6053 Stopes Road/Market Street/Mytham Road mini-roundabout

- 3.5.7 A summary of the Crashmap data in the vicinity of the mini-roundabout between A6053 Stopes Road, Market Street and Mytham Road is presented in **Figure 3.4**.

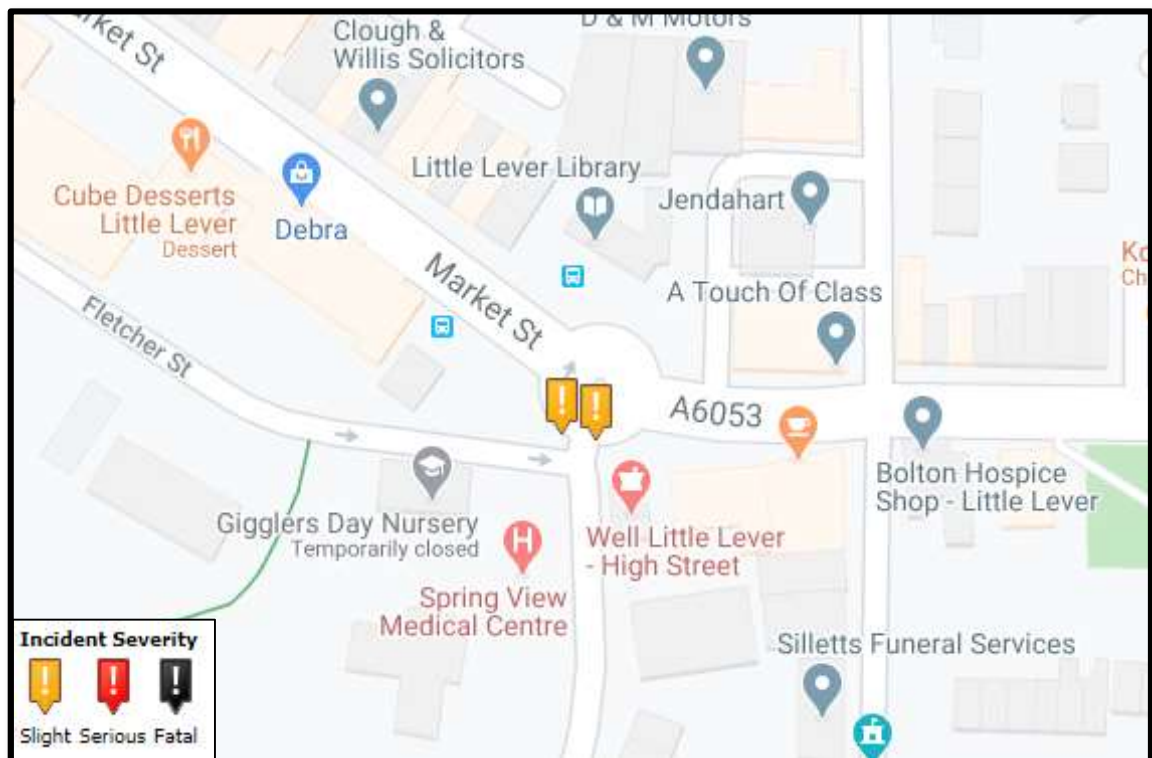


Figure 3.4 – Accident Data Analysis – A6053 Stopes Road/Market Street/Mytham Road mini-roundabout

3.5.8 The accident data analysis shows there were two accidents which occurred at or close to the A6053 Stopes Road/Market Street/Mytham Road mini-roundabout during the five-year review period. Both of these accidents were classified as being slight.

3.5.9 It is therefore not considered there are any material safety issues with the design or operation of this section of highway.

A6053 Stopes Road/A665 Bolton Road/A665 Countess Road/Milton Road mini-roundabout

3.5.10 A summary of the Crashmap data in the vicinity of the mini-roundabout between A6053 Stopes Road, A665 Bolton Road, A665 Countess Road and Milton Road is presented in **Figure 3.5**.

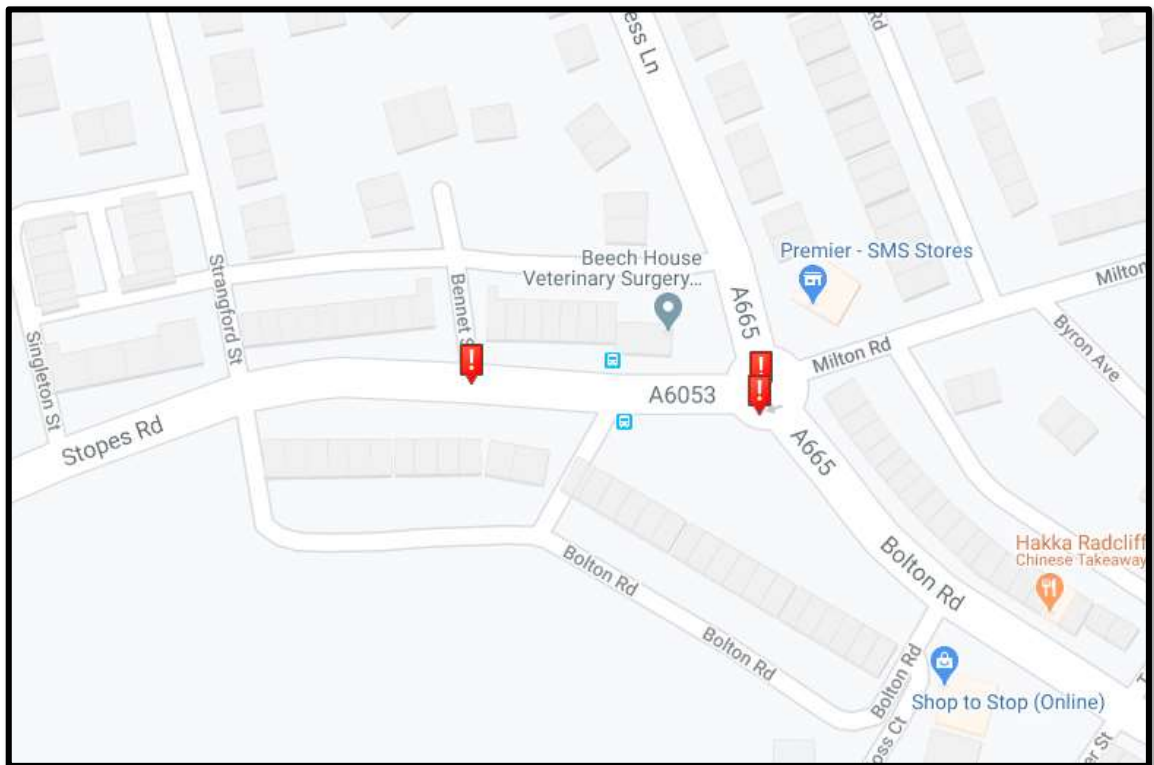


Figure 3.5 – Accident Data Analysis – A6053 Stopes Road/A665 Bolton Road/A665 Countess Road/Milton Road mini-roundabout

- 3.5.11 The accident data analysis shows there were three accidents which occurred at or close to the A6053 Stopes Road/A665 Bolton Road/A665 Countess Road/Milton Road mini-roundabout during the five-year review period, all of which were classified as serious.
- 3.5.12 On average, there was less than one accident per year during the five-year review period at or close to the mini-roundabout. These statistics are not unusual for a mini-roundabout junction.
- 3.5.13 It is therefore not considered there are any material safety issues with the design or operation of this section of highway.
- 3.5.14 It is therefore finally concluded that there are no accident blackspots on the highway network in the vicinity of the site.

4 ACCESSIBILITY BY SUSTAINABLE MODES OF TRAVEL

4.1 Introduction

4.1.1 The National Planning Policy Framework states that opportunities to promote walking, cycling and public transport use should be identified and pursued.

4.1.2 This section of the report therefore considers the accessibility of the site by the following modes of transport:

- Accessibility on foot;
- Accessibility by bicycle;
- Accessibility by bus; and
- Accessibility by rail.

4.2 Accessibility on Foot

4.2.1 The site is well-located to encourage journeys to be undertaken on foot.

4.2.2 The Institution of Highways and Transportation (IHT) document 'Guidelines for Providing for Journeys on Foot' (2000) contains suggested acceptable walking distances for pedestrians without mobility impairment for some common facilities. Table 3.2 of the document states that the acceptable maximum walking distance for commuting trips is 2 kilometres. A maximum distance for pedestrians to town centre facilities such as a food store is considered to be 1 kilometre.

4.2.3 The more recent CIHT document 'Planning for Walking' (2015) affirms this by stating that 80% of journeys shorter than a mile (approximately 1.6 kilometres) are made wholly on foot.

4.2.4 Walking distances and times have been estimated based on the generally accepted walking speed of 80 metres per minute.

4.2.5 On this basis an analysis of the pedestrian routes in the area has been completed to identify areas situated within a 1-kilometre and 2-kilometre catchment, equivalent to a 12-minute and 24-minute walk, respectively. This is illustrated in **Plan 3**.

4.2.6 The catchment plan shows that Little Lever, to the west of the proposed development, and Radcliffe, to the east of the proposed development, are within the 2-kilometre walking catchment.

4.2.7 The following local amenities are within a 2km walking catchment surrounding the development:

- Premier - SMS Stores, Radcliffe – 480m, 6 minutes by foot
- Bolton Road post office, Radcliffe – 800m, 10 minutes by foot
- Well Little Lever (pharmacy) – 800m, 10 minutes by foot
- Spring View medical centre – 800m, 10 minutes by foot
- Mytham Primary School – 1100m, 14 minutes by foot
- King's Church, Little Lever – 1100m, 14 minutes by foot
- Tesco Foodstore, Little Lever – 1300m, 16 minutes by foot

4.2.8 To support pedestrian trips, there are lit footways of a reasonable width, approximately 1.8m wide, on Stopes Road and also on the section of the A6053 Stopes Road in the immediate vicinity of the site. There are also dropped kerbs and a pedestrian refuge island at the priority junction between Stopes Road and the A6053 Stopes Road.

4.2.9 The pedestrian access into the site from Stopes Road will be enhanced with designated 2m wide footways provided.

4.2.10 The site is therefore highly accessible by foot and it is well-located to encourage trips to be undertaken by pedestrians.

4.3 Accessibility by Bicycle

4.3.1 An alternative mode of travel to the site would be achieved by bicycle.

4.3.2 The National Planning Policy Framework (NPPF) replaced all existing planning policy statements. However, the PPG 13 companion guide 'A Guide to Better Transport – Reducing the need to travel through land use and transport planning' has not been replaced by the NPPF and as such is still considered to provide relevant guidance. With respect to cycling, this document states that "*the bicycle is an effective mode for short trips of up to 3 to 5 miles (5-8km)*".

- 4.3.3 This is supported by the DfT's Local Transport Note 2/08 'Cycle Infrastructure Design' (2008) which states that many utility cycle journeys are under three miles although for commuters a trip distance of over five miles is not uncommon.
- 4.3.4 The IHT and Department for Transport (DfT) document 'Cycle Friendly Infrastructure: Guidelines for Planning and Design' (1996) provides a guide on suggested cycle speeds associated with cyclists of varying confidence and ability. This outlines that a catchment of 5 kilometres would be available within approximately 20 minutes cycle time, using a speed of 10mph (16kph).
- 4.3.5 Cycling distances and times have been estimated based on the generally accepted cycling speed of 320 metres per minute.
- 4.3.6 With this in mind, **Plan 4** displays a 5-kilometre cycle catchment from the site. This is based upon the above guidance and is considered to represent the lower threshold of the potential cycle catchment of the site. The plan illustrates that this catchment encompasses an extensive area including all of nearby Little Lever, as well as Farnworth, Bradley Fold and Radcliffe.
- 4.3.7 An extract of Transport for Greater Manchester's (TFGM) cycle map shown for the area in the immediate vicinity of the site, covering parts of both Bolton Council and Bury Council's local authority, is shown in **Figure 4.1**.

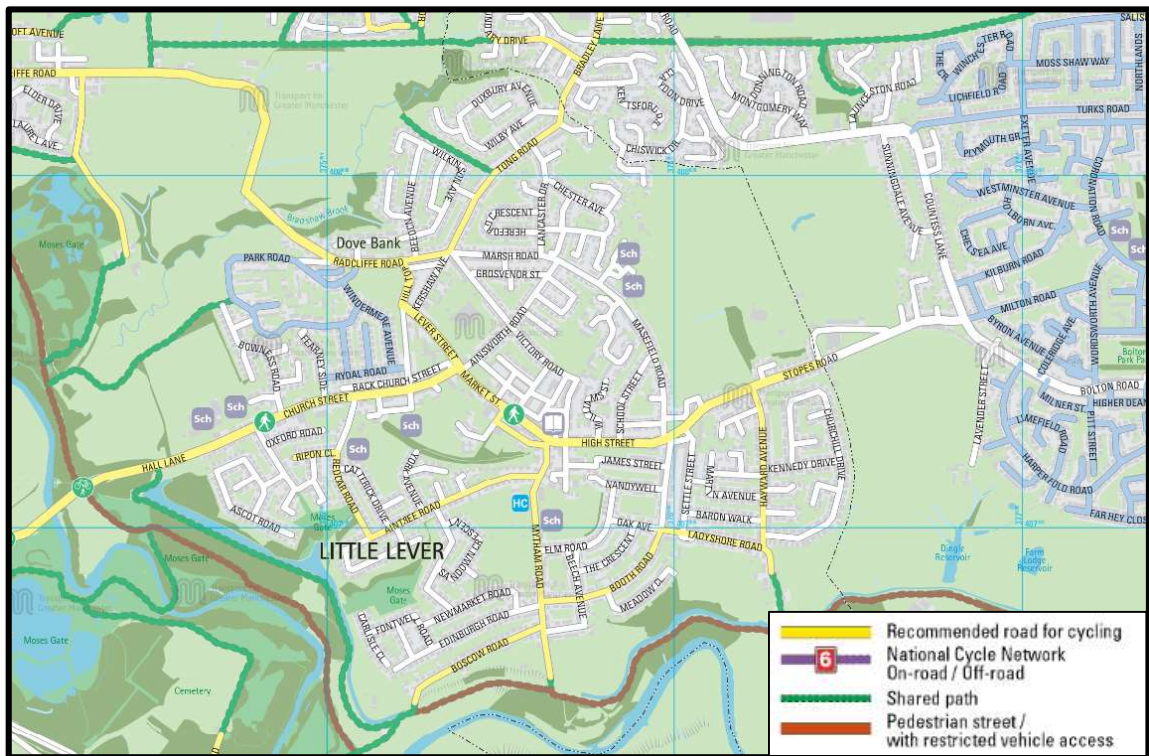


Figure 4.1 – An extract of TFGM's cycle map

4.3.8 The extract of the cycle map shows that the A6053 Stopes Road is a recommended road for cycling. Cycling is also recommended on the roads further west through Little Lever, and towards Bolton.

4.3.9 The site is therefore highly accessible by bicycle, making cycling a viable alternative to single-occupancy car travel for residents.

4.4 Accessibility by Bus

4.4.1 The Institute of Highways and Transportation's (IHT) document 'Planning for Public Transport in Developments' states that *"new developments should be located so that public transport trips involve a walking distance of less than 400m from the nearest bus stop"*.

4.4.2 The closest bus stops to the site are located on the A6053 Stopes Road. The eastbound bus stop is located 150m west of the priority junction with Stopes Road, and the westbound bus stop is 200m west of the priority junction with Stopes Road. Both bus stops have bus box markings, bus shelters and flag posts.

4.4.3 The following bus services currently stop at the bus stops on A6053 Stopes Road:

- 524 – Bolton to Bury via Little Lever and Radcliffe, operated by Diamond North West
 - Once every half an hour on all days of the week
- 976 – Bradley Fold to St James' High School, Farnworth, operated by Atlantic Travel
 - Once only on weekdays, at approximately 8am westbound and 3pm eastbound, with no service on weekends

4.4.4 These services offer an excellent opportunity for both retail, education and employment trips to be undertaken by this mode. The site is therefore highly accessible by bus.

4.5 Accessibility by Rail

4.5.1 The closest rail station to the proposed development is Moses Gate, which is located approximately 4 kilometres to the west. Moses Gate is an unstaffed, two-platform station which is served by local stopping services running between Manchester Piccadilly and Southport via Bolton and Wigan Wallgate operated by Northern. There is one service per hour both northbound and southbound.

4.5.2 The site is therefore accessible by rail and the closest rail station is conveniently located to encourage intermodal trips by bicycle, bus or car.

5 DEVELOPMENT PROPOSALS

5.1 Introduction

- 5.1.1 This section of the report will set out the development proposals for the site. It should be remembered that the planning application is in outline with all matters reserved other than the site access.

5.2 Development Proposals

- 5.2.1 The development proposals for the site are as follows:

‘Outline planning application for the demolition of the existing structures on the Site, and redevelopment of the Site for a future residential development of up to 140 no. dwellings and associated public open space, with all matters reserved except for access’.

- 5.2.2 Whilst this application is in outline, a proposed masterplan has been provided which demonstrates that 140 dwellings can be constructed on the site, with a suitable network of residential roads. These would generally be 5.5m in width and be served by two 2m wide footpaths, although some shared surface areas may be provided. A copy of this masterplan is contained in **Appendix A**.

5.3 Access Strategy

- 5.3.1 The enhanced site access junction from Stopes Road is also shown in **Appendix A**. This junction would provide a 6m wide carriageway, reducing to 5m as it leads into the development site.
- 5.3.2 The site access will comprise two 2m wide footways on either side with dropped kerbs to provide access for pedestrians. The pedestrian footway would terminate to the north before reaching the adjacent The Wellington public house, as this benefits from parking to the front and vehicular access to the rear. However, the footway would tie in with existing facilities to south on Stopes Road.
- 5.3.3 Being on the outside of a bend, the junction will meet visibility standards for a 30 mph road, with a splay of more than 2.4m x 43m in either direction. Standard residential radii of 6m will also be provided.

- 5.3.4 The proposed site access is therefore appropriately designed to allow for vehicles to safely arrive and depart the proposed development.

5.4 Servicing Strategy

- 5.4.1 As previously mentioned, a new highway network will be constructed to provide access to each of the 140 dwellings. It is assumed that servicing, both deliveries and refuse, will take place from each individual dwelling. A network of roads will allow this to occur, providing safe turning areas and removing the need to reverse unacceptable distances.

5.5 Car and Cycle Parking

- 5.5.1 Bolton Council's car parking standards are found at Appendix 3 of the Council's Core Strategy document. This provides a maximum car parking standard that requires up to 2 car parking spaces for every 2 or 3 bedroom dwelling and 3 car parking spaces for every 4+ bedroom property.
- 5.5.2 It is proposed that the development fully meets these car parking standards.
- 5.5.3 Bolton Council's cycle parking standards are also found at Appendix 3 of the Council's Core Strategy document. It is proposed that the development fully meets these cycle parking standards.

5.6 Travel Plan

- 5.6.1 It should be noted that the applicant is willing to accept a condition that requires a residential travel plan to be submitted, approved and implemented within six months of occupation of the development. The aim of this document will be to encourage the use of non-car modes of travel.

5.7 Summary

- 5.7.1 It is therefore concluded that the development proposals, access strategy, servicing strategy, car parking and cycle parking for the site are acceptable in transport terms.

6 TRAFFIC IMPACT ASSESSMENT

6.1 Introduction

6.1.1 This section of the report outlines the trip generation of the proposed scheme and discusses the impact of development traffic on the operation of the wider highway network. It begins by considering the traffic generating potential of the existing permitted use of the site before comparing that with the proposed use.

6.1.2 It should be noted that the existing permitted use of the site has been confirmed in the planning statement, submitted as part of this planning application.

6.2 TRICS Assessments

6.2.1 The TRICS database has been used to establish the level of traffic that could be generated by the existing use of the site. Unfortunately, data for this type of development is limited although there is a site that includes traffic data for a Tarmac manufacturing plant (TRICS site reference). A copy of the TRICS output file for this site can be found at **Appendix B**.

6.2.2 Applying the network weekday peak hour trip rate to the area of the site that is currently used for industrial purposes (circa 4 hectares) provides the traffic flows as provided in **Table 6.1** below.

<u>Time Period</u>	<u>Trip Rate</u>			<u>Vehicle Movements</u>		
	<u>Arrivals</u>	<u>Departures</u>	<u>A + D</u>	<u>Arrivals</u>	<u>Departures</u>	<u>A + D</u>
08:00-09:00	5.357	5.357	10.714	21	21	43
17:00-18:00	4.286	5	9.286	17	20	37

Table 6.1 – B1 Industrial Vehicles (Trip Rates and Vehicle Movements)

6.2.3 **Table 6.1** notes that the existing permitted uses of the site, should they come back into operation, could generate up to 43 peak hour trips in the morning and 37 peak hour trips in the evening. It should of course be remembered that many of these trips would be made by lorries or other, larger vehicles, rather than by car.

6.2.4 In order to calculate a trip rate and subsequent arrivals and departures for the proposed residential development, a TRICS report, which is contained in **Appendix B**, has been generated using the following parameters:

- Main land use – 03 (Residential);
- Sub land use – A (Houses Privately Owned);
- Surveys in all U.K. locations except those in Greater London, Northern Ireland and the Republic of Ireland;
- Surveys for developments of between 100 no. dwellings and 200 no. dwellings (to account for the estimated no. of dwellings for the proposed development being up to 140);
- Surveys undertaken between 06/02/01 and 08/07/19 (the maximum available date range);
- Surveys undertaken on weekdays only; and
- Surveys undertaken in “Edge of town”, “Edge of town centre” and “Suburban area” locations only.

6.2.5 The TRICS report returned three surveys which matched the above parameters. **Table 6.2** shows the trip rates and vehicles movements for a number of busy periods. It confirms that the peak periods for the proposed development are between 0800 and 0900 in the morning and between 1700 and 1800 in the evening.

<u>Time Period</u>	<u>Trip Rate</u>			<u>Vehicle Movements</u>		
	<u>Arrivals</u>	<u>Departures</u>	<u>A + D</u>	<u>Arrivals</u>	<u>Departures</u>	<u>A + D</u>
07:00-08:00	0.061	0.284	0.345	9	41	50
08:00-09:00	0.125	0.379	0.504	18	55	73
09:00-10:00	0.162	0.196	0.358	23	28	51
16:00-17:00	0.299	0.189	0.488	43	27	70
17:00-18:00	0.335	0.198	0.533	49	29	78
18:00-19:00	0.255	0.201	0.456	37	29	66

Table 6.2 – Residential Vehicles (Trip Rates and Vehicle Movements)

6.2.6 Based on the data in **Table 6.2**, it is estimated that there will be a maximum of 73 two-way trips associated with the development during the weekday morning peak hour, and 78 two-way trips in the evening peak hour. The maximum number of departures in any single hour will be 55 (less than 1 per minute) between 08:00 and 09:00.

6.2.7 A comparison can now be made between the current permitted industrial use of the site and the proposed residential use of the site. **Table 6.3** provides this comparison for each time period.

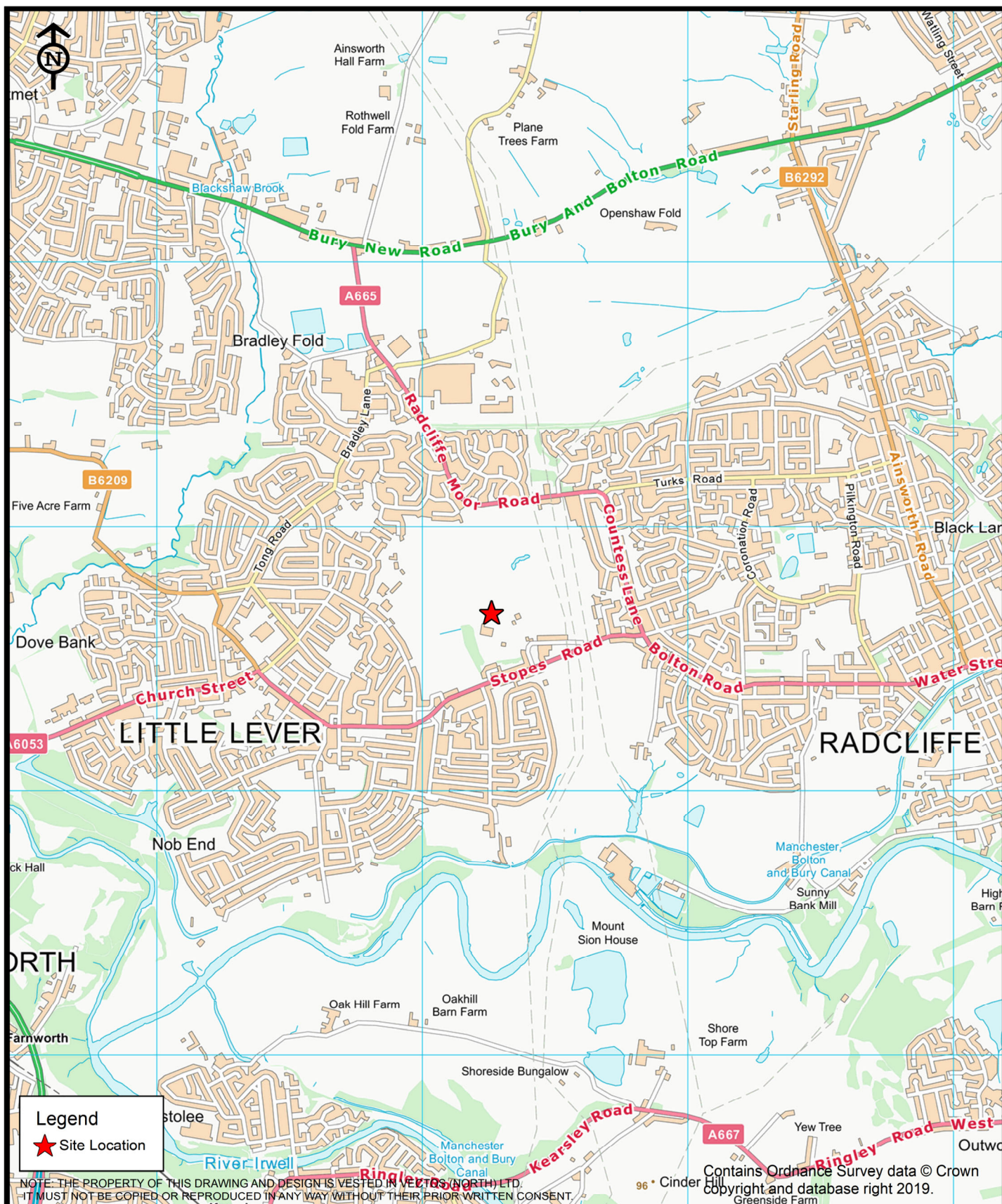
	<u>Permitted</u>			<u>Proposed</u>		
<u>Time Period</u>	<u>Arrivals</u>	<u>Departures</u>	<u>A + D</u>	<u>Arrivals</u>	<u>Departures</u>	<u>A + D</u>
08:00-09:00	21	21	43	18	55	73
AM Peak Hour Difference				-3	+34	+30
17:00-18:00	17	20	37	49	29	77
PM Peak Hour Difference				+32	+9	+40

Table 6.3 – Vehicles (Trip Rates and Vehicle Movements)

- 6.2.8 **Table 6.3** highlights that the development of the site for residential purposes as proposed could generate approximately 30 additional trips in the weekday morning peak hour and 40 additional trips in the evening peak hour when compared to the permitted use of the site. This amounts to less than one additional movement per minute, which will not have any impact upon the operation of the Stopes Road junction with the A6053.
- 6.2.9 An assessment on the flow of this traffic across the wider network has also been completed. In order to determine which direction on the A6053 Stopes Road vehicle movements will be going/coming from, journey to work data provided by Nomis for the super output area in which the site is located, Bolton 024, has been collated. The Google Maps journey planner was then used to determine whether vehicles would head westbound or eastbound along the A6053 Stopes Road to reach each of the destinations listed. This assessment, including the base Nomis data, is contained in full for reference in **Appendix C**.
- 6.2.10 Based on this methodology, it is estimated that 54% of vehicles would arrive or depart to the west towards Bolton and 46% of vehicles would arrive or depart to the east towards Bury. This therefore means that the development would result in an additional:
- 16 vehicles arriving and departing to/from the west in the morning peak hour;
 - 14 vehicles arriving and departing to/from the east in the morning peak hour;
 - 22 vehicles arriving and departing to/from the west in the evening peak hour; and
 - 18 vehicles arriving and departing to/from the east in the evening peak hour.
- 6.2.11 These increases in traffic will not result in any material impact upon the operation of the local highway network.

7 SUMMARY AND CONCLUSIONS

- 7.1.1 Vectos have been appointed by Harworth Group Plc to provide highways and transport advice in support of a planning application for a residential development of up to 140 dwellings on Stopes Road, Little Lever, Bolton.
- 7.1.2 The site lies within the jurisdiction of Bolton Council who act as both the planning authority and the highway authority. However, the site access junction that will serve the site leads onto Stopes Road, which forms part of the adopted highway that is under the control of Bury Council.
- 7.1.3 As a result, a full planning application is being submitted to both Bolton Council and Bury Council for review. The proposals will also be reviewed by Transport for Greater Manchester as part of the consultation process.
- 7.1.4 The site has a historic industrial use that includes the manufacturing of concrete blocks and the storage and recycling of aggregate.
- 7.1.5 This Transport Assessment has concluded that:
- There are no accident blackspots on the highway network in the vicinity of the site;
 - The site is highly accessible by foot, by bicycle, by bus and by rail;
 - Whilst the application is in outline, a masterplan has been developed which demonstrates that the scale of development can be accommodated with adequate provision for roads, car parking, service access and pedestrian facilities;
 - An enhanced site access junction onto Stopes Road will provide suitable visibility splays and sufficient width to cater for vehicles and pedestrians;
 - The traffic impact of the proposed development is acceptable and will not cause any material increase in traffic on the local highway network if approved.
- 7.1.6 It is therefore finally concluded that there are no highway reasons why this application should not be granted.



CLIENT:

Harworth Group PLC

PROJECT TITLE:

Residential Development, Stopes Road, Little Lever,
Bolton

DRAWING TITLE:

Site Location - Wider Context

DRAWN:

TA

CHECKED:

AS

DATE

Aug. 2020

SCALE:

1:20,000 at A4

DRAWING NO:

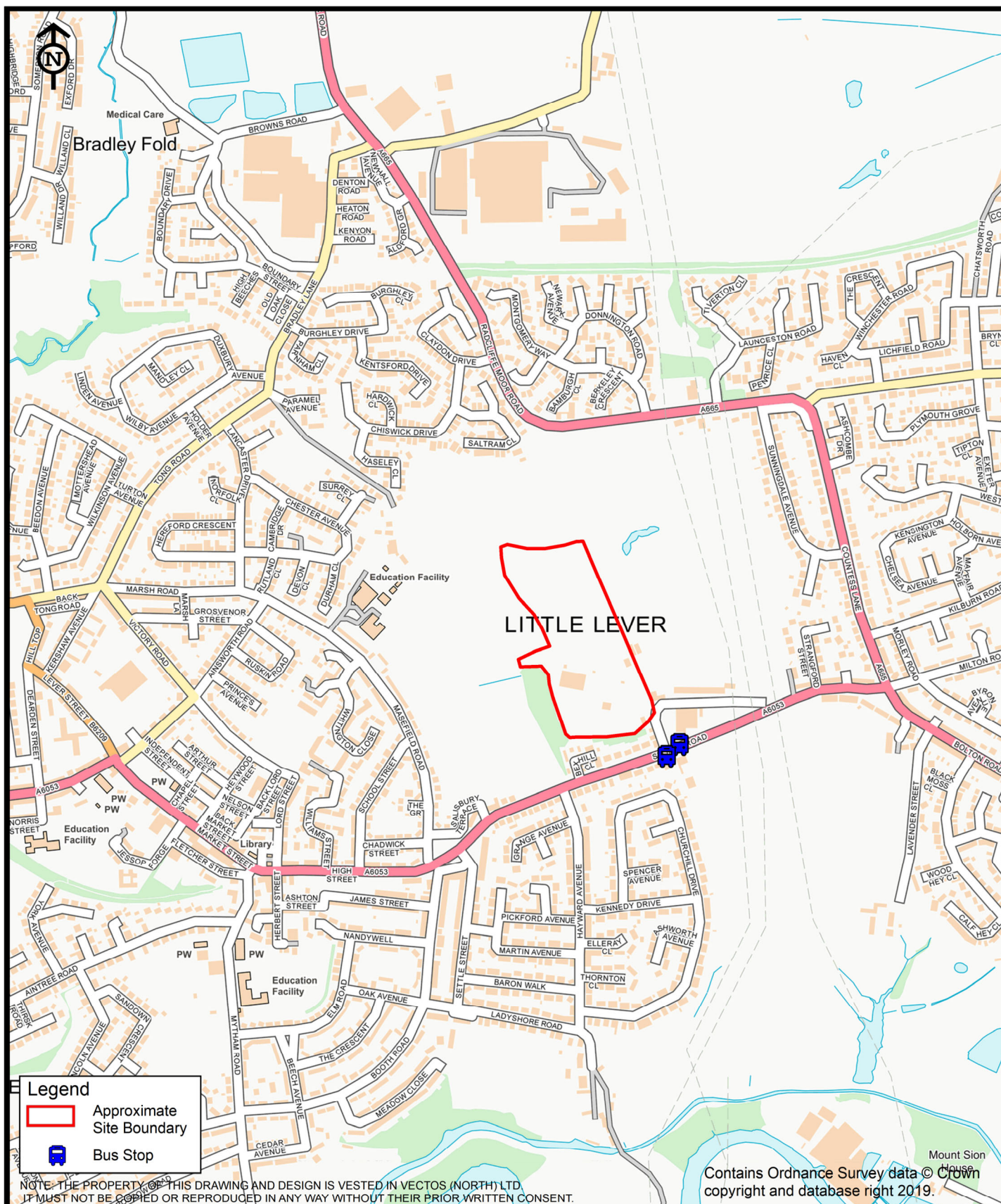
VN201653-G100

REVISION:

.



Oxford Place, 61 Oxford Street, Manchester M1 6EQ
t:0161 228 1008 e:manchester@vectos.co.uk



CLIENT:

Harworth Group PLC

PROJECT TITLE:

Residential Development, Stopes Road, Little Lever, Bolton

DRAWING TITLE:

Site Location - Local Context



Oxford Place, 61 Oxford Street, Manchester M1 6EQ
t:0161 228 1008 e:manchester@vectos.co.uk

DRAWN:

TA

CHECKED:

AS

DATE

Aug. 2020

SCALE:

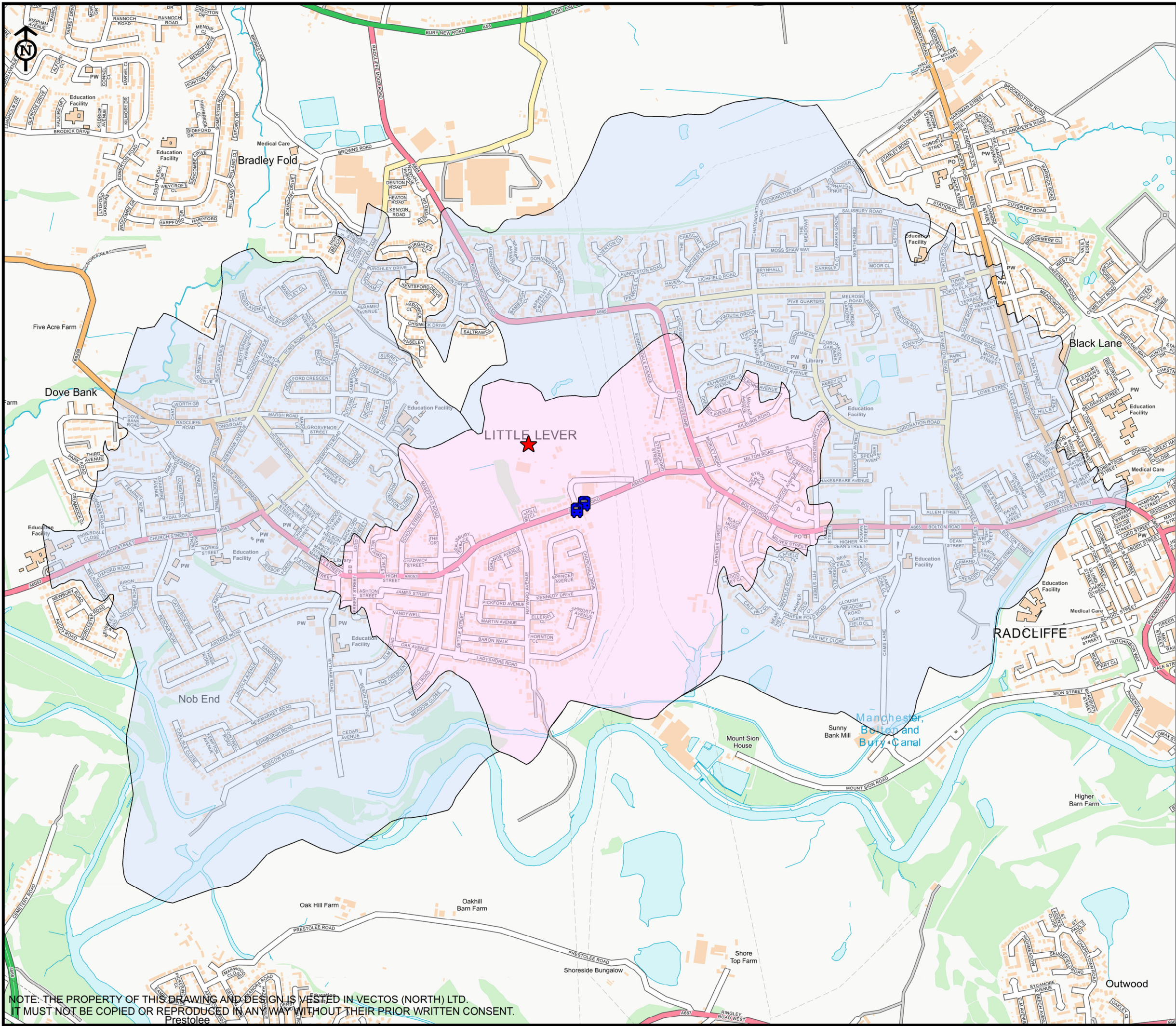
1:10,000 at A4

DRAWING NO:

VN201653-G101

REVISION:

.



- Legend**
- ★ Site Location
 - 🚌 Bus Stop
 - Walking Catchment**
 - 0 - 1km
 - 1km - 2km

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CLIENT:
Harworth Group PLC

PROJECT TITLE:
Residential Development, Stopes Road, Little Lever, Bolton

DRAWING TITLE:
Pedestrian Walking Catchment

SCALE:
N.T.S

DRAWN: TA	CHECKED: AS	DATE: Aug. 2020
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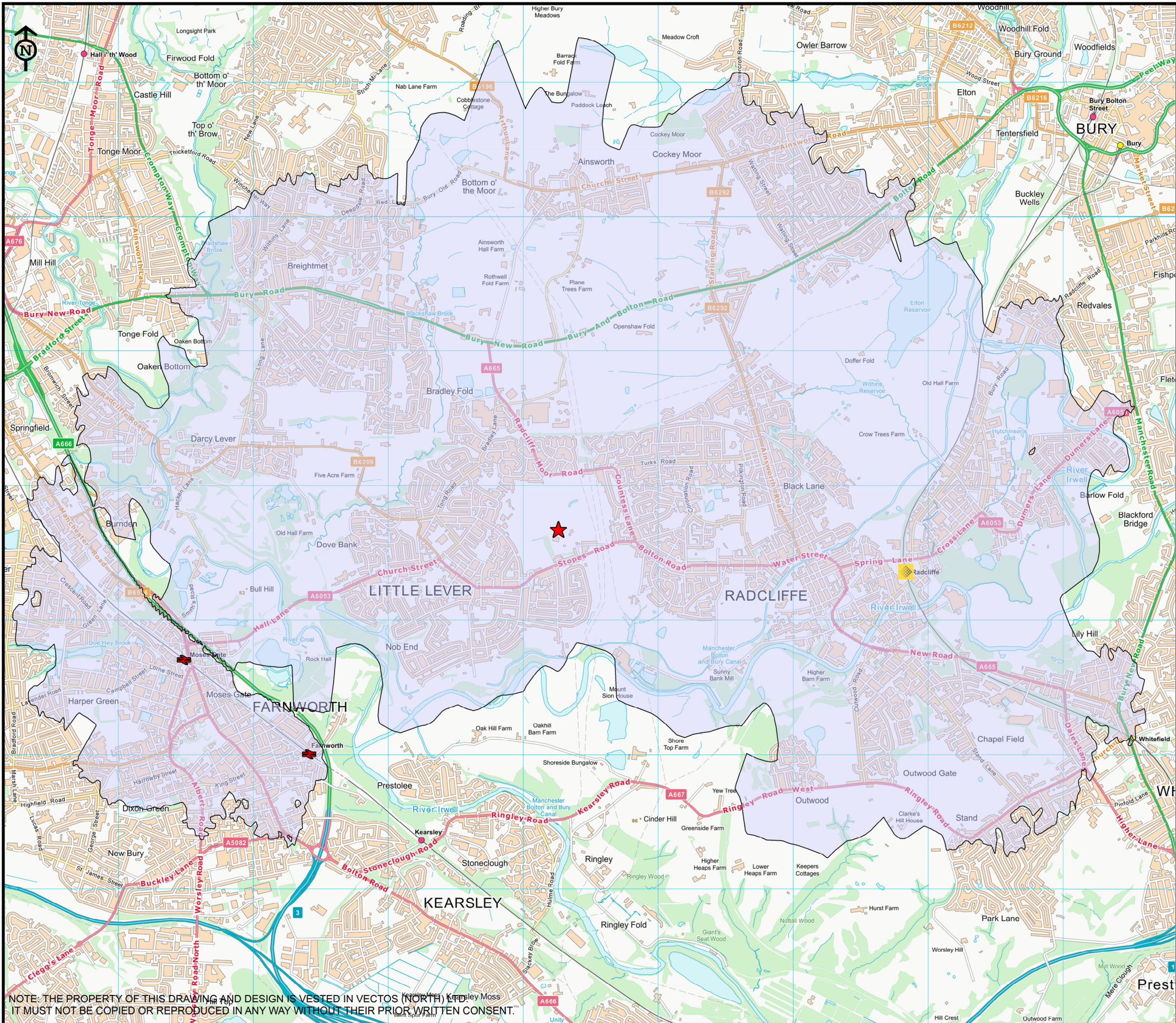


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t:0161 228 1008 e:manchester@vectos.co.uk

DRAWING NO:
VN201653-G102

REVISION:

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- Legend
- ★ Site Location
 - 📍 Metrolink Station
 - 🚂 Railway Station
 - Cycling Catchment
 - 0 - 5km

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CLIENT:
Harworth Group PLC

PROJECT TITLE:
Residential Development, Stopes Road, Little Lever, Bolton

DRAWING TITLE:
Cycling Catchment

SCALE:
N.T.S

DRAWN: TA	CHECKED: AS	DATE: Aug. 2020
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Oxford Place, 61 Oxford Street, Manchester M1 6EQ
t:0161 228 1008 e:manchester@vectos.co.uk

DRAWING NO:
VN201653-G103

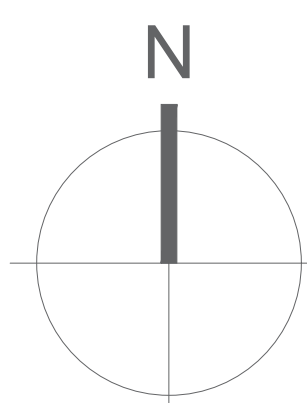
REVISION:

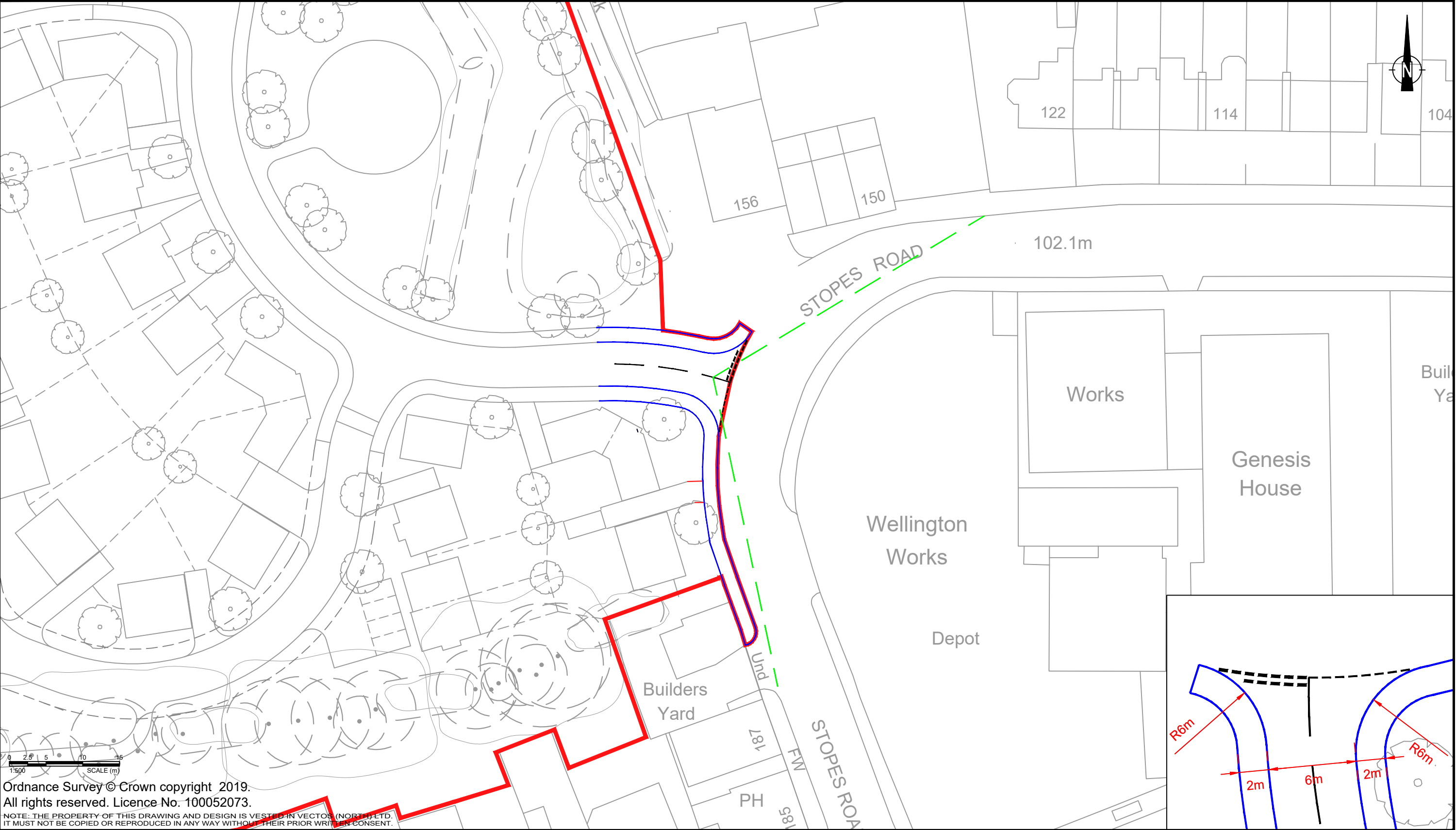
NOTE: THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN VECTOS (NORTH) LIMITED. IT MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR PRIOR WRITTEN CONSENT.

APPENDIX A

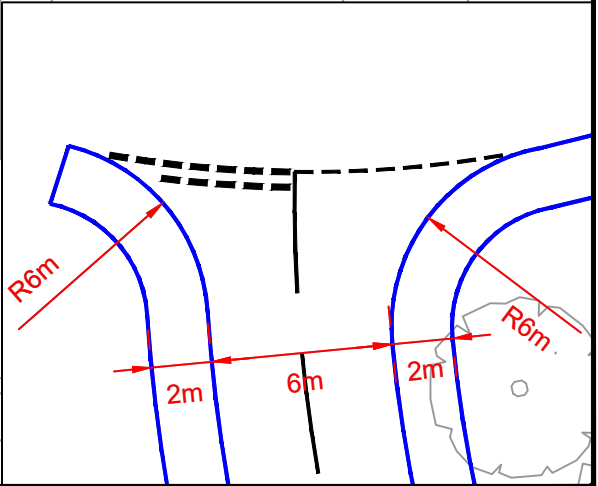
Proposed Site Layout and Access

Number 100022432





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REV.	DETAILS	DRAWN	CHECKED	DATE
A	Amendments made to layout	WD	AS	06.08.20
B	Amendments made to layout	WD	AS	09.10.20

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.

2. White lining is indicative only.

Visibility splay - 2.4m x 43m

Stopes Road - Little Lever, Bolton

Proposed Site Access

Harworth



transport planning specialists

4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

DRAWN: TO

CHECKED: AS

DATE: 31.07.20

SCALES: 1:500 at A3

DRAWING NUMBER: VN201653-D100

REVISION: B

APPENDIX B

TRICS Assessments - Tarmac Production Site and Proposed Development

Calculation Reference: AUDIT-715001-200806-0854

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : C - INDUSTRIAL UNIT
VEHICLES

Selected regions and areas:

01 GREATER LONDON
HD HILLINGDON 1 days

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

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Site area
Actual Range: 2.80 to 2.80 (units: hect)
Range Selected by User: 0.05 to 45.00 (units: hect)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 14/11/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Friday 1 days

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

Selected survey types:

Manual count 1 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre) 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

B1 1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

10,001 to 15,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000

1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5

1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No

1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present

1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 HD-02-C-01 TARMAC PRODUCTION HILLINGDON
 PUMP LANE
 HAYES

Suburban Area (PPS6 Out of Centre)
 Industrial Zone
 Total Site area: 2.80 hect
 Survey date: FRIDAY 11/05/12 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AN-02-C-01	Not representative
BR-02-C-02	Not representative
BT-02-C-02	Not representative
CF-02-C-02	Not representative
CH-02-C-02	Not representative
CH-02-C-03	Not representative
CR-02-C-01	Not representative
CS-02-C-01	Not representative
DL-02-C-01	Not representative
DS-02-C-02	Not representative
DV-02-C-01	Not representative
DV-02-C-02	Not representative
HC-02-C-01	Not representative
HC-02-C-02	Not representative
HD-02-C-02	Not representative
HE-02-C-02	Not representative
KE-02-C-01	Not representative
KK-02-C-01	Not representative
KK-02-C-02	Not representative
LC-02-C-02	Not representative
LC-02-C-03	Not representative
LC-02-C-04	Not representative
LT-02-C-01	Not representative
MG-02-C-02	Not representative
NF-02-C-03	Not representative
NF-02-C-04	Not representative
RE-02-C-01	Not representative
RO-02-C-01	Not representative
RO-02-C-02	Not representative
SF-02-C-01	Not representative
SR-02-C-01	Not representative
TW-02-C-01	Not representative
TY-02-C-01	Not representative
WC-02-C-01	Not representative
WM-02-C-03	Not representative
WM-02-C-04	Not representative
WS-02-C-02	Not representative
WS-02-C-03	Not representative
WY-02-C-02	Not representative
WY-02-C-03	Not representative

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

VEHICLES

Calculation factor: 1 hect

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	2.80	11.071	1	2.80	10.000	1	2.80	21.071
08:00 - 09:00	1	2.80	5.357	1	2.80	5.357	1	2.80	10.714
09:00 - 10:00	1	2.80	6.786	1	2.80	7.143	1	2.80	13.929
10:00 - 11:00	1	2.80	7.857	1	2.80	7.857	1	2.80	15.714
11:00 - 12:00	1	2.80	8.929	1	2.80	8.571	1	2.80	17.500
12:00 - 13:00	1	2.80	7.143	1	2.80	11.429	1	2.80	18.572
13:00 - 14:00	1	2.80	5.357	1	2.80	6.429	1	2.80	11.786
14:00 - 15:00	1	2.80	6.786	1	2.80	8.571	1	2.80	15.357
15:00 - 16:00	1	2.80	6.429	1	2.80	7.857	1	2.80	14.286
16:00 - 17:00	1	2.80	5.714	1	2.80	6.071	1	2.80	11.785
17:00 - 18:00	1	2.80	4.286	1	2.80	5.000	1	2.80	9.286
18:00 - 19:00	1	2.80	2.143	1	2.80	3.214	1	2.80	5.357
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			77.858			87.499			165.357

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	2.80 to 2.80 (units: hect)
Survey date range:	01/01/12 - 14/11/19
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	40

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-715001-200715-0741

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HF HERTFORDSHIRE	1 days
	KC KENT	1 days
	WS WEST SUSSEX	3 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
08	NORTH WEST	
	LC LANCASHIRE	1 days
10	WALES	
	CF CARDIFF	1 days
11	SCOTLAND	
	FI FIFE	1 days

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

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 101 to 197 (units:)
 Range Selected by User: 100 to 200 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 06/02/01 to 08/07/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	3 days
Tuesday	3 days
Wednesday	1 days
Thursday	4 days
Friday	3 days

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

Selected survey types:

Manual count	14 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	1
Edge of Town	13

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 14 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
5,001 to 10,000	2 days
10,001 to 15,000	2 days
15,001 to 20,000	7 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	3 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	7 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	7 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Not Known	1 days
Yes	4 days
No	9 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	14 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-03-A-01 FALLOWFIELD CAMBRIDGE CHESTERTON Edge of Town Residential Zone Total No of Dwellings: 124 Survey date: TUESDAY 06/02/01	SEMI D./TERRACED	CAMBRIDGESHIRE	Survey Type: MANUAL
2	CF-03-A-02 DROPE ROAD CARDIFF Edge of Town Residential Zone Total No of Dwellings: 196 Survey date: FRIDAY 05/10/07	MIXED HOUSES	CARDIFF	Survey Type: MANUAL
3	ES-03-A-04 NEW LYDD ROAD CAMBER Edge of Town Residential Zone Total No of Dwellings: 134 Survey date: FRIDAY 15/07/16	MIXED HOUSES & FLATS	EAST SUSSEX	Survey Type: MANUAL
4	FI-03-A-03 WOODMILL ROAD DUNFERMLINE Edge of Town Residential Zone Total No of Dwellings: 155 Survey date: MONDAY 30/04/07	MIXED HOUSES	FIFE	Survey Type: MANUAL
5	HF-03-A-03 HARE STREET ROAD BUNTINGFORD Edge of Town Residential Zone Total No of Dwellings: 160 Survey date: MONDAY 08/07/19	MIXED HOUSES	HERTFORDSHIRE	Survey Type: MANUAL
6	KC-03-A-04 KILN BARN ROAD AYLESFORD DITTON Edge of Town Residential Zone Total No of Dwellings: 110 Survey date: FRIDAY 22/09/17	SEMI-DETACHED & TERRACED	KENT	Survey Type: MANUAL
7	LC-03-A-29 REVIDGE ROAD BLACKBURN FOUR LANE ENDS Edge of Town Residential Zone Total No of Dwellings: 185 Survey date: THURSDAY 10/06/04	DETACHED/SEMI D.	LANCASHIRE	Survey Type: MANUAL
8	LN-03-A-01 BRANT ROAD LINCOLN BRACEBRIDGE Edge of Town Residential Zone Total No of Dwellings: 150 Survey date: TUESDAY 15/05/07	MIXED HOUSES	LINCOLNSHIRE	Survey Type: MANUAL
9	NE-03-A-03 STATION ROAD SCUNTHORPE Edge of Town Centre Residential Zone Total No of Dwellings: 180 Survey date: TUESDAY 20/05/14	PRIVATE HOUSES	NORTH EAST LINCOLNSHIRE	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

10	NT-03-A-03	SEMI DETACHED		NOTTINGHAMSHIRE
	B6018 SUTTON ROAD			
	KIRKBY-IN-ASHFIELD			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	166		
	Survey date: WEDNESDAY	28/06/06	Survey Type: MANUAL	
11	SF-03-A-03	MIXED HOUSES		SUFFOLK
	BARTON HILL			
	BURY ST EDMUNDS			
	FORNHAM ST MARTIN			
	Edge of Town			
	Out of Town			
	Total No of Dwellings:	101		
	Survey date: MONDAY	15/05/06	Survey Type: MANUAL	
12	WS-03-A-04	MIXED HOUSES		WEST SUSSEX
	HILLS FARM LANE			
	HORSHAM			
	BROADBRIDGE HEATH			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	151		
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL	
13	WS-03-A-08	MIXED HOUSES		WEST SUSSEX
	ROUNDSTONE LANE			
	ANGMERING			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	180		
	Survey date: THURSDAY	19/04/18	Survey Type: MANUAL	
14	WS-03-A-09	MIXED HOUSES & FLATS		WEST SUSSEX
	LITTLEHAMPTON ROAD			
	WORTHING			
	WEST DURRINGTON			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	197		
	Survey date: THURSDAY	05/07/18	Survey Type: MANUAL	

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	156	0.061	14	156	0.284	14	156	0.345
08:00 - 09:00	14	156	0.125	14	156	0.379	14	156	0.504
09:00 - 10:00	14	156	0.162	14	156	0.196	14	156	0.358
10:00 - 11:00	14	156	0.137	14	156	0.184	14	156	0.321
11:00 - 12:00	14	156	0.158	14	156	0.157	14	156	0.315
12:00 - 13:00	14	156	0.177	14	156	0.158	14	156	0.335
13:00 - 14:00	14	156	0.180	14	156	0.164	14	156	0.344
14:00 - 15:00	14	156	0.169	14	156	0.189	14	156	0.358
15:00 - 16:00	14	156	0.271	14	156	0.189	14	156	0.460
16:00 - 17:00	14	156	0.299	14	156	0.189	14	156	0.488
17:00 - 18:00	14	156	0.335	14	156	0.198	14	156	0.533
18:00 - 19:00	14	156	0.255	14	156	0.201	14	156	0.456
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.329			2.488			4.817

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 101 - 197 (units:)
 Survey date range: 06/02/01 - 08/07/19
 Number of weekdays (Monday-Friday): 14
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	156	0.011	14	156	0.015	14	156	0.026
08:00 - 09:00	14	156	0.017	14	156	0.030	14	156	0.047
09:00 - 10:00	14	156	0.006	14	156	0.006	14	156	0.012
10:00 - 11:00	14	156	0.006	14	156	0.008	14	156	0.014
11:00 - 12:00	14	156	0.006	14	156	0.006	14	156	0.012
12:00 - 13:00	14	156	0.012	14	156	0.010	14	156	0.022
13:00 - 14:00	14	156	0.005	14	156	0.004	14	156	0.009
14:00 - 15:00	14	156	0.010	14	156	0.006	14	156	0.016
15:00 - 16:00	14	156	0.021	14	156	0.013	14	156	0.034
16:00 - 17:00	14	156	0.015	14	156	0.014	14	156	0.029
17:00 - 18:00	14	156	0.026	14	156	0.013	14	156	0.039
18:00 - 19:00	14	156	0.015	14	156	0.012	14	156	0.027
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.150			0.137			0.287

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	156	0.023	14	156	0.048	14	156	0.071
08:00 - 09:00	14	156	0.045	14	156	0.175	14	156	0.220
09:00 - 10:00	14	156	0.060	14	156	0.061	14	156	0.121
10:00 - 11:00	14	156	0.038	14	156	0.058	14	156	0.096
11:00 - 12:00	14	156	0.045	14	156	0.057	14	156	0.102
12:00 - 13:00	14	156	0.055	14	156	0.045	14	156	0.100
13:00 - 14:00	14	156	0.045	14	156	0.054	14	156	0.099
14:00 - 15:00	14	156	0.048	14	156	0.057	14	156	0.105
15:00 - 16:00	14	156	0.171	14	156	0.084	14	156	0.255
16:00 - 17:00	14	156	0.100	14	156	0.064	14	156	0.164
17:00 - 18:00	14	156	0.077	14	156	0.049	14	156	0.126
18:00 - 19:00	14	156	0.064	14	156	0.063	14	156	0.127
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.771			0.815			1.586

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	156	0.002	14	156	0.012	14	156	0.014
08:00 - 09:00	14	156	0.001	14	156	0.032	14	156	0.033
09:00 - 10:00	14	156	0.002	14	156	0.010	14	156	0.012
10:00 - 11:00	14	156	0.003	14	156	0.002	14	156	0.005
11:00 - 12:00	14	156	0.004	14	156	0.005	14	156	0.009
12:00 - 13:00	14	156	0.005	14	156	0.007	14	156	0.012
13:00 - 14:00	14	156	0.006	14	156	0.004	14	156	0.010
14:00 - 15:00	14	156	0.005	14	156	0.004	14	156	0.009
15:00 - 16:00	14	156	0.017	14	156	0.006	14	156	0.023
16:00 - 17:00	14	156	0.012	14	156	0.005	14	156	0.017
17:00 - 18:00	14	156	0.010	14	156	0.002	14	156	0.012
18:00 - 19:00	14	156	0.011	14	156	0.002	14	156	0.013
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.078			0.091			0.169

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Licence No: 715001

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	156	0.104	14	156	0.455	14	156	0.559
08:00 - 09:00	14	156	0.212	14	156	0.865	14	156	1.077
09:00 - 10:00	14	156	0.261	14	156	0.345	14	156	0.606
10:00 - 11:00	14	156	0.219	14	156	0.317	14	156	0.536
11:00 - 12:00	14	156	0.263	14	156	0.279	14	156	0.542
12:00 - 13:00	14	156	0.305	14	156	0.285	14	156	0.590
13:00 - 14:00	14	156	0.310	14	156	0.288	14	156	0.598
14:00 - 15:00	14	156	0.295	14	156	0.333	14	156	0.628
15:00 - 16:00	14	156	0.677	14	156	0.366	14	156	1.043
16:00 - 17:00	14	156	0.583	14	156	0.361	14	156	0.944
17:00 - 18:00	14	156	0.585	14	156	0.340	14	156	0.925
18:00 - 19:00	14	156	0.458	14	156	0.369	14	156	0.827
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.272			4.603			8.875

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

APPENDIX C

Journey to Work Data Assessment

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

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population All usual residents aged 16 and over in employment the week before the census
units Persons
date 2011
method of travel to work All categories: Method of travel to work (2001 specification)

place of work : 2011 census merged local authority district	E02001007 : Bolton 024	West (to Bolton)	East (to Bury	
Bolton	2,259	1,507	752	Bolton Traffic has been split (66%W,33% E) as each route is very similar in terms of time based on google traffic. Distance is almost identical. Traffic to south bolton likely to go west and to north Bolton, East.
Bury	584		584	
Manchester	307	153	154	Manchester traffic split 50/50 due to routeing similar. Direction will depend on which part of Manchester is the destination
Salford	298	149	149	
Trafford	144	144		Salford traffic split 50/50 due to routeing similar. Direction will depend on which part of Salford is the destination
Wigan	93	93		
Rochdale	84		84	
Warrington	51	51		
Blackburn with Darwen	48		48	
Oldham	42		42	
Stockport	35	17	18	Stockport traffic split 50/50 due to routeing similar. Direction will depend on which part of Stockport is the destination
Preston	27	27		
Tameside	25		25	
Chorley	22	22		
Rossendale	20		20	
South Ribble	16	16		
Halton	13	13		
St. Helens	11	11		
Bradford	10		10	
Liverpool	9	9		
Cheshire West and Che	7	7		
Leeds	6		6	
Wiltshire	6	6		
Cheshire East	5	5		
Burnley	5		5	
West Lancashire	5	5		
Kirklees	5		5	
Hyndburn	4		4	
Ribble Valley	4		4	
Rotherham	3		3	
Nottingham	3		3	
Birmingham	3	3		
Camden	3	3		
West Oxfordshire	3	3		
Flintshire	3	3		
Northumberland	2		2	
Blackpool	2	2		
Carlisle	2	2		
South Lakeland	2	2		
Fylde	2	2		
Pendle	2		2	
Knowsley	2	2		
Craven	2		2	
Richmondshire	2		2	
Calderdale	2		2	
Leicester	2	2		
Coventry	2	2		
Luton	2	2		
Breckland	2		2	
Westminster,City of Lor	2	2		
Vale of White Horse	2	2		
Tewkesbury	2	2		
West Somerset	2	2		
Denbighshire	2	2		
County Durham	1			
Gateshead	1	2,273	1,928	4,201
Copeland	1	54%	46%	
Wyre	1			
Sefton	1			
Hambleton	1			
Harrogate	1			
Barnsley	1			
Sheffield	1			
Wakefield	1			
High Peak	1			
North West Leicestersh	1			
Lincoln	1			
North Kesteven	1			
Stoke-on-Trent	1			
Tamworth	1			
Redditch	1			
Dudley	1			
Peterborough	1			
Hertsmere	1			
Stevenage	1			
Mid Suffolk	1			
Hackney	1			
Kingston upon Thames	1			
Reading	1			
Portsmouth	1			
East Hampshire	1			
Cherwell	1			
Oxford	1			
Elmbridge	1			
Mole Valley	1			
Woking	1			
Chichester	1			
Crawley	1			
Horsham	1			
Bath and North East So	1			
South Gloucestershire	1			
East Devon	1			
Teignbridge	1			
Cheltenham	1			
Sedgemoor	1			
Taunton Deane	1			
Caerphilly	1			
Hartlepool	0			
Middlesbrough	0			
Redcar and Cleveland	0			

Stockton-on-Tees	0
Darlington	0
Newcastle upon Tyne	0
North Tyneside	0
South Tyneside	0
Sunderland	0
Allerdale	0
Barrow-in-Furness	0
Eden	0
Lancaster	0
Wirral	0
Kingston upon Hull, City	0
East Riding of Yorkshire	0
North East Lincolnshire	0
North Lincolnshire	0
York	0
Ryedale	0
Scarborough	0
Selby	0
Doncaster	0
Derby	0
Rutland	0
Amber Valley	0
Bolsover	0
Chesterfield	0
Derbyshire Dales	0
Erewash	0
North East Derbyshire	0
South Derbyshire	0
Blaby	0
Charnwood	0
Harborough	0
Hinckley and Bosworth	0
Melton	0
Oadby and Wigston	0
Boston	0
East Lindsey	0
South Holland	0
South Kesteven	0
West Lindsey	0
Corby	0
Daventry	0
East Northamptonshire	0
Kettering	0
Northampton	0
South Northamptonshin	0
Wellingborough	0
Ashfield	0
Bassetlaw	0
Broxtowe	0
Gedling	0
Mansfield	0
Newark and Sherwood	0
Rushcliffe	0
Herefordshire, County c	0
Telford and Wrekin	0
Shropshire	0
Cannock Chase	0
East Staffordshire	0
Lichfield	0
Newcastle-under-Lyme	0
South Staffordshire	0
Stafford	0
Staffordshire Moorlands	0
North Warwickshire	0
Nuneaton and Bedwortl	0
Rugby	0
Stratford-on-Avon	0
Warwick	0
Bromsgrove	0
Malvern Hills	0
Worcester	0
Wychavon	0
Wyre Forest	0
Sandwell	0
Solihull	0
Walsall	0
Wolverhampton	0
Southend-on-Sea	0
Thurrock	0
Bedford	0
Central Bedfordshire	0
Cambridge	0
East Cambridgeshire	0
Fenland	0
Huntingdonshire	0
South Cambridgeshire	0
Basildon	0
Braintree	0
Brentwood	0
Castle Point	0
Chelmsford	0
Colchester	0
Epping Forest	0
Harlow	0
Maldon	0
Rochford	0
Tendring	0
Uttlesford	0
Broxbourne	0
Dacorum	0
East Hertfordshire	0
North Hertfordshire	0
St Albans	0
Three Rivers	0
Watford	0
Welwyn Hatfield	0
Broadland	0
Great Yarmouth	0
King's Lynn and West N	0
North Norfolk	0
Norwich	0

South Norfolk	0
Babergh	0
Forest Heath	0
Ipswich	0
St Edmundsbury	0
Suffolk Coastal	0
Waveney	0
Barking and Dagenham	0
Barnet	0
Bexley	0
Brent	0
Bromley	0
Croydon	0
Ealing	0
Enfield	0
Greenwich	0
Hammersmith and Fulh	0
Haringey	0
Harrow	0
Havering	0
Hillingdon	0
Hounslow	0
Islington	0
Kensington and Chelse	0
Lambeth	0
Lewisham	0
Merton	0
Newham	0
Redbridge	0
Richmond upon Thame	0
Southwark	0
Sutton	0
Tower Hamlets	0
Waltham Forest	0
Wandsworth	0
Medway	0
Bracknell Forest	0
West Berkshire	0
Slough	0
Windsor and Maidenhe	0
Wokingham	0
Milton Keynes	0
Brighton and Hove	0
Southampton	0
Isle of Wight	0
Aylesbury Vale	0
Chiltern	0
South Bucks	0
Wycombe	0
Eastbourne	0
Hastings	0
Lewes	0
Rother	0
Wealden	0
Basingstoke and Deane	0
Eastleigh	0
Fareham	0
Gosport	0
Hart	0
Havant	0
New Forest	0
Rushmoor	0
Test Valley	0
Winchester	0
Ashford	0
Canterbury	0
Dartford	0
Dover	0
Gravesham	0
Maidstone	0
Sevenoaks	0
Shepway	0
Swale	0
Thanet	0
Tonbridge and Malling	0
Tunbridge Wells	0
South Oxfordshire	0
Epsom and Ewell	0
Guildford	0
Reigate and Banstead	0
Runnymede	0
Spelthorne	0
Surrey Heath	0
Tandridge	0
Waverley	0
Adur	0
Arun	0
Mid Sussex	0
Worthing	0
Bristol, City of	0
Cornwall,Isles of Scilly	0
North Somerset	0
Plymouth	0
Torbay	0
Bournemouth	0
Poole	0
Swindon	0
Exeter	0
Mid Devon	0
North Devon	0
South Hams	0
Torridge	0
West Devon	0
Christchurch	0
East Dorset	0
North Dorset	0
Purbeck	0
West Dorset	0
Weymouth and Portlan	0
Cotswold	0
Forest of Dean	0
Gloucester	0

Stroud	0
Mendip	0
South Somerset	0
Isle of Anglesey	0
Gwynedd	0
Conwy	0
Wrexham	0
Ceredigion	0
Pembrokeshire	0
Carmarthenshire	0
Swansea	0
Neath Port Talbot	0
Bridgend	0
The Vale of Glamorgan	0
Cardiff	0
Rhondda Cynon Taf	0
Blaenau Gwent	0
Torfaen	0
Monmouthshire	0
Newport	0
Powys	0
Merthyr Tydfil	0

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.