



Proposed Lidl Foodstore Crosland Moor, Huddersfield

Transport Assessment

December 2023

PROPOSED LIDL FOODSTORE
CROSLAND MOOR
HUDDERSFIELD

LIDL GREAT BRITAIN LTD

TRANSPORT ASSESSMENT

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1.0 INTRODUCTION

- 1.1 This Transport Assessment (TA) forms part of a full planning application submitted by Lidl Great Britain Ltd (Lidl) for the ‘erection of a foodstore (Use Class E) with associated access, parking, servicing area and landscaping’ on land at the former St Luke’s Hospital site, Blackmoorfoot Road, Crosland Moor, Huddersfield.
- 1.2 The site is located within the residential area of Crosland Moor, approximately 2.1 kilometres to the south-west of Huddersfield town centre. The proposed development site is previously developed land and is bound to the north-west by Blackmoorfoot Road, by Turnstone Way to the north-east and by a recently developed residential estate to the south. The site location is shown in Figure 1.1 below and also on the location plan attached at **Appendix BGH1**.

Figure 1.1: Site Location



- 1.3 Previously on this site, an outline application was submitted to Kirklees Council in December 2015 (application reference 2014/60/93099/W) comprising “Outline application for phased development comprising up to 200 dwellings with associated infrastructure and open space; retail units (open use class A1); accommodation for potential neighbourhood uses (use class A2/D1/D2/sui generis); restaurant/public house (use class A3/A4); and petrol filling station (sui generis)”. Since the grant of outline permission, a number of applications for amendments to this permission (under Section 73) and for the approval of reserved matters applications have been approved, as detailed in the Planning & Retail Statement. The residential element of the scheme, known as Fitzwilliam Grange, has now been built out by Avant Homes, although not all of the units are occupied.

Whilst this application comprises a new application for development of a Lidl foodstore on part of the site, as set out above, the principle of retail development on the site was established by the original outline planning permission.

- 1.4 In relation to a foodstore on the site, a planning application was submitted to Kirklees Council and validated on 12th May 2023 (reference 2023/62/91405/W) for the 'Erection of foodstore (class E) with associated access, parking, servicing area and landscaping'. A TA was submitted in support of this application (report reference 21-209-004.02). However, since the original planning submission, Lidl have updated their standard store specification and intend to adopt this new store layout at this site. This revised TA has therefore been prepared to support the revised store layout along with other resulting changes. At the time of writing this revised TA, no formal highways consultation response has yet been provided by Kirklees Council on the original planning submission.
- 1.5 The planning application which this TA accompanies seeks permission for the construction of a new Lidl foodstore with a gfa of 2,000m² and a retail floor area (rfa) of 1,331m². The proposals include a car park with a total provision of 93 parking spaces, comprising of 74 standard spaces, 6 disabled spaces, 9 parent and child spaces, 2 electric vehicle (EV) charging spaces and 2 motorcycle spaces. The development plot is essentially the parcel of land which was reserved for the retail units described above which formed part of the original planning consent on the site, therefore the principle of retail development on this land is already accepted by the planning and highway authority. This TA has been updated to address highways comments on the original application. This includes updating the operational assessment work at the Blackmoorfoot Road/Turnstone Way junction based on updated September 2023 traffic surveys.
- 1.6 Access to the proposed Lidl foodstore will be provided from a priority-controlled T-Junction with Turnstone Way along the north-eastern boundary of the site. There is an existing access formed into the site off Turnstone Way located some 40 metres to the south-east of the Turnstone Way / Blackmoorfoot Road junction. This access is not in use currently, and as part of the proposals the access will be widened and relocated some 10 metres to the north, still some 30 metres away from the junction with Blackmoorfoot Road. Access to Blackmoorfoot Road and the wider network is provided via a T-junction which was constructed as part of the residential development on the site. Turnstone Way forms the access road for the residential development on the site, with the short stub currently providing access into the site from Turnstone Way. The form of the junction between Turnstone Way and Blackmoorfoot Road, as a simple priority T-junction has been assessed within this

TA and has been found to be appropriate to serve the scale of the development proposals.

- 1.7 Pedestrian access to the site will be provided via footways adjacent to the vehicular access with Turnstone Way. Access for cyclists will be provided on-carriageway via the proposed vehicular access to the store on Turnstone Way.
- 1.8 This TA will demonstrate that the development proposals accord with relevant national and local transport planning policy and that the traffic generated will not have a severe residual impact on the operation of the local highway network. This TA reflects the arrangements proposed in the latest site layout plan.
- 1.9 The application is accompanied by a Travel Plan (TP) which sets out a series of measures to be adopted by Lidl, to assist with its commitment to reducing the number of car trips associated with the store and encouraging travel to and from the store by more sustainable means. The TP has been prepared predominantly for staff at the store but will also be aimed at customers where applicable.
- 1.10 The remainder of this TA is structured as set out in Table 1.1 below:-

Table 1.1
Transport Assessment Report Structure

Section	Title	Description
2.0	Relevant Planning and Transport Policy	This section will set out the local and national planning and transport policy relevant to the application site.
3.0	The Application Site and the Existing Highway Network	This section will describe the existing site, the local highway network and its function.
4.0	Existing Operating Conditions	This section includes an assessment of the existing operation of the local highway network based upon up-to-date traffic flow information.
5.0	Sustainable Transport	This section will describe the existing situation in the vicinity of the site with regards to the opportunities for customers and employees to travel by alternative modes, such as by walking, cycling and public transport.
6.0	Base Operating Conditions	This section will assess the operation of the highway network at a future base year, including background traffic growth and committed development, but in the absence of the development site.
7.0	The Development Proposals	This section describes the proposed development, the vehicular and pedestrian access strategy and an assessment of the car parking needs.
8.0	Development Trip Generation, Trip Types and Distribution	This section presents trip generation rates for the development and assesses the distribution of development related traffic on to the highway network.
9.0	Traffic Impact on the Local Highway Network	The impact of the traffic generated by the development on the local highway network is presented in this section.
10.0	Summary & Conclusions	This section presents the conclusions drawn from the analysis contained within the Transport Assessment.

- 1.11 This TA will demonstrate that the development proposals are acceptable in transport terms and that planning consent should not be reasonably withheld on highways or transportation grounds.

2.0 RELEVANT PLANNING AND TRANSPORT POLICY

National Policy

National Planning Policy Framework (NPPF)

2.1 The National Planning Policy Framework (NPPF) was first published in March 2012 and most recently revised in September 2023. It sets out the Government's planning policies for England and how these should be applied.

2.2 Paragraph 110 of the NPPF states that:

"In assessing sites that may be allocated for development in plans, or specific 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;*
- c) The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
- d) 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."*

2.3 Paragraph 111 of the NPPF states 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."

2.4 Paragraph 112 of the NPPF goes on to state:

"Within this context, applications for development should:

- a) Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*

- b) *Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- c) *Create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- d) *Allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- e) *Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.”*

2.5 All developments that will generate significant amounts of movement should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed. The application includes this TA in line with this requirement.

Planning Practice Guidance (PPG)

2.6 The Department for Transport web-based resource Planning Practice Guidance (March 2015) contains the chapter “Travel plans, transport assessments and statements in decision-taking.” With reference to the NPPF statement that “*all developments that generate significant amounts of transport movement should be supported by a Transport Statement or Transport Assessment*”, the guidance advises that local planning authorities must make a judgement as to whether a development proposal would generate significant amounts of movement on a case-by-case basis.

2.7 The PPG acknowledges that the necessary scope and specific details required as part of a Transport Assessment will inevitably differ between sites. However, the guidance sets out that in general when agreeing the scope for assessment with the local planning authority, a number of factors should be considered.

Kirklees Local Plan

2.8 The Kirklees Local Plan was adopted on 27th February 2019 and is now the statutory development plan for Kirklees, superseding the old Unitary Development Plan. It covers the period from 2013 to 2031 and sets out the necessary development policies, along with the quantum and location of development in Kirklees within this period.

2.9 Policy LP1 of the Kirklees Local Plan is entitled ‘presumption in favour of sustainable development’ and sets out how:

‘...the council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. The council will always work pro-actively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area...’

- 2.10 Policy LP20 of the Kirklees Local Plan sets out that new development will be located ‘to ensure the need to travel is reduced and that essential travel needs can be met by forms of sustainable transport other than the private car’. The council outline their support for ‘demand management measures which discourage single occupancy car travel within new development’. More specifically the policy sets out that a Travel Plan setting ‘targets and monitoring arrangements’ and including ‘agreed and defined outcomes related to a package of specified measures’ to ‘ensure sustainable travel patterns’ is a requirement for all major planning applications, and will be determined on a case by case basis where development falls below the thresholds.
- 2.11 Policy LP21 of the Kirklees Local Plan outlines that ‘Proposals shall demonstrate that they can accommodate sustainable modes of transport and be accessed effectively and safely by all users’. The Policy sets out a number of requirements all proposals must follow. These have been reflected in the site design for the store and where appropriate will be referred to throughout this TA. These requirements include the provision of ‘new infrastructure or improvements on or off site to ensure safe access from the highway network for pedestrians, cyclists, public transport users and private vehicles’ and the provision of ‘on-site safe, secure and convenient cycle parking/storage facilities’.

3.0 THE APPLICATION SITE AND THE EXISTING HIGHWAY NETWORK

Application Site

- 3.1 The proposed development site is previously developed land and is bound to the north-west by Blackmoorfoot Road, by Turnstone Way to the north-east and by a recently developed residential estate to the south. A site location plan is attached at **Appendix BGH1**.

Existing Highway Network

- 3.2 Access to the proposed Lidl foodstore will be provided from a priority-controlled T-junction with Turnstone Way to the east of the site, located some 40 metres to the south-east of the Turnstone Way / Blackmoorfoot Road junction. An existing T-junction has already been constructed close to this location with kerbed radii and a short highway stub leading into the site. This existing access will be widened and relocated 10 metres closer to Blackmoorfoot Road to form an improved access to the site. Turnstone Way is a residential access road which has recently been constructed as part of the wider development site and provides access to the new residential area to the south of the site.
- 3.3 To the south-east of the site access, Turnstone Way has a carriageway width of 5.5 metres with a 2.0-metre-wide footway on the eastern side of the carriageway only. After some 90 metres, a 2.0-metre-wide footway is then also provided on the western and northern side of the carriageway as it turns to the south-west. Turnstone Way is street lit, has a speed limit of 30 mph and currently has no parking restrictions in place. Turnstone Way continues to the south and provides access to a new residential development which, will serve 226 dwellings. There is no through-route in this direction, so vehicle trips associated with all 226 dwellings will travel on Turnstone Way adjacent to the site and onto the wider network via the Turnstone Way / Blackmoorfoot Road junction.
- 3.4 To the north-west of the site access junction, Turnstone Way continues for some 40 metres until it forms a simple priority-controlled T-junction with Blackmoorfoot Road, with Turnstone Way forming the minor arm and traffic on this approach required to give way to traffic on Blackmoorfoot Road. Turnstone Way widens on approach to this junction, providing separate approach lanes for left and right turning traffic.
- 3.5 In the vicinity of the site, Blackmoorfoot Road is a single carriageway road with single lanes in both directions, acting as a local distributor route which distributes traffic through south-west Huddersfield. To the south-west, Blackmoorfoot Road

provides access to residential areas in south-west Huddersfield and beyond to rural areas including Blackmoorfoot, Clough and Marsden. To the north-east, Blackmoorfoot Road provides access to a number of minor residential streets before meeting with Park Road and Park Road West at a traffic signal-controlled crossroads some 260 metres from the site.

3.6 To the north-west of the junction with Blackmoorfoot Road, Park Road West provides a short link to the A62 Manchester Road, and to the south-east Park Road provides a link to Lockwood and southern areas of Huddersfield. To the north-east, Blackmoorfoot Road provides a route to Huddersfield town centre after some 2.0 kilometres. In the vicinity of the site, Blackmoorfoot Road has a typical carriageway width of 7.3 metres, with footways on both sides with variable widths of between 1.2 metres to 2.0 metres. There is a parking layby on the northern side of the carriageway opposite the Turnstone Way junction, providing parking for the residential properties opposite the site, and this layby extends in both directions along Blackmoorfoot Road and is some 100 metres long.

3.7 Blackmoorfoot Road is an operational bus route, with bus stops located at regular intervals along its length. Bus stops are located on Blackmoorfoot Road some 40 metres to the west of the junction with Turnstone Way for westbound services, and some 100 metres to the east of the Turnstone Way junction for eastbound services. Both bus stops benefit from a flagpole, shelter and timetable information. Blackmoorfoot Road is also subject to a 30mph speed limit, has street lighting along its length and is subject to intermittent parking restrictions.

Personal Injury Collision Data

3.8 The record of personal injury collisions (PICs) recorded as road traffic accidents that have occurred within the vicinity of the site on Blackmoorfoot Road has been retrieved from Leeds City Council (who manage the collision data for areas of Huddersfield) for the most recent 5-year period available, from the 9th September 2017 to 13th September 2022. The data shows that there have been 10 PICs within the study period, 9 of which have been classified as slight in severity and 1 which has been classed as serious in severity. This data is attached at **Appendix BGH2** and summarised below.

Turnstone Way

3.9 No PICs have been recorded along Turnstone Way in the vicinity of the proposed site access junction, or at the Turnstone Way / Blackmoorfoot Road junction.

Frederick Street / Blackmoorfoot Road Junction

- 3.10 One PIC has been recorded in the vicinity of the Frederick Street / Blackmoorfoot Road junction, some 190 metres to the south-west of the Turnstone Way / Blackmoorfoot Road junction. The PIC involved two vehicles travelling north-eastbound that were involved in a rear end shunt type, this incident was classed as slight in severity.

Ivy Street / Blackmoorfoot Road Junction

- 3.11 One PIC has been recorded in the vicinity of the Ivy Street / Blackmoorfoot Road junction, some 110 metres to the south-west of the Turnstone Way / Blackmoorfoot Road junction. The PIC involved a collision between a pedal cyclist travelling north-eastbound along Blackmoorfoot Road and a vehicle egressing from Ivy Street and colliding with the cyclist. The incident was classed as slight in severity.

Nabcroft Lane / Blackmoorfoot Road Junction

- 3.12 Three PICs have been recorded at the Nabcroft Lane / Blackmoorfoot Road junction, some 80 metres to the north-east of the Turnstone Way / Blackmoorfoot Road junction. These PICs have all been classed as slight in severity. The first PIC is described as occurring at a traffic signal-controlled junction with no mention of road names, however there is no such junction in the vicinity and it is unclear where this incident occurred. The second PIC occurred as a result of a vehicle reversing to park on Blackmoorfoot Road and colliding with a parked car in the vicinity of the junction. The third PIC occurred as a result of a vehicle heading south-westbound on Blackmoorfoot Road swerving to avoid a vehicle and colliding with a vehicle travelling in front.

Park Road West / Blackmoorfoot Road / Park Road Signalised junction

- 3.13 Five PICs have been recorded at the Park Road West / Blackmoorfoot Road / Park Road signalised junction, four of which have been classed as slight in severity and one of which has been classed as serious. The serious PIC (ref: 1153339) occurred as a result of a cyclist travelling from Park Road West onto Blackmoorfoot Road, colliding with a pedestrian crossing over Park Road West. One of the slight PICs at this junction is described as occurring at the Blackmoorfoot Road junction with Manchester Road, however this is some 500 metres to the north-east of the Park Road West junction and has therefore been discounted. The remaining three slight PICs at this junction occurred due to differing circumstances which can be summarised as, a vehicle pulling out onto the highway into the path of a cyclist, a rear end shunt on approach to the junction, and a collision between a vehicle going straight ahead through the junction and a right turn movement crossing the ahead movement.

4.0 EXISTING OPERATING CONDITIONS

Existing Traffic Surveys

- 4.1 In order to determine the peak hour usage of the local highway network, traffic surveys were undertaken on Friday 15th September 2023 between the hours of 2:00pm – 7:00pm and on Saturday 16th September 2023 between the hours of 10:00pm – 4:00pm. These time periods were chosen as the busiest periods expected at the proposed Lidl foodstore, and therefore the periods when there would be the greatest impact on the local highway network. The surveys recorded fully classified vehicular turning counts in 15-minute intervals at the Blackmoorfoot Road / Turnstone Way priority-controlled T-Junction.
- 4.2 The raw traffic survey data is attached at **Appendix BGH3** and demonstrates that the Friday evening peak period occurred between 4:15pm – 5:15pm, and that the Saturday peak period occurred between 12:00pm – 1:00pm. Traffic flow diagrams showing the 2023 existing peak hour traffic flows on the local highway network are attached at **Appendix BGH4**.
- 4.3 The original TA, associated with the previous application used the results of traffic surveys undertaken in November 2021. Comparing the total traffic flows through the junction between the two datasets, and disregarding any turning movements so only mainline flows are considered, there were 942 two-way movements during the Friday peak hour in 2021 and 755 two-way movements during the Saturday peak hour in 2021. In comparison in 2023, these figures were 859 and 839 respectively. This shows a 8.8% reduction in traffic flows in the Friday peak hour from 2021 to 2023, but an 11.1% increase in traffic flows in the Saturday peak hour. The traffic flows are within 10% of each other, and are therefore both considered representative, and therefore the more up to date 2023 traffic surveys have been used for the assessments within this TA.

Existing Operational Assessments

Blackmoorfoot Road / Turnstone Way priority-controlled T-Junction

- 4.4 The existing operation of the Blackmoorfoot Road / Turnstone Way simple priority-controlled T-Junction has been assessed using the PICADY module of the TRL industry standard software package, Junctions8. The geometric parameters used to build the traffic model have been measured from Ordnance Survey mapping retrieved from Promap. The results of the modelling are summarised in Table 4.2 below and the full technical outputs attached at **Appendix BGH5**.

Table 4.2
2023 Existing Operation – Blackmoorfoot Road / Turnstone Way Priority
Controlled T-Junction

Movement	2023 Existing Flows			
	Weekday Evening Peak Hour		Saturday Peak Hour	
	RFC	Queue	RFC	Queue
Turnstone Way – Left Turn	0.02	0	0.03	0
Turnstone Way – Right Turn	0.12	0	0.09	0
Blackmoorfoot Road – Ahead / Right Turn	0.03	0	0.02	0

4.5

A ratio of flow to capacity (RFC) value of 1.00 indicates a junction which is operating at 100% of its theoretical capacity, and an RFC value of less than 0.85 is typically used to indicate a junction operating at a satisfactory level of performance. RFC values above 0.85 and less than 1.00 indicate a junction experiencing increased levels of queuing and delay but still within capacity. It can be seen that the modelling suggests that the junction is currently operating well within capacity with a maximum RFC of 0.12 on the Turnstone Way right turn movement during the weekday evening peak hour, with no associated queueing expected.

5.0 SUSTAINABLE TRANSPORT

- 5.1 The Government's objectives set out in the NPPF are to ensure that new developments are provided in sustainable locations, where the need to travel is minimised and the use of sustainable modes can be maximised. The site is well located with regard to adjacent residential areas by sustainable modes of transport, as described further below.

Pedestrian Accessibility

- 5.2 With regard to pedestrian provision at new development, the Chartered Institution of Highways and Transportation (CIHT) document 'Planning for Walking' (April 2015) describes how approximately 80% of all journeys under 1 mile are made wholly on foot. If destinations are within a convenient walking distance, people are more likely to make journeys on foot as long as it is safe, comfortable, and the environment is attractive.
- 5.3 Further relevant guidance is set out within the CIHT document 'Guidelines for Providing for Journeys on Foot' (2000), which summarises suggested acceptable walking distances to and from development for commuting / school and for other journeys, including retail and shopping.

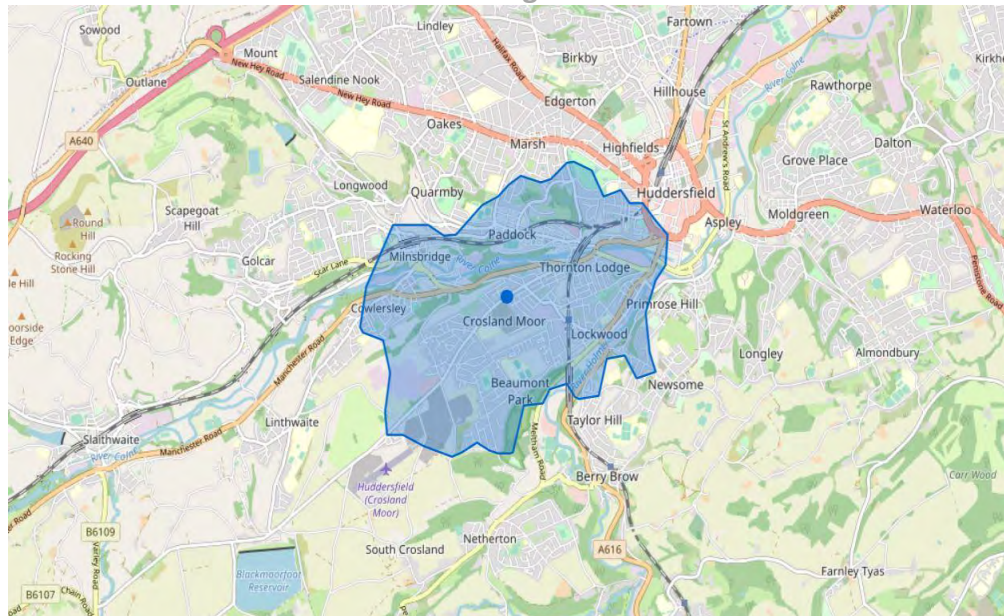
Table 5.1
CIHT Recommended Walking Distances

Maximum Distance	Trip Purpose	
	Commuting	Other Journeys (Retail/Shopping)
Desirable	500 metres	400 metres
Acceptable	1,000 metres	800 metres
Preferred	2,000 metres	1,200 metres

- 5.4 As can be seen above, the preferred maximum walking distance for 'other journeys' is 1,200 metres; whilst for commuting the preferred maximum walking distance is 2,000 metres. A number of surrounding residential areas are located within the preferred maximum walking distance of 2 kilometres from the proposed Lidl food store, including Thornton Lodge and Lockwood. Lockwood Railway station is also

within this catchment area. A 2-kilometre pedestrian isochrone is illustrated in Figure 5.1 (prepared using Iso4app).

Figure 5.1: 2km Pedestrian Catchment



- 5.5 As can be seen on the isochrone provided above, there are a large number of surrounding residential areas within the preferred maximum walking distance for commuting to the development site, including Thornton Lodge, Lockwood and Cowlersley. This represents a significant residential area from where future customers and staff can realistically choose to walk to the store instead of travelling by private car.
- 5.6 The proposed development site is easily accessed by pedestrians via the footways alongside the vehicular access with Turnstone Way, which lead into the store car park and to the storefront. An uncontrolled crossing will be provided across the site access arm with dropped kerbs and tactile paving.
- 5.7 The footways on Turnstone Way and Blackmoorfoot Road lead to the wider network of footways in the area. Dropped kerbs and tactile paving are in place across all minor arm crossing points along Blackmoorfoot Road, aiding the accessibility of pedestrians visiting the store and ensuring there are no effective barriers to travelling on foot.
- 5.8 The nearest pedestrian crossing facility across Blackmoorfoot Road is located approximately 60 metres to the north-west of the junction with Turnstone Way. This crossing point takes the form of a zebra crossing and as such provides priority

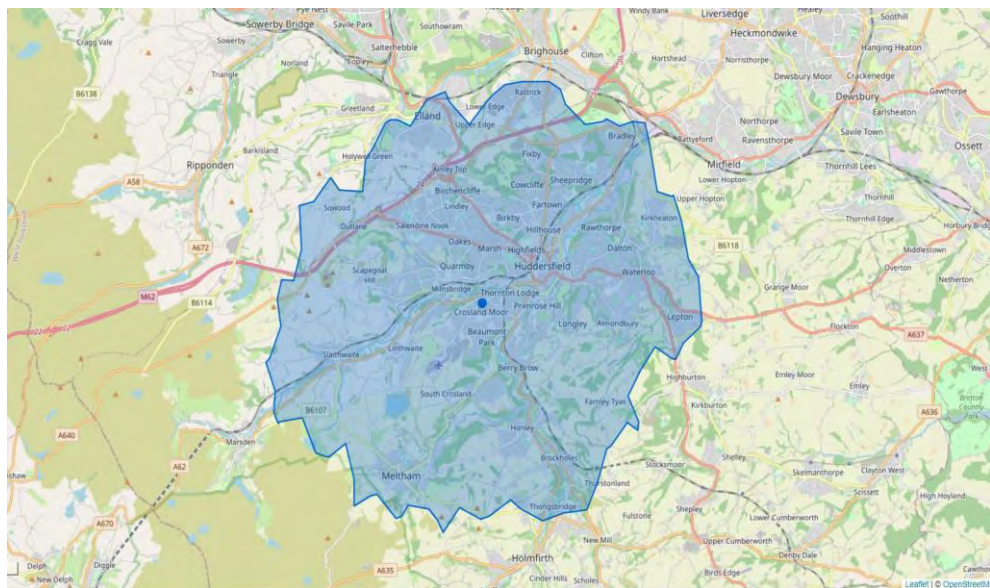
to pedestrians wishing to cross over Blackmoorfoot Road. This crossing point allows customers and staff at the store a safe way to cross the carriageway, and it is also noted that this is on the desire line between the eastbound bus stop and the site.

Cycle

5.9 Guidance in the Department for Transport's (DfT) 'Cycling and Walking Investment Strategy' (April 2017) and 'Cycle Infrastructure Design' (LTN 1/20 - July 2020) sets out that two out of every three personal trips are within 5 miles (8 kilometres), which is an achievable distance to cycle for most people. It is also generally accepted that the bike is an ideal mode of transport for journeys under 8 kilometres and that cycling has clear potential to substitute for short car trips, particularly those under 5 kilometres, and to form part of a longer journey by public transport.

5.10 An 8-kilometre cycling isochrone is illustrated in Figure 5.2 below (prepared using Iso4app).

Figure 5.2: 8km Cycle Catchment



5.11 The above plan in Figure 5.2 shows that there is a significant residential catchment that can access the site within a convenient 8 kilometre cycling distance, this includes the full extent of Huddersfield and other areas including Meltham, Bradley and Honley. These areas combined provide a significant residential catchment area within a reasonable cycling distance of the site, from where future staff can reasonably be expected to cycle to the site.

- 5.12 The highway network within this area of Huddersfield is considered to be suitable to accommodate cyclists. Huddersfield town centre also marks the beginning of the National Cycle Network (NCN) Route 69. Locally this provides a link towards Bradley and Dewsbury, and more regionally this provides a link to Bradford and Leeds. This route is fully signed and provides a mixture of on and off-road cycling routes, providing a useful cycle route for any staff travelling from further afield.

Public Transport

Bus

- 5.13 With regard to public transport provision at new development, the CIHT publication 'Buses in Urban Developments' (January 2018) recommends that sites be designed to enable access to public transport services and ensure that these are located within reasonable walking distances, as shown in Table 5.2. The guidance also notes that these standard distances should not be applied uniformly without regard to the specific characteristics of the particular location or route.

Table 5.2
CIHT Recommended Walking Distance for Bus Stops

Trip Purpose	Maximum Walking Distance
Core bus corridors with two or more high-frequency services	500 metres
Single high-frequency routes (every 12 minutes or better)	400 metres
Less frequent routes	300 metres
Town / city centres	250 metres

- 5.14 Blackmoorfoot Road is an operational bus route, with bus stops located at regular intervals along its length. Bus stops are located on Blackmoorfoot Road some 40 metres to the west of the junction with Turnstone Way for westbound services, and some 100 metres to the east of the Turnstone Way junction for eastbound services. Both bus stops benefit from a flagpole, shelter and timetable information.
- 5.15 The bus stop for westbound services can be accessed by walking north from the site via Turnstone Way and onto Blackmoorfoot Road, with the bus stop located along the site's frontage with Blackmoorfoot Road. The bus stop for eastbound services is located approximately 100 metres to the north-east of the Turnstone Way / Blackmoorfoot Road junction and can be accessed using the footways along

Blackmoorfoot Road and using the existing zebra crossing to safely cross the carriageway.

- 5.16 The stops on Blackmoorfoot Road are served by service numbers 328 and 393. A summary of these services is provided in Table 5.3 below.

Table 5.3
Summary of Existing Bus Services

Route Number	Operator	Route Description	Frequency			
			Weekday	Weekday Evening	Saturday	Sunday
328	First Bus	Balmoral Avenue – Huddersfield Bus Station - Bradley	12 mins	30 mins	12 mins	30 mins
393	Stotts Coaches	Huddersfield Bus Station - Blackmoorfoot	Hourly	-	Hourly	-

- 5.17 It can be seen that the bus stops on Blackmoorfoot Road are served by up to 6 buses in each direction every hour, which averages out at 1 bus every 10 minutes. These buses provide services towards Blackmoorfoot, Huddersfield town centre and Bradley.

- 5.18 The Huddersfield Bus Network map is attached at **Appendix BGH6** and shows the route that the above services take. The map also provides further information on routes and frequencies of all other bus routes within the wider Huddersfield area, as well as providing useful information on public transport ticketing options and contact information for the various public transport providers.

Rail

- 5.19 Lockwood Railway Station is located some 900 metres walking distance to the south-east of the site. It is considered that this is within a reasonable walking distance of the site to promote combined walking/rail journeys to the site, and also convenient to promote combined cycle/rail journeys. Lockwood railway station provides an hourly service 7 days a week between Huddersfield and Sheffield, the service also stops at local towns such as Honley, Shepley and Penistone.

- 5.20 Huddersfield Railway Station is located approximately 2.5 kilometres to the north-east of the site and provides a wider range of services in comparison to Lockwood. Huddersfield provides direct services to major towns and cities such as Liverpool, Manchester, Leeds, Sheffield and Newcastle.

Summary

- 5.21 The development is considered to be well located to encourage journeys by all modes of sustainable transport. The proposed site is within a convenient walking distance of suburbs of Huddersfield such as Lockwood, Thornton Lodge and Crossland Moor, providing a real opportunity for future staff and customers living in this area to walk to the site. There is a significant residential catchment located within a convenient cycle distance of the site, including the entirety of Huddersfield. Existing bus stops on Blackmoorfoot Road are conveniently located very close to the site to provide a very good opportunity for travel to and from the site by bus.

6.0 BASE OPERATING CONDITIONS

- 6.1 Historic good practice guidance on TA's set out within the DfT's 'Guidance on Transport Assessment' states the timeframe that an assessment should cover should be 5 years from the date of the planning application. A 5-year timeframe to a future year of 2028 is considered appropriate and has been adopted within this assessment.
- 6.2 Morning and evening peak hour traffic flows at a future year of 2028 have been determined using Tempro (v8.1), for the Kirklees 047 middle super output area (MSOA) as the area in which the site is located. NTM adjusted growth rates retrieved from Tempro are set out in Table 6.1 below.

Table 6.1
Tempro Adjusted National Transport Model Growth Factors

	NTM Growth Factors	
	Weekday PM Peak Period	Saturday Peak Period
2023 – 2028 Kirklees 047 MSOA	1.0432	1.0446

- 6.3 The factors indicate a circa 4% growth in local background traffic between 2023 and 2028, and they take account of planned increases in households and employment figures. No manual adjustments to account for the increase in employment associated with the proposed development have been made within Tempro and as such the factors are considered robust.
- 6.4 Application of these growth factors to the 2023 existing scenario flows shown on the diagrams at **Appendix BGH4**, provides peak hour growthed traffic flows at a future year of 2028, as shown on the 2028 growthed traffic flow diagrams at **Appendix BGH7**.

Committed Developments

- 6.5 In addition to applying background traffic growth, traffic associated with two committed developments has been accounted for as part of this assessment. This comprises traffic associated with the approved 226 dwellings to be delivered on the site itself as described earlier (with reference to planning permission 2018/62/93200/W discussed above) and 770 dwellings on the 'Black Cats' site (application reference 2020/60/92546/W). The Black Cats site is located some 1.4

kilometres to the south-west of the site, on the site of the former 'Black Cats Fireworks' site, with access to be provided from Blackmoorfoot Road.

- 6.6 As can be seen from the traffic surveys undertaken in September 2023, a number of vehicle trips were recorded turning into and out of Turnstone Way, and this is a result of the residential units on the adjacent residential development site already being occupied at the time of the surveys (and/or that these vehicle movements are associated with the construction work associated with the residential development). During the weekday evening peak hour, 50 vehicle movements were observed leaving the site and 59 vehicle movements observed arriving to the site. It is unknown how many residential units were occupied at the time of the survey, so for the purpose of this assessment, reference is made to the agreed trip generation and distribution of residential traffic from the site, based on the TA prepared by BWB Consultants, as part of planning permission 2018/62/93200/W. The difference between the existing surveyed traffic movements and the agreed residential trips from the BWB TA have been established (this represents future vehicle trips for units which have yet to be occupied), these have then been accounted for as committed development.
- 6.7 Traffic flows have also been extracted from the BWB TA for the retail element of the approved development, i.e. for the 4 retail units totalling 930m². Although the proposals are mutually exclusive and the Lidl store will in effect replace these 4 retail units, the current planning permission includes for 4 retail units and therefore the associated traffic generation has been included within the future year baseline assessments.
- 6.8 Development traffic associated with the Black Cats site has been extracted from the associated TA for that site prepared by Croft Consultants. It is noted that no Saturday development flows were provided within the Croft TA, therefore the approved residential trip rates for a Saturday as set out within the TA for the August 2019 permission on the St Luke's Hospital site (i.e. the same as those accepted as part of planning permission 2018/62/93200/W) have been applied to estimate the Saturday trips for development on the Black Cats site.
- 6.9 The committed development flows from the residential development on the development site and the Black Cats site, as shown on the traffic flow diagrams at **Appendix BGH8**, have been added to the 2028 growthed flows to determine the 2028 baseline flows. The 2028 baseline traffic flows are shown on the traffic flow diagrams at **Appendix BGH9**.

Blackmoorfoot Road / Turnstone Way

- 6.10 The Blackmoorfoot Road / Turnstone Way priority-controlled T-Junction has been assessed in the 2028 base scenario, using the same traffic model as described within chapter 4. The results of the modelling are summarised in Table 6.2 below, with the full operational output attached at **Appendix BGH10**.

Table 6.2
2028 Base Operation – Blackmoorfoot Road / Turnstone Way Priority
Controlled T-Junction

Movement	2028 Base Flows			
	Weekday Evening Peak Hour		Saturday Peak Hour	
	RFC	Queue	RFC	Queue
Turnstone Way – Left Turn	0.10	0	0.09	0
Turnstone Way – Right Turn	0.51	1	0.34	1
Blackmoorfoot Road – Ahead / Right Turn	0.14	0	0.10	0

- 6.11 It can be seen that the junction is expected to continue operating well within capacity with the addition of future traffic growth and accounting for future local development, with a maximum RFC of 0.51 and a maximum queue of 1 vehicle, occurring during the weekday evening peak period on the Turnstone Way right turn movement. In comparison to the 2023 existing scenario, the 2028 base operation shows an increase in the maximum RFC of 0.39, and an associated increase in queue length of 1 vehicle.

7.0 THE DEVELOPMENT PROPOSALS

- 7.1 The planning application seeks full planning permission for the erection of a new Lidl foodstore with a gfa of 2,000m² and a sales floor area of 1,331m². A car park with 93 parking spaces will be provided, comprising of 74 standard spaces, 6 disabled spaces, 9 parent and child spaces, 2 EV charging spaces and 2 motorcycle spaces. The proposed site layout plan is attached at **Appendix BGH11**.
- 7.2 Access to the proposed Lidl foodstore will be provided from a priority-controlled T-Junction with Turnstone Way along the north-eastern boundary of the site. As part of the proposals the existing stub access formed into the site will be relocated some 10 metres to the north, still some 30 metres away from the junction with Blackmoorfoot Road. The access road into the Lidl foodstore will be widened to have a carriageway width of 10.5 metres with 6.0 metre radii tying the access into the existing carriageway on Turnstone Way. The proposed access arrangements are shown on the drawing at **Appendix BGH12** (drawing ref: 21/209/TR/005 Rev B).
- 7.3 As part of the development, it is proposed that an uncontrolled pedestrian crossing point with tactile paving will be implemented across Turnstone Way at its junction with Blackmoorfoot Road given the crossing width at the give way line. As part of this, improved white lining will be introduced to provide two separate lanes along Turnstone Way on approach to its junction with Blackmoorfoot Road, with hatching provided between the opposing lanes to assist with HGV movement vehicle tracking. The proposed improvements along Turnstone Way are also shown on the site access arrangement drawing at **Appendix BGH12**.
- 7.4 Pedestrian access to the site will be provided via footways adjacent to the vehicular access with Turnstone Way. Access for cyclists will be provided on-carriageway via the proposed vehicular access to the store on Turnstone Way.
- 7.5 Internally within the site, the car park has been designed with a minimum aisle width of 6.5 metres, and parking spaces have minimum dimensions of 2.7 metres by 5.2 metres. Parent and child spaces have an increased width of 3.6 metres, and accessible spaces have an additional 1.2 metre buffer.
- 7.6 As described above the access location has been relocated some 10 metres to the north of the existing access into the site. In relation to visibility requirements, reference is made to the 'Kirklees Highway Design Guide' (2018) which references visibility guidance for site access junctions from the DfT 'Manual for Streets' (MfS, 2007) document. For the prescribed speed limit on Turnstone Way of 30mph, the guidance confirms that a corresponding visibility provision of 43 metres should be

provided along the carriageway edge from a position 2.4 metres back from the major road edge on the site access arm. This is in accordance with section 3.32 and 3.33 of the Kirklees Highway Design Guide. Given the proximity of the adjacent junction with Blackmoorfoot Road, vehicles turning onto Turnstone Way from Blackmoorfoot Road will be travelling at lower speeds and therefore visibility in this direction has been assessed assuming vehicle speeds of up to 25mph instead, equating to a sight line distance of 33 metres. The required visibility splays are shown to be unobstructed on the proposed access arrangement drawing at **Appendix BGH12**.

7.7 The largest type of vehicle expected to access the site will be a 16.5-metre-long maximum legal length articulated HGV for deliveries and servicing. These types of vehicles will be used to provide deliveries to the store and will use the servicing bay identified on the site plan to the south-east of the proposed store. The store will normally have 1 delivery per day, and it is confirmed that this vehicle will also remove waste from the site. The number of deliveries may rise to 2 per day at busy periods such as at Christmas, when additional deliveries may be required. These vehicles would access the site from Turnstone Way, travel through the car park to the south and then turn east into the car park aisle before reversing into the servicing bay. Once servicing is complete, the vehicle would then leave the site by travelling through the car park aisle to the north and turning out onto Turnstone Way. The drawing attached at **Appendix BGH13** (drawing ref: 21/209/ATR/002 Rev C) demonstrates that the access arrangements and internal layout can accommodate the movements of servicing vehicles with no issues.

7.8 As operator of the store Lidl is agreeable to comply with condition 12 which was imposed on outline planning permission ref. 2018/70/93098/W. Condition 12 relates to the control of deliveries to the commercial uses on the site and is as follows:

“Between the hours of 0600 and 0700 Monday to Friday and 0700 to 0800 Saturdays, deliveries to any commercial use on the site shall take place by small vehicles (e.g. vans) only. There shall be no other deliveries to or dispatches from any commercial use on the site outside the hours of 0700 and 2200 Monday to Friday and 0800 and 2200 Saturdays and 1000 and 1600 Sundays or Bank Holidays.”

7.9 With regard to parking provision, reference is firstly made to the Kirklees Highway Design Guide. Key Design Driver 20 in Section 5.4 outlines that Kirklees Council has not set local parking standards for residential and non-residential developments. Therefore, whilst there are no local parking standards, it is confirmed that the level

of parking provision is consistent with Lidl's operational experience and the expected demand at the store.

- 7.10 Similarly, with regard to cycle parking, Kirklees Highway Design Guide does not set out cycle parking standards for non-residential development. 5 cycle stands are proposed which provide space for 10 cycles. This level of cycle parking provision is consistent with Lidl's operational experience and the expected demand at the store. Similarly with regard to accessible parking spaces and EVC spaces; 6 accessible spaces and 2 EVC spaces will be provided, this is consistent with Lidl's typical provision at all new stores throughout the UK. In addition, 20% of the standard parking spaces will also be provided with the appropriate EVC infrastructure to allow easy conversion to full EVC spaces in the future if required.

8.0 DEVELOPMENT TRIP GENERATION, TRIP TYPES AND TRIP DISTRIBUTION

Trip Generation

- 8.1 In order to estimate the number of vehicle trips which the proposed Lidl foodstore is likely to generate, an interrogation of the Trip Rate Information Computer System (TRICS) database has been undertaken. Trip rates have been retrieved from the TRICS database for the 01/C 'Retail – Discount Food Stores' land use for a weekday and weekend period respectively, with filtering parameters adopted as per the TRICS Good Practice Guide 2023 (October 2022).
- 8.2 Vehicular trip rates are contained at **Appendix BGH14**, with the vehicular trip rates summarised in Table 8.1 below.

Table 8.1
Vehicular Trip Rates (Trips per 100sqm gfa)

Land Use	Weekday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Proposed Food Store	4.859	4.822	9.681	6.919	6.632	13.551

- 8.3 The trip generation of the proposed Lidl foodstore has therefore been calculated using these trip rates and the proposed gfa of 2,000m². The resulting trip generation is set out in Table 8.2 below. It can be seen that the development is predicted to generate some 194 vehicle trips during the weekday evening peak period and some 271 vehicle trips during the Saturday midday peak period.

Table 8.2
Vehicle Trip Generation

Land Use	Weekday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Proposed Food Store	97	96	194	138	133	271

Trip Types

8.4 The Department for Transport's Guidance on Transport Assessment (now withdrawn and superseded by the DfT's PPG, but still commonly referenced) identifies five different categories of trip type, and two of these are applicable to this application, these being transferred trips and pass-by trips.

8.5 Good practice guidance on trip type proportions is set out within the TRICS Research Report 14/1 'Pass-by and Diverted Trips' (December 2014). This report recommends that a site-by-site approach is taken in justifying the trip type proportions adopted.

Pass-by Trips

8.6 These are trips that are already present on the network and which in this case would be travelling past the proposed Lidl Foodstore on Blackmoorfoot Road. These trips essentially reflect drivers who are already travelling on Blackmoorfoot Road, who as part of the journey would decide to visit the store before continuing on their original journey.

8.7 Some customers will decide to visit the site from further away and take a minor detour from their existing route, these trips are known as diverted trips. There will be an element of diverted trips associated with the proposed development, but they are not directly considered as part of this assessment.

8.8 Pass-by trips have been applied to those vehicles already travelling on Blackmoorfoot Road and have been distributed proportionally based on the number of existing vehicles travelling in each direction. Various research papers discussed within the TRICS Research Report 14/1 'Pass-by and Diverted Trips' provide pass-by rates for food stores; Ghezawi et al. (1998) suggests a pass-by rate of 72%, Mouchel (on behalf of Tesco's, 2009) found a pass-by rate of 40% to be a robust estimate for the weekday evening peak period, and MacIver, A. (1999) derived a pass-by proportion of 25-35%, depending on type of route and the volume of passing traffic flow. In this case, pass-by rates of 50% for the weekday evening and for the Saturday peak period have been applied to the trip generation, as an approximate mid-point of the above evidenced rates.

Transferred Trips

8.9 These are trips that are already on the wider highway network and travel to an alternative retail offer, but will choose to travel to the proposed development instead. This could be due to the proposals providing a better offer than the existing destination or it simply being located closer.

- 8.10 For the purposes of this assessment, it has been assumed that all trips to the new store will either be pass-by or transferred from a competing store. The proportion of trips designated as transferred trips is therefore what is left after accounting for pass-by trips as described above. This results in 50% of trips being classed as transferred during the weekday evening peak period and 50% being classed as transferred during the Saturday peak period. To provide a robust assessment these transferred trips will effectively be considered as 'new' trips to the local network, as discussed later in this chapter.

Trip Type Summary

- 8.11 The trip type proportions described above have been applied to the trip generation set out in Table 8.2. The resulting trip generation is set out in Table 8.3 below showing the number of transferred and pass-by trips.

Table 8.3
Vehicle Trip Generation by Trip Type

Trip Type	Weekday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Transferred	49	48	97	69	66	136
Pass-by	49	48	97	69	66	136
Total	97	96	194	138	133	271

Trip Distribution

- 8.12 Pass-by trips have been applied proportionally based on the number of existing vehicles travelling east and west along Blackmoorfoot Road. This results in some 53% of pass-by trips turning left into the site and subsequently turning left out during the weekday evening peak period, to continue on their original journey, with 47% of pass-by trips turning right into the site and subsequently turning right out of the site during the weekday evening peak period. During the Saturday peak period, 49% of trips will turn left in and left out, with 51% of trips turning right in and right out.
- 8.13 The remainder of trips will be transferred trips from competing foodstores. This means that some trips may currently travel along Blackmoorfoot Road to reach existing destinations before choosing to transfer to the proposed foodstore. These

transferred trips would not be new to the Blackmoorfoot Road corridor but would be new to Turnstone Way and the site access junction. For the purposes of this assessment however, transferred trips have been considered as totally new to the network, in order to ensure a robust approach. These transferred (new) trips have been distributed using the same distribution profile adopted within the BWB TA for the currently approved retail development on the site. This distributes 87% of transferred trips to and from the east along Blackmoorfoot Road (towards Huddersfield), and the remaining 13% to the west along Blackmoorfoot Road. The majority of the local residential areas are located to the east of the site, therefore a weighted distribution in this direction is considered to be appropriate.

- 8.14 The distribution proportions described above have been applied to the trip generation set out in Table 8.3, with the resulting traffic flows shown on the traffic flow diagrams at **Appendix BGH15**.

9.0 TRAFFIC IMPACT ON THE LOCAL HIGHWAY NETWORK

9.1 The new traffic likely to be generated by the development proposals as shown on the traffic flow diagrams at **Appendix BGH15**, has been added to the 2028 base flows at **Appendix BGH9** to provide predicted traffic flows on the network in 2028, as shown on the traffic flow diagrams at **Appendix BGH16**.

9.2 The traffic flows shown on these diagrams have been used to assess the future operation of the proposed site access and local highway network.

2028 Predicted Operational Assessments

Site Access / Turnstone Way Priority Controlled T-junction

9.3 The proposed site access junction with Turnstone Way has been modelled as a priority-controlled T-junction within the PICADY module of the Junctions8 modelling software. Geometrical parameters have been measured from the proposed site access drawing at **Appendix BGH12**. The predicted peak hour operational characteristics of the proposed site access junction are summarised in Table 9.1 below, with the full operational output attached at **Appendix BGH17**.

Table 9.1
2028 Predicted Operation – Proposed Lidl Foodstore / Turnstone Way

Movement	2028 Predicted Flows			
	Weekday Evening Peak Hour		Saturday Peak Hour	
	RFC	Queue	RFC	Queue
Turnstone Way – Ahead / Right	0.16	0	0.21	0
Proposed Site Access	0.19	0	0.25	0

9.4 The results show that the proposed site access junction is predicted to operate with a maximum RFC of 0.25 on the site access arm in the Saturday peak hour, with no associated queuing. These results confirm that a simple priority-controlled T-junction with Turnstone Way will suitably accommodate the predicted development traffic.

Blackmoorfoot Road / Turnstone Way priority-controlled T-Junction.

9.5

The Blackmoorfoot Road / Turnstone Way priority-controlled T-Junction has been assessed in the 2028 predicted scenario using the same traffic model as described within chapter 4. Results of the modelling are summarised in Table 9.2 below, with the full operational output attached at **Appendix BGH17**.

Table 9.2

**2028 Predicted Operation – Blackmoorfoot Road / Turnstone Way
Priority Controlled T-Junction**

Movement	2028 Predicted Flows			
	Weekday Evening Peak Hour		Saturday Peak Hour	
	RFC	Queue	RFC	Queue
Turnstone Way – Left Turn	0.12	0	0.12	0
Turnstone Way – Right Turn	0.61	2	0.44	1
Blackmoorfoot Road – Ahead / Right Turn	0.16	1	0.15	0

9.6

It can be seen that the junction is predicted to continue operating well within capacity with the addition of development traffic, with a maximum RFC of 0.61 and a maximum queue of 2 vehicles, occurring during the weekday evening peak period on the Turnstone Way right turn movement. In comparison to the 2028 base scenario, the 2028 predicted operation shows an increase in the maximum RFC of 0.10, and a subsequent increase in queue length of 1 vehicle. It is clear that the Blackmoorfoot Road junction with Turnstone Way is predicted to continue to operate within capacity with no queuing issues to note.

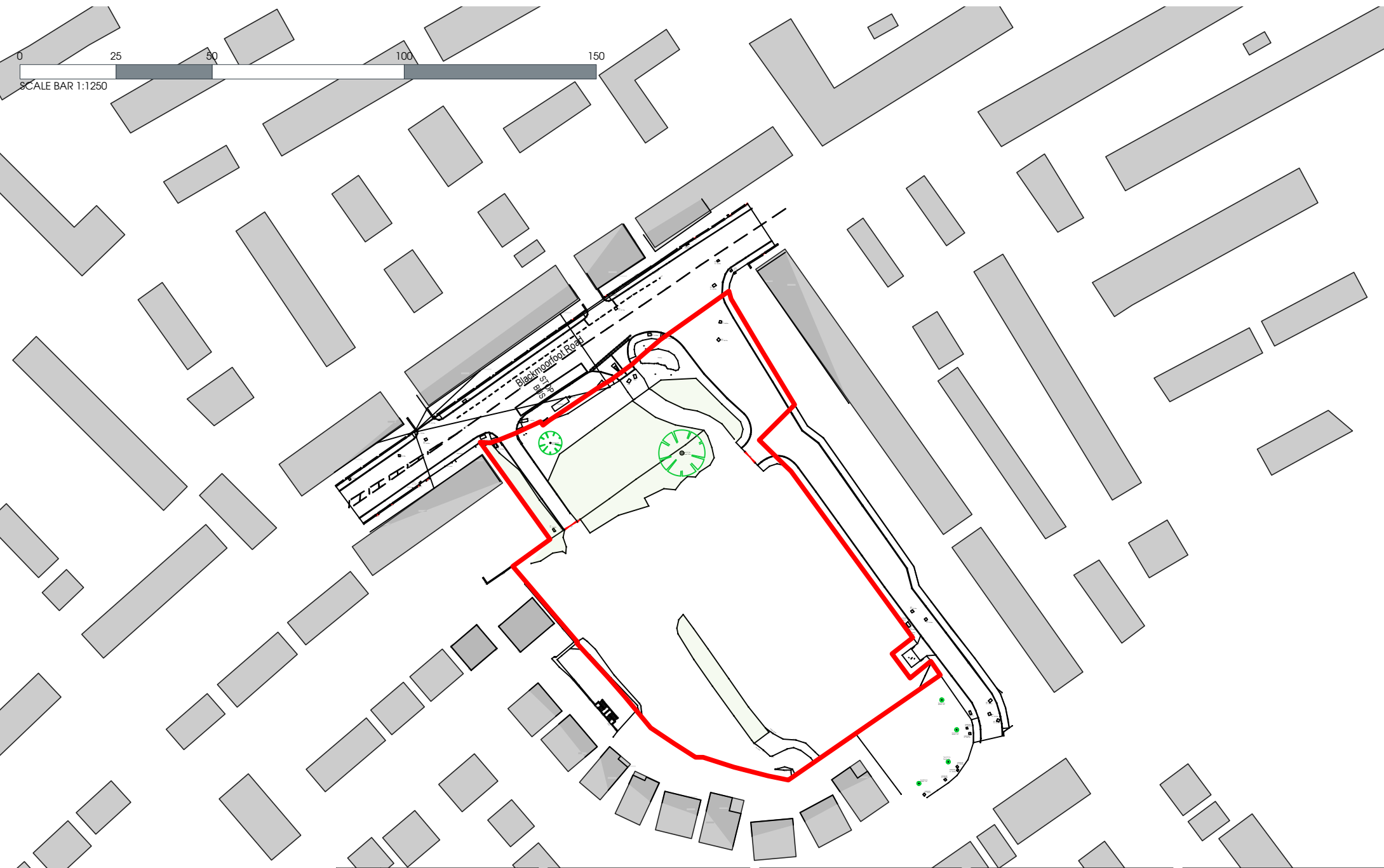
10.0 SUMMARY AND CONCLUSIONS

- 10.1 This TA forms part of a full planning application submitted by Lidl Great Britain Ltd for the 'erection of a foodstore (Use Class E) with associated access, parking, servicing area and landscaping' on land at the former St Luke's Hospital site, Blackmoorfoot Road, Crosland Moor, Huddersfield.
- 10.2 The proposed development site is previously developed land and is bound to the north-west by Blackmoorfoot Road, by Turnstone Way to the north-east and by a recently developed residential estate to the south. The proposed development site benefits from outline planning permission, which includes retail on the part of the site the subject of this application, and therefore the principle of retail development on this site is considered to be accepted.
- 10.3 Access to the proposed Lidl foodstore will be provided from a priority-controlled T-Junction with Turnstone Way along the north-eastern boundary of the site. There is an existing access into the site located on Turnstone Way, located some 40 metres to the south-east of the Turnstone Way / Blackmoorfoot Road junction. As part of the proposals this access will be widened and relocated some 10 metres to the north, still some 30 metres away from the junction with Blackmoorfoot Road.
- 10.4 As part of the development proposals, it is proposed that an uncontrolled pedestrian crossing with tactile paving will be provided across Turnstone Way at its junction with Blackmoorfoot Road given the long crossing width at the give way line. As part of this, improved white lining will be introduced to provide two separate lanes along Turnstone Way on approach to its junction with Blackmoorfoot Road, with hatching provided between the opposing lanes to assist with the swept path of HGV movements.
- 10.5 Pedestrian access to the site will be provided via footways adjacent to the vehicular access with Turnstone Way. Access for cyclists will be provided on-carriageway via the proposed vehicular access to the store on Turnstone Way.
- 10.6 The record of personal injury collisions occurring on the highway in the vicinity of the site has been analysed and it is considered that there are no highway layout characteristics which are adversely affecting road safety or require intervention.
- 10.7 The development is considered to be well located to encourage journeys by all modes of sustainable transport. The proposed site is within a convenient walking distance of suburbs of Huddersfield such as Lockwood, Thornton Lodge and Crossland Moor, providing a real opportunity for future staff and customers living

in this area to walk to the site. There is a significant residential catchment located within a convenient cycle distance of the site, including the entirety of Huddersfield. In addition, the existing bus stops on Blackmoorfoot Road are conveniently located very close to the site to provide a very good opportunity for travel to and from the site by bus.

- 10.8 A car park with 93 parking spaces will be provided, comprising of 74 standard spaces, 6 disabled spaces, 9 parent and toddler spaces, 2 EV charging spaces and 2 motorcycle spaces. This level of provision is consistent with Lidl's operational experience and is considered to be appropriate.
- 10.9 Internally within the site, aisle widths and parking spaces have been designed to appropriate good practice guidance. With regard to servicing, the largest type of vehicle expected to access the site will be for delivery and servicing requirements, which will be a 16.5-metre-long maximum legal length articulated HGV. These types of vehicles will be used to provide deliveries to the store and will use the servicing bay identified on the site plan on the west side of the Lidl store. Vehicle swept path analysis has been undertaken which has demonstrated that the proposed site access arrangement and internal site layout can safely accommodate turning movements associated with this vehicle.
- 10.10 The development is expected to generate some 194 vehicle trips during the weekday evening peak period and some 271 vehicle trips during the Saturday midday peak period. These vehicle trips are not all new to the network and are likely to be formed either from transferred trips or pass-by trips. It is therefore considered the development will not generate a significant number of new vehicle turning movements on the wider highway network, beyond the Turnstone Way / Blackmoorfoot Road priority-controlled T-Junction.
- 10.11 Operational assessments have been undertaken of the site access junction with Turnstone Way for a design year of 2028 and have revealed that this junction will work satisfactorily with no issues. Operational assessments have also shown that the Turnstone Way / Blackmoorfoot Road junction will continue to operate within capacity with the addition of development trips, with minimal queuing. This includes an allowance for full development of the houses on the site and full residential development on the nearby Black Cats site.
- 10.12 In summary, this Transport Assessment has shown that the proposed development site will be accessible by all modes of transport, and that the local highway network will continue to operate satisfactorily following the introduction of the proposed development. It is therefore considered that there are no transport reasons why planning approval should be withheld.

APPENDIX BGH 1



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client
Lidl GB Ltd.



project
Blackmoorfoot Road
Huddersfield

drawing title
Site Location Plan

date	August 2023
status	Planning
scale	1:1250 @ A4
drawn	KA
checked	BM
job no.	2783
dwg no.	P410
rev.	

Rev.	Date	Description	Drawn

APPENDIX BGH 2



RTCs in the vicinity of Blackmoorfoot Road, Huddersfield

09.09.2017-09.09.2215.09.2022

N.T.S.



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Ordnance Survey LA100019567

▲ Fatal

■ Serious

● Slight

P indicates pedestrian

For reference purposes only. No further copies may be made

4
5100
329

3
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643

9
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53M1
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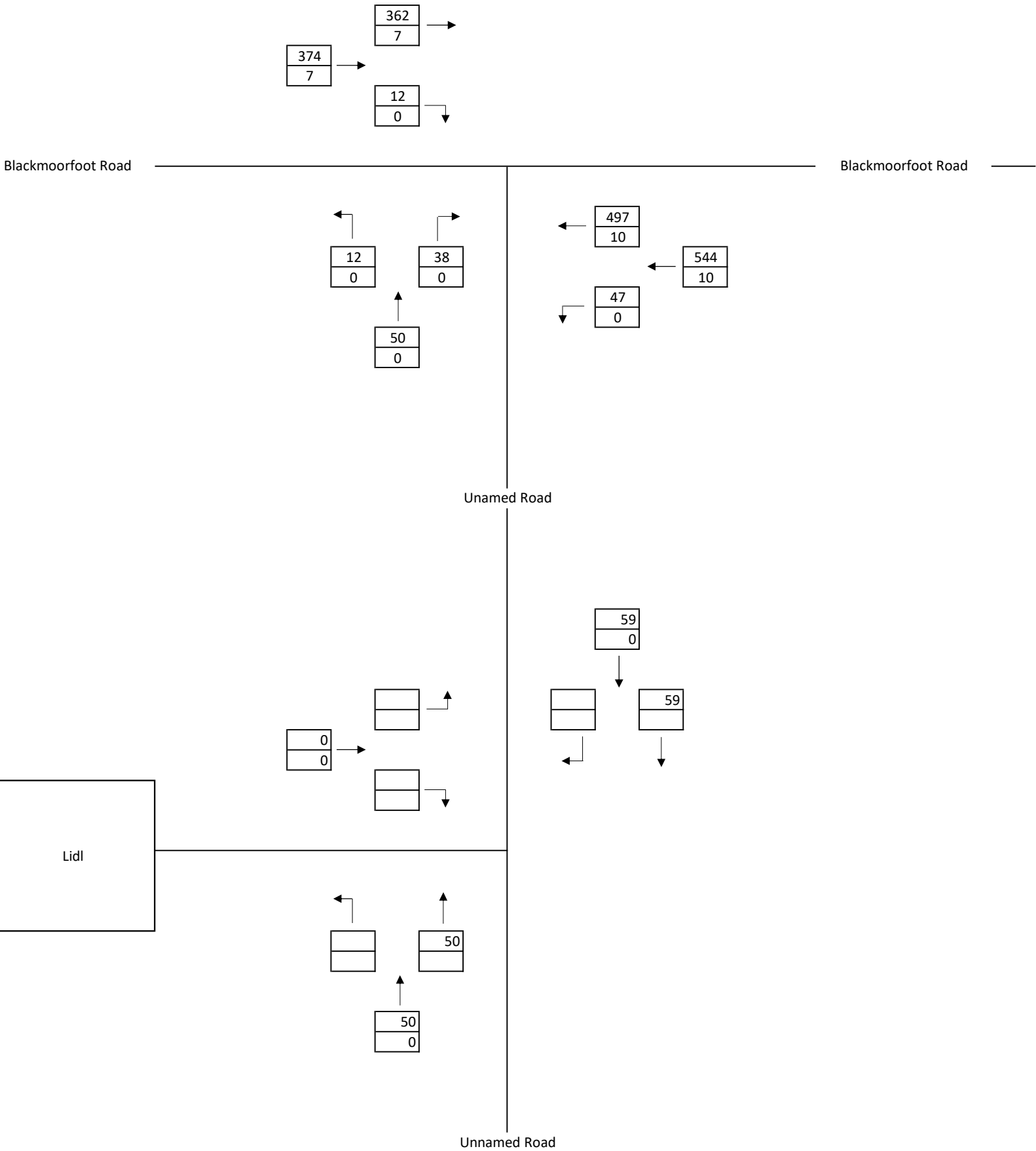
APPENDIX BGH 3



APPENDIX A

Vehicle Catagories

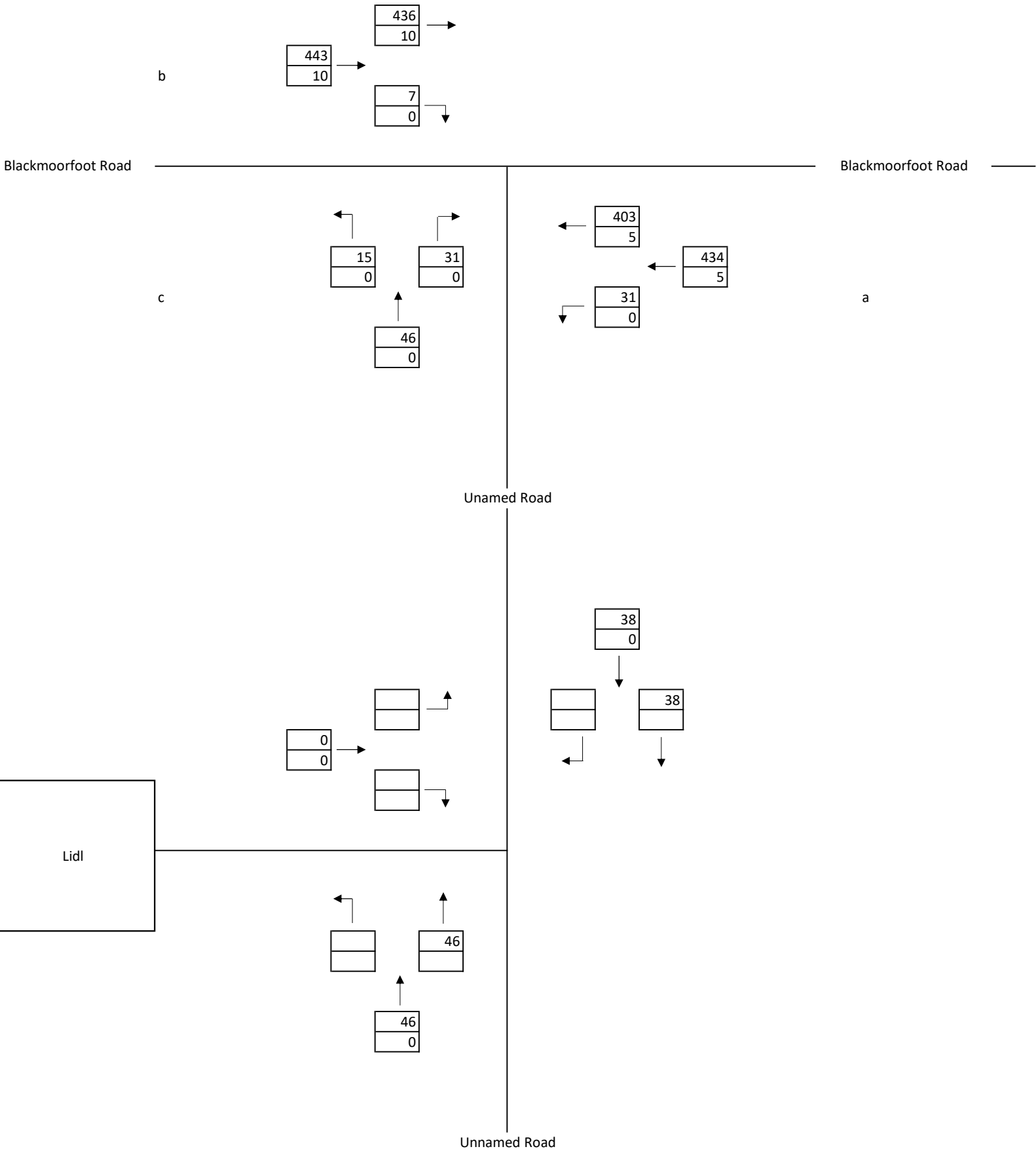
APPENDIX BGH 4



EXISTING 2023

BLACKMOORFOOT ROAD, HUDDERSFIELD

SATURDAY PEAK



KEY

	Total Vehicles
	Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	LIDL Great Britain
Project:	Blackmoorfoot Road, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

APPENDIX BGH 5

Junctions 9									
PICADY 9 - Priority Intersection Module									
Version: 9.5.1.7462 © Copyright TRL Limited, 2019									
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk									
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution									

Filename: Blackmoorfoot Road - Site Access - Simple T-Junction 2023.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:07:00

«(Default Analysis Set) - 2023 Existing, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2023 Existing									
Stream B-C	D2	0.0	6.78	0.02	A	D3	0.0	6.43	0.03	A
Stream B-A		0.1	11.80	0.12	B		0.1	10.95	0.09	B
Stream C-AB		0.0	4.61	0.03	A		0.0	4.27	0.02	A
	A1 - 2028 Base									
Stream B-C	D4	0.1	9.72	0.09	A	D5	0.1	7.31	0.07	A
Stream B-A		1.0	32.44	0.51	D		0.5	16.62	0.33	C
Stream C-AB		0.4	4.68	0.14	A		0.2	4.17	0.09	A
	A1 - 2028 Predicted									
Stream B-C	D6	0.1	10.26	0.11	B	D7	0.1	7.79	0.10	A
Stream B-A		1.5	40.47	0.61	E		0.8	19.98	0.44	C
Stream C-AB		0.5	4.78	0.16	A		0.3	4.34	0.14	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site Access T-Junction
Location	Blackmoorfoot Road, Huddersfield
Site number	
Date	24/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	21-209
Enumerator	ncalder
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2023 Existing	PM	ONE HOUR	16:45	18:15	15

(Default Analysis Set) - 2023 Existing, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Blackmoorfoot Road / Site Access	T-Junction	Two-way		0.64	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoot Road East		Major
B	Site Access		Minor
C	Blackmoorfoot Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Blackmoorfoot Road West	7.90			250.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.00	4.00	32	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	552	0.092	0.233	0.147	0.333
B-C	706	0.099	0.251	-	-
C-B	719	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Blackmoorfoot Road East		✓	554	100.000
B - Site Access		✓	50	100.000
C - Blackmoorfoot Road West		✓	381	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	47	507
	B - Site Access	38	0	12
	C - Blackmoorfoot Road West	369	12	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	1	0
	B - Site Access	2	0	0
	C - Blackmoorfoot Road West	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.02	6.78	0.0	A
B-A	0.12	11.80	0.1	B
C-AB	0.03	4.61	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	596	0.015	9	0.0	6.131	A
B-A	29	416	0.069	28	0.1	9.466	A
C-AB	14	796	0.017	14	0.0	4.607	A
C-A	273			273			
A-B	35			35			
A-C	382			382			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	574	0.019	11	0.0	6.388	A
B-A	34	390	0.088	34	0.1	10.327	B
C-AB	18	814	0.022	18	0.0	4.524	A
C-A	324			324			
A-B	42			42			
A-C	456			456			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	544	0.024	13	0.0	6.783	A
B-A	42	353	0.119	42	0.1	11.786	B
C-AB	26	842	0.030	26	0.0	4.411	A
C-A	394			394			
A-B	52			52			
A-C	558			558			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	544	0.024	13	0.0	6.784	A
B-A	42	353	0.119	42	0.1	11.798	B
C-AB	26	842	0.030	26	0.0	4.413	A
C-A	394			394			
A-B	52			52			
A-C	558			558			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	574	0.019	11	0.0	6.389	A
B-A	34	390	0.088	34	0.1	10.340	B
C-AB	18	814	0.022	18	0.0	4.527	A
C-A	324			324			
A-B	42			42			
A-C	456			456			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	596	0.015	9	0.0	6.133	A
B-A	29	416	0.069	29	0.1	9.484	A
C-AB	14	796	0.017	14	0.0	4.608	A
C-A	273			273			
A-B	35			35			
A-C	382			382			

Junctions 9									
PICADY 9 - Priority Intersection Module									
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Filename: Blackmoorfoot Road - Site Access - Simple T-Junction 2023.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:08:05

«(Default Analysis Set) - 2023 Existing, Sat

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2023 Existing									
Stream B-C	D2	0.0	6.78	0.02	A	D3	0.0	6.43	0.03	A
Stream B-A		0.1	11.80	0.12	B		0.1	10.95	0.09	B
Stream C-AB		0.0	4.61	0.03	A		0.0	4.27	0.02	A
	A1 - 2028 Base									
Stream B-C	D4	0.1	9.72	0.09	A	D5	0.1	7.31	0.07	A
Stream B-A		1.0	32.44	0.51	D		0.5	16.62	0.33	C
Stream C-AB		0.4	4.68	0.14	A		0.2	4.17	0.09	A
	A1 - 2028 Predicted									
Stream B-C	D6	0.1	10.26	0.11	B	D7	0.1	7.79	0.10	A
Stream B-A		1.5	40.47	0.61	E		0.8	19.98	0.44	C
Stream C-AB		0.5	4.78	0.16	A		0.3	4.34	0.14	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site Access T-Junction
Location	Blackmoorfoot Road, Huddersfield
Site number	
Date	24/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	21-209
Enumerator	ncalder
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 Existing	Sat	ONE HOUR	11:45	13:15	15

(Default Analysis Set) - 2023 Existing, Sat

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Blackmoorfoot Road / Site Access	T-Junction	Two-way		0.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoot Road East		Major
B	Site Access		Minor
C	Blackmoorfoot Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Blackmoorfoot Road West	7.90			250.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.00	4.00	32	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	552	0.092	0.233	0.147	0.333
B-C	706	0.099	0.251	-	-
C-B	719	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Blackmoorfoot Road East		✓	439	100.000
B - Site Access		✓	46	100.000
C - Blackmoorfoot Road West		✓	453	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	31	408
	B - Site Access	31	0	15
	C - Blackmoorfoot Road West	446	7	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	1	0
	B - Site Access	2	0	0
	C - Blackmoorfoot Road West	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.03	6.43	0.0	A
B-A	0.09	10.95	0.1	B
C-AB	0.02	4.27	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

11:45 - 12:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	618	0.018	11	0.0	5.934	A
B-A	23	427	0.055	23	0.1	9.082	A
C-AB	9	852	0.010	9	0.0	4.273	A
C-A	332			332			
A-B	23			23			
A-C	307			307			

12:00 - 12:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	600	0.022	13	0.0	6.133	A
B-A	28	403	0.069	28	0.1	9.786	A
C-AB	12	881	0.013	12	0.0	4.142	A
C-A	396			396			
A-B	28			28			
A-C	367			367			

12:15 - 12:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	17	576	0.029	16	0.0	6.433	A
B-A	34	369	0.092	34	0.1	10.942	B
C-AB	16	924	0.018	16	0.0	3.970	A
C-A	482			482			
A-B	34			34			
A-C	449			449			

12:30 - 12:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	17	576	0.029	17	0.0	6.434	A
B-A	34	369	0.092	34	0.1	10.948	B
C-AB	16	924	0.018	16	0.0	3.972	A
C-A	482			482			
A-B	34			34			
A-C	449			449			

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	600	0.022	14	0.0	6.134	A
B-A	28	403	0.069	28	0.1	9.796	A
C-AB	12	881	0.013	12	0.0	4.143	A
C-A	396			396			
A-B	28			28			
A-C	367			367			

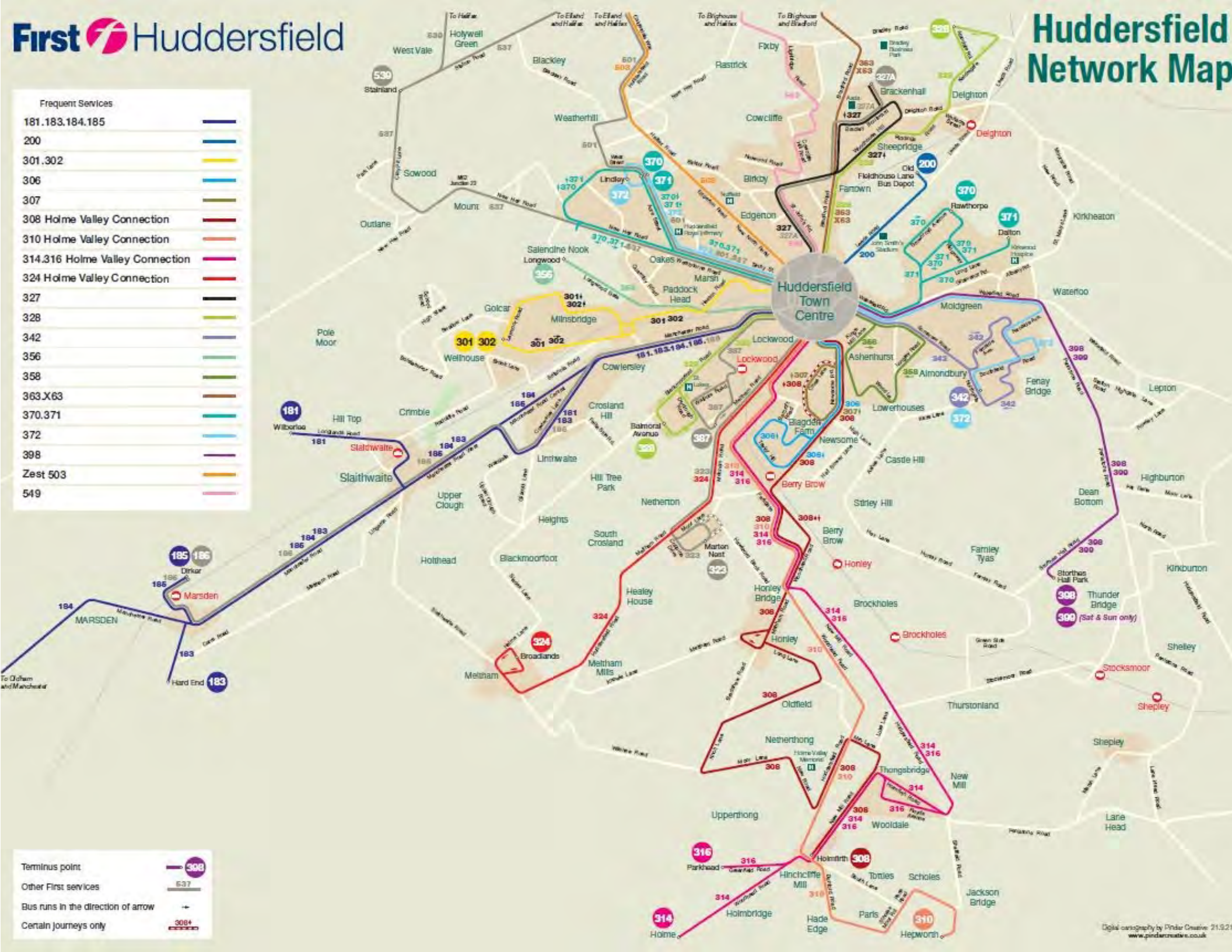
13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	618	0.018	11	0.0	5.938	A
B-A	23	427	0.055	23	0.1	9.096	A
C-AB	9	852	0.010	9	0.0	4.275	A
C-A	332			332			
A-B	23			23			
A-C	307			307			

APPENDIX BGH 6

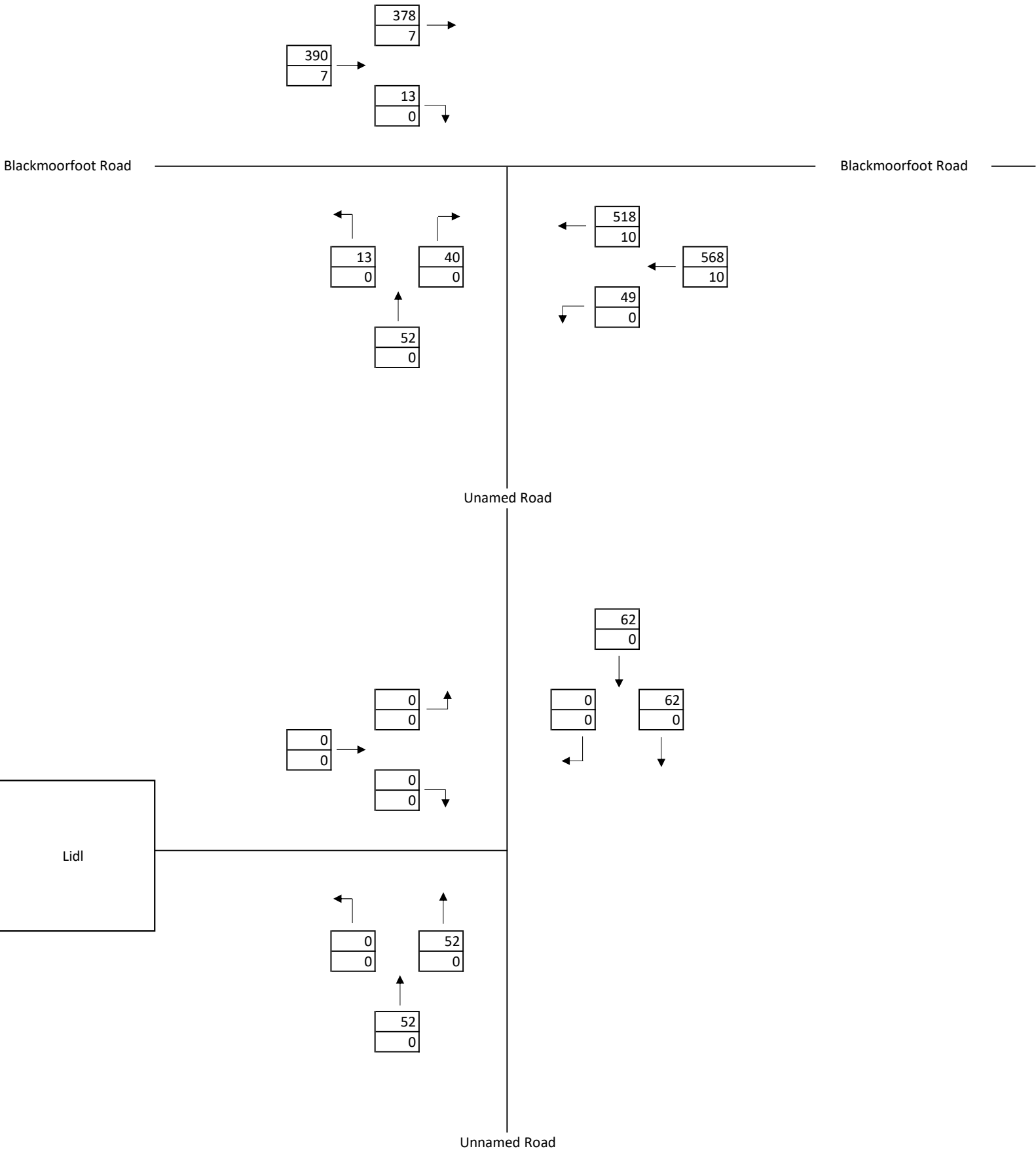
- Frequent Services
- 181.183.184.185
 - 200
 - 301.302
 - 306
 - 307
 - 308 Holme Valley Connection
 - 310 Holme Valley Connection
 - 314.316 Holme Valley Connection
 - 324 Holme Valley Connection
 - 327
 - 328
 - 342
 - 356
 - 358
 - 363.X63
 - 370.371
 - 372
 - 398
 - Zest 503
 - 549

- Terminus point
- Other First services
- Bus runs in the direction of arrow
- Certain journeys only



APPENDIX BGH 7

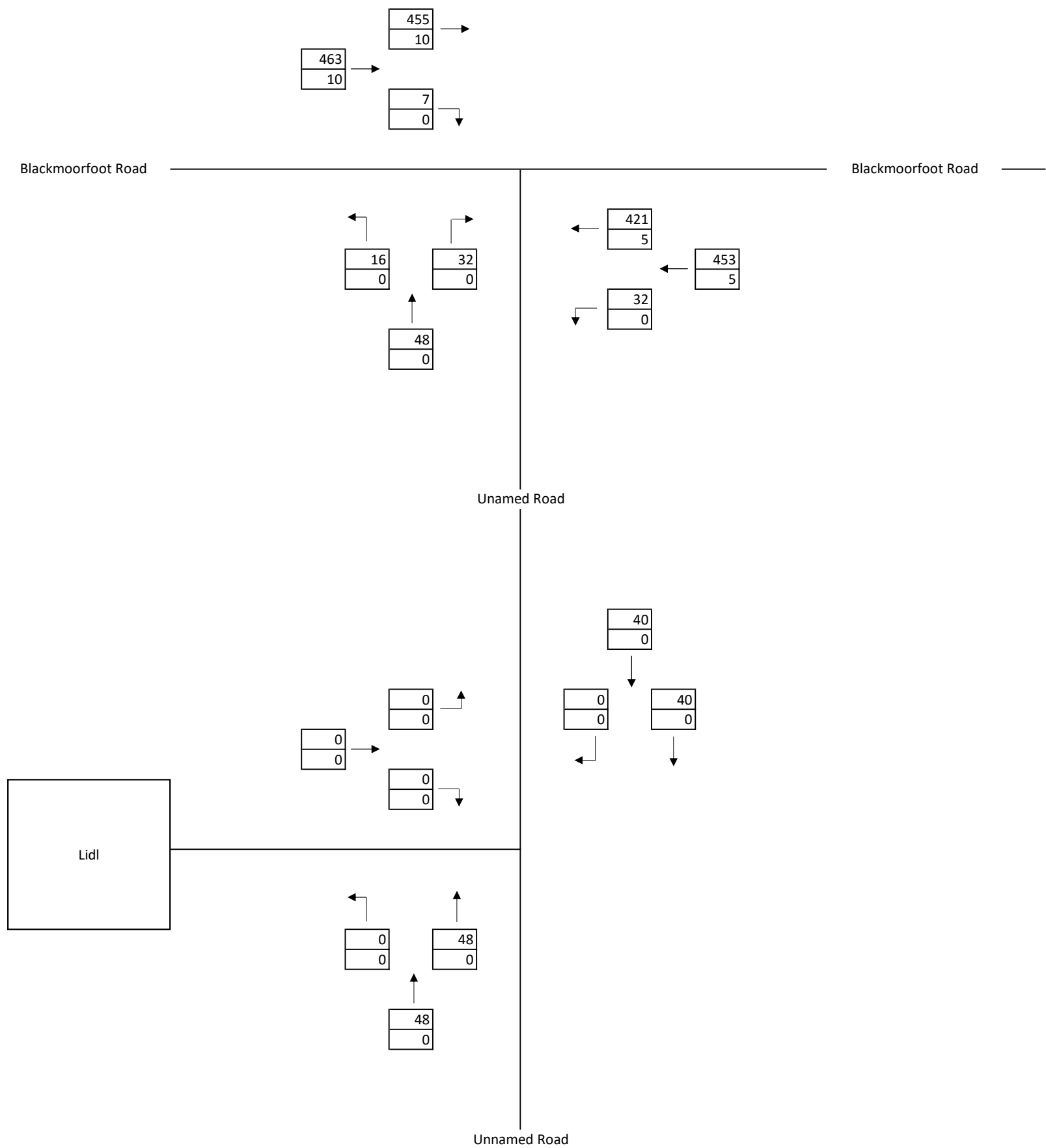
2028 GROWTHED FLOWS
CROSLAND MOOR, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	LIDL Great Britain
Project:	Crosland Moor, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

2028 GROWTHED FLOWS
CROSLAND MOOR, HUDDERSFIELD
SATURDAY PEAK PERIOD



KEY

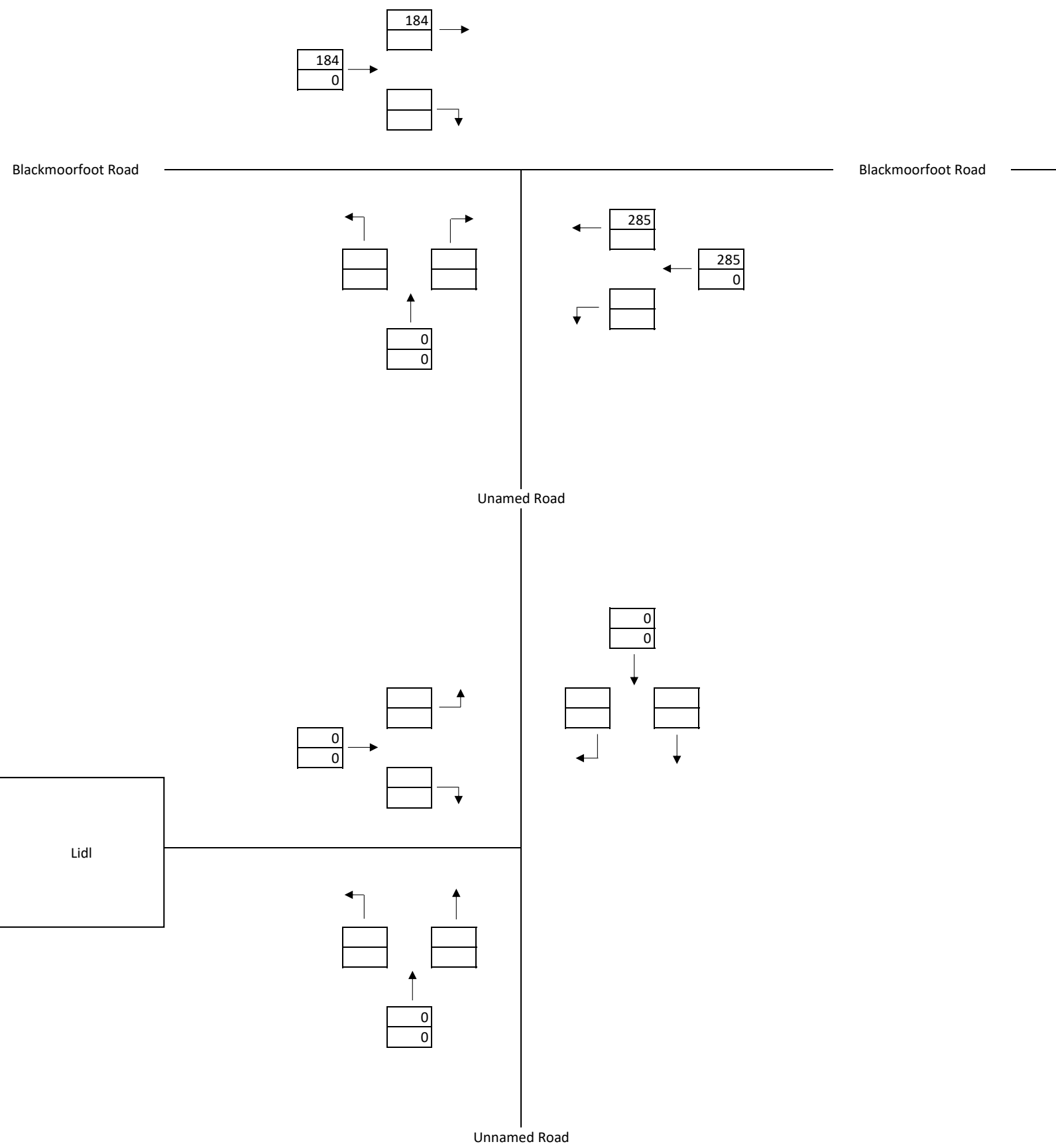
	Total Vehicles
	Total HGVs and Buses



Client:	LIDL Great Britain
Project:	Crosland Moor, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

APPENDIX BGH 8

BLACK CATS SITE
BLACKMOORFOOT ROAD, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



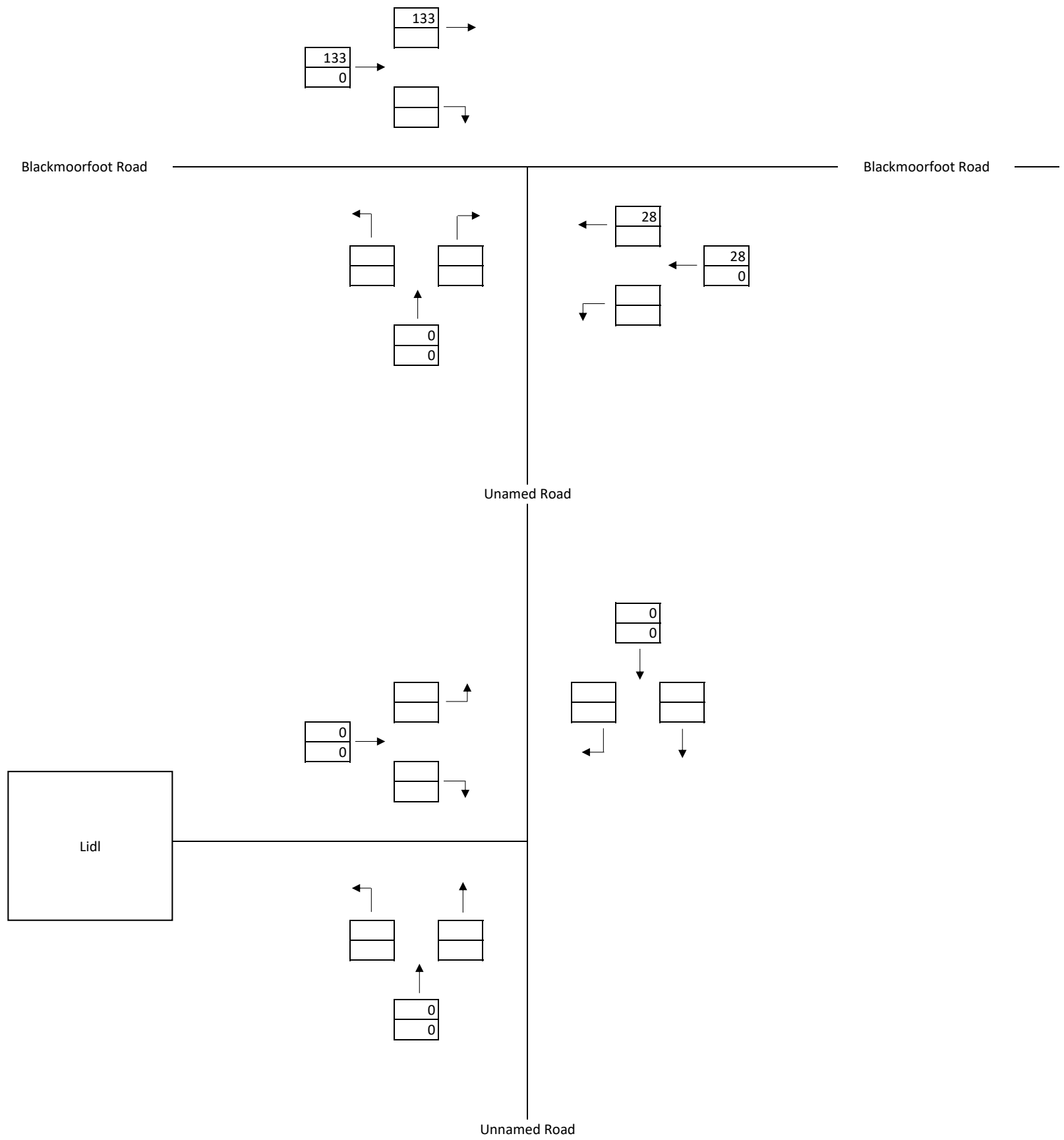
KEY

- Total Vehicles
- Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client: LIDL Great Britain
Project: Blackmoorfoot Road, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder

**BLACK CATS SITE
BLACKMOORFOOT ROAD, HUDDERSFIELD
SATURDAY PEAK PERIOD**



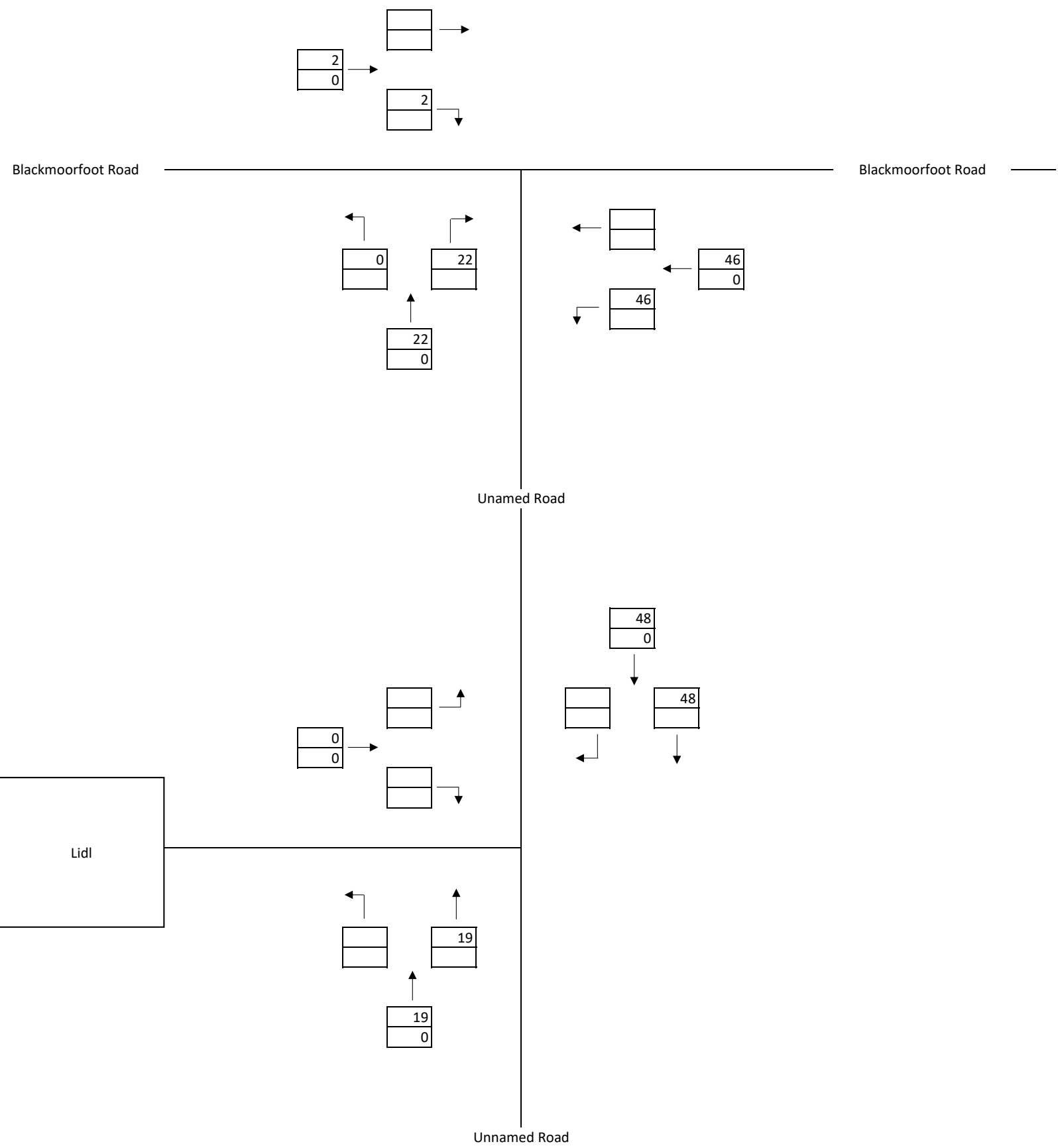
KEY

	Total Vehicles
	Total HGVs and Buses



Client:	LIDL Great Britain
Project:	Blackmoorfoot Road, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

HOSPITAL SITE - RESIDENTIAL UNITS DIFFERENCE
BLACKMOORFOOT ROAD, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



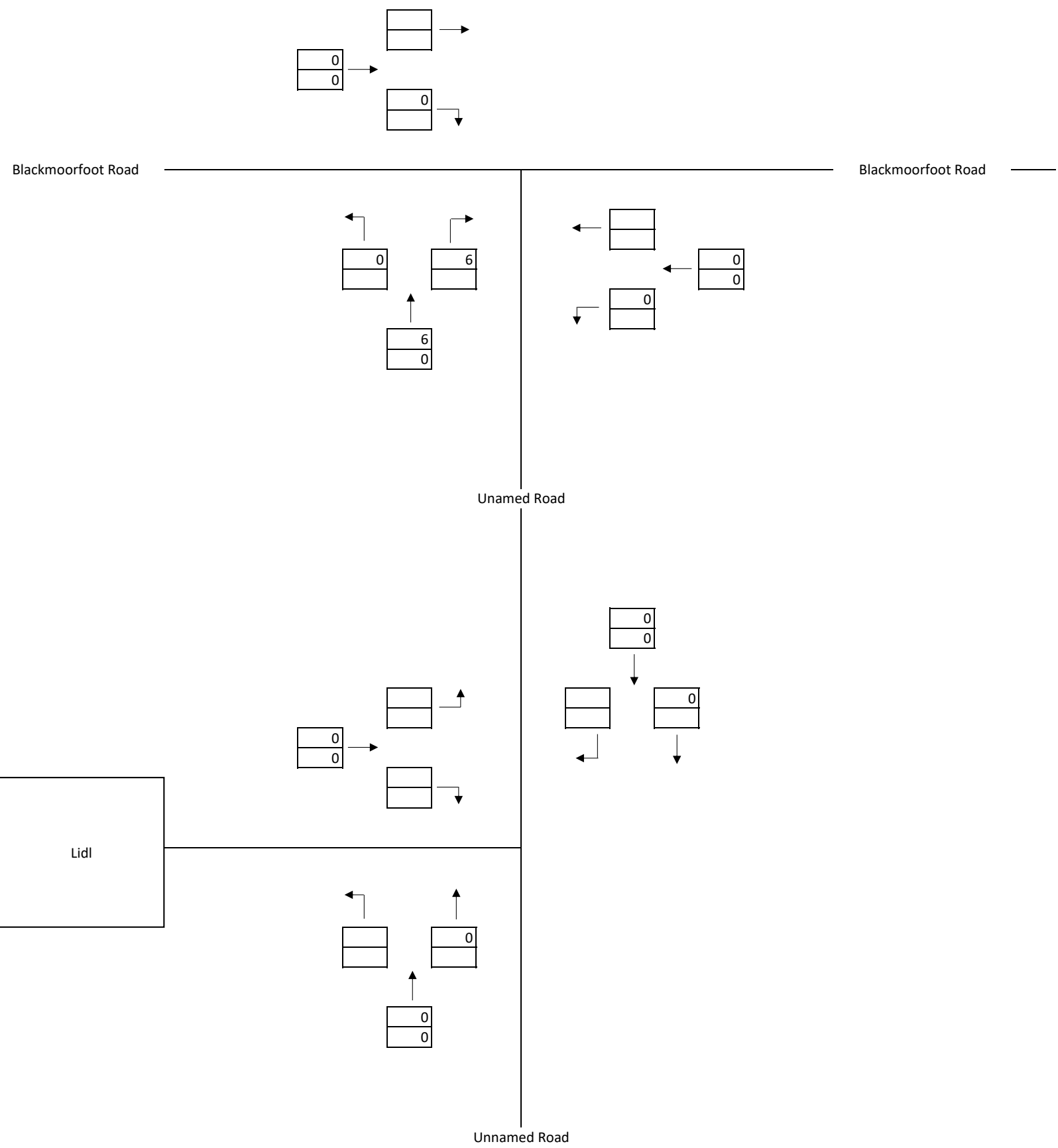
KEY

	Total Vehicles
	Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	LIDL Great Britain
Project:	Blackmoorfoot Road, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

HOSPITAL SITE - RESIDENTIAL UNITS DIFFERENCE
BLACKMOORFOOT ROAD, HUDDERSFIELD
SATURDAY PEAK PERIOD



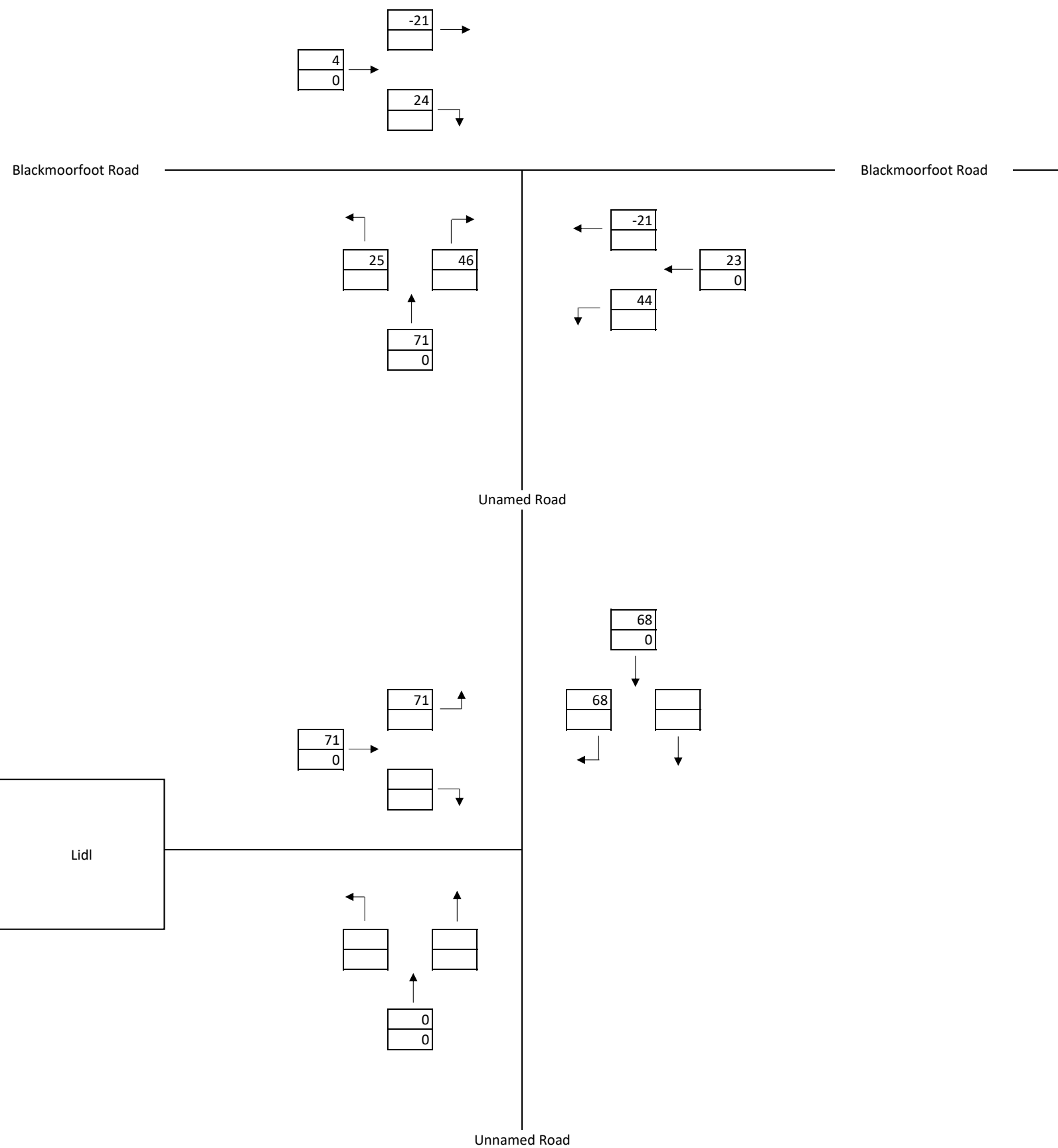
KEY

- Total Vehicles
- Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client: LIDL Great Britain
Project: Blackmoorfoot Road, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder

HOSPITAL SITE - RESIDENTIAL UNITS
BLACKMOORFOOT ROAD, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



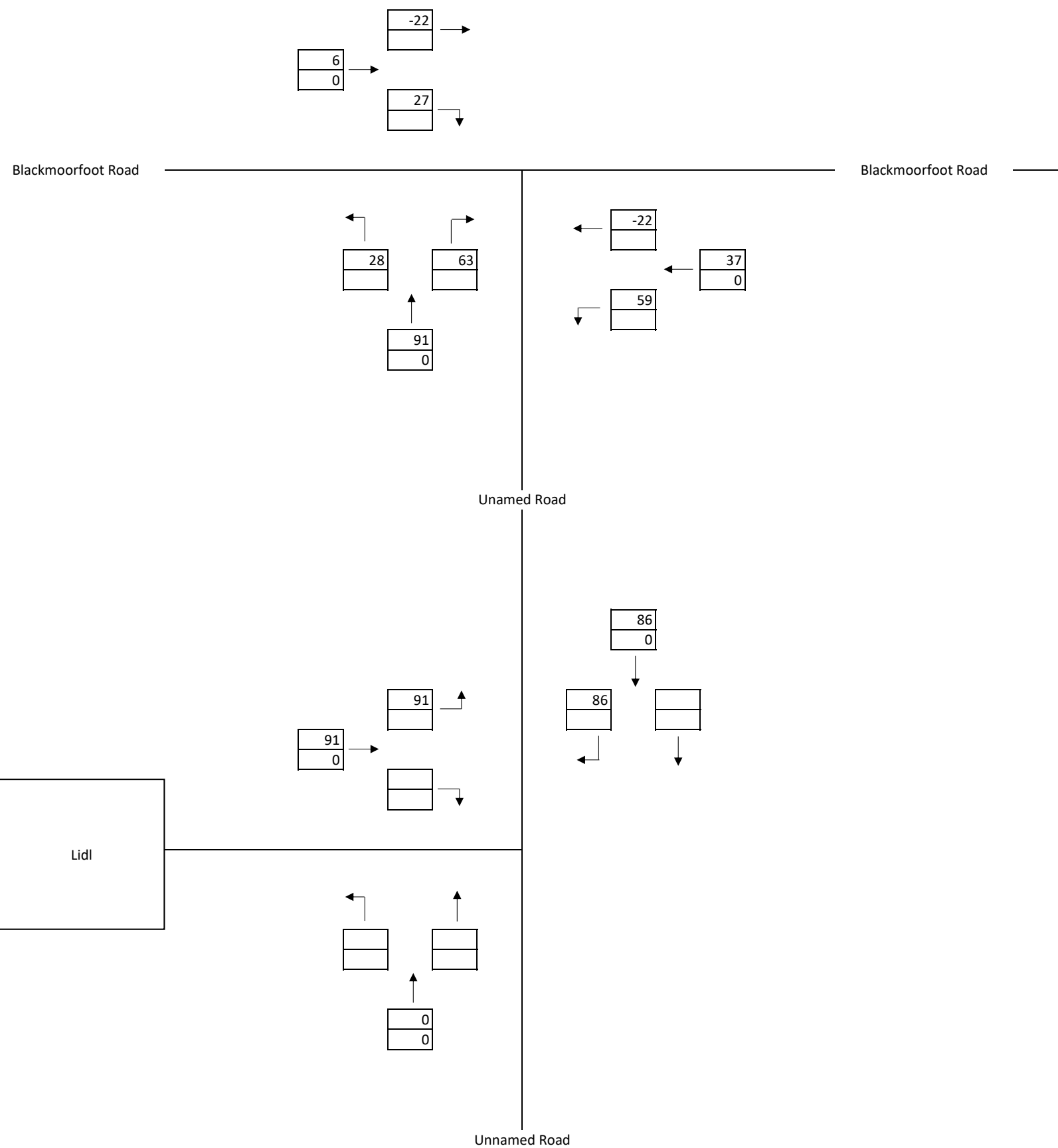
KEY

	Total Vehicles
	Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client: LIDL Great Britain
Project: Blackmoorfoot Road, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder

HOSPITAL SITE - RESIDENTIAL UNITS
BLACKMOORFOOT ROAD, HUDDERSFIELD
SATURDAY PEAK PERIOD

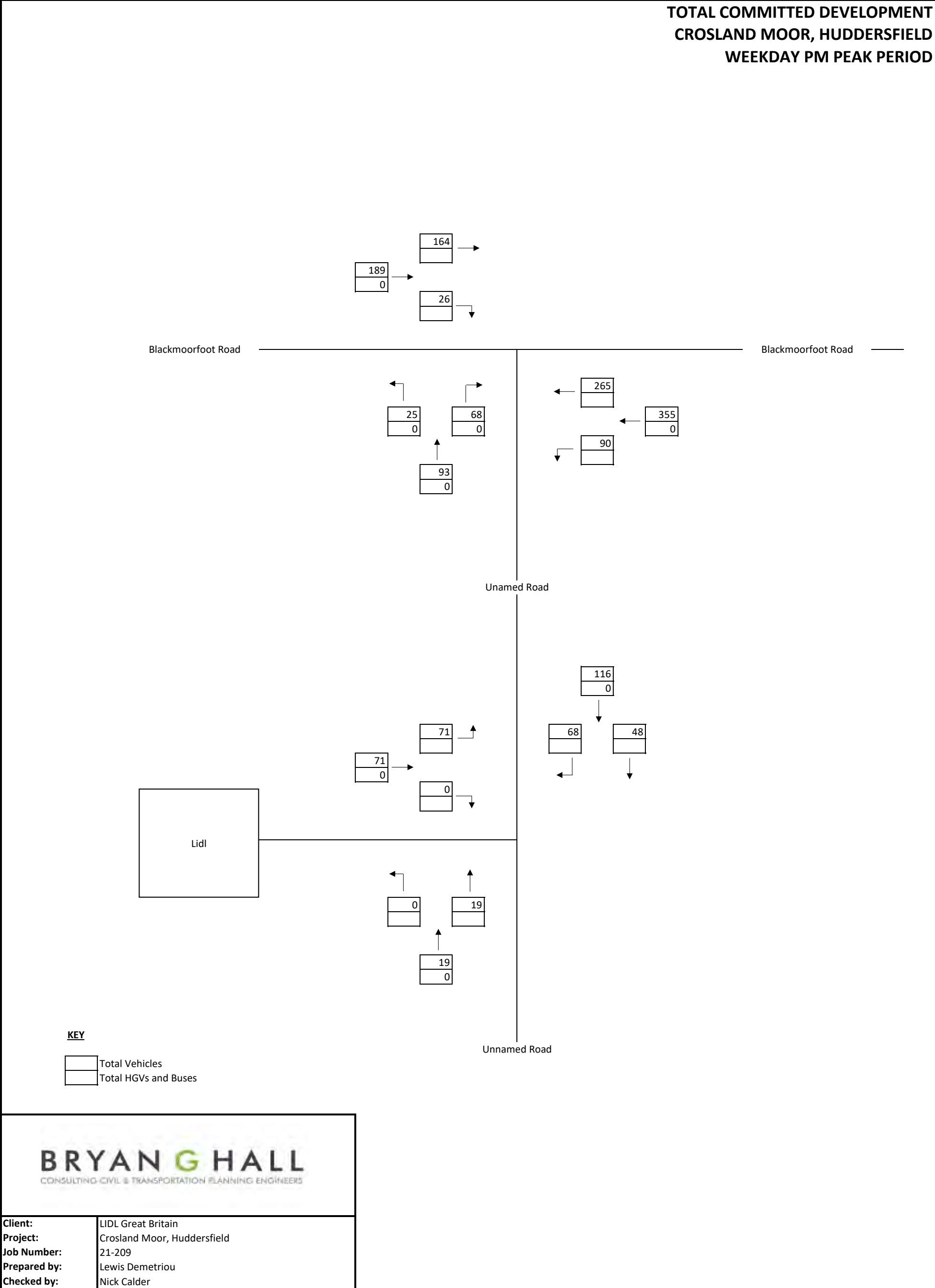


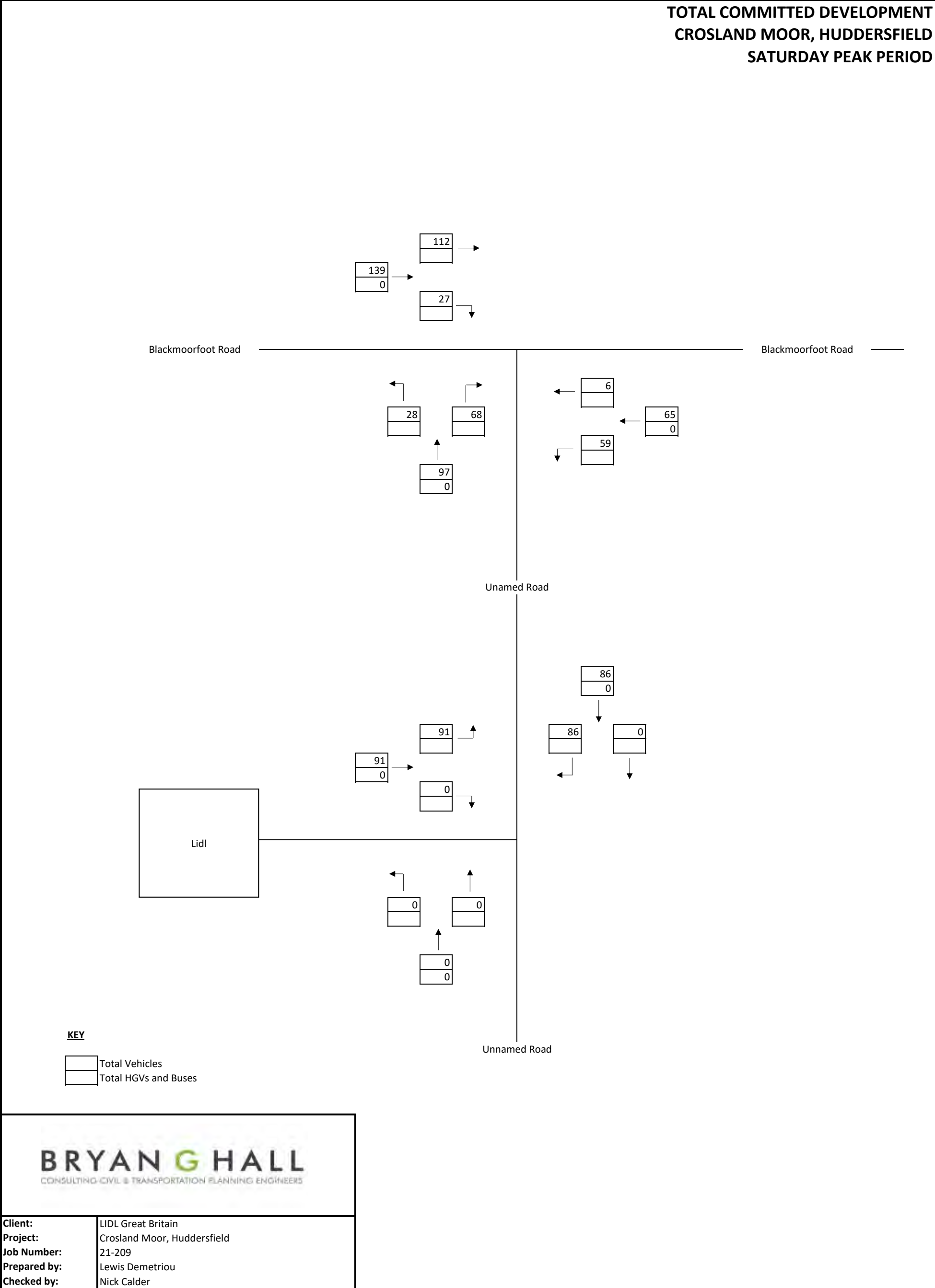
KEY

- Total Vehicles
- Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

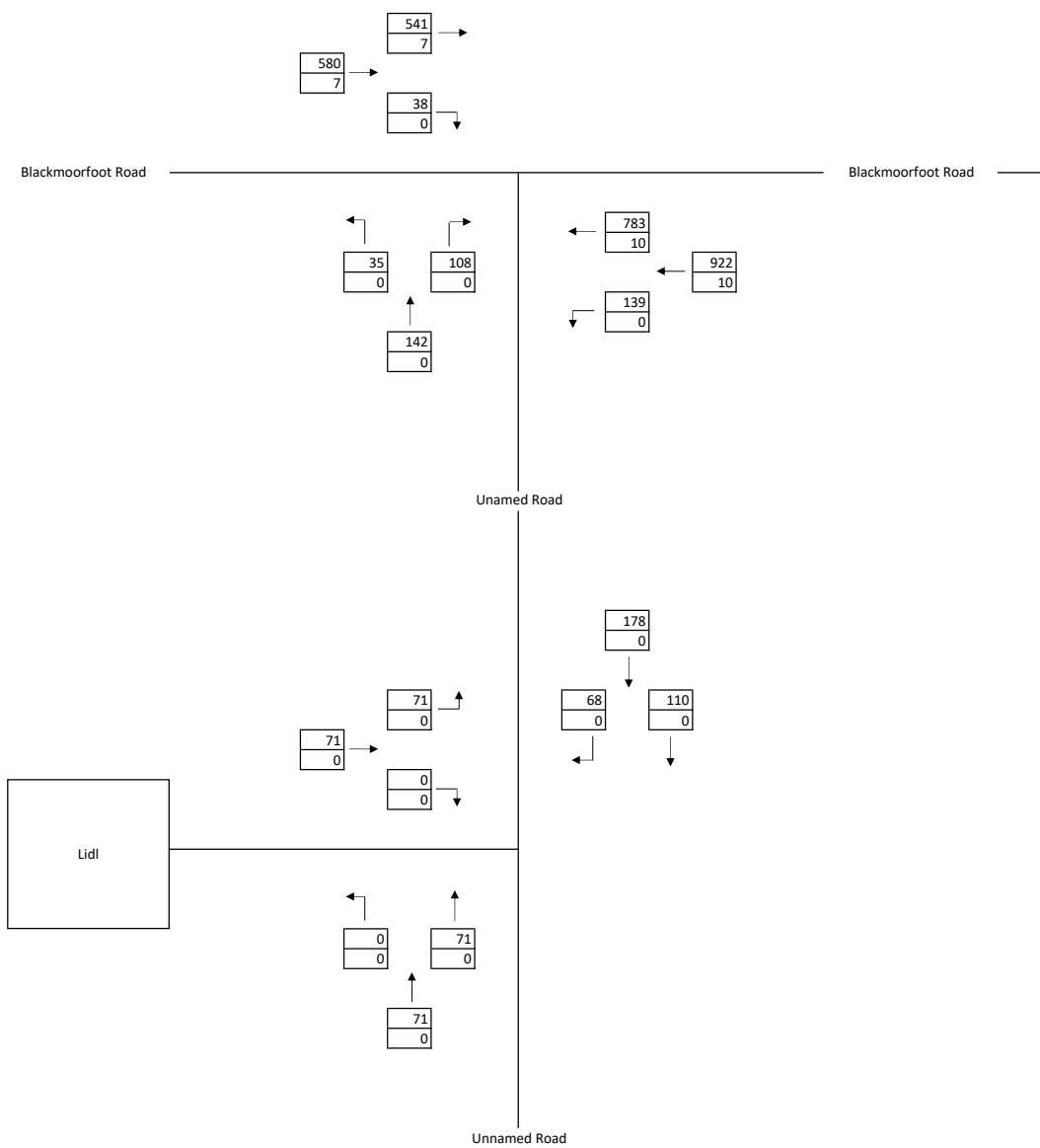
Client: LIDL Great Britain
Project: Blackmoorfoot Road, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder





APPENDIX BGH 9

2028 BASE FLOWS
CROSLAND MOOR, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



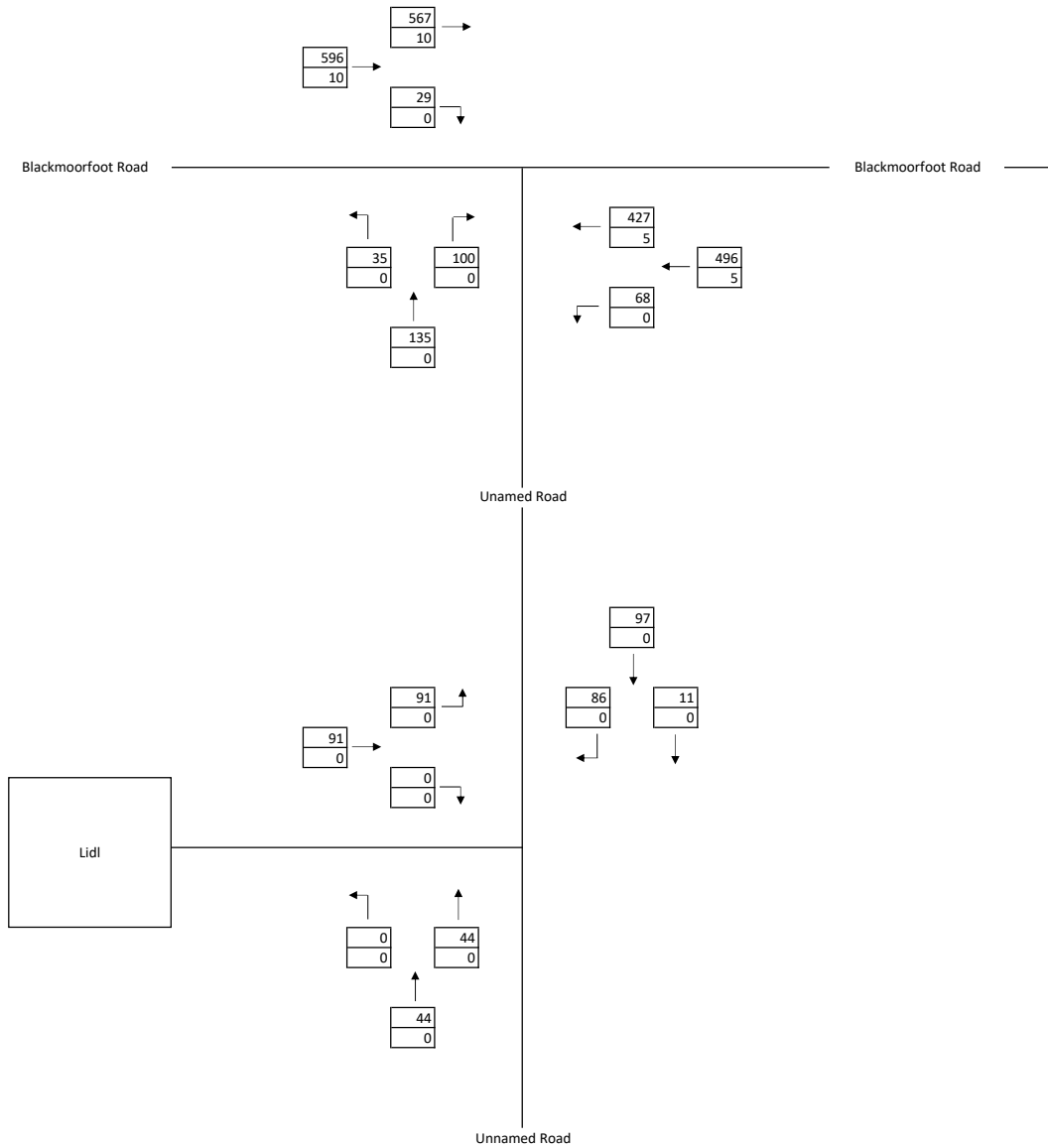
KEY

	Total Vehicles
	Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	LIDL Great Britain
Project:	Crosland Moor, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

2028 BASE FLOWS
CROSLAND MOOR, HUDDERSFIELD
SATURDAY PEAK PERIOD



KEY

 Total Vehicles
 Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client: LIDL Great Britain
Project: Crosland Moor, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder

APPENDIX BGH 10

Junctions 9									
PICADY 9 - Priority Intersection Module									
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Filename: Blackmoorfoot Road - Site Access - Simple T-Junction 2023.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:08:53

«(Default Analysis Set) - 2028 Base, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2023 Existing									
Stream B-C	D2	0.0	6.78	0.02	A	D3	0.0	6.43	0.03	A
Stream B-A		0.1	11.80	0.12	B		0.1	10.95	0.09	B
Stream C-AB		0.0	4.61	0.03	A		0.0	4.27	0.02	A
	A1 - 2028 Base									
Stream B-C	D4	0.1	9.72	0.09	A	D5	0.1	7.31	0.07	A
Stream B-A		1.0	32.44	0.51	D		0.5	16.62	0.33	C
Stream C-AB		0.4	4.68	0.14	A		0.2	4.17	0.09	A
	A1 - 2028 Predicted									
Stream B-C	D6	0.1	10.26	0.11	B	D7	0.1	7.79	0.10	A
Stream B-A		1.5	40.47	0.61	E		0.8	19.98	0.44	C
Stream C-AB		0.5	4.78	0.16	A		0.3	4.34	0.14	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site Access T-Junction
Location	Blackmoorfoot Road, Huddersfield
Site number	
Date	24/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	21-209
Enumerator	ncalder
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2028 Base	PM	ONE HOUR	16:45	18:15	15

(Default Analysis Set) - 2028 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Blackmoorfoot Road / Site Access	T-Junction	Two-way		2.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoot Road East		Major
B	Site Access		Minor
C	Blackmoorfoot Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Blackmoorfoot Road West	7.90			250.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.00	4.00	32	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	552	0.092	0.233	0.147	0.333
B-C	706	0.099	0.251	-	-
C-B	719	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Blackmoorfoot Road East		✓	932	100.000
B - Site Access		✓	143	100.000
C - Blackmoorfoot Road West		✓	586	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	139	793
	B - Site Access	108	0	35
	C - Blackmoorfoot Road West	548	38	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	1	0
	B - Site Access	2	0	0
	C - Blackmoorfoot Road West	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.09	9.72	0.1	A
B-A	0.51	32.44	1.0	D
C-AB	0.14	4.68	0.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	512	0.051	26	0.1	7.400	A
B-A	81	333	0.244	80	0.3	14.439	B
C-AB	57	828	0.069	57	0.1	4.668	A
C-A	384			384			
A-B	105			105			
A-C	597			597			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	471	0.067	31	0.1	8.188	A
B-A	97	291	0.334	96	0.5	18.845	C
C-AB	80	859	0.094	80	0.2	4.627	A
C-A	446			446			
A-B	125			125			
A-C	713			713			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	39	410	0.094	38	0.1	9.683	A
B-A	119	232	0.513	117	1.0	31.420	D
C-AB	126	907	0.139	125	0.4	4.613	A
C-A	520			520			
A-B	153			153			
A-C	873			873			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	39	409	0.094	39	0.1	9.716	A
B-A	119	232	0.513	119	1.0	32.442	D
C-AB	126	908	0.139	126	0.4	4.620	A
C-A	519			519			
A-B	153			153			
A-C	873			873			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	470	0.067	32	0.1	8.220	A
B-A	97	290	0.334	99	0.5	19.398	C
C-AB	81	860	0.094	81	0.2	4.638	A
C-A	446			446			
A-B	125			125			
A-C	713			713			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	511	0.052	26	0.1	7.425	A
B-A	81	333	0.244	82	0.3	14.680	B
C-AB	57	829	0.069	58	0.1	4.676	A
C-A	384			384			
A-B	105			105			
A-C	597			597			

Junctions 9									
PICADY 9 - Priority Intersection Module									
Version: 9.5.1.7462 © Copyright TRL Limited, 2019									
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Filename: Blackmoorfoot Road - Site Access - Simple T-Junction 2023.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:09:32

«(Default Analysis Set) - 2028 Base, Sat

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2023 Existing									
Stream B-C	D2	0.0	6.78	0.02	A	D3	0.0	6.43	0.03	A
Stream B-A		0.1	11.80	0.12	B		0.1	10.95	0.09	B
Stream C-AB		0.0	4.61	0.03	A		0.0	4.27	0.02	A
	A1 - 2028 Base									
Stream B-C	D4	0.1	9.72	0.09	A	D5	0.1	7.31	0.07	A
Stream B-A		1.0	32.44	0.51	D		0.5	16.62	0.33	C
Stream C-AB		0.4	4.68	0.14	A		0.2	4.17	0.09	A
	A1 - 2028 Predicted									
Stream B-C	D6	0.1	10.26	0.11	B	D7	0.1	7.79	0.10	A
Stream B-A		1.5	40.47	0.61	E		0.8	19.98	0.44	C
Stream C-AB		0.5	4.78	0.16	A		0.3	4.34	0.14	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site Access T-Junction
Location	Blackmoorfoot Road, Huddersfield
Site number	
Date	24/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	21-209
Enumerator	ncalder
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2028 Base	Sat	ONE HOUR	11:45	13:15	15

(Default Analysis Set) - 2028 Base, Sat

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Blackmoorfoot Road / Site Access	T-Junction	Two-way		1.78	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoot Road East		Major
B	Site Access		Minor
C	Blackmoorfoot Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Blackmoorfoot Road West	7.90			250.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.00	4.00	32	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	552	0.092	0.233	0.147	0.333
B-C	706	0.099	0.251	-	-
C-B	719	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Blackmoorfoot Road East		✓	497	100.000
B - Site Access		✓	135	100.000
C - Blackmoorfoot Road West		✓	606	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	68	429
	B - Site Access	100	0	35
	C - Blackmoorfoot Road West	577	29	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	1	0
	B - Site Access	2	0	0
	C - Blackmoorfoot Road West	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.07	7.31	0.1	A
B-A	0.33	16.62	0.5	C
C-AB	0.09	4.17	0.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

11:45 - 12:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	591	0.045	26	0.0	6.376	A
B-A	75	401	0.188	74	0.2	11.212	B
C-AB	42	907	0.046	42	0.1	4.162	A
C-A	414			414			
A-B	51			51			
A-C	323			323			

12:00 - 12:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	566	0.056	31	0.1	6.732	A
B-A	90	372	0.242	90	0.3	13.001	B
C-AB	58	949	0.061	58	0.1	4.042	A
C-A	487			487			
A-B	61			61			
A-C	386			386			

12:15 - 12:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	39	531	0.073	38	0.1	7.307	A
B-A	110	331	0.333	109	0.5	16.513	C
C-AB	86	1010	0.086	86	0.2	3.902	A
C-A	581			581			
A-B	75			75			
A-C	472			472			

12:30 - 12:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	39	531	0.073	39	0.1	7.312	A
B-A	110	331	0.333	110	0.5	16.615	C
C-AB	87	1010	0.086	87	0.2	3.904	A
C-A	581			581			
A-B	75			75			
A-C	472			472			

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	566	0.056	32	0.1	6.742	A
B-A	90	372	0.242	91	0.3	13.103	B
C-AB	58	949	0.061	58	0.1	4.046	A
C-A	487			487			
A-B	61			61			
A-C	386			386			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	590	0.045	26	0.0	6.388	A
B-A	75	401	0.188	76	0.2	11.303	B
C-AB	42	907	0.046	42	0.1	4.166	A
C-A	414			414			
A-B	51			51			
A-C	323			323			

APPENDIX BGH 11

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BOUNDARY BASED ON TITLE DEEDS: WYK696805

BOUNDARY BASED ON TOPOGRAPHICAL SURVEY: 5328-0721-01C

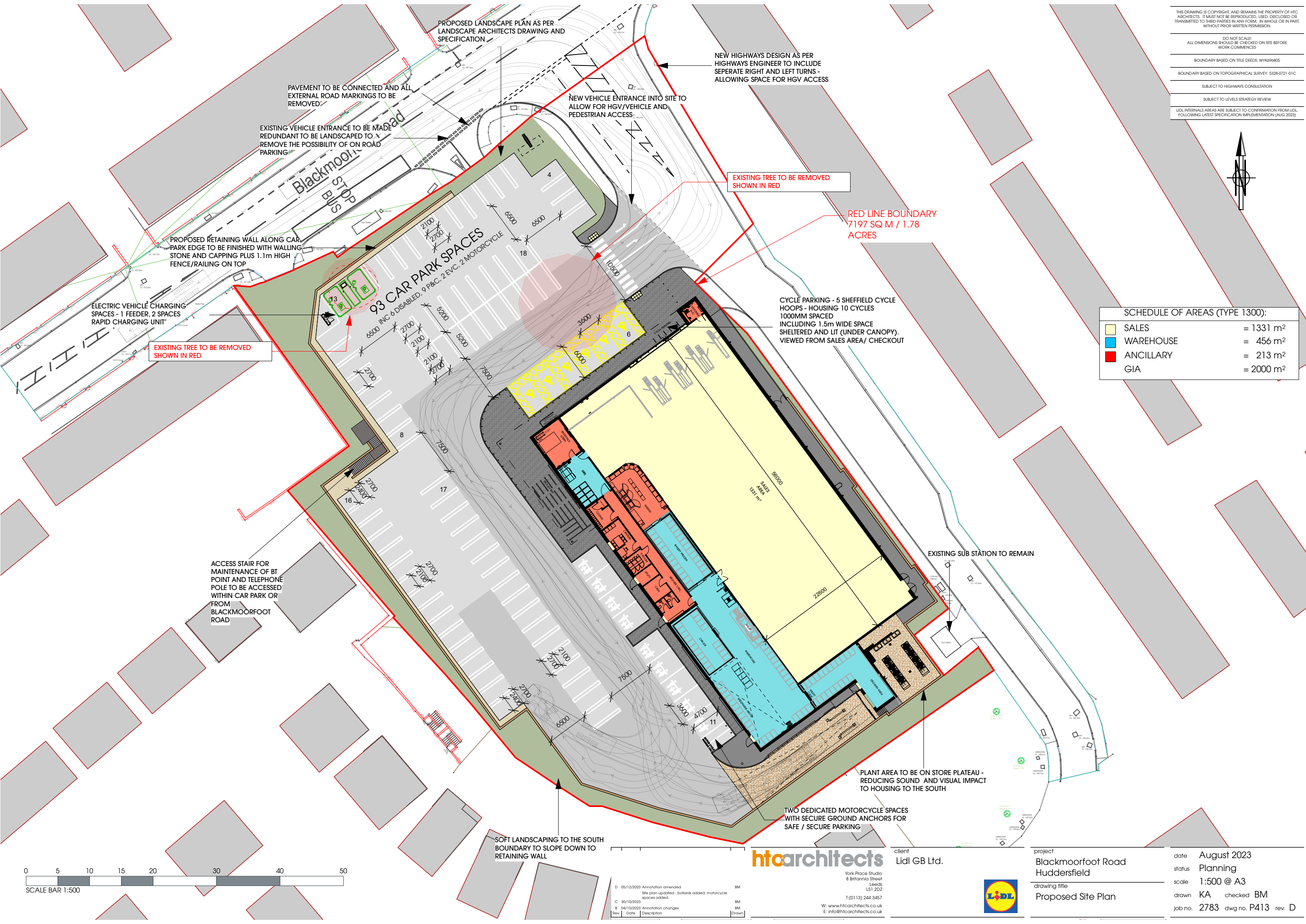
SUBJECT TO HIGHWAYS CONSULTATION

SUBJECT TO LEVELS STRATEGY REVIEW

LIDL INTERNALS ARE SUBJECT TO CONFIRMATION FROM LIDL FOLLOWING LATEST SPECIFICATION IMPLEMENTATION (AUG 2023)



SCHEDULE OF AREAS (TYPE 1300):		
SALES		= 1331 m ²
WAREHOUSE		= 456 m ²
ANCILLARY		= 213 m ²
GIA		= 2000 m ²



D	05/12/2023	Annotation amended	BM
C	30/10/2023	Site plan updated - bollards added, motorcycle spaces added.	BM
B	04/10/2023	Annotation changes	BM
Rev	Date	Description	Drawn

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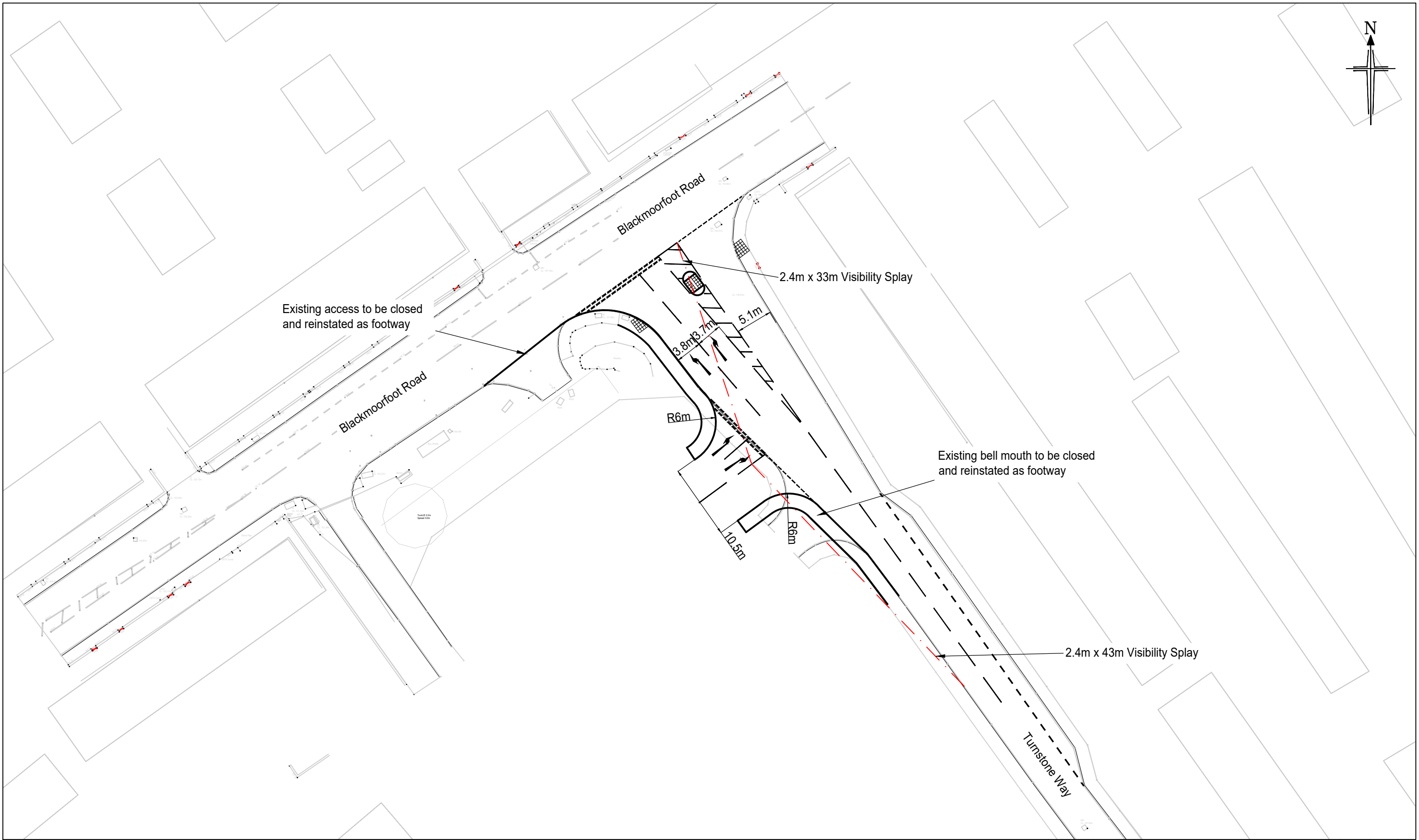
client
Lidl GB Ltd.



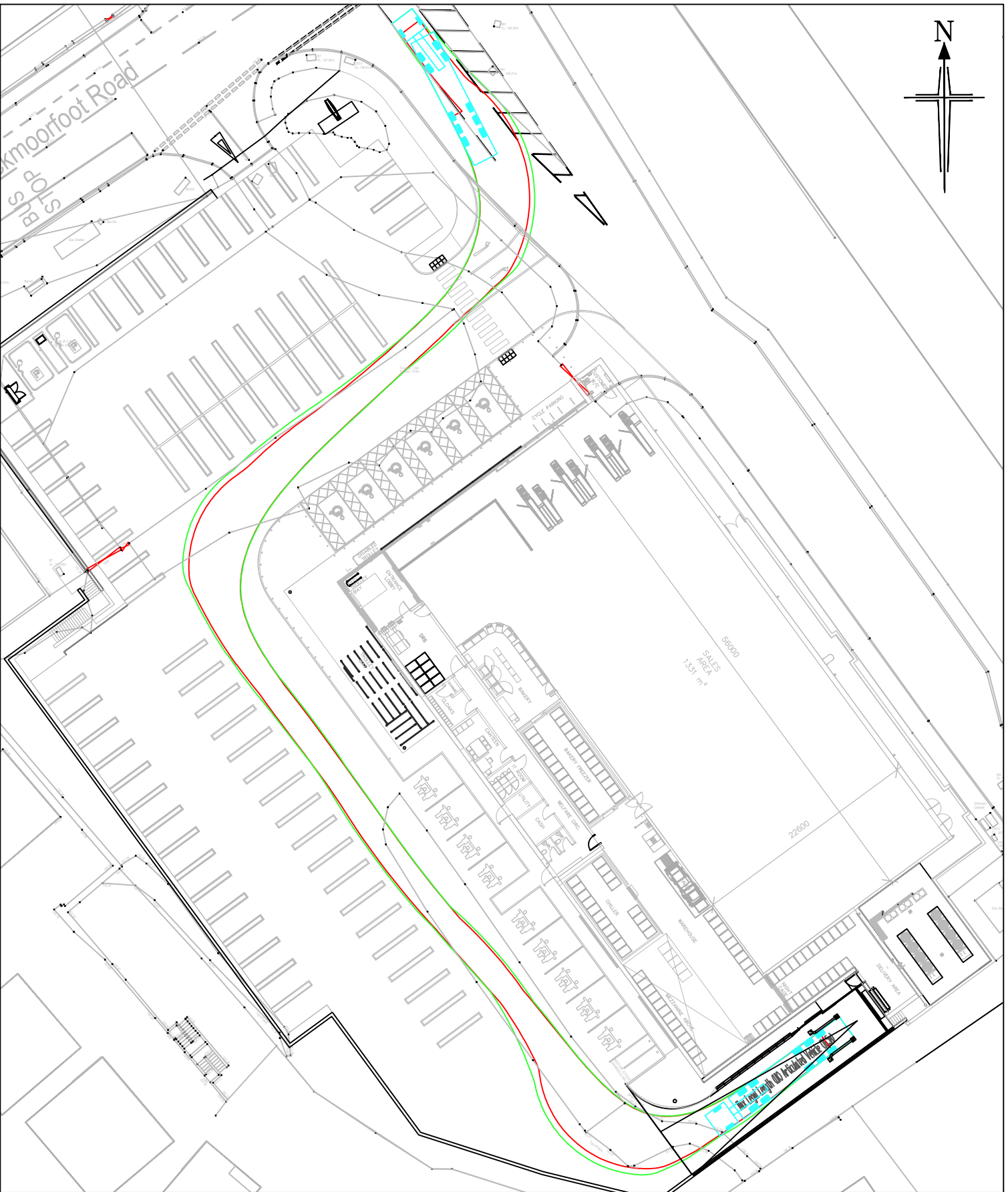
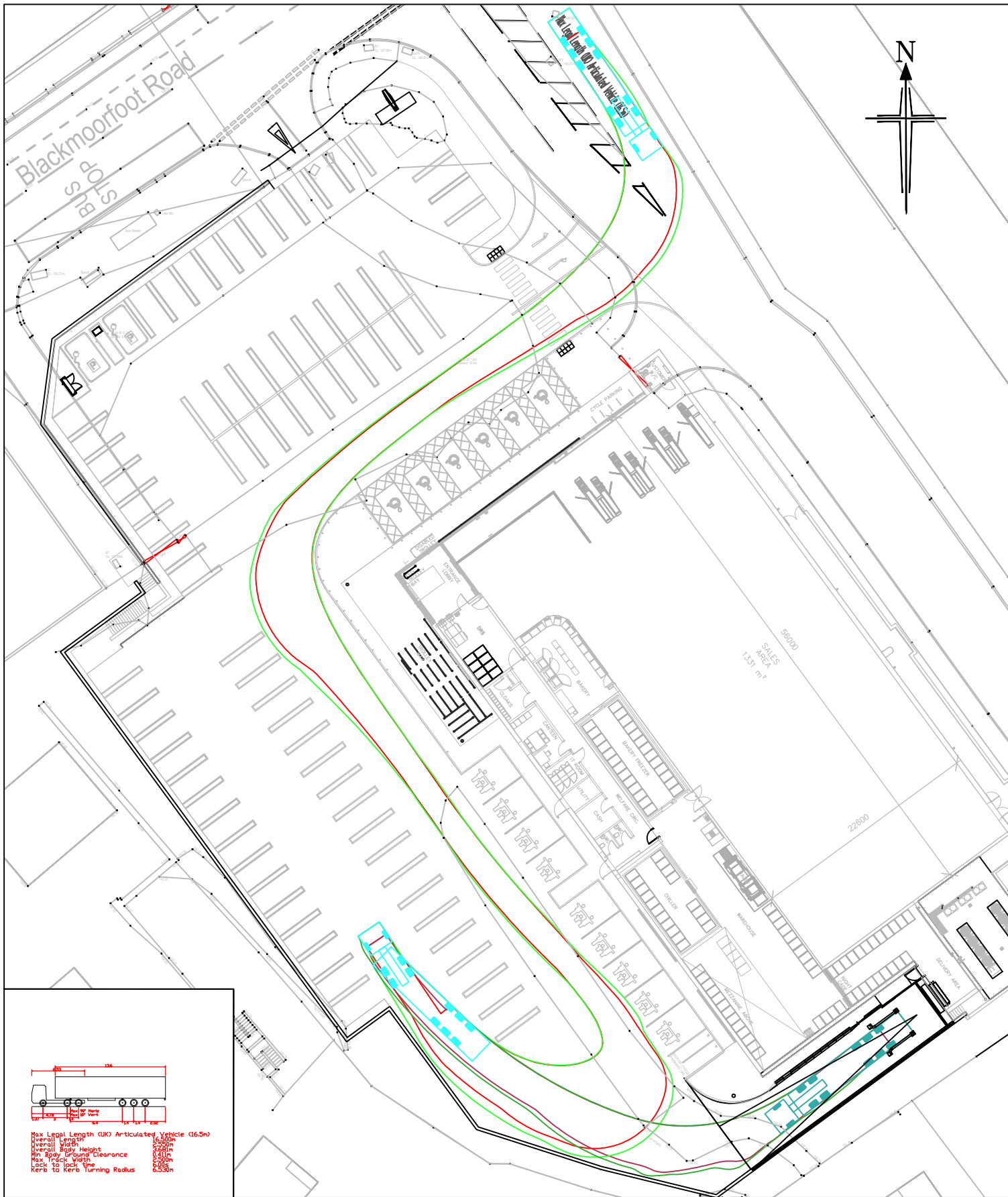
project
Blackmoorfoot Road
Huddersfield
drawing title
Proposed Site Plan

date August 2023
status Planning
scale 1:500 @ A3
drawn KA checked BM
job no. 2783 dwg no. P413 rev. D

APPENDIX BGH 12



APPENDIX BGH 13



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Title: SWEPT PATH ANALYSIS OF INTERNAL ARRANGEMENT

Status: PLANNING

Scale: 1:500
Size: A3 - 420 x 297

Drawn: LD Chkd: NC Appvd: SCW

C	05/12/23	Updated Site Layout Plan	JD	NC	NC
Rev:	Date:	Amendment:	DRN	CHK	APR
Client:	LIDL GREAT BRITAIN				
Project:	CROSLAND MOOR, HUDDERSFIELD				
Drawing No:	21/209/ATR/002		Revision:	C	
Job No:	21-209		Date:	23/08/2022	

APPENDIX BGH 14

Calculation Reference: AUDIT-604801-220218-0205

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
 Category : C - DISCOUNT FOOD STORES
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	WS WEST SUSSEX	1 days
03	SOUTH WEST	
	SM SOMERSET	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS	
	NT NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS	
	WO WORCESTERSHIRE	1 days
09	NORTH	
	DH DURHAM	1 days
10	WALES	
	CF CARDIFF	1 days
11	SCOTLAND	
	AD ABERDEEN CITY	1 days
13	MUNSTER	
	KE KERRY	1 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	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: Gross floor area
 Actual Range: 1023 to 2568 (units: sqm)
 Range Selected by User: 700 to 2703 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 23/09/21

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

Selected survey days:

Monday	1 days
Wednesday	2 days
Thursday	5 days
Friday	2 days

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

Selected survey types:

Manual count	10 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)	3
Edge of Town	7

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	3
-----------------	---

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:

E(a) 10 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 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	4 days
10,001 to 15,000	2 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 100,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	3 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	1 days
250,001 to 500,000	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	6 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.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	10 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

Not Known	1 days
Yes	2 days
No	7 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	10 days
-----------------	---------

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

LIST OF SITES relevant to selection parameters

1	AD-01-C-01	LIDL		ABERDEEN CITY
	GREENWELL ROAD			
	ABERDEEN			
	EAST TULLOS IND. ESTATE			
	Suburban Area (PPS6 Out of Centre)			
	Industrial Zone			
	Total Gross floor area:	1950 sqm		
	Survey date: MONDAY	18/11/19	Survey Type: MANUAL	
2	AN-01-C-02	LIDL		ANTRIM
	BELFAST ROAD			
	CARRICKFERGUS			
	Edge of Town			
	Development Zone			
	Total Gross floor area:	1325 sqm		
	Survey date: WEDNESDAY	12/10/16	Survey Type: MANUAL	
3	CA-01-C-01	LIDL		CAMBRIDGESHIRE
	CROMWELL ROAD			
	WISBECH			
	Edge of Town			
	Retail Zone			
	Total Gross floor area:	1466 sqm		
	Survey date: FRIDAY	21/10/16	Survey Type: MANUAL	
4	CF-01-C-01	LIDL		CARDIFF
	EAST TYNDALL STREET			
	CARDIFF			
	Suburban Area (PPS6 Out of Centre)			
	Development Zone			
	Total Gross floor area:	2568 sqm		
	Survey date: THURSDAY	29/06/17	Survey Type: MANUAL	
5	DH-01-C-01	ALDI		DURHAM
	WATLING ROAD			
	BISHOP AUCLAND			
	Edge of Town			
	Retail Zone			
	Total Gross floor area:	1023 sqm		
	Survey date: THURSDAY	06/04/17	Survey Type: MANUAL	
6	KE-01-C-01	ALDI		KERRY
	DEERPARK ROAD			
	KILLARNEY			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Gross floor area:	1354 sqm		
	Survey date: THURSDAY	17/10/19	Survey Type: MANUAL	
7	NT-01-C-01	LIDL		NOTTINGHAMSHIRE
	CHAPEL LANE			
	BINGHAM			
	Edge of Town			
	Industrial Zone			
	Total Gross floor area:	2440 sqm		
	Survey date: FRIDAY	15/07/16	Survey Type: MANUAL	

LIST OF SITES relevant to selection parameters (Cont.)

8	SM-01-C-01 SEAWARD WAY MINEHEAD	LIDL		SOMERSET
	Edge of Town No Sub Category Total Gross floor area:		2247 sqm	
	Survey date: THURSDAY		22/06/17	Survey Type: MANUAL
9	WO-01-C-01 BLACKPOLE ROAD WORCESTER BRICKFIELDS	LIDL		WORCESTERSHIRE
	Edge of Town Retail Zone Total Gross floor area:		2417 sqm	
	Survey date: WEDNESDAY		13/07/16	Survey Type: MANUAL
10	WS-01-C-03 SHRIPNEY ROAD BOGNOR REGIS	LIDL		WEST SUSSEX
	Edge of Town Industrial Zone Total Gross floor area:		2125 sqm	
	Survey date: THURSDAY		23/09/21	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 SURVEYS

Site Ref	Survey Date	Reason for Deselection
DE-01-C-01	22/06/21	Covid
WS-01-C-01	20/10/20	Covid
WS-01-C-02	21/10/20	Covid

BRYAN G HALL JOSEPH'S WELL LEEDS

Licence No: 604801

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 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	9	1951	0.427	9	1951	0.108	9	1951	0.535
08:00 - 09:00	10	1892	2.665	10	1892	1.940	10	1892	4.605
09:00 - 10:00	10	1892	3.637	10	1892	3.093	10	1892	6.730
10:00 - 11:00	10	1892	4.087	10	1892	3.833	10	1892	7.920
11:00 - 12:00	10	1892	4.896	10	1892	4.610	10	1892	9.506
12:00 - 13:00	10	1892	5.070	10	1892	5.081	10	1892	10.151
13:00 - 14:00	10	1892	4.837	10	1892	5.086	10	1892	9.923
14:00 - 15:00	10	1892	4.985	10	1892	5.012	10	1892	9.997
15:00 - 16:00	10	1892	4.859	10	1892	4.822	10	1892	9.681
16:00 - 17:00	10	1892	4.779	10	1892	4.806	10	1892	9.585
17:00 - 18:00	10	1892	4.362	10	1892	4.621	10	1892	8.983
18:00 - 19:00	10	1892	3.812	10	1892	4.219	10	1892	8.031
19:00 - 20:00	10	1892	2.865	10	1892	3.183	10	1892	6.048
20:00 - 21:00	10	1892	1.708	10	1892	2.183	10	1892	3.891
21:00 - 22:00	10	1892	0.592	10	1892	0.978	10	1892	1.570
22:00 - 23:00	9	1954	0.028	9	1954	0.171	9	1954	0.199
23:00 - 24:00									
Total Rates:			53.609				53.746	107.355	

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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The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	1023 - 2568 (units: sqm)
Survey date range:	01/01/13 - 23/09/21
Number of weekdays (Monday-Friday):	13
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	3
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.

Calculation Reference: AUDIT-604801-220218-0211

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
 Category : C - DISCOUNT FOOD STORES
 TOTAL VEHICLES

Selected regions and areas:

03	SOUTH WEST	
	BR BRISTOL CITY	1 days
	SM SOMERSET	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	2 days
	NT NOTTINGHAMSHIRE	2 days
06	WEST MIDLANDS	
	WO WORCESTERSHIRE	1 days
10	WALES	
	CF CARDIFF	1 days
12	CONNAUGHT	
	LT LEITRIM	1 days
14	LEINSTER	
	WC WICKLOW	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: Gross floor area
 Actual Range: 1425 to 2700 (units: sqm)
 Range Selected by User: 700 to 2703 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 23/09/21

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:

Saturday	7 days
Sunday	3 days

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

Selected survey types:

Manual count	10 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)	5
Edge of Town	5

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
Development Zone	1
Residential Zone	1
Retail Zone	2
High Street	1
No Sub Category	4

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,

Secondary Filtering selection:

Use Class:

E(a) 10 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 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	2 days
15,001 to 20,000	3 days
20,001 to 25,000	1 days
25,001 to 50,000	2 days
50,001 to 100,000	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	2 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	4 days

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

Car ownership within 5 miles:

0.5 or Less	2 days
0.6 to 1.0	1 days
1.1 to 1.5	7 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.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	10 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

Not Known	1 days
Yes	1 days
No	8 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	10 days
-----------------	---------

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

BRYAN G HALL JOSEPH'S WELL LEEDS

Licence No: 604801

LIST OF SITES relevant to selection parameters

1	BR-01-C-02	LIDL	BRISTOL CITY
	BATH ROAD		
	BRISTOL		
	BRISLINGTON RETAIL PK		
	Edge of Town		
	Retail Zone		
	Total Gross floor area:	1550 sqm	
	Survey date: SUNDAY	20/09/15	Survey Type: MANUAL
2	CF-01-C-01	LIDL	CARDIFF
	EAST TYNDALL STREET		
	CARDIFF		
	Suburban Area (PPS6 Out of Centre)		
	Development Zone		
	Total Gross floor area:	2568 sqm	
	Survey date: SATURDAY	01/07/17	Survey Type: MANUAL
3	LN-01-C-02	LIDL	LINCOLNSHIRE
	DIXON STREET		
	LINCOLN		
	NEW BOULTHAM		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total Gross floor area:	2233 sqm	
	Survey date: SATURDAY	28/10/17	Survey Type: MANUAL
4	LN-01-C-03	ALDI	LINCOLNSHIRE
	NEWARK ROAD		
	LINCOLN		
	BRACEBRIDGE		
	Suburban Area (PPS6 Out of Centre)		
	High Street		
	Total Gross floor area:	1485 sqm	
	Survey date: SATURDAY	28/10/17	Survey Type: MANUAL
5	LT-01-C-01	LIDL	LEITRIM
	BOYLE ROAD		
	CARRICK-ON-SHANNON		
	CORTOBER		
	Edge of Town		
	No Sub Category		
	Total Gross floor area:	1755 sqm	
	Survey date: SUNDAY	19/04/15	Survey Type: MANUAL
6	NT-01-C-01	LIDL	NOTTINGHAMSHIRE
	CHAPEL LANE		
	BINGHAM		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	2440 sqm	
	Survey date: SATURDAY	16/07/16	Survey Type: MANUAL
7	NT-01-C-02	ALDI	NOTTINGHAMSHIRE
	ASHGATE ROAD		
	NEAR NOTTINGHAM		
	HUCKNALL		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Gross floor area:	1447 sqm	
	Survey date: SUNDAY	01/07/18	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	SM-01-C-01 SEAWARD WAY MINEHEAD	LIDL	SOMERSET
	Edge of Town No Sub Category Total Gross floor area:	2247 sqm	
	Survey date: SATURDAY	24/06/17	Survey Type: MANUAL
9	WC-01-C-01 PINEWOOD CLOSE BRAY	ALDI	WICKLOW
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Gross floor area:	1672 sqm	
	Survey date: SATURDAY	05/10/19	Survey Type: MANUAL
10	WO-01-C-01 BLACKPOLE ROAD WORCESTER BRICKFIELDS Edge of Town Retail Zone Total Gross floor area:	LIDL 2417 sqm	WORCESTERSHIRE
	Survey date: SATURDAY	16/07/16	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 SURVEYS

Site Ref	Survey Date	Reason for Deselection
BD-01-C-01	17/10/20	Covid
DL-01-C-02	24/10/20	Covid
GS-01-C-01	24/04/21	Covid
LU-01-C-01	07/11/20	Covid
MM-01-C-01	28/11/20	Covid
MS-01-C-05	24/04/21	Covid
NR-01-C-03	24/10/20	Covid
SF-01-C-01	26/06/21	Covid
SF-01-C-02	26/06/21	Covid
TV-01-C-01	05/09/20	Covid

BRYAN G HALL JOSEPH'S WELL LEEDS

Licence No: 604801

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 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	8	2048	0.403	8	2048	0.092	8	2048	0.495
08:00 - 09:00	10	1981	1.857	10	1981	1.348	10	1981	3.205
09:00 - 10:00	10	1981	3.452	10	1981	2.428	10	1981	5.880
10:00 - 11:00	10	1981	5.754	10	1981	4.744	10	1981	10.498
11:00 - 12:00	10	1981	6.919	10	1981	6.632	10	1981	13.551
12:00 - 13:00	10	1981	6.475	10	1981	6.899	10	1981	13.374
13:00 - 14:00	10	1981	6.329	10	1981	6.430	10	1981	12.759
14:00 - 15:00	10	1981	5.834	10	1981	6.152	10	1981	11.986
15:00 - 16:00	10	1981	5.622	10	1981	5.915	10	1981	11.537
16:00 - 17:00	10	1981	4.482	10	1981	4.986	10	1981	9.468
17:00 - 18:00	10	1981	3.654	10	1981	3.765	10	1981	7.419
18:00 - 19:00	9	2029	2.940	9	2029	3.378	9	2029	6.318
19:00 - 20:00	9	2029	1.927	9	2029	2.464	9	2029	4.391
20:00 - 21:00	8	2102	1.136	8	2102	1.368	8	2102	2.504
21:00 - 22:00	8	2102	0.511	8	2102	0.779	8	2102	1.290
22:00 - 23:00	6	2232	0.052	6	2232	0.119	6	2232	0.171
23:00 - 24:00									
Total Rates:			57.347				57.499	114.846	

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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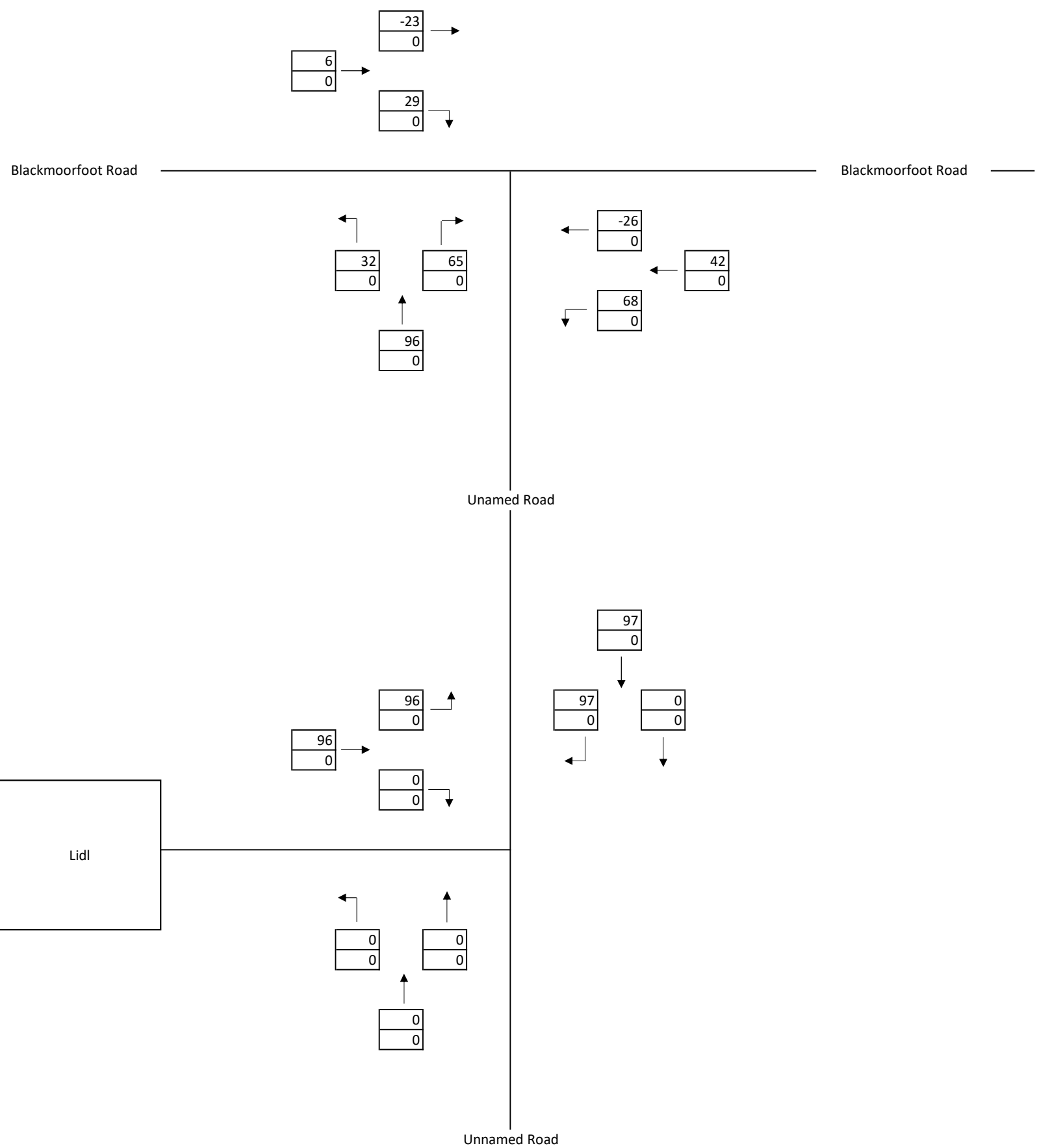
Parameter summary

Trip rate parameter range selected:	1425 - 2700 (units: sqm)
Survey date range:	01/01/13 - 23/09/21
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	17
Number of Sundays:	3
Surveys automatically removed from selection:	10
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.

APPENDIX BGH 15

TOTAL DEVELOPMENT TRIPS
CROSLAND MOOR, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



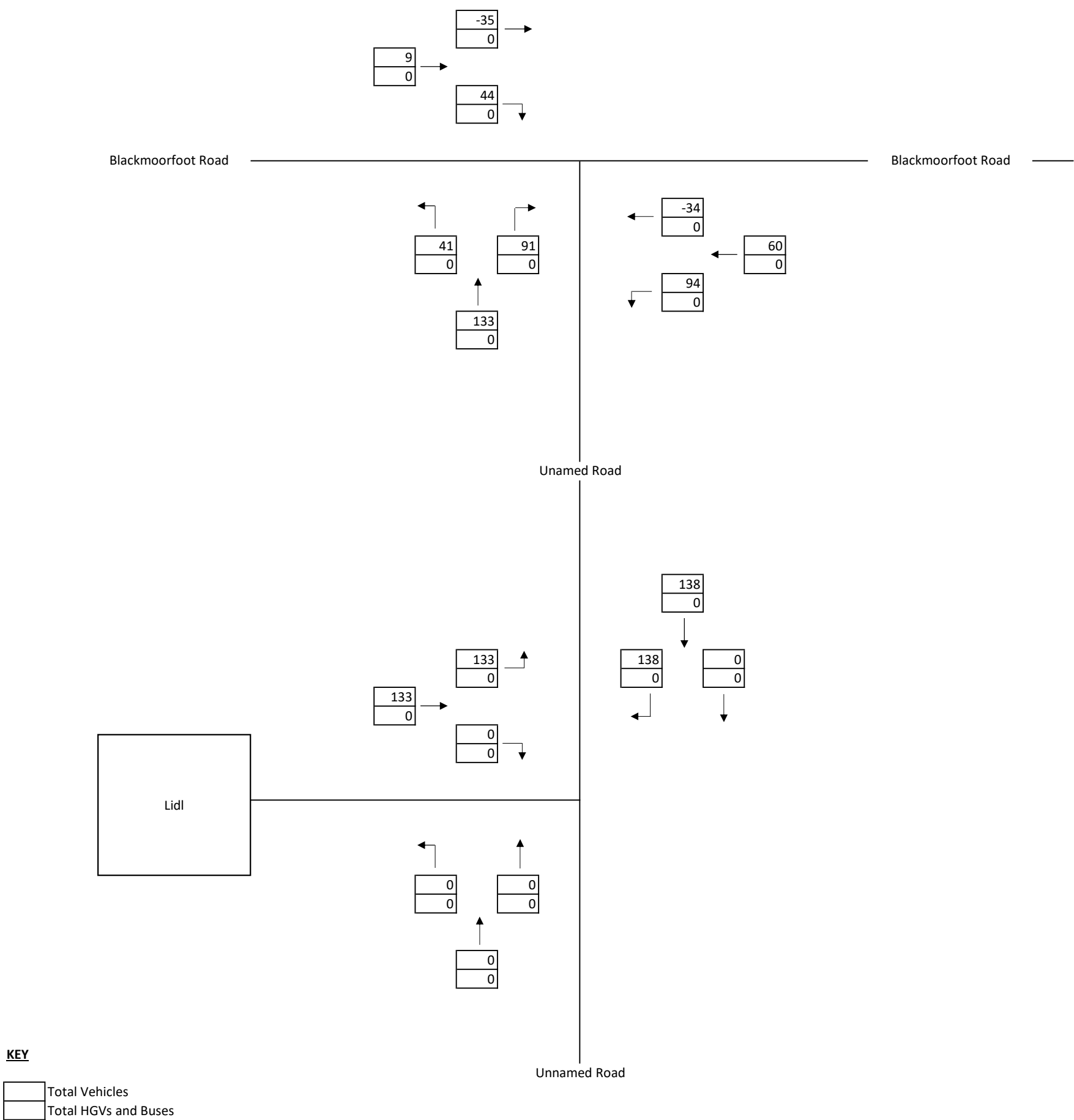
KEY

- Total Vehicles
- Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client: LIDL Great Britain
Project: Crosland Moor, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder

TOTAL DEVELOPMENT TRIPS
CROSLAND MOOR, HUDDERSFIELD
SATURDAY PEAK PERIOD

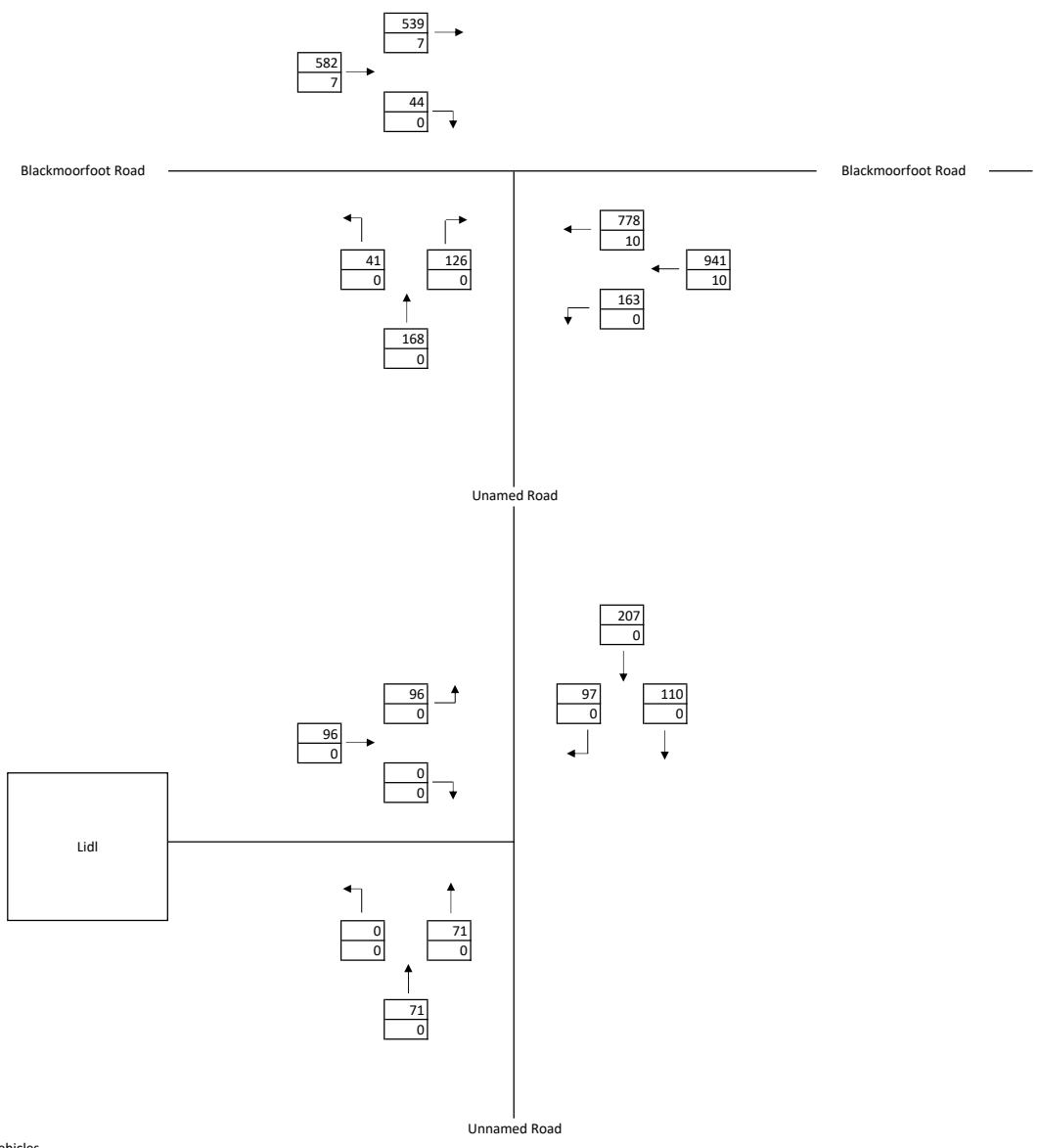


BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	LIDL Great Britain
Project:	Crosland Moor, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

APPENDIX BGH 16

2028 PREDICTED FLOWS
CROSLAND MOOR, HUDDERSFIELD
WEEKDAY PM PEAK PERIOD



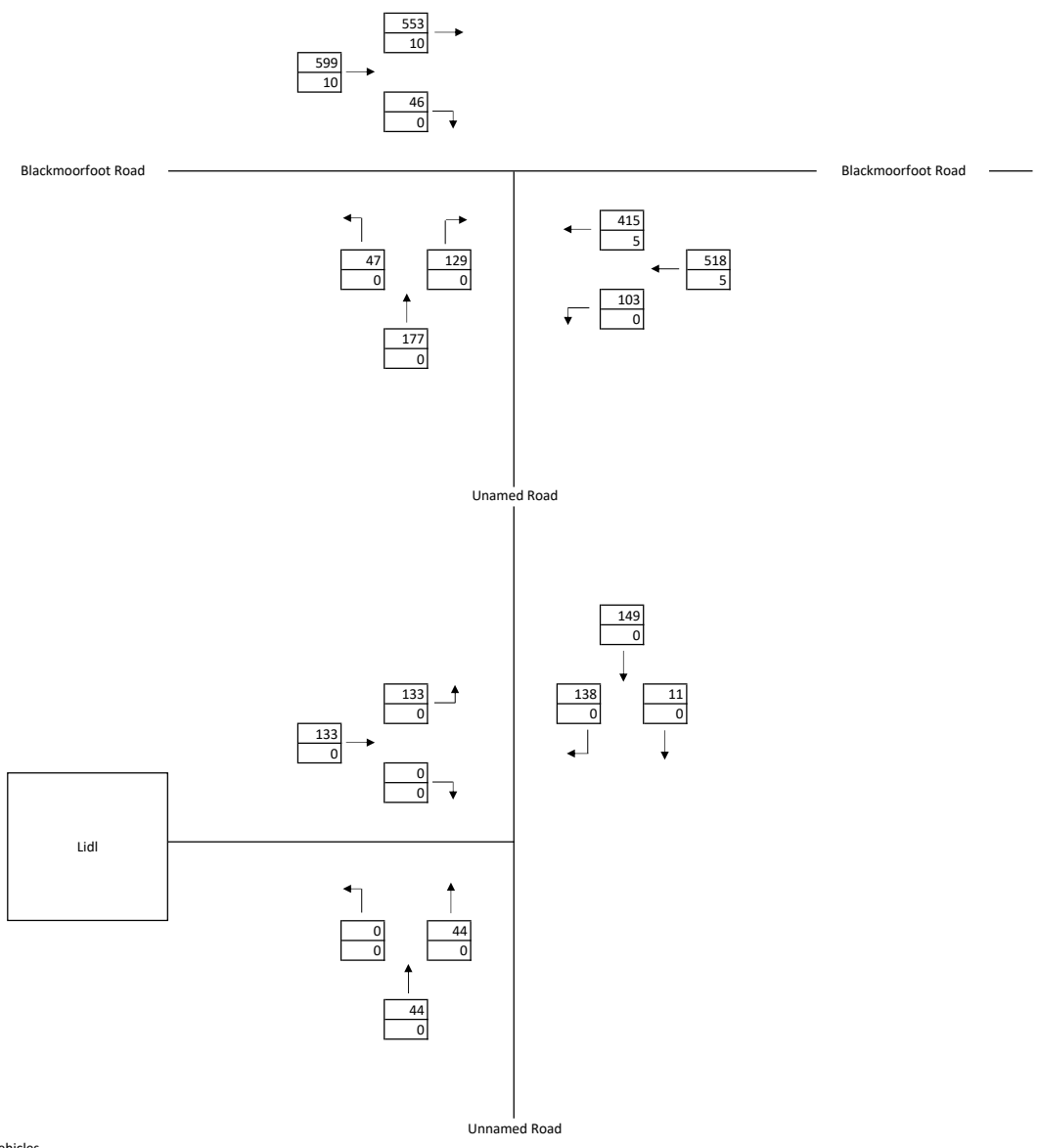
KEY

	Total Vehicles
	Total HGVs and Buses

BRYAN G HALL
CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client: LIDL Great Britain
Project: Crosland Moor, Huddersfield
Job Number: 21-209
Prepared by: Lewis Demetriou
Checked by: Nick Calder

2028 PREDICTED FLOWS
CROSLAND MOOR, HUDDERSFIELD
SATURDAY PEAK PERIOD



KEY

	Total Vehicles
	Total HGVs and Buses

BRYAN G HALL
 CONSULTING CIVIL & TRANSPORTATION PLANNING ENGINEERS

Client:	LIDL Great Britain
Project:	Crosland Moor, Huddersfield
Job Number:	21-209
Prepared by:	Lewis Demetriou
Checked by:	Nick Calder

APPENDIX BGH 17

Junctions 9									
PICADY 9 - Priority Intersection Module									
Version: 9.5.1.7462 © Copyright TRL Limited, 2019									
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Filename: Blackmoorfoot Road - Site Access - Simple T-Junction 2023.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:10:07

«(Default Analysis Set) - 2028 Predicted, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2023 Existing									
Stream B-C	D2	0.0	6.78	0.02	A	D3	0.0	6.43	0.03	A
Stream B-A		0.1	11.80	0.12	B		0.1	10.95	0.09	B
Stream C-AB		0.0	4.61	0.03	A		0.0	4.27	0.02	A
	A1 - 2028 Base									
Stream B-C	D4	0.1	9.72	0.09	A	D5	0.1	7.31	0.07	A
Stream B-A		1.0	32.44	0.51	D		0.5	16.62	0.33	C
Stream C-AB		0.4	4.68	0.14	A		0.2	4.17	0.09	A
	A1 - 2028 Predicted									
Stream B-C	D6	0.1	10.26	0.11	B	D7	0.1	7.79	0.10	A
Stream B-A		1.5	40.47	0.61	E		0.8	19.98	0.44	C
Stream C-AB		0.5	4.78	0.16	A		0.3	4.34	0.14	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site Access T-Junction
Location	Blackmoorfoot Road, Huddersfield
Site number	
Date	24/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	21-209
Enumerator	ncalder
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2028 Predicted	PM	ONE HOUR	16:45	18:15	15

(Default Analysis Set) - 2028 Predicted, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Blackmoorfoot Road / Site Access	T-Junction	Two-way		3.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoot Road East		Major
B	Site Access		Minor
C	Blackmoorfoot Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Blackmoorfoot Road West	7.90			250.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.00	4.00	32	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	552	0.092	0.233	0.147	0.333
B-C	706	0.099	0.251	-	-
C-B	719	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Blackmoorfoot Road East		✓	951	100.000
B - Site Access		✓	167	100.000
C - Blackmoorfoot Road West		✓	590	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	163	788
	B - Site Access	126	0	41
	C - Blackmoorfoot Road West	546	44	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	1	0
	B - Site Access	2	0	0
	C - Blackmoorfoot Road West	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	10.26	0.1	B
B-A	0.61	40.47	1.5	E
C-AB	0.16	4.78	0.5	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	506	0.061	31	0.1	7.573	A
B-A	95	331	0.287	93	0.4	15.345	C
C-AB	66	825	0.080	65	0.1	4.745	A
C-A	378			378			
A-B	123			123			
A-C	593			593			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	37	462	0.080	37	0.1	8.456	A
B-A	113	288	0.393	112	0.6	20.782	C
C-AB	93	855	0.109	93	0.2	4.733	A
C-A	437			437			
A-B	147			147			
A-C	708			708			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	45	398	0.114	45	0.1	10.202	B
B-A	139	229	0.607	136	1.4	38.217	E
C-AB	146	902	0.162	145	0.5	4.768	A
C-A	503			503			
A-B	179			179			
A-C	868			868			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	45	396	0.114	45	0.1	10.259	B
B-A	139	228	0.607	138	1.5	40.467	E
C-AB	147	903	0.163	147	0.5	4.781	A
C-A	503			503			
A-B	179			179			
A-C	868			868			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	37	460	0.080	37	0.1	8.506	A
B-A	113	288	0.394	117	0.7	21.815	C
C-AB	94	856	0.110	95	0.2	4.746	A
C-A	437			437			
A-B	147			147			
A-C	708			708			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	505	0.061	31	0.1	7.600	A
B-A	95	331	0.287	96	0.4	15.703	C
C-AB	66	825	0.081	67	0.2	4.759	A
C-A	378			378			
A-B	123			123			
A-C	593			593			

Junctions 9				
PICADY 9 - Priority Intersection Module				
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Filename: Blackmoorfoot Road - Site Access - Simple T-Junction 2023.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:10:44

«(Default Analysis Set) - 2028 Predicted, Sat

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					Sat				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2023 Existing									
Stream B-C	D2	0.0	6.78	0.02	A	D3	0.0	6.43	0.03	A
Stream B-A		0.1	11.80	0.12	B		0.1	10.95	0.09	B
Stream C-AB		0.0	4.61	0.03	A		0.0	4.27	0.02	A
	A1 - 2028 Base									
Stream B-C	D4	0.1	9.72	0.09	A	D5	0.1	7.31	0.07	A
Stream B-A		1.0	32.44	0.51	D		0.5	16.62	0.33	C
Stream C-AB		0.4	4.68	0.14	A		0.2	4.17	0.09	A
	A1 - 2028 Predicted									
Stream B-C	D6	0.1	10.26	0.11	B	D7	0.1	7.79	0.10	A
Stream B-A		1.5	40.47	0.61	E		0.8	19.98	0.44	C
Stream C-AB		0.5	4.78	0.16	A		0.3	4.34	0.14	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Site Access T-Junction
Location	Blackmoorfoot Road, Huddersfield
Site number	
Date	24/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	21-209
Enumerator	ncalder
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2028 Predicted	Sat	ONE HOUR	11:45	13:15	15

(Default Analysis Set) - 2028 Predicted, Sat

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Blackmoorfoot Road / Site Access	T-Junction	Two-way		2.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoot Road East		Major
B	Site Access		Minor
C	Blackmoorfoot Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Blackmoorfoot Road West	7.90			250.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.00	4.00	32	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	552	0.092	0.233	0.147	0.333
B-C	706	0.099	0.251	-	-
C-B	719	0.255	0.255	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Blackmoorfoot Road East		✓	523	100.000
B - Site Access		✓	176	100.000
C - Blackmoorfoot Road West		✓	609	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	103	420
	B - Site Access	129	0	47
	C - Blackmoorfoot Road West	563	46	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Blackmoorfoot Road East	B - Site Access	C - Blackmoorfoot Road West
From	A - Blackmoorfoot Road East	0	1	0
	B - Site Access	2	0	0
	C - Blackmoorfoot Road West	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.10	7.79	0.1	A
B-A	0.44	19.98	0.8	C
C-AB	0.14	4.34	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

11:45 - 12:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	581	0.061	35	0.1	6.592	A
B-A	97	397	0.244	96	0.3	12.124	B
C-AB	66	896	0.073	65	0.1	4.334	A
C-A	393			393			
A-B	78			78			
A-C	316			316			

12:00 - 12:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	554	0.076	42	0.1	7.035	A
B-A	116	367	0.316	115	0.5	14.547	B
C-AB	90	937	0.096	90	0.2	4.259	A
C-A	457			457			
A-B	93			93			
A-C	378			378			

12:15 - 12:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	515	0.101	52	0.1	7.773	A
B-A	142	326	0.436	141	0.8	19.724	C
C-AB	135	995	0.136	134	0.3	4.193	A
C-A	535			535			
A-B	113			113			
A-C	462			462			

12:30 - 12:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	514	0.101	52	0.1	7.785	A
B-A	142	326	0.436	142	0.8	19.977	C
C-AB	135	995	0.136	135	0.3	4.197	A
C-A	535			535			
A-B	113			113			
A-C	462			462			

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	553	0.076	42	0.1	7.049	A
B-A	116	367	0.316	117	0.5	14.756	B
C-AB	91	937	0.097	91	0.2	4.266	A
C-A	457			457			
A-B	93			93			
A-C	378			378			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	580	0.061	35	0.1	6.611	A
B-A	97	397	0.245	98	0.3	12.283	B
C-AB	66	897	0.074	66	0.1	4.343	A
C-A	392			392			
A-B	78			78			
A-C	316			316			

Junctions 9									
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Filename: Lidl Site Access - Simple T Junction 2023 results.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:11:35

«(Default Analysis Set) - 2028 Predicted, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
A1 - 2028 Predicted										
Stream B-AC	D1	0.2	6.25	0.16	A	D2	0.3	6.65	0.21	A
Stream C-AB		0.3	6.37	0.19	A		0.3	7.59	0.25	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	25/08/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	lewisdemetriou
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2028 Predicted	PM	ONE HOUR	16:30	18:00	15

(Default Analysis Set) - 2028 Predicted, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access / Turnstone Way	T-Junction	Two-way		3.55	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Turnstone Way (S)		Major
B	Site Access		Minor
C	Turnstone Way (N)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Turnstone Way (N)	9.17			100.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	4.03	31	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	547	0.086	0.217	0.136	0.310
B-C	699	0.092	0.234	-	-
C-B	632	0.211	0.211	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Turnstone Way (S)		✓	71	100.000
B - Site Access		✓	96	100.000
C - Turnstone Way (N)		✓	207	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
		A - Turnstone Way (S)	B - Site Access	C - Turnstone Way (N)
	A - Turnstone Way (S)	0	0	71
	B - Site Access	0	0	96
	C - Turnstone Way (N)	110	97	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		A - Turnstone Way (S)	B - Site Access	C - Turnstone Way (N)
	A - Turnstone Way (S)	0	0	0
	B - Site Access	0	0	0
	C - Turnstone Way (N)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.16	6.25	0.2	A
C-AB	0.19	6.37	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	72	687	0.105	72	0.1	5.849	A
C-AB	83	675	0.123	83	0.2	6.074	A
C-A	73			73			
A-B	0			0			
A-C	53			53			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	86	684	0.126	86	0.1	6.017	A
C-AB	102	683	0.149	102	0.2	6.192	A
C-A	84			84			
A-B	0			0			
A-C	64			64			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	106	681	0.155	106	0.2	6.253	A
C-AB	129	695	0.186	129	0.3	6.363	A
C-A	98			98			
A-B	0			0			
A-C	78			78			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	106	681	0.155	106	0.2	6.255	A
C-AB	130	695	0.186	130	0.3	6.366	A
C-A	98			98			
A-B	0			0			
A-C	78			78			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	86	684	0.126	86	0.1	6.023	A
C-AB	102	683	0.149	102	0.2	6.199	A
C-A	84			84			
A-B	0			0			
A-C	64			64			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	72	687	0.105	72	0.1	5.860	A
C-AB	83	675	0.123	84	0.2	6.089	A
C-A	72			72			
A-B	0			0			
A-C	53			53			

Junctions 9									
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Filename: Lidl Site Access - Simple T Junction 2023 results.j9

Path: Y:\2021\21-201 to 21-225\21-209 Lidl, Blackmoorfoot Road, Huddersfield\Technical\Models

Report generation date: 16/10/2023 14:12:18

«(Default Analysis Set) - 2028 Predicted, SAT

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	PM					SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
A1 - 2028 Predicted										
Stream B-AC	D1	0.2	6.25	0.16	A	D2	0.3	6.65	0.21	A
Stream C-AB		0.3	6.37	0.19	A		0.3	7.59	0.25	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	25/08/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	lewisdemetriou
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2028 Predicted	SAT	ONE HOUR	11:00	12:30	15

(Default Analysis Set) - 2028 Predicted, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access / Turnstone Way	T-Junction	Two-way		5.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Turnstone Way (S)		Major
B	Site Access		Minor
C	Turnstone Way (N)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Turnstone Way (N)	9.17			100.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	4.03	31	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	547	0.086	0.217	0.136	0.310
B-C	699	0.092	0.234	-	-
C-B	632	0.211	0.211	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Turnstone Way (S)		✓	44	100.000
B - Site Access		✓	133	100.000
C - Turnstone Way (N)		✓	149	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Turnstone Way (S)	B - Site Access	C - Turnstone Way (N)
From	A - Turnstone Way (S)	0	0	44
	B - Site Access	0	0	133
	C - Turnstone Way (N)	11	138	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Turnstone Way (S)	B - Site Access	C - Turnstone Way (N)
From	A - Turnstone Way (S)	0	0	0
	B - Site Access	0	0	0
	C - Turnstone Way (N)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.21	6.65	0.3	A
C-AB	0.25	7.59	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

11:00 - 11:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	100	692	0.145	99	0.2	6.073	A
C-AB	105	630	0.167	104	0.2	6.837	A
C-A	7			7			
A-B	0			0			
A-C	33			33			

11:15 - 11:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	690	0.173	119	0.2	6.306	A
C-AB	126	630	0.200	126	0.3	7.141	A
C-A	8			8			
A-B	0			0			
A-C	40			40			

11:30 - 11:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	146	688	0.213	146	0.3	6.640	A
C-AB	155	630	0.246	155	0.3	7.574	A
C-A	9			9			
A-B	0			0			
A-C	48			48			

11:45 - 12:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	146	688	0.213	146	0.3	6.645	A
C-AB	155	630	0.246	155	0.3	7.586	A
C-A	9			9			
A-B	0			0			
A-C	48			48			

12:00 - 12:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	690	0.173	120	0.2	6.316	A
C-AB	126	630	0.200	126	0.3	7.154	A
C-A	8			8			
A-B	0			0			
A-C	40			40			

12:15 - 12:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	100	692	0.145	100	0.2	6.091	A
C-AB	105	630	0.167	105	0.2	6.864	A
C-A	7			7			
A-B	0			0			
A-C	33			33			

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