150 Holborn

London EC1

Transport statement & services management plan

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Transport Statement

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1 Introduction

Ove Arup & Partners (Arup) has been appointed by Laffly LLP to prepare a Transport Statement (TS) in support of a planning application for the proposals for 150 Holborn in the London Borough of Camden (LBC).

The existing development comprises a total gross external floor area (GEA) of 12,760m^2. The main land use is Class B1 office with some retail units occupying the ground and basement levels of the development. The existing building also contains a three bed residential unit. At present, the offices are unoccupied.

The 150 Holborn proposals prepared by Make Architects seek to redevelop the existing building to provide a total of 15,252m^2 GEA of floor space. This includes 11,384m^2 GEA of office space, 2,889m^2 GEA of retail space and 979m² GEA of residential space (6 units).

1.1 Scope of the Transport Statement

The scope of the TS has been discussed and agreed in principle with the London Borough of Camden's transport department.

This TS has been produced in accordance with Transport for London's (TfL) Transport Assessment Best Practice Guidance (April 2010).

The purpose of this statement is to provide an assessment of the transportation effects of the proposed development and to identify mitigation measures, where required, to provide safe and effective access to the site by all modes of travel. Transport issues addressed within the TS include site accessibility, the promotion of public transport as a means of travelling to and from the development, and measures for encouraging walking and cycling.

Following this brief introduction, the content of the TS is as follows:

- **Section 2** provides a summary of current transport policies at a national, regional and local level;
- **Section 3** outlines the existing baseline transport conditions at the site and in the surrounding area, including pedestrian and cycle routes, local public transport services and the local highway network;
- A description of the proposed development, including land use proposals and vehicle, pedestrian and cycle access proposals is provided in **Section 4**;
- **Section 5** contains details of the anticipated trip generation due to the proposed development;
- The servicing strategy for the site is presented in **Section 6**;
- **Section 7** outlines the waste management strategy for the site; and
- The main findings of the Transport Statement are summarised in **Section 8**.

2 Planning Policy Context

This section outlines the national, regional and local transport policy context within which the proposed development must be assessed.

2.1 National Planning Policy

2.1.1 Planning Policy Guidance 13: Transport , 2011

The objectives of *Planning Policy Guidance (PPG) 13* (Department for Communities and Local Government, 2011) are to integrate planning and transport at the national, regional and local level in order to promote more sustainable travel choices. *PPG13* promotes development within urban areas and locations highly accessible by means other than the private car.

The key objectives of the guidance are to integrate planning and transport by:

- Promoting sustainable transport choices for both people and for moving freight;
- Promoting accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- Reduce the need to travel, especially by private car.

In order to ensure the delivery of the above objectives, *PPG 13* also identifies the measures that Local Planning Authorities (LPA) should take into account when considering planning applications. Measures relevant to the proposed development are presented below:

- Actively manage the pattern of urban growth to make the fullest use of public transport, and focus major generators of travel demand on city, town and district centres and near to major public transport interchanges;
- Ensure that developments comprising jobs, shopping, leisure and services offer a realistic choice of access by public transport, walking, and cycling;
- Use parking policies, alongside other planning and transport measures, to promote sustainable transport choices and reduce reliance on the car for work and other journeys; and
- Ensure that the needs of disabled people as pedestrians, public transport users and motorists - are taken into account in the implementation of planning policies and traffic management schemes, and in the design of individual developments.

PPG 13 indicates that all LPAs should seek to “make maximum use of the most accessible sites, such as those in town centres and others which are, or will be, close to major transport interchanges. These opportunities may be scarce”. The guidance recommends that local authorities “should be pro-active in promoting intensive development in these areas and on such sites” (paragraph 21).

2.1.2 Planning Policy Statement 3: Housing, 2011

Planning Policy Statement 3(PPS3): Housing (Department of Communities and Local Government, 2011) provides guidance on a range of issues relating to the provision of housing including transport and sustainable development.

When assessing the design quality of a development, *PPS3* advises Local Planning Authorities (LPAs) to consider the extent to which it "is easily accessible and well-connected to public transport and community facilities and services, and is well laid out so that all the space is used efficiently, is safe, accessible and user-friendly" (paragraph 16).

PPS3 encourages local planning authorities to take account of the following criteria when identifying suitable locations for new housing (paragraph 38):

- The contribution to be made to cutting carbon emissions from focusing new development in locations with good public transport accessibility and/or by means other than the private car; and
- The accessibility of a proposed development to existing local community facilities, infrastructure and services, including public transport.

2.1.3 Compliance with National Policy

The proposed development complies with current government planning guidance on the integration of land use planning and transport for the following reasons:

- The site has excellent accessibility to public transport, with many local bus, National Rail and Underground services available within a short walking distance from the site, which fulfils Government objectives for the promotion of accessibility to jobs by public transport (see **Section 3.4**);
- Secure cycle parking (84 spaces) and associated facilities for cyclists will be provided within the development (see **Section 4.3.2**);
- The proposals will reduce the number of existing car spaces within the site from 5 to 1, therefore reducing reliance on car travel (see **Section 4.3.1**); and
- The proposals comply with PPS3 by providing housing that is accessible and well connected to the local transport network and surrounding community (refer to **Section 3**).

2.2 Regional Policy

2.2.1 The London Plan, Spatial Development Strategy for Greater London (GLA, 2011)

In July 2011, the spatial development strategy for London - known as the *London Plan* - was published by the GLA.

In terms of transport, the *London Plan* sets out policies primarily intended to support delivery of the objective that London should be "a city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling…".

A number of policies within the *London Plan* are relevant to the proposed development.

Policy 6.1 indicates that the Mayor will work with all relevant partners to encourage the closer integration of transport and development by:

- Encouraging patterns of development that reduce the need to travel, especially by car;
- Seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greatest demand; and
- Supporting measures that encourage shifts to more sustainable modes.

Policy 6.9 states that "the Mayor will work with all relevant partners to bring about a significant increase in cycling in London, so that it accounts for at least 5% of the modal share by 2026. He will:

- Identify, promote and complete the Cycle Super Highways; and
- Implement the central London cycle hire scheme and identify potential sites for expansion and/or additional stand alone schemes in outer London".

In relation to car parking, Policy 6.13 indicates that "the Mayor wishes to see an appropriate balance being struck between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use".

2.2.2 Mayor's Transport Strategy (GLA, 2010)

Published by the GLA in 2010, the *Mayor's Transport Strategy (MTS)* envisages "London's transport system excelling among that of global cities, providing access to opportunities for all people and enterprises while achieving the highest environmental standards and leading the world in its move towards tackling the urban transport challenges of the 21st century".

The policies set out in the *MTS* cover transport policy for London, support the 2008 *Consolidated London Plan* and promote investment in London's infrastructure and public services to accommodate the growth in London's population and employment in a sustainable manner.

The *MTS* seeks to increase the capacity of London's public transport and improve the accessibility and efficiency of London's transport system. Major London-wide infrastructure proposals include Crossrail, Thameslink and enhancement of the Underground and National Rail network.

The *MTS* aims to improve conditions for pedestrians and cyclists for reasons of health and sustainability. Walking and cycling will be promoted through 'information campaigns, travel planning, training and improved infrastructure such as cycle hire schemes, Cycle Superhighways, cycle parking provision, key walking routes and consistent way-finding (such as Legible London)'.

Policy 17 states that the Mayor "will promote healthy travel options such as walking and cycling".

2.2.3 Compliance with Regional Policy

The proposed development complies with current regional planning and policy guidance for the following reason:

The proposals will reduce the existing number of car parking spaces on-site from 5 to 1 (which will be dedicated as a disabled parking space). It is anticipated that this limited parking provision will reduce private car use and encourage the use of sustainable modes of travel (see **Section 4.3.1**).

2.3 Local Policy

2.3.1 LBC Local Development Framework Core Strategy (LBC, 2010)

The London Borough of Camden's (LBC) *Core Strategy* forms part of the *Local Development Framework (LDF*) suite of documents that together with the *London Plan* (GLA, 2010) forms the Statutory Redevelopment Plan. The *Core Strategy* and *Development Policies* documents replace the *Unitary Development Plan* (LBC, 2006) and were adopted by LBC in November 2010.

With regards to transport, Policy CS11 of the *Core Strategy* aims to promote sustainable and efficient travel. The policy states that "the Council will promote the delivery of transport infrastructure and the availability of sustainable transport choices in order to support Camden's growth, reduce the environmental impact of travel, and relieve pressure on the borough's transport network".

In supporting growth in Camden, and to promote walking, cycling and public transport, the Council will:

- Improve public spaces and pedestrian links across the borough, including focusing public realm investment in Camden's town centres and the Central London area, and extending the 'Legible London' scheme;
- Continue to improve facilities for cyclists, including the availability of cycle parking, helping to deliver the London Cycle Hire Scheme and enhancing cycle links; and

- Work with Transport for London to improve the bus network and deliver related infrastructure, and support proposals to improve services and capacity on the tube, London Overground and Thameslink.

As part of its approach to minimising the environmental impacts of travel, the Council will continue to limit the amount of parking available for private cars. This will represent a key component of their approach to "promoting sustainable transport choices and facilitating the delivery of pedestrian and cycle improvements by maximising the amount of public space available to provide new walking and cycling facilities".

2.3.2 LBC Local Development Framework Development Policies (LBC, 2010)

LBC's *Development Policies* document supports the *Core Strategy* by setting out additional planning policies that the Council will use when determining applications for planning permission in the borough to achieve the vision and objectives of the *Core Strategy*. With regards to transport, the policies outlined in the *Development Policies* support the transport policies in the *Core Strategy* and the two documents should be read in conjunction.

To deliver the aims of the Core Strategy the *Development Policies* document includes six policies on transport:

Policy DP16 - The transport implications of development notes that the Council "will seek to ensure that development is properly integrated with the transport network and is supported by adequate walking, cycling and public transport links".

The Council will expect new developments to provide appropriate, safe pedestrian and cycle links to promote sustainable travel and enhance accessibility as outlined in Policy DP17 - Walking, cycling and public transport. Furthermore, high quality cycle parking is required in accordance with Policy DP18 – Parking standards and limiting the availability of car parking. This Policy states that the Council will expect development in Camden Town to be car free and will limit any on-site car parking to spaces for disabled people and any operational or servicing needs.

As highlighted in Policy DP21 – Development connecting to the highway network the Council will expect the development to be linked to the highway network in a way that avoids the use of local roads by through traffic and ensures the use of the most appropriate roads in accordance with Camden's road hierarchy. In order to protect the safety of users, "connections to the highway network should be designed with appropriate sightlines, visibility splays and queuing distances".

Appendix 2 of the *Development Policies* document contains parking standards that are in line with Policy DP18.

2.3.3 Compliance with Local Policy

The proposed development complies with current local planning and policy guidance for the following reasons:

- the site has excellent accessibility to public transport, with many local bus, National Rail and Underground services available within a short walking

distance from the site, which fulfils Government objectives for the promotion of accessibility to jobs by public transport (see **Section 3.4**);

- secure cycle parking (84 spaces) and associated facilities for cyclists will be provided within the development (see **Section 4.3.2**); and
- the proposals will reduce the number of existing car spaces within the site from 5 to 1, therefore reducing reliance on car travel (see **Section 4.3.1**).

3 Existing Situation

This section of the TS outlines the general site location and the conditions prevailing at the 150 Holborn site.

In addition, a comprehensive review of the transport facilities surrounding the development site is presented in this section. The facilities for pedestrians and cyclists are outlined, followed by local public transport provisions for all relevant modes, and lastly the surrounding highway network is discussed.

3.1 The Site

The site and the surrounding area are shown on **Figure 1** to the rear of this report. The site is located directly to the north of Chancery Lane London Underground station and is bounded to the east by Brooke Street, to the south by Holborn, to the west by Gray's Inn Road and to the north by the adjacent Fox Court office building.

There are a wide range of transport links within ten minutes walk of the site including National Rail services, London Underground services, buses as well as walking and cycling facilities.

The existing building on the site comprises nine storeys including basement fronting Gray's Inn Road/Holborn, dropping down to four storeys including basement fronting Brooke Street. The ground and basement levels accommodate retail, ancillary office use and plant, with offices on levels one to six and associated plant at level seven, a three bed residential unit is located on level two. At present, the offices are vacant.

The existing building provides approximately 12,798m^2 (GEA) of floor space, including approximately 9,830m^2 (GEA) of office floor space, 2,775m^2 (GEA) of retail floor space and 193m^2 (GEA) of residential floor space.

To the rear of the building an off-street service yard is provided which is directly accessed from Brooke Street. The site currently contains five car parking spaces which are also located in the service yard.

The main office building entrance for pedestrians is provided on the corner of Gray's Inn Road and Holborn. The existing retail units are accessed from footways along Brooke Street, Holborn and Gray's Inn Road. Access to the existing residential unit is via an entrance located in the service yard.

The site forms part of the Central London Frontage Area, which is identified as having the potential to operate as a town centre for the local worker and resident population.

3.2 Pedestrian Facilities

There is generally a good provision of pedestrian facilities in the vicinity of the site. The footways along Gray's Inn Road, Brooke Street and Holborn are adequate and well-lit.

At the junction of Gray's Inn Road with Holborn, a signalised pedestrian crossing is provided on all approaches to the junction. Dropped kerbs are provided at all crossing points to aid wheelchair users and the mobility impaired.

There are signalised pedestrian crossing facilities at the junction of Holborn with Hatton Garden to the east of the site. These provide safe and convenient access for pedestrians to the nearby bus stops.

Leather Lane to the east of the site is a pedestrianised route which runs north-south between Holborn and Greville Street to the north and provides access to the weekday operated Leather Lane market. The public realm along Leather Lane provides a pleasant resting point for occupants of the adjacent buildings and visitors to the local area.

3.3 Cycling Facilities

The site is well connected to the London Cycle Network (LCN) providing excellent links with the rest of London. The local cycle network in the vicinity of the site is shown on **Figure 2** to the rear of this report.

A number of roads close to the proposed development are either signed for cyclists or have been recommended by experienced cyclists. These routes are included in the London Cycle Network guides and maps and include Holborn, Chancery Lane and Fetter Lane.

Free on-street public cycle racks are available in the vicinity of the site; specifically, on the island separating the eastbound and westbound carriageways of Holborn. In addition, there is a Barclays Cycle Hire docking station available within easy walking distance of the site at the junction of Holborn and Hatton Garden which was installed as part of the TfL cycle hire scheme launched in August 2010 (refer to **Photograph 1)**.

Photograph 1: Cycle Hire Docking Station at Holborn / Hatton Garden

It is worth noting that cycling within the City of London - with its borough boundary to the east of the site - has doubled since 1999, accounting for

approximately 10% of vehicles on the road and up to 20% on some roads during the AM peak (City of London Cycle Plan Review, 2007).

3.4 Public Transport Accessibility

The proposed development is located in an area which has a 6b (high) Public Transport Accessibility Level (PTAL). It has excellent connections to the public transport network, including London Underground, National Rail and local bus services.

The public transport network in the vicinity of the development is shown on **Figure 3** to the rear of this report.

3.4.1 Rail Services

London Underground

The site is located close to rail stations served by the London Underground (LU) and National Rail network.

There are three LU stations located in the vicinity of the site. These are Chancery Lane, located directly to the south of the site, Holborn situated approximately 640m to the southwest of site, and Farringdon located some 515m to the northeast of the site. Both Chancery Lane and Holborn stations are served by the Central line, with Holborn station also served by the Piccadilly line. Farringdon station is served by the Circle, Metropolitan and Hammersmith & City lines. All three stations lie within TfL Travelcard Zone 1.

Table 3.1 below provides details of the existing LU services from these stations, together with their approximate walk times from the site, and scheduled peak hour frequencies.

Table 3.1: Existing LU Services

LU Station	Walk Time (min)	LU Line	Peak Hour Frequency per Direction
Chancery Lane	1	Central	2-5 minutes
Holborn	9	Central Piccadilly	2-5 minutes 2-4 minutes
Farringdon	7	Circle Metropolitan Hammersmith & City	9-12 minutes 2-5 minutes 8-12 minutes

National Rail

The nearest National Rail services are available at Farringdon station which is served by trains on the Thameslink route. The current train operator at Farringdon is First Capital Connect. There are two main service patterns at the station; fast trains on the Brighton to Bedford service, and stopping trains between St Albans or Luton and Wimbledon or Sutton. All trains in both categories call at all stations on the central cross-London core of the Thameslink route, including Farringdon. There are approximately 53 train arrivals during the peak hour at Farringdon.

Train services are also available at City Thameslink station, within fifteen minutes walk of the site. As with Farringdon station, the train operator at City Thameslink is First Capital Connect which provides services to destinations such as Brighton, Bedford, Luton, Sutton and Wimbledon with approximately 53 train arrivals during the peak hour. At present, there are also a few terminating peak hour train services from Kent provided by Southeastern at the station. However, this practice of terminating services will cease once refurbishment of the nearby Blackfriars station has been completed.

3.4.2 Crossrail

The proposed Crossrail line will serve Farringdon station, providing direct services connecting the Thames Valley, West End and Paddington in the west to Stratford and the Thames Gateway in the east when it begins operating at the end of 2018.

3.4.3 Bus Services

There are eight bus routes which can be accessed from bus stops close to the application site, providing a combined frequency of 71 buses per hour (per direction) during peak periods. A summary of these services is provided in **Table 3.2** below.

Table 3.2: Details of Local Bus Routes

Number	Bus Route	Peak Hour Frequency per Direction
8	Bow Church to Oxford Circus	6-10 minutes
17	Archway Station to London Bridge Station	7-8 minutes
25	Ilford to Tottenham Court Road	5-8 minutes
45	St Pancras International Station to Streatham Place	7-8 minutes
46	Lancaster Gate Station to Stonecutter Street/Holborn	7-11 minutes
242	Homerton Hospital to New Oxford Street	6-10 minutes
341	Ikea Edmonton to County Hall/Waterloo	8-12 minutes
521	Waterloo Station to London Bridge Bus Station	2-5 minutes
Total Buses per Direction during the Peak Hour (assumes average frequency)		~71

3.5 Highway Network

The local highway network is shown on **Figure 1**. Holborn forms the southern boundary of the proposed development site. There are a variety of land uses flanking Holborn including commercial and retail, and public transport nodes (e.g. Chancery Lane underground station). Close to the development site Holborn has two traffic lanes in each direction.

To the west of the site, Gray's Inn Road forms an important north-south route which connects with Holborn at the southern end by means of a signal controlled junction. The road is flanked by commercial and retail uses. Gray's Inn Road accommodates two-way traffic with one lane in each direction near the site.

Brooke Street runs along the eastern site boundary and forms a priority junction with Holborn to the south-east corner of the site. Land uses flanking Brooke Street including commercial, residential and retail. The road operates as a two-way road with one lane in each direction.

Brooke Street falls under the control of LBC. However, Gray's Inn Road and Holborn form part of the Strategic Road Network (SRN) which means that these roads are the responsibility of LBC although TfL must be consulted on any proposed alterations along these routes.

The site lies within Controlled Parking Zone CA-D which operates Monday to Friday 8.30am to 6.30pm, and Saturday 8.30am to 1.30pm. The site is also within the London Congestion Charging Zone.

4 Development Proposals

This section of the TS outlines the development proposals, including the proposed land use types, site access arrangements and parking and servicing proposals.

4.1 Land Use Proposals

It is proposed to refurbish and extend the 150 Holborn site as a mixed use development.

It is proposed to provide 11,384m^2 gross external area (GEA) of office space and 2,889m^2 GEA of retail space. It is also proposed to increase the residential floor space from 193m^2 GEA (1 unit) to 979m^2 GEA (6 units).

The redevelopment will present an increase in development floor area of 2,454m^2 GEA. A breakdown of the proposed land uses and the predicted change in floor areas from the existing building is provided in **Table 4.1**.

Table 4.1: Summary of Proposed Land Use – 150 Holborn

Land Use	Existing Floor Space (GEA*)	Proposed Floor Space (GEA*)	Change in area
Office	9,830m^2	11,384m^2	+1,554m^2
Retail	2,775m^2	2,889m^2	+114m^2
Residential	193m^2	979m^2	+ 786m^2
Total	**12,798m^2**	**15,252m^2**	**+2,454m^2**

*Gross External Area

4.2 Access

The main building access for the office development from the local footway will be retained off the corner of Gray's Inn Road and Holborn. A residential entrance lobby will be provided, accessed from Brooke Street. The retail entrances will be as existing, that is along Gray's Inn Road, Holborn and Brooke Street.

Cycle access will be from Brooke Street, from where a safe route to the cycle parking area within the development will be provided.

All vehicular access to the proposed development will be afforded via the existing vehicle access on the eastern side of the site from Brooke Street. Taxis dropping off passengers will use the local streets such as Gray's Inn Road, Holborn or Brooke Street.

The proposed service yard for the development will be at the rear of the building and will be accessed from Brooke Street.

The general ground floor arrangement and the pedestrian access points are identified on **Figure 4**.

4.3 Car and Cycle Parking

4.3.1 Car Parking

Due to the excellent public transport accessibility of the site, the proposed development will include only one disabled car parking space for the office use. This will be provided to the rear of the building, adjacent to the service yard. The existing development includes a total of five car parking spaces and it is proposed to reduce the overall parking provision as part of the site redevelopment. The car parking proposals are set out in **Table 4.2**.

LBC's *Development Policies* require two disabled parking spaces for the office use; however LBC officers have advised that one will be acceptable for the proposed development.

Table 4.2: Summary of Proposed Car Parking Provision

Land Use	LBC Maximum Car Parking Standard*	Area	Proposed Car Parking Provision
Office	**Operational parking:** Maximum of 1 space is to be provided per 1,500m² for low provision area. (7 spaces maximum) **People with disabilities:** 1 space per disabled employee or, from a threshold of 2,500m², 1 space per 20,000m² or part thereof - whichever is the greater. For visitors - from a threshold of 2,500m², minimum of 1 space is to be provided if any visitors are expected, plus any additional spaces needed to bring the total number up to 5% of the visitors likely to be present at any time. (minimum 2 spaces)	11,384m^2	1 dedicated disabled space.
Retail	**Same as office use.** (4 spaces maximum)	2,889m^2	0 spaces
Residential	**General parking:** Maximum of 0.5 spaces is to be provided per dwelling for low provision area. (3 spaces maximum)	979m^2 (6 units)	0 spaces
Total		**15,252m^2**	**1 space**

*Source: London Borough of Camden's *Local Development Framework*, adopted in November 2010.

4.3.2 Cycle Parking

A total of 84 cycle parking spaces will be provided at ground level within the development for residents, as well as for office and retail staff and visitors. Associated cyclists facilities such as changing rooms, showers and lockers will also be provided.

The overall cycle parking provision for the proposed development is presented in **Table 4.3** below:

Table 4.3: Summary of Proposed Cycle Parking Provision

Land Use	LBC Minimum Cycle Parking Standard*	Area / Residential Units	Proposed Cycle Parking Provision
Office	1 space /250 m^2 for staff (46 spaces minimum) **Visitors**: minimum of 2 spaces are to be provided if any visitors are expected, plus any additional spaces needed to bring the total number up to 10% of the visitors likely to be present at any time. (2 spaces minimum)	11,384m^2	48 spaces
Retail	**Staff & Customers**: 1 space /250 m2 for staff; and 1 space /250 m2 for customers (24 spaces minimum)	2,889m^2	24 spaces
Residential	1 space / residential unit (6 spaces minimum)	6 units	12 spaces
Total			**84 spaces**

*Source: London Borough of Camden's *Local Development Framework*, adopted in November 2010.

The proposed cycle parking for the development will introduce a total of 84 spaces which is six spaces above the minimum LBC requirements. It is proposed to introduce additional spaces in order to enhance the sustainability aspect of the development.

As part of the development proposals, cycle parking for residential tenants will be safe-guarded within the ground floor cycle parking area.

The provision of high quality cycle facilities is in accordance with national, regional and local policy objectives to promote sustainable modes of transport and encourage continuing growth of cycling in London.

5 Trip Generation and Modal Split

This chapter describes the methodology for the derivation of the additional trips on the transport network that will be generated as a result of the net increase in floor space due to the proposed mixed use 150 Holborn scheme.

The assessment of the expected trip generation has been undertaken separately for the proposed office, retail and residential land uses as detailed below.

The redevelopment proposals will result in an increase in floor area of 2,454m^2. A breakdown of the proposed land uses and the changes in floor areas from the existing building is provided in **Table 5.1**.

Table 5.1: Area Schedule - 150 Holborn

Land Use	Existing Floor Space (GEA*)	Proposed Floor Space (GEA*)	Change in area
Office	9,830m^2	11,384m^2	+1,554m^2
Retail	2,775m^2	2,889m^2	+114m^2
Residential	193m^2	979m^2	+ 786m^2
Total	**12,798m^2**	**15,252m^2**	**+2,454m^2**

*Gross External Area

5.1 Office - Trip Generation

The trip generation for the office use has been based on the results of surveys carried out at the existing office development at Regent's Place, Euston Road, in the London Borough of Camden. Details of the Regent's Place surveys are included in **Appendix A**.

It is considered that the Regent's Place office development has similar trip generation characteristics to the proposed office development at 150 Holborn for the following reasons:

- The Regent's Place development has a similar land use mix as the proposed development at 150 Holborn. The main land use is office with some residential units and a small retail element; and
- The Regent's Place development also has excellent public transport connections. Three Underground stations (Warren Street, Euston Square and Great Portland Street) and a mainline station (Euston) are situated within a short walking distance from the development.

From the results of the Regent's Place survey the following information was obtained which was used to forecast the proposed person trips as a result of the 150 Holborn development:

- The net internal area (NIA) per employee;
- The percentage arrivals/departures of employee trips during the AM and PM commuter peak hours; and
- The percentage modal split of the employee trips to work.

5.1.1 Office – Employees Journeys to Work

For the office element of the proposed development, the trips generated will be greatest during the normal commuter peak periods, which occur from 7am to 10am and 4pm to 7pm on a typical weekday.

For the purposes of this study, the trip generation from the proposed development has been estimated for the AM and PM commuter peak hours, which are between 8am and 9am, and 5pm and 6pm.

The existing gross external area (GEA) of office space at the 150 Holborn development is 9,830m^2. The proposed GEA of the office space would be 11,384m^2. For the purpose of this assessment, the employee trips to work have been estimated for the increase in office space, which is 1,554m^2 GEA.

Details of the calculations of the expected number of journeys to work as a result of the additional 1,554m^2 GEA office space for the AM peak hour and PM peak hour are included in **Appendix B**.

In summary, the number of journeys to work has been based on the number of employees that are expected to occupy the additional floor space. Based on an estimated employee density of 1 person per 19m^2 GEA the additional 1,554m^2 GEA floor space would accommodate 82 employees.

Typically 85% of employees can be expected to attend on any one day, as some staff will be away on annual or sickness leave or at meetings elsewhere. However, at the request of LBC, and for the purposes of this study only, the attendance level of the office has been assumed to be 100%. Based on this, there will be an additional attendance of 82 office staff on any given day.

The Regent's Place surveys showed that 40.8% of inbound commuter trips would be made between 8am and 9am. This gives 33 additional office employees arriving at the building in this hour on a typical weekday.

Similarly, the percentage of outbound commuter trips between 5pm and 6pm was shown to be 49.6%. This gives an additional 41 office employees leaving the building in this hour on a typical weekday.

5.1.2 Office – Visitor Trips

The expected breakdown of visitor trips to the office element of the development on a typical weekday is shown in **Appendix C**.

The offices will generate a number of visitor trips, including those undertaking employers' business, courier and messenger trips as well as servicing and delivery trips. In order to estimate the likely number of visitor trips generated by the development a review has been undertaken of trip rates for similar office developments in London.

This review has identified a total one-way daily trip rate of 3.43 trips per 100m^2 NLA (net lettable area) which includes servicing and delivery trips. Other information for deliveries shows a typical one-way daily trip rate of 0.29 trips per 100m^2 NLA. General visitor and employers' business trips account for 3.14 trips per 100m^2 NLA. When applied to the additional office floor space in the new extensions, this gives a total of 49 visitor trips per day. For the purposes of this

assessment it has been assumed that 72% of the visitor trips will be made by public transport or on foot (based on C.R. Eastman 1992). Based on this 35 trips will be made by public transport or on foot.

Studies have identified that 10% of public transport or walk based visitor trips are made during the morning peak hour. Consequently, there will be 4 visitor trips on these modes during the 8am-9am period. For the purposes of this study, the same number of visitor trips on these modes has been assumed in the PM peak hour.

The remaining 14 visitor person trips per day will be made by cycle, motorcycle, taxi and private car.

5.2 Retail - Trip Generation

5.2.1 Retail - Employees Journeys to Work

The existing gross external area of the retail space at 150 Holborn is 2,775m^2. The proposed GEA of retail space is 2,889m^2. Therefore, there is an increase of 114m^2 in GEA for the retail development.

The journey to work trips generated by the retail floor space within the development have been estimated based on the number of employees likely to be present. A typical employee density for retail units of this kind is 1 person per 29m^2 GEA. Allowing a 100% attendance rate, as for the offices, this gives a total of 4 retail staff present on any one day.

Assuming that the retail uses are open before the morning commuter peak, and consequently that some retail staff will have to travel before the morning peak hour, it has been assumed that 30% of retail staff will arrive at the building between 8am and 9am. This equates to 1 retail staff in this period. The same number of retail staff trips has been assumed in the PM peak hour. Trip generation estimates are included in **Appendix B**.

5.2.2 Retail – Visitor Trips

Because the retail facilities within the development will serve the development and the local area, and will not be major destinations in their own right, it has been assumed that all trips to these facilities will be pass-by trips. This means that the retail units will be only visited by people who are already circulating around or going past the building and that no new trips will be generated.

5.3 Residential – Trip Generation

There is currently one (3 bed) residential unit in the development. The proposed development increases the number to six units. For the purposes of this assessment, the increase in residential trips as a result of the additional five units has been considered.

The calculations of the expected number of journeys as a result of the additional five units for the AM peak hour and PM peak hour are included in **Appendix B**.

Residential sites in Inner London were considered and the TRAVL printouts for the chosen site are included in **Appendix A**. From TRAVL, the daily trip generation rate, and peak hour trip rates for all modes were obtained.

The peak hour all mode arrival trip rate for the residential development is 0.18 trips/unit in the AM Peak hour whilst the departure trip rate is 0.63 trips/unit in the PM peak hour. Using these trip rates, the additional five units will generate one arrival trip on all modes in the AM peak hour and three departure trips in the PM peak hour.

5.4 Additional Peak Hour Generated Trips

The predicted change in trips for the office, retail and residential land uses between the existing building and the proposed development has been determined from first principles. For the AM and PM peak hour, the predicted trips for each scenario and the predicted change are summarised in **Tables 5.2 and 5.3** below:

Table 5.2: AM Peak Hour Arrivals - Changes to Trip Generation

Land Use		**Predicted AM Peak hour arrival trips (8am-9am)**		
		Existing	**Proposed**	**Change**
Office	Office Staff	240	274	+34
	Office Visitors	22	26	+4
Retail	Staff	29	30	+1
Residential		0	1	+1
Total		**291**	**331**	**+40**

*Note: These totals are subject to rounding

Table 5.3: PM Peak Hour Departures - Changes to Trip Generation

Land Use		**Predicted PM Peak hour departure trips (5pm-6pm)**		
		Existing	**Proposed**	**Change**
Office	Office Staff	285	327	+42
	Office Visitors	22	26	+4
Retail	Staff	29	30	+1
Residential		1	4	+3
Total		**337**	**387**	**+50**

*Note: These totals are subject to rounding

5.5 Modal Split

The assumed modal share for the proposed development has been determined from information obtained from the Regent's Place analysis identified above. Specifically, a questionnaire survey was undertaken at Regent's Place to determine the main mode of travel to work. A summary of the modal split is provided in **Table 5.4** and will be used for the purposes of the trip analysis for the 150 Holborn scheme.

Table 5.4: Predicted Travel Modal Split and Trips

Mode of Travel	Predicted Modal Split	Predicted Trips	
		AM Peak	PM Peak
Rail	45%	18	22
London Underground	39%	16	20
Bus	6%	2	3
Walk/Cycle	4%	2	2
Other (taxi/motorcycle/car)	6%	2	3
Total	**100%**	**40**	**50**
General Summary			
Public Transport/Walk/Cycle	94%	38	47
Taxi/Motorcycle/Car	6%	2	3
Total	**100%**	**40**	**50**

Note: Figures in table are subject to rounding

The additional trips summarised in **Table 5.4** would have negligible impact on the local highway, public transport, cycle and pedestrian route network in the peak periods due to the small increase in trips.

6 Servicing Strategy

This section sets out the strategy associated with servicing and deliveries to the proposed development.

The servicing strategy will be implemented through a Servicing Management Plan (SMP) of which a draft is included in **Appendix D** of this statement.

6.1 Service Area

Key service area requirements are summarised as follows:

- Minimum clear headroom of 4.5 metres for the loading areas, reducing to 2.7m clear headroom to the refuse, cycle and pedestrian circulation areas leading through to the goods lift;
- Delivery and service vehicles will enter and leave the site in forward gear;
- The loading bays will be 3.5m wide; and
- A 3m deep loading and unloading zone will be provided to the rear of the bays.

6.2 Servicing Trip Generation

The estimated daily delivery and servicing vehicle trips for the redeveloped 150 Holborn site have been determined using typical vehicle generation rates and trip numbers based on detailed survey information from mixed use developments of a similar size and nature in London and the UK. Deliveries for A1-A3 retail are based on trip numbers rather than generation rates as delivery numbers are generally governed by the activities being undertaken in each retail unit as opposed to the sizing of the retail unit. From these surveys the type, size and average turnaround time of service vehicles expected to service the development is shown in **Table 6.1**.

Table 6.1: Expected Service Vehicles and Turnaround Times

Vehicle Type	Vehicle	Spec	Approx Turnaround Time (minutes)
PLGV – Private Light Goods Vehicle		3.5 Tonne, length 6m	15
MGV – Medium Goods Vehicle		7.5 Tonne, length 8m	20
LGV – Large Goods Vehicle		17 Tonne, length 10m	25
Couriers	-	Van/car/ motorcycle/bicycle	5

Based on typical generation rates of 0.20 vehicles/100m^2/day for office, 0.01 vehicles/100m^2/day for residential, and trip numbers of 1-2 deliveries per day for A1 and A2 retail and 13 deliveries per day for A3 retail, the development at 150 Holborn will generate an estimated 50 delivery and servicing vehicles over a 24 hour period.

Based on the above assumption, the peak hour arrival of deliveries has been calculated as approximately six vehicles. In order to accommodate this peak hour demand, two loading bays will be required in the off-street loading area.

6.3 Proposed Servicing Strategy

Deliveries will primarily be made to the site using the dedicated off-street servicing area, which will be accessed from Holborn, via Brooke Street.

There will be two loading bays provided within the service area which will be able to accommodate 7.5 tonne vehicles. Delivery vehicles larger than 7.5 tonne will off-load on Brooke Street. Waste collection vehicles will be granted access to the service yard.

Vehicles will enter and leave the service yard in forward gear, ensuring that all manoeuvring will take place within the site and not on the local highway network.

Entry and exit vehicle tracking analysis has been undertaken for the appropriate sized vehicles for the loading bays situated at ground level, shown on **Drawings 216584-00-001 to 216584-00-003 and 216584-00-005** to the rear of this report.

7 Waste Management Strategy

This section considers the waste management strategy for the proposed development.

7.1 Policy

The requirements for waste storage and handling facilities are governed by *BS 5906:2005 'Storage and on-site treatment of solid waste from buildings'* together with London Borough of Camden (LBC) specific requirements as outlined in its Code of Practice (*'Waste Storage Requirements A Guide to Developers of Commercial and Residential Premises in the London Borough of Camden'* (May 2005)). These requirements are summarised as follows:

- All waste containers will be accessible to the waste collector;
- Service routes for the collection of waste will be a minimum of 2m in width (external);
- Any route where wheeled bins are to be pushed will have a gradient less than 1:12, and include no steps or kerbs;
- Waste collection operatives will not be required to move wheeled containers more than 10m in total;
- No steps and projections will be provided at the entrance of the waste room;
- Storage areas for waste and recyclable material will be clearly designated for this use only, by a suitable door or wall sign and, where appropriate, with floor markings;
- Level, smooth, hard surface without any kerbs between the storage location for bulk bins and the loading position;
- Drainage/hosedown facilities to allow cleansing of waste storage areas (with drainage connected to foul drainage system);
- The waste room walls will be constructed of, or lined with, hard impervious material with a smooth finish suitable for washing down. The floor will not be less than 100 mm thick, and formed of hard impervious material with a smooth finish, and there will not be steps and projections at the entrance;
- Power supply to any refuse balers and segregated waste rooms/areas (3ph supply to waste facilities to allow for a range of equipment to be used); and
- Gullies will be positioned so as not to be in the track of container trolley wheels.

7.2 Waste Strategy

7.2.1 Commercial Waste

Based on 11,384m^2 (GEA) office and 2,889m^2 (GEA) retail space the expected waste generated in two days by the total commercial development is approximately 19.5m^3.

The waste storage requirements to accommodate two days' commercial waste generation are shown in the **Table 8.1**.

Table 8.1: Estimated Two Days' Commercial Waste Storage Requirements

Waste Stream	Storage Requirements
Refuse	9 No. 1100 litre eurobins
Dry Mixed Recyclables	9 No. 1100 litre eurobins

Recyclable and non-recyclable waste will be stored together in the same waste room. Nine 1,100 litre bins will be designated for non-recoverable waste and nine 1,100 litre bins for recyclables.

To optimise space, a single waste room to hold both office and retail waste storage containers will be provided. The bins for the office and retail tenants can be colour coded to clearly identify ownership should this be required.

The waste will be collected from the commercial uses by the waste management team using wheeled bins (240 litre or 360 litre) to transfer waste bags to the store room on the ground floor for storage in 1,100 litre bins.

These waste containers will be taken to the loading area by the site waste management team for collection by the commercial refuse vehicle on a daily basis.

7.2.2 Residential Waste

The proposed six residential units are estimated to generate 1.2m^3 of waste over an eight day period.

The waste storage requirements to accommodate eight days residential waste generation are shown in **Table 8.2**.

Table 8.2: Estimated Eight Days' Residential Waste Storage Requirements

Waste Stream	Storage Requirements
Refuse	1 No. 1100 litre eurobin
Mixed Dry Recyclables	1 No. 1100 litre eurobin

The storage containers required to store the eight day waste generation for the residential units include one 1,100 litre bin for non-recoverable waste and one 1,100 litre bin for recyclable waste.

Residents will segregate their waste at source and will be responsible for taking their waste downstairs to the dedicated ground floor residential waste storage room. Residents will deposit their waste in dedicated 1100 litre bins for refuse and mixed dry recyclable waste located in the waste room.

These waste containers will be taken to the loading area by the site waste management team for collection by LBC refuse vehicles twice weekly. As required by the Council, provision has been made to accommodate the waste generated in an 8 day period.

8 Summary and Conclusion

This Transport Statement has been prepared to assess the transport effects of the proposed redevelopment of 150 Holborn, in the London Borough of Camden. The Transport Statement sets out the principal traffic, transport and waste management aspects for the redevelopment of the existing building.

8.1 Summary

The existing development provides a total gross external floor area (GEA) of 12,798m^2. The development proposals seek to refurbish and extend the existing building to provide a total of 15,252m^2 GEA of floor space. The development proposals are summarised in **Table 8.1**.

Table 8.1: Summary of Existing and Proposed Land Uses - 150 Holborn

Land Use	Existing Floor Space (GEA*)	Proposed Floor Space (GEA*)	Change in area
Office	9,830m^2	11,384m^2	+1,554m^2
Retail	2,775m^2	2,889m^2	+114m^2
Residential	193m^2	979m^2	+ 786m^2
Total	**12,798m^2**	**15,252m^2**	**+2,454m^2**

*Gross External Area

The proposed development has been reviewed in line with national and local guidance on transport matters and complies with the details set out regarding accessibility using a variety of transport modes. The Transport Statement provides a review of the development proposals, the servicing and waste management strategy, the car and cycle parking arrangements and the potential local transport impacts due to the development.

The site is located directly to the north of Chancery Lane London Underground station and is bounded to the east by Brooke Street, to the south by Holborn, to the west by Gray's Inn Road and to the north by the adjacent Fox Court office building. There are a wide range of transport links within ten minutes walk of the site including National Rail services, London Underground services, buses as well as walking and cycling facilities.

There are three London Underground stations located in the vicinity of the site. These are Chancery Lane, located directly to the south of the site, Holborn situated approximately 640m to the southwest of site, and Farringdon located some 515m to the northeast of the site. Together, these stations provide access to the Central, Piccadilly, Circle, Metropolitan and Hammersmith & City lines. Bus services operate close to the development site which provide access to all areas of central London and beyond. In terms of public transport accessibility, the Public Transport Accessibility Level (PTAL) index for the site is 6b (excellent).

There is a comprehensive pedestrian network surrounding the site that connects to the wider transport network. Cycle access is available through local roads with cycle accessibility enhanced by the provision of free on-street public cycle racks

in the vicinity of the site and a Barclays Cycle Hire docking station at the junction of Holborn and Hatton Garden.

It is proposed to redevelop the existing 150 Holborn site as a mixed use development. The total development will include 11,384m^2 GEA of office space, 2,889m^2 GEA of retail space and it is proposed to increase the residential floor space from 193m^2 GEA (1 unit) to 979m^2 GEA (6 units). The main office entrance will be retained off the corner of Gray's Inn Road and Holborn. The retail accesses will be as existing, that is along Gray's Inn Road, Holborn and Brooke Street. A residential entrance lobby will be provided, accessed from Brooke Street. The existing car parking provision will be reduced from five spaces to one space (allocated as an accessible parking space). As part of the development proposals, a total of 84 cycle parking spaces will be provided.

Cycle access will be from Brooke Street, from where a safe route to the cycle parking area within the development will be provided. All vehicular access to the proposed development will be via the existing vehicle access on the eastern side of the site from Brooke Street.

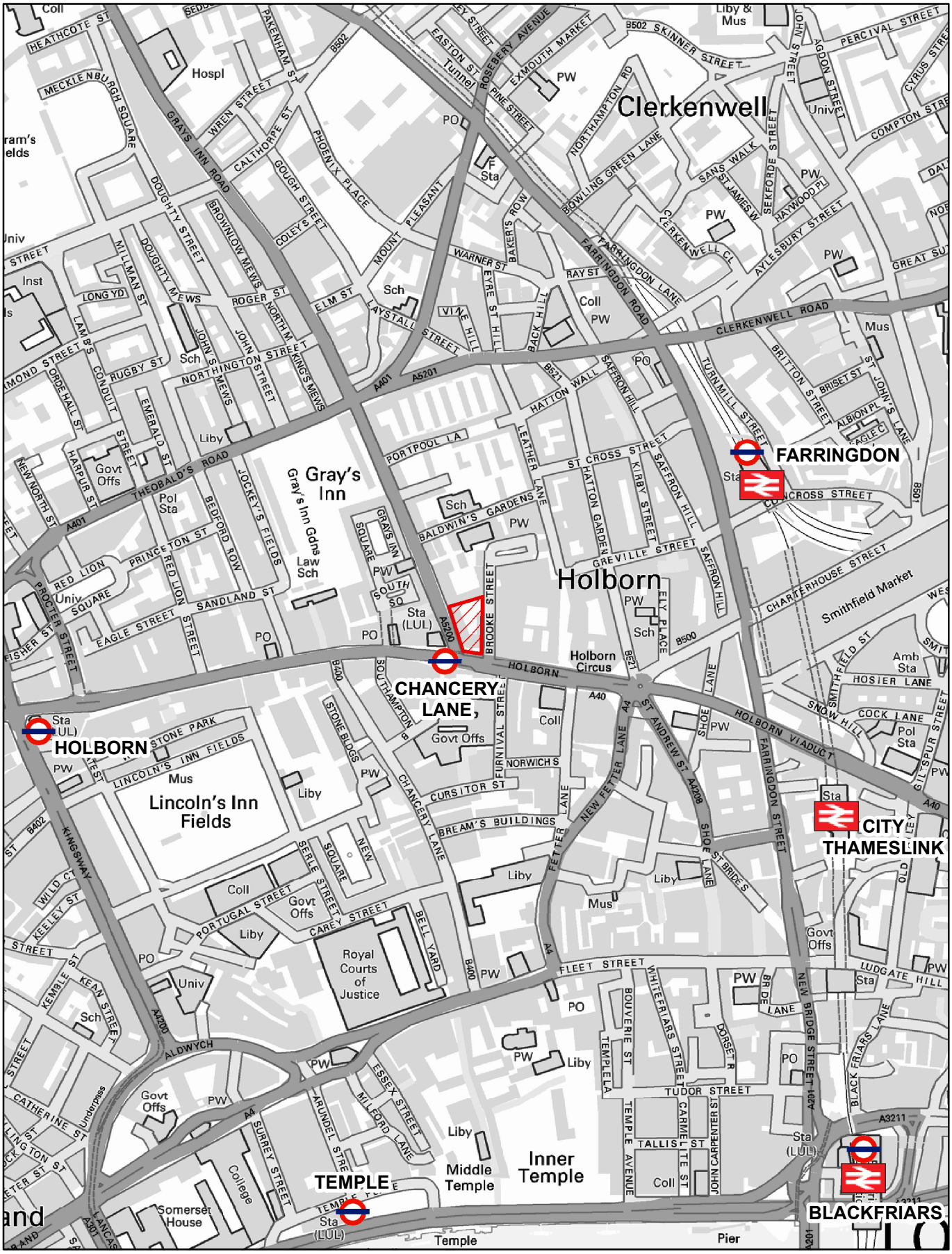
The proposed service yard for the development will be at the rear of the building and will be accessed from Holborn, via Brooke Street. Deliveries will primarily be made to the site using this dedicated off-street service yard with larger delivery vehicles required to off-load on Brooke Street.

The predicted trip generation has been set out for the proposed development and has been compared with that for the existing development. The overall change in development will introduce an increase in floor space of 2,454m^2. The trip analysis has identified that the peak predicted increase in people trips will take place in the evening peak hour (5pm-6pm). The calculations indicate that there will be an increase of 50 people trips in the evening peak hour by all modes. The predicted increase will not introduce a significant impact on the existing transport network.

8.2 Conclusion

In conclusion, this Transport Statement demonstrates that the proposed development can be accommodated within the local highway and public transport network surrounding the site.

Figures



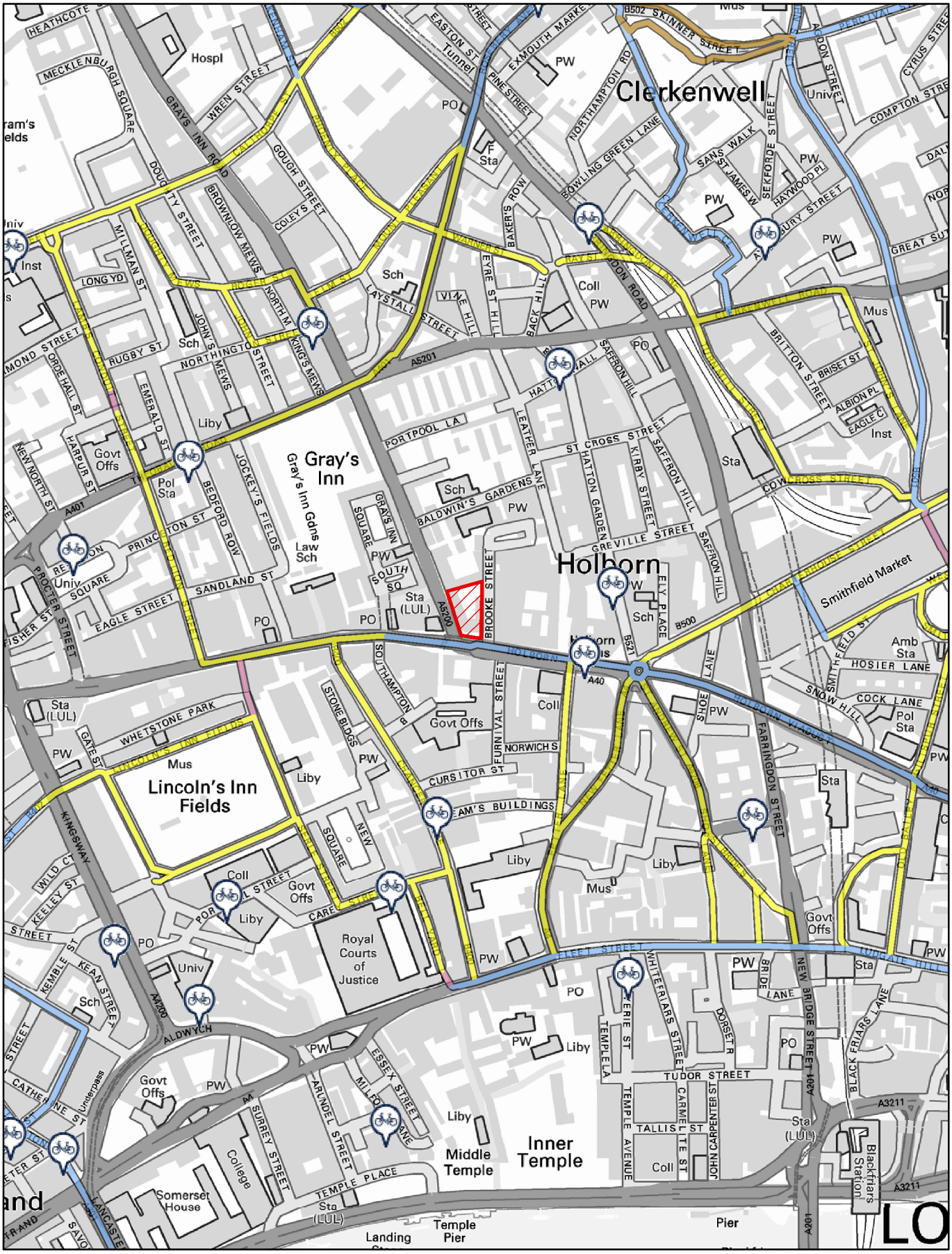
Site Location

National Rail Stations

Underground Stations

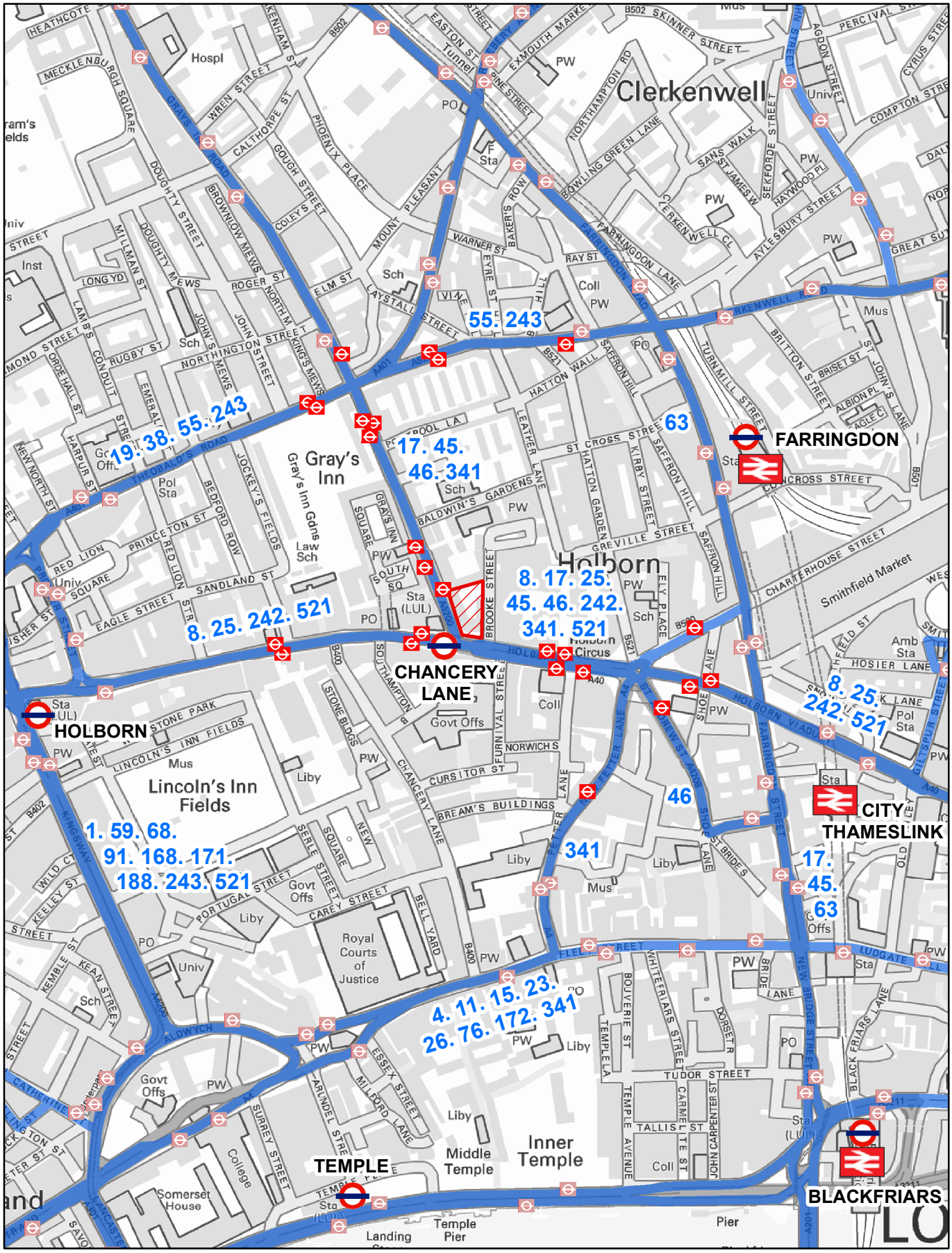
150 HOLBORN LOCATION PLAN

FIGURE 1



150 HOLBORN
LOCAL CYCLE FACILITIES

FIGURE **2**



Site Location

National Rail Stations

Underground Stations

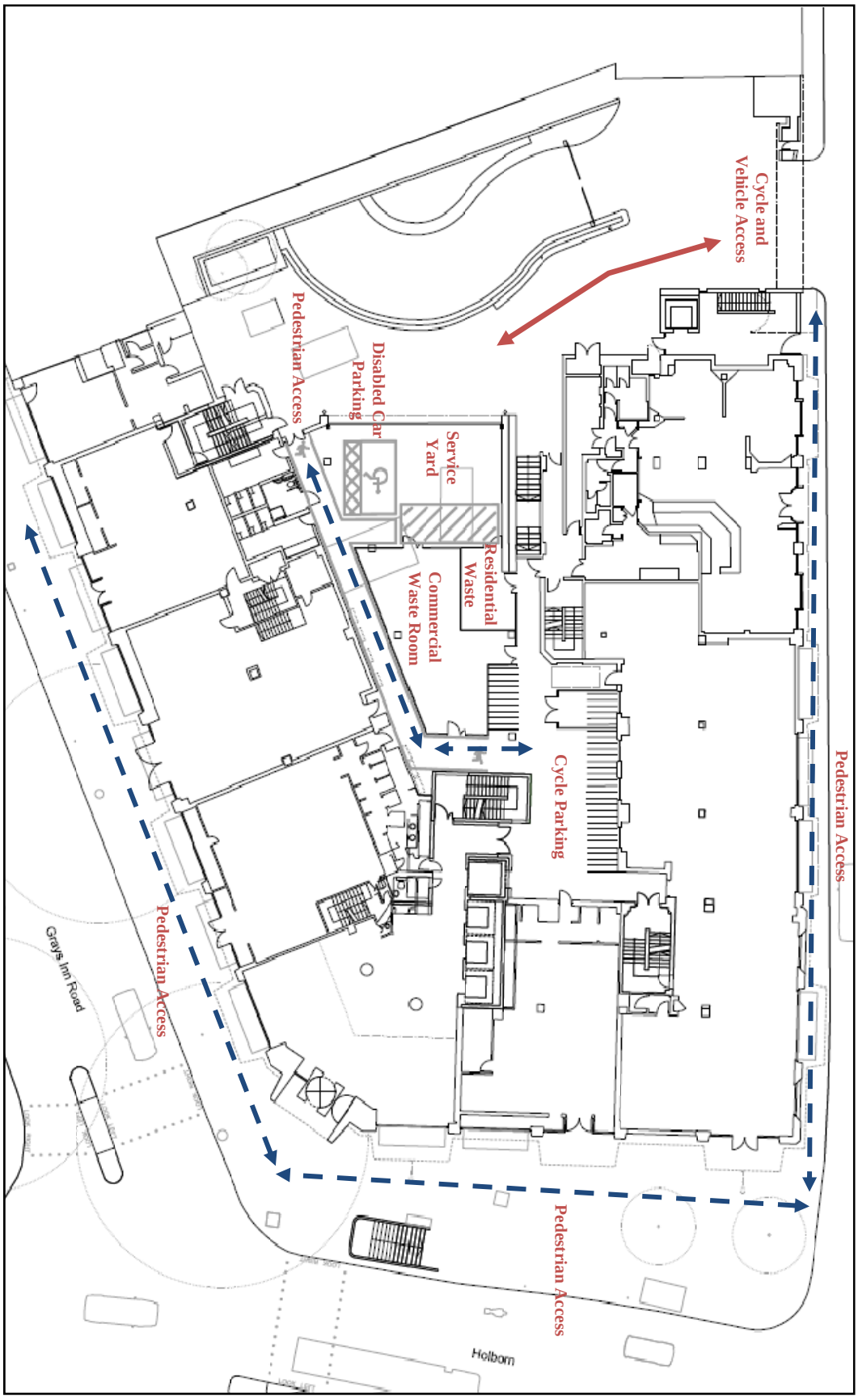
Bus Stops within 5min Walk

Other Bus Stops

Bus Routes

150 HOLBORN
LOCAL PUBLIC TRANSPORT

FIGURE **3**



150 HOLBORN
PROPOSED GROUND FLOOR PLAN

FIGURE 4

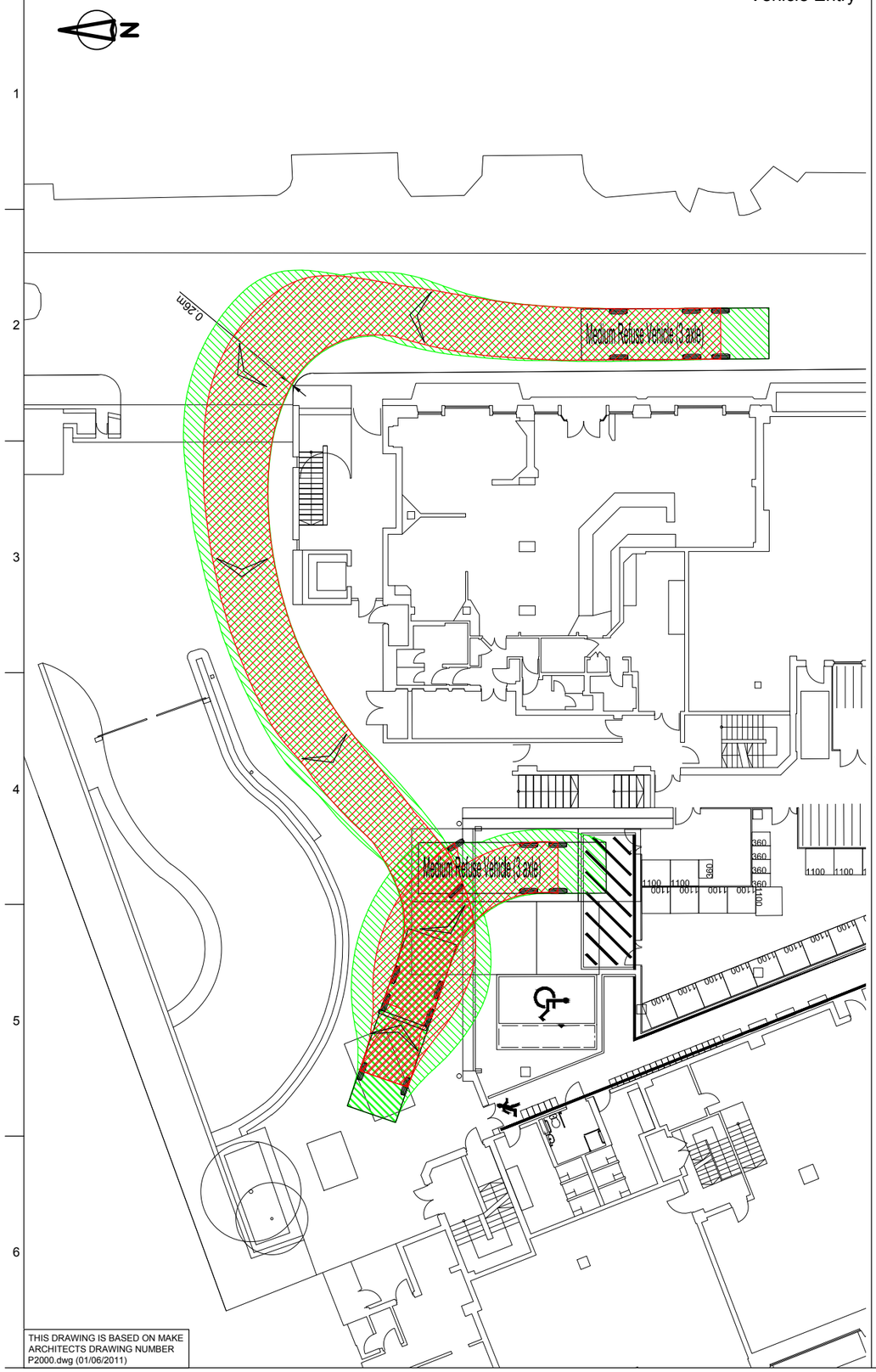
Drawings

A3

A B C D E F G

1 2 3 4 5 6

Vehicle Entry



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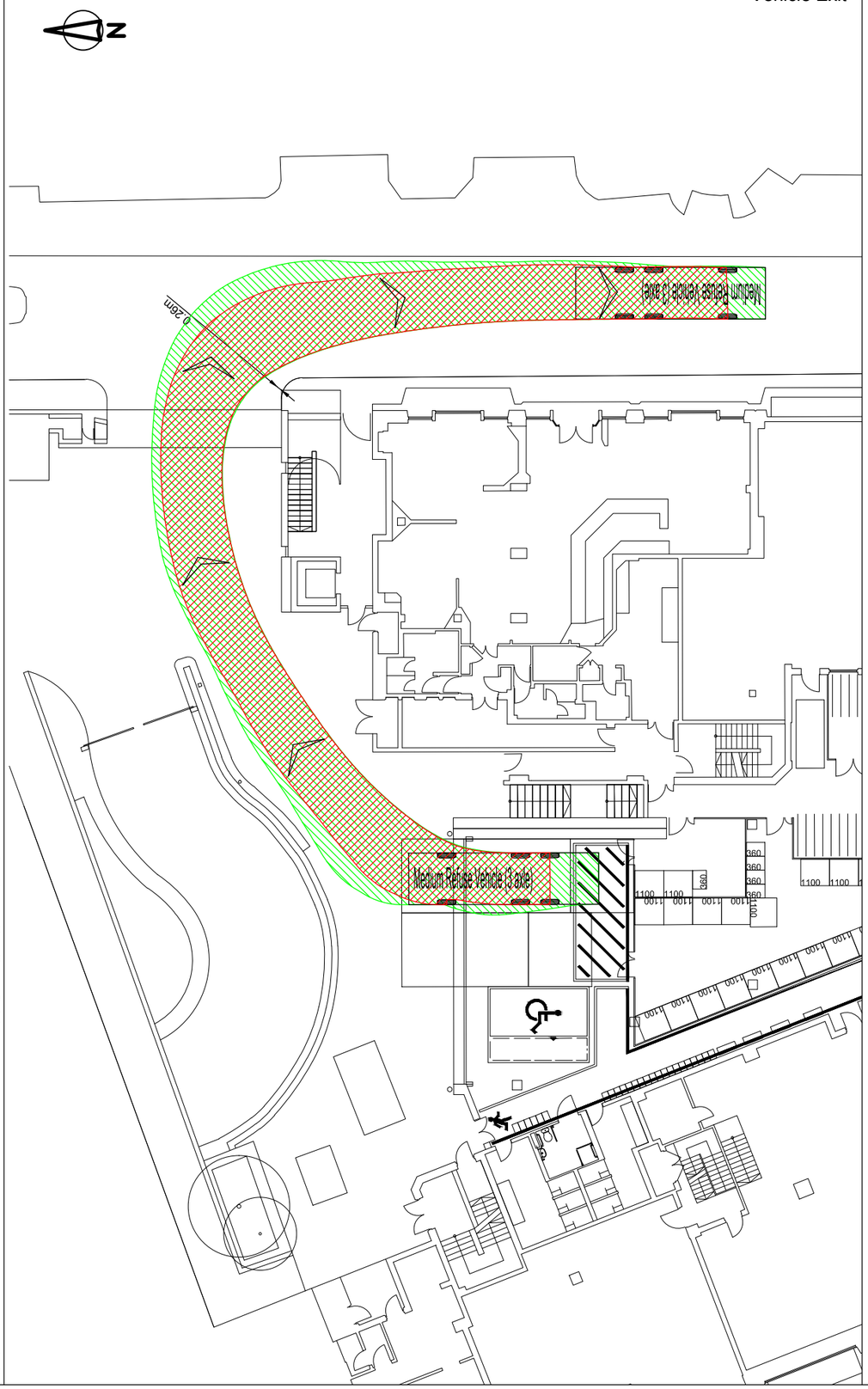

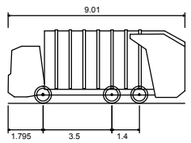

Medium Refuse Vehicle (3 axle)

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Overall Width	2.450m
Overall Body Height	3.742m
Min Body Ground Clearance	0.295m
Track Width	2.450m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	8.200m

Issue	Date	By	Chkd	Appd
-	02/06/11	MW	NQ	VS

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Client
Laffly

Job Title
150 Holborn

Drawing Title
Swept Path Analysis for
150 Holborn Service Area

Scale at A3 1:250

Discipline Civil - Transport

Drawing Status
For Information

Job No	Drawing No	Issue
216584-00	**216584-00-001**	**-**

THIS DRAWING IS BASED ON MAKE ARCHITECTS DRAWING NUMBER P2000.dwg (01/06/2011)

Do not scale

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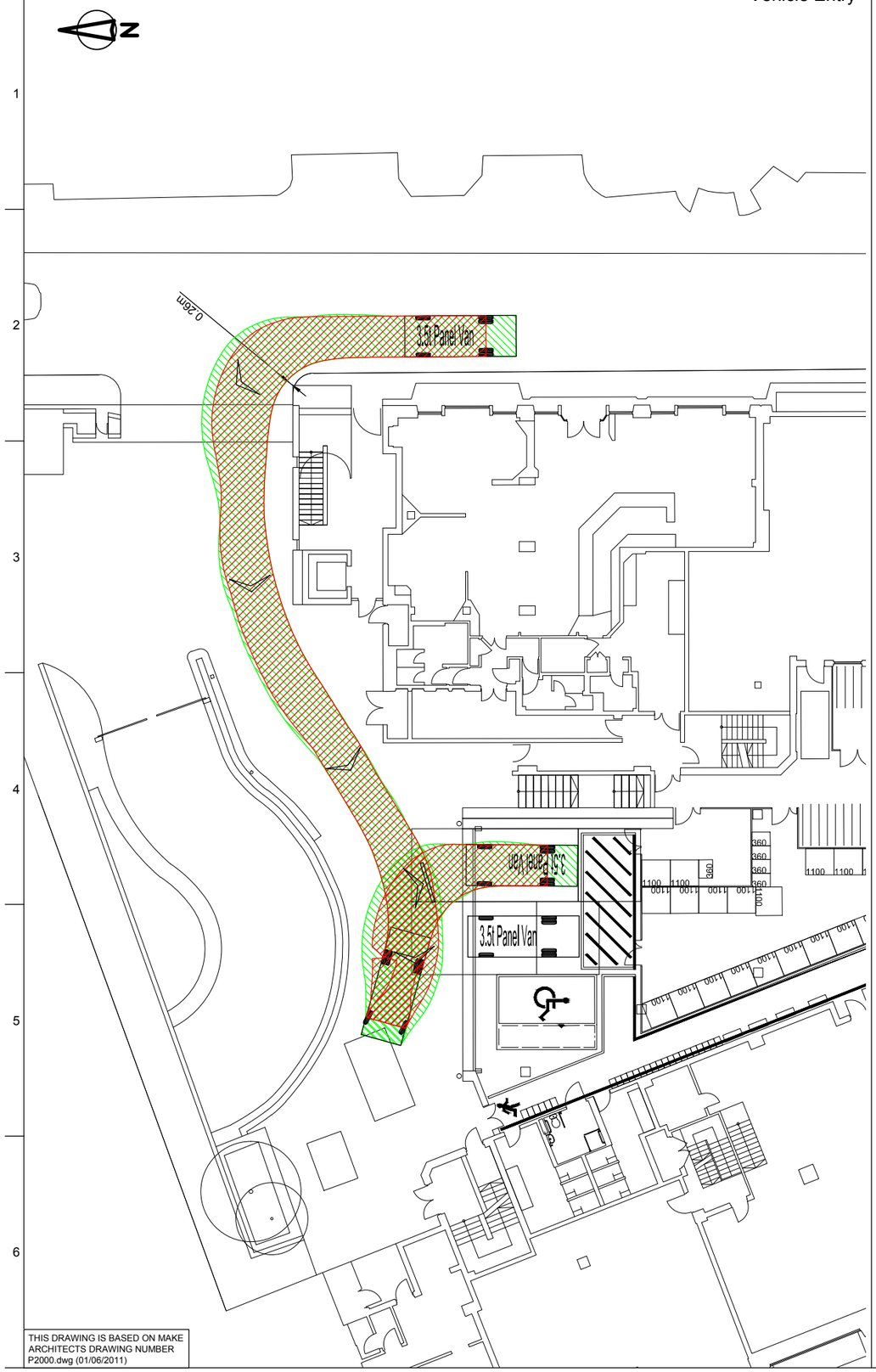
A3

Vehicle Entry



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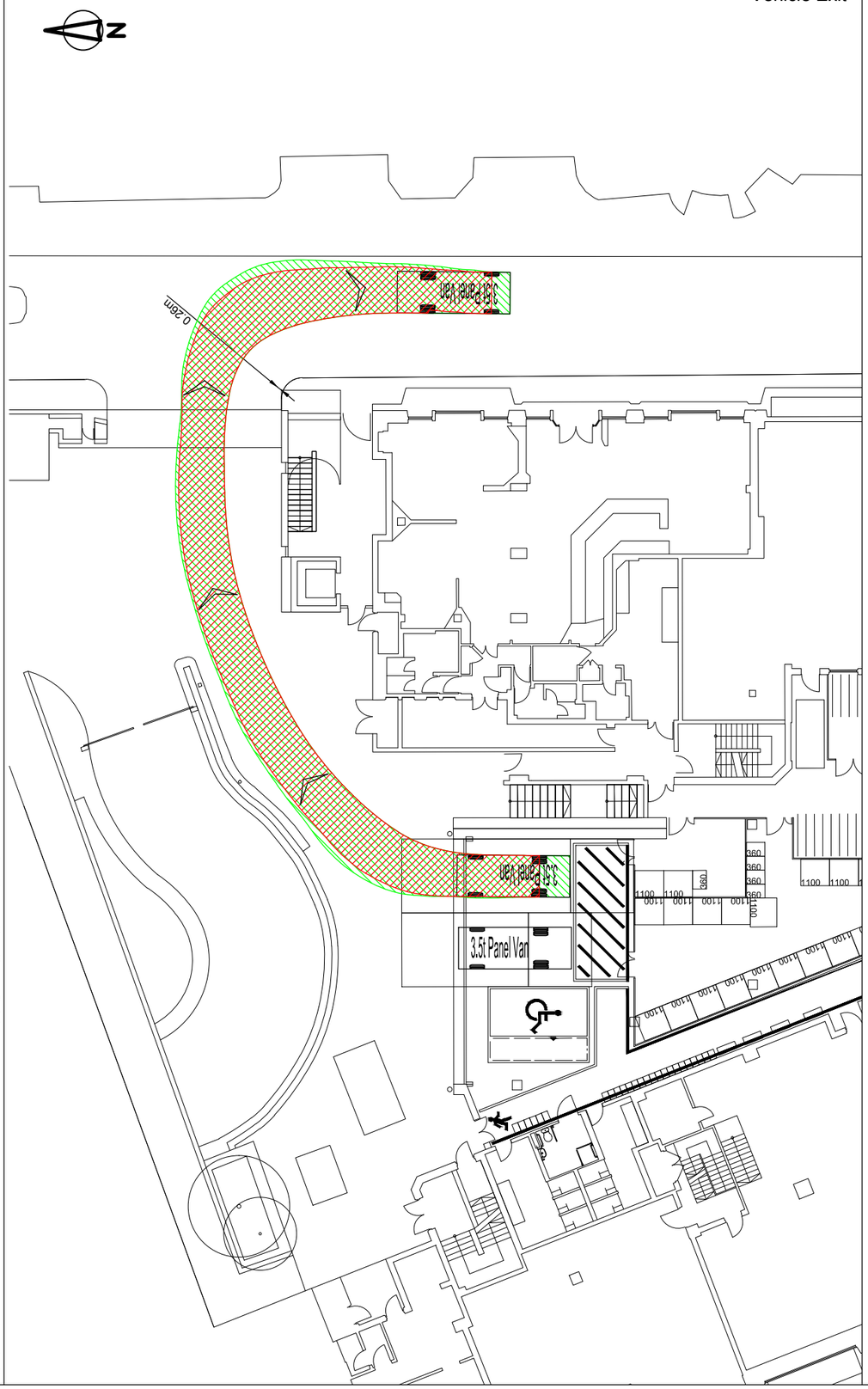

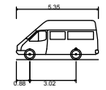

3.5t Panel Van

Overall Length	5.350m
Overall Width	1.970m
Overall Body Height	2.562m
Min Body Ground Clearance	0.335m
Track Width	1.970m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	5.850m

Issue	Date	By	Chkd	Appd
-	02/06/11	MW	NQ	VS

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Job Title
150 Holborn

Drawing Title
Swept Path Analysis for
150 Holborn Service Area

Scale at A3
1:250

Discipline
Civil - Transport

Drawing Status
For Information

Job No	Drawing No	Issue
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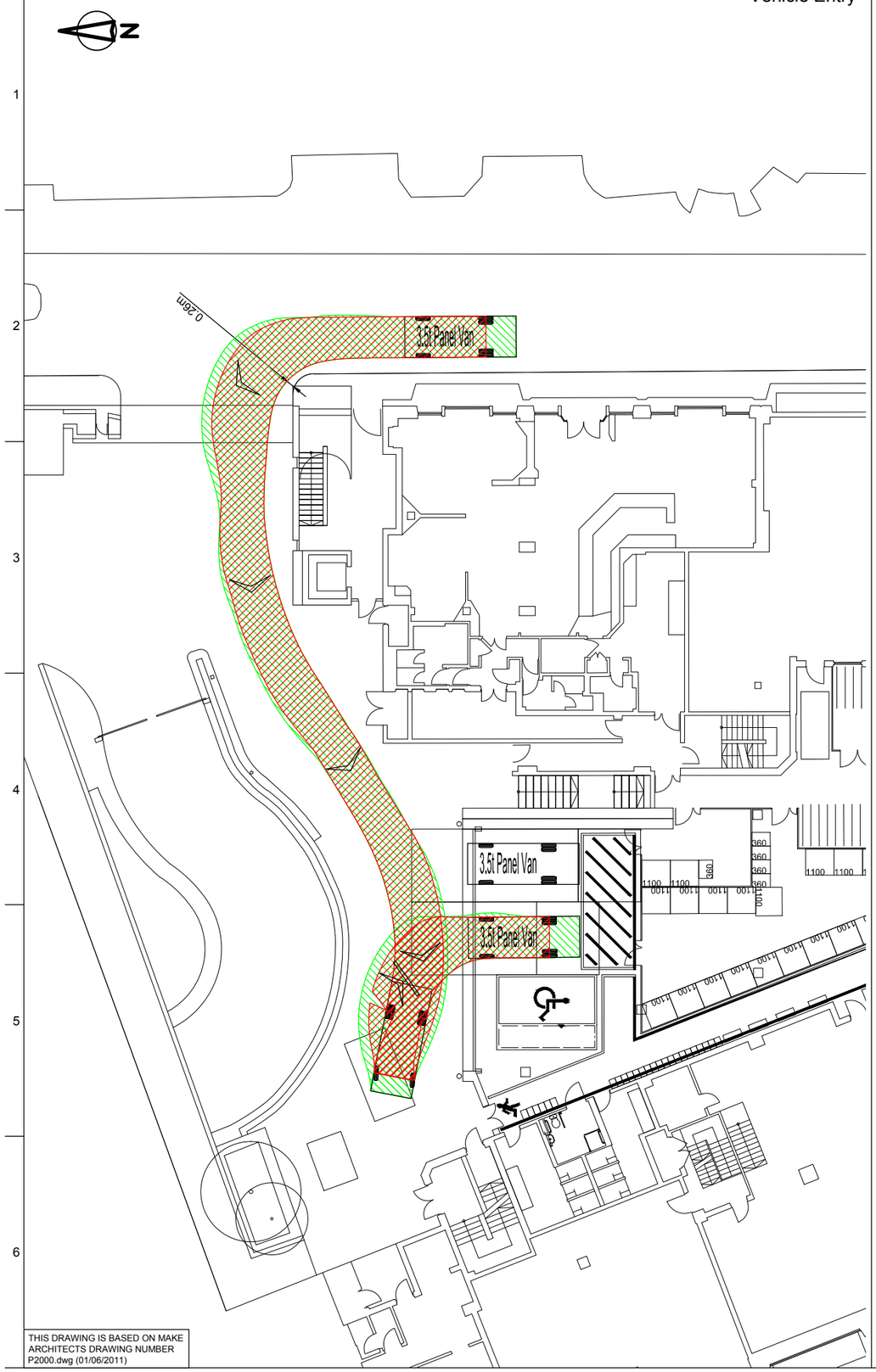
A3

Vehicle Entry



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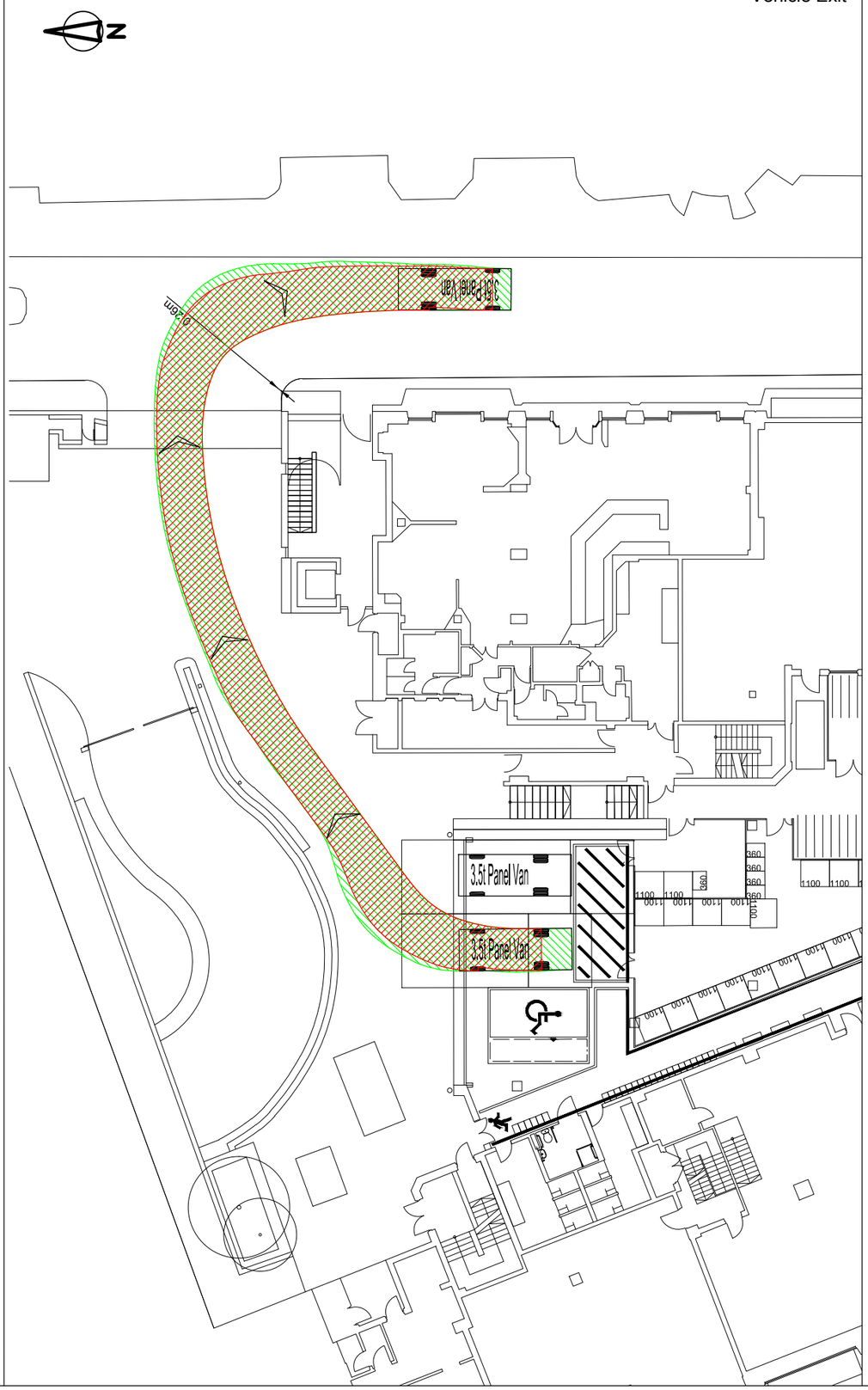

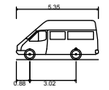

3.5t Panel Van

Overall Length	5.350m
Overall Width	1.970m
Overall Body Height	2.562m
Min Body Ground Clearance	0.335m
Track Width	1.970m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	5.850m

Issue	Date	By	Chkd	Appd
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Swept Path Analysis for
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Scale at A3
1:250

Discipline
Civil - Transport

Drawing Status
For Information

Job No	Drawing No	Issue
216584-00	**216584-00-003**	**-**

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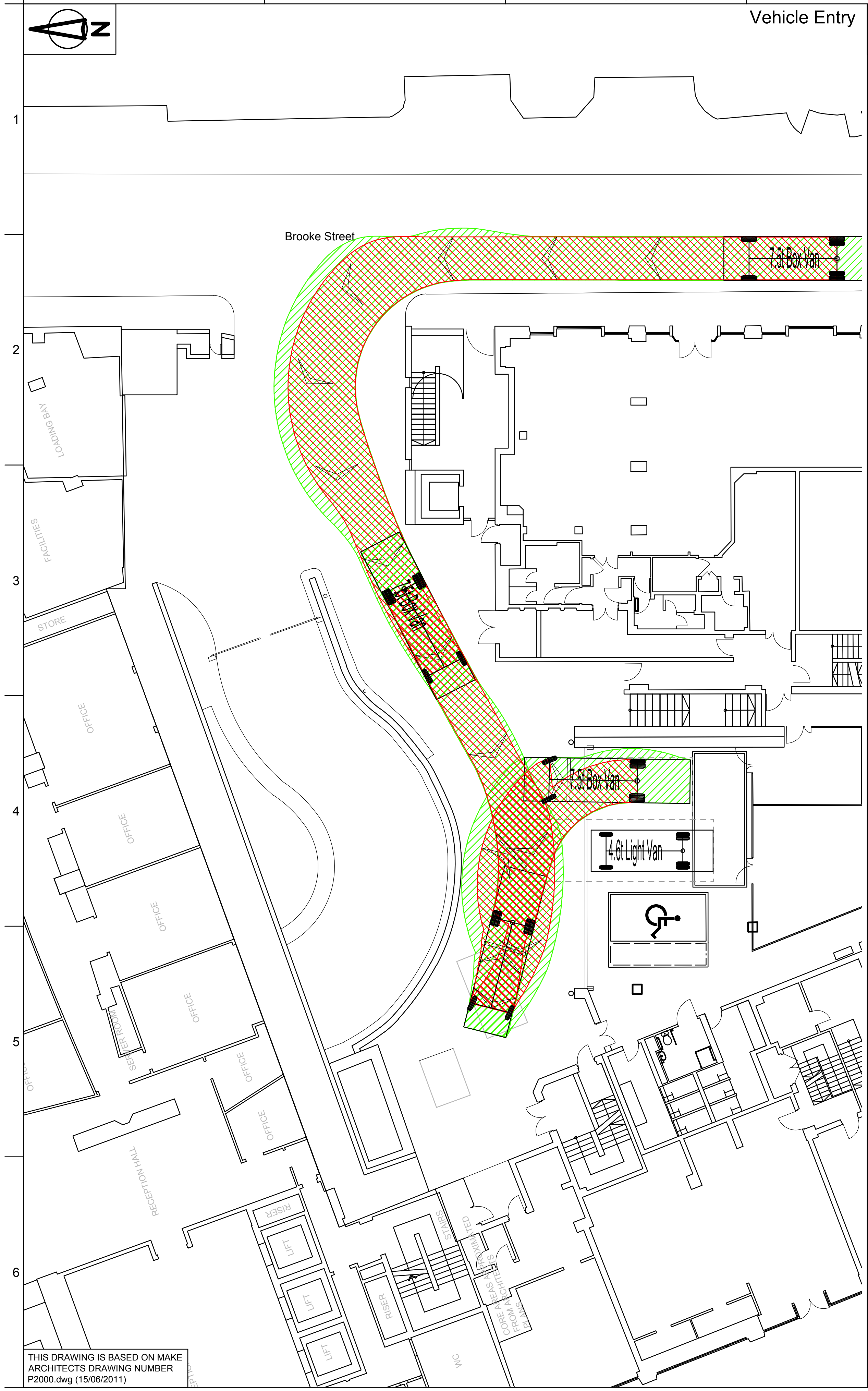
A3

A	B	C	D	E	F	G

Vehicle Entry



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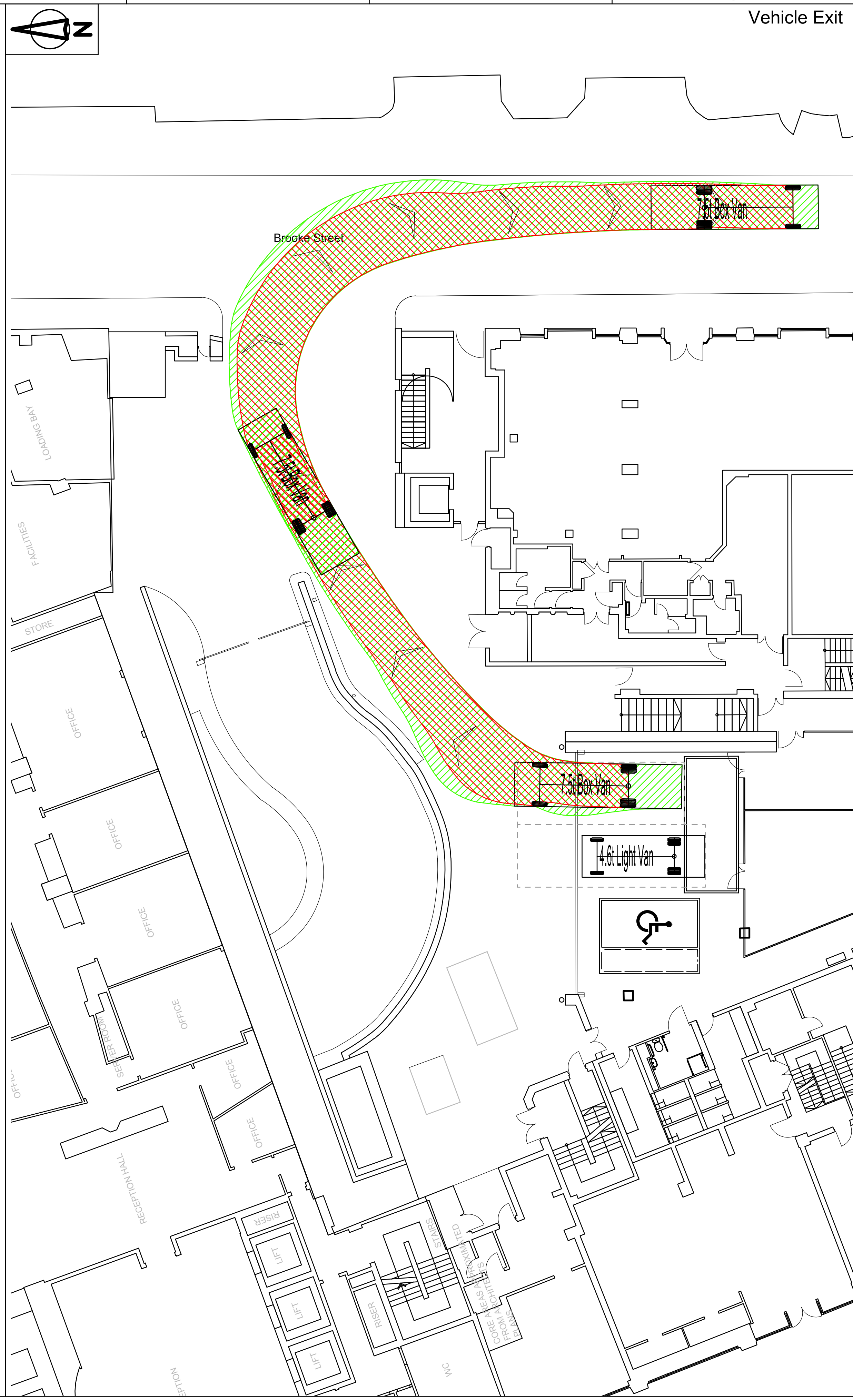

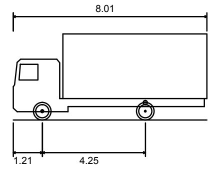

7.5t Box Van

Overall Length	8.010m
Overall Width	2.100m
Overall Body Height	3.556m
Min Body Ground Clearance	0.351m
Track Width	2.064m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	7.400m

Issue	Date	By	Chkd	Appd
-	16/06/11	GW	NQ	VS

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Client
Laffly

Job Title
150 Holborn

Drawing Title
150 Holborn Service Area
Swept Path Analysis
8m Rigid Lorry

Scale at A3 1:250

Discipline Civil - Transport

Drawing Status
For Information

Job No	Drawing No	Issue
216584-00	**216584-00-005**	**-**

THIS DRAWING IS BASED ON MAKE ARCHITECTS DRAWING NUMBER P2000.dwg (15/06/2011)

Do not scale

J:\216000\216584 150 Holborn\4 Internal Project Data\4-03 Arup Drawings\216584-00-005.dwg 20 Jun 2011 17:17:57

Appendix A

Regent’s Place Surveys and TRAVL Details

Job: REGENT'S PLACE
Job No: 114080-00
Title: DERIVATION OF OFFICE TRIP GENERATION RATES FROM LATEST SURVEYS

Introduction

This spreadsheet summarises the trip generation rates observed at Regent's Place.
It is based on the following data:

- Pedestrian counts in and out of the main buildings on site (including car park) in May 2003
- Office floorspace let at the time (from Jones Lang LaSalle)
- Estimated number of employees per building (from British Land) for comparison

Data and trip Generation rate Table

Building	Office Area (1)	Let Area (2)	Estimated occupancy (3)	Let area in sq.m. per employee	AM period arrivals (4)	AM arrivals as % of estimated occupancy	AM arrivals per 1,000 sq.m. of let space
1 & 4 Triton Sq	17,100	16,548	1050	15.8	647	62%	39.1
2 Triton Sq (Abbey)	18,200	16,497	1650	10.0	1224	74%	74.2
Number 338	10,404	10,358	700	14.8	744	106%	71.8
Number 350	12,061	2,977	200	14.9	236	118%	79.3
Tower	32,515	30,063	1800	16.7	1298	72%	43.2
Total	**90,280**	**76,443**	**5,400**	**14.2**	**4,149**	**77%**	**54.3**

Notes:
(1) From TFP Concept Masterplan Report, presumably net area, not gross, in sq.m.
(2) From Jones Lang LaSalle, net area, let at time of surveys in sq.m.
(3) Provided by British Land email form Miles Price 11/3/03, estimate dated 17/1/03
(4) 7:00 to 10:00 hrs pedestrian counts at front doors of all buildings 21/5/03 (increased by 3% to allow for those entering via car park ramp)

REGENT'S PLACE TRAVEL SURVEY 2003 – RESULTS SUMMARY

5000 forms sent out – 27% (1339) returned

Main Mode of Transport

Rail	45%
Underground	39%
Bus	6%
Walk/Bicycle	4%

Main Line station used

Liverpool Street	15%
Waterloo	14%
Charring Cross	14%
Euston	14%
Victoria	13%

Underground Station Used last

Warren Street	63%
Euston Square	17%
Great Portland Street	15%
Regent's Park	4%

Line Used Last

Victoria	41%
Ham/Circ/Met	35%
Northern	21%
Bakerloo	3%

How finish Journey to RP

Walk from Tube	77%
Walk from Rail	9%
Bus on Euston Road	4%
Bus on Hampstead Road	2%
Cycle/Motorcycle	3%
Walk	2%
Car	2.6%

APPENDIX A - BUILDING OCCUPANCY AND EMPLOYEE QUESTIONNAIRE

Time Period		Building																							
		1 Triton Square		No.1 Car Park*		2 Triton Square				4 Triton Square				338				350				Euston Tower			
						Entrance 1		Entrance 2		Entrance 1		Entrance 2		Entrance 1		Entrance 2		Entrance 1		Entrance 2		Entrance 1 & 2		Entrance 3 & 4	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
0700	0705	4				28	2											0	0	0	0	16	1		
0705	0710	4	1			11	1			2				1	2			2	0	0	0	16			
0710	0715	6				21	1			2				1	1			0	0	0	0	10			
0715	0720	9				2				1	1			3	1			2	0	0	0	15	2		
0720	0725	5				12				1				2				0	0	0	0	18			
0725	0730	3	2			14				2				2	1	1		0	0	1	0	18			
0730	0735	8				9	2			2				1				0	0	0	0	18			
0735	0740					17	1			6				3	2	1		0	0	0	0	18	1		
0740	0745	4				22	1			2		1		4	2			2	0	0	0	15	3		
0745	0750	3	1			19	1					2		8		1		5	1	0	0	25	1		
0750	0755	4				22	1	1				7		5		3		2	0	1	0	33	1		
0755	0800	5	1			39	1					3	1	2	1	2		3	2	1	0	42			
0700	**0800**	**55**	**5**	**0**	**0**	**216**	**11**	**1**	**0**	**18**	**1**	**13**	**1**	**32**	**10**	**8**	**0**	**16**	**3**	**3**	**0**	**244**	**9**	**0**	**0**
0800	0805	9				19				1		4		11		1		2	0	0	1	8		40	2
0805	0810	10	2			36	2			1		2		7	1	1		3	0	3	1	14		28	
0810	0815	6	1			40						6		4	2	2		4	0	3	1	5	1	36	1
0815	0820	6				27	2					6		9		2		2	0	3	0	11		22	2
0820	0825	17				33				2		10	1	15	5	2		4	2	3	0	11		31	2
0825	0830	10	1			70	3			1		6	1	14	6	4		7	1	4	0	8	3	32	3
0830	0835	8	2			46						9		27	8	3		4	0	8	3	12	5	33	1
0835	0840	15	4			51	1			2		8		8	1	7		1	0	9	0	15		32	1
0840	0845	15				58	6			2		11		7	3	8		3	0	10	3	6	1	26	1
0845	0850	19	2			80	6			2		9	1	17	2	8		2	0	13	0	13		35	1
0850	0855	14	2			68	3			2		28		38		7		6	0	5	3	17	4	43	
0855	0900	17				62	2			2		14		15		5		5	0	12	0	11		28	1
0800	**0900**	**146**	**14**	**0**	**0**	**590**	**25**	**0**	**0**	**15**	**0**	**113**	**3**	**172**	**28**	**50**	**0**	**43**	**3**	**73**	**12**	**131**	**14**	**386**	**15**
0900	0905	14	1			90	2			4		31	3	22	3	16		8	0	11	6	20	1	55	5
0905	0910	8	2			51	2	2		2		23		24	1	14		6	0	5	4	14	3	41	3
0910	0915	8				54	6			2		29	3	37		12		4	0	14	0	16	4	24	1
0915	0920	5				46	1			5		21	3	33	4	14		5	0	7	0	12	1	22	4
0920	0925	6	2			9	4			4		10		41		15		1	0	5	0	8	5	41	2
0925	0930	4	1			22	2			1		14	5	27	4	9		1	0	3	0	12	2	42	1
0930	0935	2	1			28	11					15	1	38	3	18		3	0	2	0	15	4	32	1
0935	0940	5	2			14	6			2	1	10	2	16		15		0	0	0	0	10	4	19	2
0940	0945		1			20	13			2	1	6	1	25	4	5		3	1	1	2	6	7	31	2
0945	0950	3	5			22	5					8		17	1	4		2	1	0	1	6	2	17	5
0950	0955	7	1			10	5			2		5	1	29	9	8		5	4	1	1	5	2	27	6
0955	1000	3	2			13	12					7		14	1	7		4	1	3	0	5	5	19	8
0900	**1000**	**65**	**18**	**0**	**0**	**379**	**69**	**2**	**0**	**24**	**2**	**179**	**19**	**323**	**30**	**137**	**0**	**42**	**7**	**52**	**14**	**129**	**40**	**370**	**40**
Total		**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**	**266**

* includes all modes

IN	OUT
48	3
36	4
40	2
32	4
38	0
41	3
38	2
45	4
50	6
63	4
78	2
97	6
606	40
95	3
105	6
106	6
88	4
128	10
156	18
150	19
148	7
146	14
198	12
228	12
171	3
1719	114
271	21
190	15
200	14
170	13
140	13
135	15
153	21
91	17
99	99
79	20
99	29
75	29
1702	239
4027	**393**

Time Period		Building																							
		1 Triton Square		No.1 Car Park		2 Triton Square				4 Triton Square				338				350				Euston Tower			
						Entrance 1		Entrance 2		Entrance 1		Entrance 2		Entrance 1		Entrance 2		Entrance 1		Entrance 2		Entrance 1 & 2		Entrance 3 & 4	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1600	1605	3	5			2	21			1	2		5	13	9	4	2	2	0	0	4	6	6	5	38
1605	1610		4			9	22					1	1		7	2	3	0	0	0	2	3	17	2	19
1610	1615	3	1			8	15						1	4	7	1	4	0	1	0	1	5	10	2	26
1615	1620	3	4			4	17	4		1		4	6	3	6	1	1	0	0	0	2	5	13	7	15
1620	1625	1	1			8	11					1	8	2	12	1		0	1	0	0	4	11	4	29
1625	1630	2	3			5	16					6	6	2	8	1		0	0	0	2	4	9	5	19
1630	1635	2	4			13	20					1	6	4	6	2	1	0	0	1	1	4	12	4	29
1635	1640	1	1			7	29					1	9	3	13	1	1	0	0	0	0	3	14	1	17
1640	1645		2			4	16					3	6	6	2	1	1	0	1	0	1	5	14	2	14
1645	1650	1	5			1	23			1	1	4	4	6	14		1	0	0	0	2	4	15	4	21
1650	1655	1	3			9	23					1	5	6	8	1		0	2	0	1	4	9	2	25
1655	1700	5	6			3	46					2	8	4	6	1	1	0	2	0	1		18	2	22
1600	**1700**	**22**	**39**	**0**	**0**	**73**	**259**	**4**	**0**	**3**	**3**	**24**	**65**	**53**	**98**	**16**	**15**	**2**	**7**	**1**	**17**	**47**	**148**	**40**	**274**
1700	1705	2	29			2	78						7	1	17	1	1	0	2	0	9	2	17		32
1705	1710		20			5	66						6	1	7	2		0	1	0	14	1	20	2	35
1710	1715	1	29			3	61					2	10		10	1	1	0	1	0	5	1	20	3	31
1715	1720	1	8			11	65		1			1	6		11			0	2	1	7	1	15	2	15
1720	1725		5			5	59						9	6	12		1	0	1	0	3	1	10		16
1725	1730	1	5			1	54						6	1	14			1	4	0	10		15	1	15
1730	1735		7			2	47						27		41	2	3	0	0	0	17		19	3	27
1735	1740	1	10			6	35		1			2	22	2	42	4		0	3	3	14	1	30	2	15
1740	1745		7			1	53					1	16	3	38			0	0	0	4	2	37		13
1745	1750		6			6	36						21		29		4	0	0	0	5	4	16	3	9
1750	1755		5			1	64		1				14		29	2		0	0	0	8		16	1	10
1755	1800	1	6			3	23		1	1			16	3	29		2	0	0	0	6		15		19
1700	**1800**	**7**	**137**	**0**	**0**	**46**	**641**	**0**	**4**	**1**	**0**	**6**	**160**	**17**	**279**	**12**	**12**	**1**	**14**	**4**	**102**	**13**	**230**	**17**	**237**
1800	1805		9				37			1			15	4	52		1	0	0	0	3		24	2	9
1805	1810		5			1	34						9	2	47			0	0	0	1		9		11
1810	1815	1	6			1	35						11		32	1		0	0	2	2		11		5
1815	1820	2	6			1	24					1	18		17			0	3	4	4		7		6
1820	1825	1	6				24						12		15			0	2	0	2	2	14		11
1825	1830	2	3			2	15						9	2	9			1	1	1	3	1	6		9
1830	1835	1	5				17						10		37			0	1	1	3		6		6
1835	1840		6			1	18						6	14	11			0	0	0	1		9	1	5
1840	1845	2	6			2	7						5	1	9			0	1	0	1	1	4	1	6
1845	1850	1	4			1	9						5		17			0	1	0	5		7		15
1850	1855	1	7			1	4						4	3	12			0	2	1	0		5		5
1855	1900		3			4	11						5	1	9	2		0	1	0	1		1		6
1800	**1900**	**11**	**66**	**0**	**0**	**14**	**235**	**0**	**0**	**1**	**0**	**1**	**109**	**27**	**267**	**3**	**1**	**1**	**12**	**9**	**26**	**4**	**103**	**4**	**94**
Total		**40**	**242**	**0**	**0**	**133**	**1135**	**4**	**4**	**5**	**3**	**31**	**334**	**97**	**644**	**31**	**28**	**4**	**33**	**14**	**145**	**64**	**481**	**61**	**605**

IN	OUT
36	92
17	75
23	66
32	64
21	73
25	63
31	79
17	84
21	57
21	86
24	76
17	110
285	925
8	192
11	169
11	168
17	130
12	116
5	123
7	188
21	172
7	168
13	126
4	147
8	117
124	1816
7	150
3	116
5	102
8	85
3	86
9	55
2	85
16	56
7	39
2	63
6	39
7	37
75	913
484	3654

TRAVL - Site Report

Report ID 1

Name	Green Dragon House			**Survey Date**	11/09/2008
Business	Residential			**Survey Hours 1**	0700-2200
Address	Green Dragon House, Stukeley Street, Camden,			**Survey Hours 2**	
				Survey Code	650
District	Holborn				
Borough	CAMDEN				
Postcode	WC2H 5LQ			**Site Area (sq.m)**	700
Location	Inner	**PTAL**	6	**Gross Floor Area (sq.m)**	1500
Class	C3 - Residential			**Retail Floor Area (sq.m)**	0
Construction Phase					

Parking	**Total**	**Disabled**	**Visitor**	**Employee**	**Coaches**	**Load Bays**

Managed Parking N **Waiting Restriction** U

	0 Beds	**1 beds**	**2 beds**	**3 beds**	**4 beds +**
Num Dwellings		0	0	0	0

Residential Units 29 **% Car ownership** 0

Distance To School **Distance To Shops**

	Home	**Work**	**Else**
Home	0	0	0
Work	0	11	0
Else	0	0	13

Disabled Access Unknown

Owner Code Unknown Owner

Travel Plan Yes

Site Notes

Green Dragon House is Camden's first car-free residential development. There are 29 flats, managed by the housing association 'SOHOHA'.

The site is an award-winning contemporary design within a gated development with a courtyard area and wooden-clad four-storey buildings. Affordable, rented accommodation is provided for 100 residents in 60 rooms.

The site is a five-minute walk from Holborn underground station within a 5-minute from bus stops on High Holborn.

Survey Note

The survey took place on Thursday 11th September 2008 between 7am and 10pm.

A count of people entering and departing the apartments was recorded. Self-completion travel diaries were sent to households by post, asking for resdeint travel patterns to and from the site on the survey day. Residents were asked to return these by post at the request of the site management team. Due to a poor response rate, further forms were collected on a door-to-door basis following the survey day. This increased the response rate.

No parking or freight surveys were undertaken, as the site was car-free.

Name	Green Dragon House			**Survey Date**	11/09/2008
Business	Residential			**Survey Hours 1**	0700-2200
Address	Green Dragon House, Stukeley Street, Camden,			**Survey Hours 2**	
				Survey Code	650
District	Holborn				
Borough	CAMDEN				
Postcode	WC2H 5LQ			**Site Area (sq.m)**	700
Location	Inner	**PTAL**	6	**Gross Floor Area (sq.m)**	1500
Class	C3 - Residential			**Retail Floor Area (sq.m)**	0
Construction Phase					

Facilities

The self-contained apartments are within a gated development within an internal courtyard. The apartments are car-free and are located in a residential/business area in Central London. There is an underground station, bus stops and local supermarket within a 5-minute walk.

Exceptional Circumstances

Due to a poor response to postal travel diaries, travel diaries were collected on a door-to-door basis ovr a couple of days after the susrvey day.

TRAVL - Site Report

Report ID 1

Name	Winchester Mews			**Survey Date**	18/09/2008
Business	Residential			**Survey Hours 1**	0700-2200
Address	Winchester Mews Camden London			**Survey Hours 2**	
				Survey Code	649
District	Camden				
Borough	CAMDEN				
Postcode	NW3 3NA			**Site Area (sq.m)**	2000
Location	Inner	**PTAL**	3	**Gross Floor Area (sq.m)**	1600
Class	C3 - Residential			**Retail Floor Area (sq.m)**	0
Construction Phase					

Parking	**Total**	**Disabled**	**Visitor**	**Employee**	**Coaches**	**Load Bays**

Managed Parking N **Waiting Restriction** U

	0 Beds	**1 beds**	**2 beds**	**3 beds**	**4 beds +**
Num Dwellings		0	0	15	15

Residential Units 22 **% Car ownership** 0

Distance To School **Distance To Shops**

	Home	**Work**	**Else**
Home	0	0	0
Work	0	3	0
Else	0	1	6

Disabled Access Unknown

Owner Code Private

Travel Plan Yes

Site Notes

The site is part of the Visage and Swiss Cottage Cultural Centre (http://www.cabe.org.uk/default.aspx?contentitemid=2047) and is part of a development comprising of affordable and non-affordable apartments, a leisure centre with swimming pool, library, doctors surgery and cafe.

There is an underground car park but this particular site is designated as car-free.

There are 22 flats in the development of affordable, rented housing managed by Dominion Housing Group. There are 16 flats on one floor which is known as a 'street in the sky' with open walkways and internal courtyards, and a further 8 eastern facing duplex apartments. Approximately 10 of these are 2-bedroom apartments and 12 are 3-bedroom apartments.

The site is within a 2 minute walk from Swiss Cottage tube station and bus stops.

Name	Winchester Mews			**Survey Date**	18/09/2008
Business	Residential			**Survey Hours 1**	0700-2200
Address	Winchester Mews Camden London			**Survey Hours 2**	
				Survey Code	649
District	Camden				
Borough	CAMDEN				
Postcode	NW3 3NA			**Site Area (sq.m)**	2000
Location	Inner	**PTAL**	3	**Gross Floor Area (sq.m)**	1600
Class	C3 - Residential			**Retail Floor Area (sq.m)**	0
Construction Phase					

Survey Note

The survey took place on Thursday 18th September 2008.

Prior to the survey day, travel diaries were distributed in the post to all flats. On the day of the survey, one surveyor undertook a count of people entering and departing the building between 7am and 10pm. A second surveyor collected all the completed travel diaries on a door-to-door basis. The response rate was good.

No car park or freight surveys were undertaken, as the site was car-free.

Facilities

Within the development site there is a residents underground parking, a leisure centre, library, doctors surgery and sports courts. Across the 22 apartments, there are beds for 80 residents.

The part of the development surveyed is designated as car-free.

Exceptional Circumstances

TRAVL - Average Trip Rate by Mode and Time

Report ID 9

List of Surveys:

Name	Address	Postcode	Survey Date
Green Dragon House	Green Dragon House, Stukeley Street, Camden, WC2H 5LQ	WC2H 5LQ	11/09/2008
Winchester Mews	Winchester Mews Camden London	NW3 3NA	18/09/2008

Number of sites considered 2

Counts By Mode:

Mode: All Modes

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total
07:00-07:30	2	0.00000	0.11765	0.11765	0.0	3.4	3.4
07:30-08:00	2	0.00000	0.37255	0.37255	0.0	10.8	10.8
08:00-08:30	2	0.05882	0.62745	0.68627	1.7	18.2	19.9
08:30-09:00	2	0.11765	0.56863	0.68627	3.4	16.5	19.9
09:00-09:30	2	0.21569	0.23529	0.45098	6.3	6.8	13.1
09:30-10:00	2	0.11765	0.09804	0.21569	3.4	2.8	6.3
10:00-10:30	2	0.00000	0.13725	0.13725	0.0	4.0	4.0
10:30-11:00	2	0.00000	0.11765	0.11765	0.0	3.4	3.4
11:00-11:30	2	0.21569	0.13725	0.35294	6.3	4.0	10.2
11:30-12:00	2	0.05882	0.13725	0.19608	1.7	4.0	5.7
12:00-12:30	2	0.09804	0.13725	0.23529	2.8	4.0	6.8
12:30-13:00	2	0.25490	0.11765	0.37255	7.4	3.4	10.8
13:00-13:30	2	0.21569	0.13725	0.35294	6.3	4.0	10.2
13:30-14:00	2	0.11765	0.15686	0.27451	3.4	4.5	8.0
14:00-14:30	2	0.09804	0.09804	0.19608	2.8	2.8	5.7
14:30-15:00	2	0.05882	0.19608	0.25490	1.7	5.7	7.4
15:00-15:30	2	0.15686	0.21569	0.37255	4.5	6.3	10.8
15:30-16:00	2	0.72549	0.09804	0.82353	21.0	2.8	23.9
16:00-16:30	2	0.15686	0.13725	0.29412	4.5	4.0	8.5
16:30-17:00	2	0.31373	0.17647	0.49020	9.1	5.1	14.2
17:00-17:30	2	0.37255	0.21569	0.58824	10.8	6.3	17.1
17:30-18:00	2	0.49020	0.41176	0.90196	14.2	11.9	26.2
18:00-18:30	2	0.43137	0.11765	0.54902	12.5	3.4	15.9
18:30-19:00	2	0.21569	0.27451	0.49020	6.3	8.0	14.2
19:00-19:30	2	0.25490	0.19608	0.45098	7.4	5.7	13.1
19:30-20:00	2	0.21569	0.07843	0.29412	6.3	2.3	8.5
20:00-20:30	2	0.15686	0.17647	0.33333	4.5	5.1	9.7
20:30-21:00	2	0.21569	0.03922	0.25490	6.3	1.1	7.4
21:00-21:30	2	0.19608	0.05882	0.25490	5.7	1.7	7.4
21:30-22:00	2	0.07843	0.03922	0.11765	2.3	1.1	3.4

Mode: **All Modes**

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total

Peak Period For **All Modes**

In	**15:30-16:00**	**0.73**
Out	**08:00-08:30**	**0.63**
Total	**17:30-18:00**	**0.90**

Mode: Bus

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total
07:30-08:00	2	0.00000	0.15686	0.15686	0.0	4.5	4.5
08:00-08:30	2	0.00000	0.07843	0.07843	0.0	2.3	2.3
08:30-09:00	2	0.01961	0.17647	0.19608	0.6	5.1	5.7
09:00-09:30	2	0.03922	0.05882	0.09804	1.1	1.7	2.8
09:30-10:00	2	0.01961	0.00000	0.01961	0.6	0.0	0.6
13:30-14:00	2	0.01961	0.00000	0.01961	0.6	0.0	0.6
14:30-15:00	2	0.00000	0.07843	0.07843	0.0	2.3	2.3
15:30-16:00	2	0.15686	0.00000	0.15686	4.5	0.0	4.5
16:00-16:30	2	0.01961	0.00000	0.01961	0.6	0.0	0.6
16:30-17:00	2	0.05882	0.00000	0.05882	1.7	0.0	1.7
17:30-18:00	2	0.03922	0.00000	0.03922	1.1	0.0	1.1

Peak Period For Bus

In	**15:30-16:00**	**0.16**
Out	**08:30-09:00**	**0.18**
Total	**08:30-09:00**	**0.20**

Mode: **Motor Cycle**

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total
11:00-11:30	2	0.01961	0.01961	0.03922	0.6	0.6	1.1
20:30-21:00	2	0.01961	0.01961	0.03922	0.6	0.6	1.1

Peak Period For **Motor Cycle**

In	**15:30-16:00**	**0.02**
Out	**08:30-09:00**	**0.02**
Total	**08:30-09:00**	**0.04**

Mode: **Pedal Cycle**

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total
08:30-09:00	2	0.01961	0.03922	0.05882	0.6	1.1	1.7
09:00-09:30	2	0.00000	0.03922	0.03922	0.0	1.1	1.1
09:30-10:00	2	0.00000	0.03922	0.03922	0.0	1.1	1.1
10:00-10:30	2	0.00000	0.01961	0.01961	0.0	0.6	0.6
10:30-11:00	2	0.00000	0.01961	0.01961	0.0	0.6	0.6
11:00-11:30	2	0.01961	0.01961	0.03922	0.6	0.6	1.1
11:30-12:00	2	0.01961	0.00000	0.01961	0.6	0.0	0.6
12:00-12:30	2	0.01961	0.01961	0.03922	0.6	0.6	1.1
12:30-13:00	2	0.00000	0.01961	0.01961	0.0	0.6	0.6
15:00-15:30	2	0.01961	0.01961	0.03922	0.6	0.6	1.1
16:30-17:00	2	0.01961	0.01961	0.03922	0.6	0.6	1.1
18:00-18:30	2	0.05882	0.01961	0.07843	1.7	0.6	2.3
21:00-21:30	2	0.01961	0.00000	0.01961	0.6	0.0	0.6

Peak Period For **Pedal Cycle**

In	**18:00-18:30**	**0.06**
Out	**08:30-09:00**	**0.04**
Total	**18:00-18:30**	**0.08**

Mode: **Underground**

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total
07:30-08:00	2	0.00000	0.01961	0.01961	0.0	0.6	0.6
08:00-08:30	2	0.00000	0.07843	0.07843	0.0	2.3	2.3
08:30-09:00	2	0.01961	0.01961	0.03922	0.6	0.6	1.1
10:00-10:30	2	0.00000	0.00000	0.00000	0.0	0.0	0.0
13:00-13:30	2	0.03922	0.00000	0.03922	1.1	0.0	1.1
15:30-16:00	2	0.05882	0.00000	0.05882	1.7	0.0	1.7
16:00-16:30	2	0.01961	0.00000	0.01961	0.6	0.0	0.6
18:30-19:00	2	0.01961	0.00000	0.01961	0.6	0.0	0.6

Peak Period For **Underground**

In	**15:30-16:00**	**0.06**
Out	**08:00-08:30**	**0.08**
Total	**08:00-08:30**	**0.08**

Mode: **Walk only**

Time Band	No of Sites	Trip Rate In	Trip Rate Out	Total Trip Rate	Predicted Trips In	Predicted Trips Out	Predicted Trips Total
07:00-07:30	2	0.00000	0.11765	0.11765	0.0	3.4	3.4
07:30-08:00	2	0.00000	0.19608	0.19608	0.0	5.7	5.7
08:00-08:30	2	0.05882	0.47059	0.52941	1.7	13.6	15.4
08:30-09:00	2	0.05882	0.33333	0.39216	1.7	9.7	11.4
09:00-09:30	2	0.17647	0.13725	0.31373	5.1	4.0	9.1
09:30-10:00	2	0.09804	0.05882	0.15686	2.8	1.7	4.5
10:00-10:30	2	0.00000	0.11765	0.11765	0.0	3.4	3.4
10:30-11:00	2	0.00000	0.09804	0.09804	0.0	2.8	2.8
11:00-11:30	2	0.17647	0.09804	0.27451	5.1	2.8	8.0
11:30-12:00	2	0.03922	0.13725	0.17647	1.1	4.0	5.1
12:00-12:30	2	0.07843	0.11765	0.19608	2.3	3.4	5.7
12:30-13:00	2	0.25490	0.09804	0.35294	7.4	2.8	10.2
13:00-13:30	2	0.17647	0.13725	0.31373	5.1	4.0	9.1
13:30-14:00	2	0.09804	0.15686	0.25490	2.8	4.5	7.4
14:00-14:30	2	0.09804	0.09804	0.19608	2.8	2.8	5.7
14:30-15:00	2	0.05882	0.11765	0.17647	1.7	3.4	5.1
15:00-15:30	2	0.13725	0.19608	0.33333	4.0	5.7	9.7
15:30-16:00	2	0.50980	0.09804	0.60784	14.8	2.8	17.6
16:00-16:30	2	0.11765	0.13725	0.25490	3.4	4.0	7.4
16:30-17:00	2	0.23529	0.15686	0.39216	6.8	4.5	11.4
17:00-17:30	2	0.37255	0.21569	0.58824	10.8	6.3	17.1
17:30-18:00	2	0.45098	0.41176	0.86275	13.1	11.9	25.0
18:00-18:30	2	0.37255	0.09804	0.47059	10.8	2.8	13.6
18:30-19:00	2	0.19608	0.27451	0.47059	5.7	8.0	13.6
19:00-19:30	2	0.25490	0.19608	0.45098	7.4	5.7	13.1
19:30-20:00	2	0.21569	0.07843	0.29412	6.3	2.3	8.5
20:00-20:30	2	0.15686	0.17647	0.33333	4.5	5.1	9.7
20:30-21:00	2	0.19608	0.01961	0.21569	5.7	0.6	6.3
21:00-21:30	2	0.17647	0.05882	0.23529	5.1	1.7	6.8
21:30-22:00	2	0.07843	0.03922	0.11765	2.3	1.1	3.4

Peak Period For **Walk only**

In	**15:30-16:00**	**0.51**
Out	**08:00-08:30**	**0.47**
Total	**17:30-18:00**	**0.86**

Appendix B

Office, Retail and Residential Trip Generation

Existing building: Calculation of Generated Office and Retail worker and Residential Trips

These calculations are based on the approximate floor areas given in advice from: Make Architects

1. This table forst calculates the expected number of employees at the site, based on the floor areas and employment densities	2. The daily workplace occupancy has been calculated from the expected number of employees factored by a daily occupancy level of 85%	3. The number of employees travelling in the peak hour was determined from the pedestrian counts undertaken in Regents Place	4. The total peak hour trips has been calculated by multiplying the peak hour percentages by the daily workplace occupancy

Land use	**Net Internal Area (m2)**	**Employee density** (m^2/person)	**Employee Nos.**	**Daily workplace occupancy** 100%	**Peak hour travel patterns % in peak hour** AM in	AM out	PM in	PM out	**Peak hour trips** AM in	AM out	PM in	PM out
B1 Office	9830	19	517	517	40.8%	2.9%	3.4%	49.6%	211	15	18	257
Retail	2775	29	96	96	30%	0%	0%	30%	29	0	0	29
Total	**12605**		**613**	**613**					**240**	**15**	**18**	**285**

Land use	**Units**	**total daily trip rate**	**Total daily trips**		**Peak hour travel patterns trip rate/unit** AM in	AM out	PM in	PM out	**Peak hour trips** AM in	AM out	PM in	PM out
Residential	1		0		0.18	1.2	0.86	0.63	0	1	1	1
Total	**1**		**0**						**0**	**1**	**1**	**1**

TOTAL	**240**	**16**	**18**	**286**

Proposed building: Calculation of Generated Office and Retail worker and Residential Trips

These calculations are based on the approximate floor areas given in advice from: Make Architects

1. This table forst calculates the expected number of employees at the site, based on the floor areas and employment densities	2. The daily workplace occupancy has been calculated from the expected number of employees factored by a daily occupancy level of 85%	3. The number of employees travelling in the peak hour was determined from the pedestrian counts undertaken in Regents Place		4. The total peak hour trips has been calculated by multiplying the peak hour percentages by the daily workplace occupancy

Land use	Net Internal Area (m2)	Employee density (M^2/person)	Employee Nos.	Daily workplace occupancy 100%	Peak hour travel patterns % in peak hour AM in	AM out	PM in	PM out	Peak hour trips AM in	AM out	PM in	PM out
B1 Office	11384	19	599	599	40.8%	2.9%	3.40%	49.6%	244	17	20	297
Retail	2889	29	100	100	30%	0%	0.0%	30%	30	0	0	30
Total	**14273**		**699**	**699**					**274**	**17**	**20**	**327**

Land use	Units	Daily Trip rate /unit	Total daily trips		Peak hour travel patterns trip rate / unit AM in	AM out	PM in	PM out	Peak hour trips AM in	AM out	PM in	PM out
Residential	6	0.00	0		0.18	1.2	0.86	0.63	1	7	5	4
Total	**6**		**0**						**1**	**7**	**5**	**4**

TOTAL	**275**	**25**	**26**	**331**

	AM in	AM out	PM in	PM out
NET INCREASE IN TRIPS	**35**	**8**	**7**	**45**

Appendix C

Office Visitors Trip Generation

Proposed Building: Calculation of Generated Office Visitor Trips

These calculations are based on the approximate floor areas given in advice from: Make Architects

- Offices:

A survey at office buildings in London identified the following one-way daily trip rates and % of trips in the morning peak:

				Increase in Net Lettable Area	**1,554**
		Trip rate		**% of total visitor trips**	**Number of person trips**
Total daily trip rate (per 100m^2):		**3.43**	person trips per 100m^2 NLA	100.0%	53
of which					
service vehicles		**0.29**	person trips per 100m^2 NLA	8.5%	5
visitors and employers' business, rail and bus		**1.37**	person trips per 100m^2 NLA	40.0%	**21**
visitors and employers' business, taxi		**0.30**	person trips per 100m^2 NLA	8.7%	**5**
visitors and employers' business, walk only		**0.89**	person trips per 100m^2 NLA	25.9%	**14**
visitors and employers' business, cycle and motorcycle		**0.30**	person trips per 100m^2 NLA	8.7%	**5**
visitors and employers' business, car		**0.28**	person trips per 100m^2 NLA	8.2%	**4**
			Total visitor and employers' business trips		**49**
				91.5%	

% travelling in AM peak :			
For rail and bus based visitor trips:	**10%**	**2**	person trips arriving on foot
For walk based trips	**10%**	**1**	person trips arriving on foot
TOTAL		**4**	person trips arriving on foot

Appendix D

Servicing Management Plan

Laffly LLP

150 Holborn

Draft Servicing Management Plan

EJO/REP/001

Issue | July 2011

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ARUP

Contents

1 Introduction

This Servicing Management Plan for the development at 150 Holborn has been prepared in support of a planning application for the site and builds on the principles outlined in the Transport Statement.

The site and the surrounding area are shown in Appendix A1 of this report. The site is located directly to the north of Chancery Lane London Underground station and is bounded to the east by Brooke Street, to the south by Holborn, to the west by Gray's Inn Road and to the north by the adjacent Fox Court office building.

The existing development comprises a total Gross External Floor (GEA) of 12,798 m^2. The main land use is Class B1 office with some retail units occupying the ground and basement levels of the development. The existing building also contains a three bed residential unit. The retail offering includes a range of uses, within Class A1, A2 and A3. At present, the offices are unoccupied.

The 150 Holborn proposals prepared by Make Architects seek to extend and refurbish the existing building to provide a total of 15,252m^2 GEA of floor space. This includes 11,384 m^2 GEA of office space, 2,889m^2 GEA of retail space and 979m^2 GEA of residential space (6 units).

The high level area schedule for the existing and proposed development is provided in **Table 1** below.

Land Use	Existing Gross External Area (GEA) m^2	Proposed Gross External Area (GEA) m^2
Office	9,830	11,384
Retail	2,775	2,889
Residential	193	979
Total	**12,798**	**15,252**

Table 1: Existing and Proposed Area Schedule 150 Holborn

The proposed ground floor plan of the development with access routes is shown in Appendix A2 of this report.

2 Servicing Vehicle Generation

The estimated daily delivery and servicing vehicle trips for the redeveloped 150 Holborn site have been determined using typical vehicle generation rates and trip numbers based on detailed survey information from mixed use developments of a similar size and nature in London and the UK. Deliveries for A1-A3 retail are based on trip numbers rather than generation rates as delivery numbers are generally governed by the activities being undertaken in each retail unit as opposed to the sizing of the retail unit. From these surveys the type, size and average turnaround time of service vehicles expected to service the development is shown in **Table 2**.

Vehicle Type	Vehicle	Spec	Approx Turnaround Time (minutes)
PLGV – Private Light Goods Vehicle		3.5 Tonne, length 6m	15
MGV – Medium Goods Vehicle		7.5 Tonne, length 8m	20
LGV – Large Goods Vehicle		17 Tonne, length 10m	25
Couriers	-	Van/car/ motorcycle/bicycle	5

Table 2: Expected service vehicles and turnaround times

2.1 Commercial and Residential Deliveries

Based on typical generation rates of 0.20 vehicles/100m^2/day for office, 0.01 vehicles/100m^2/day for residential, and trip numbers of 1-2 deliveries per day for A1 and A2 retail and 13 deliveries per day for A3 retail, the development at 150 Holborn (approximately 15,252m^2) will generate an estimated 50 delivery and servicing vehicles over a 24 hour period.

Based on the above assumption, the peak hour arrival of deliveries has been calculated as approximately 6 vehicles. In order to accommodate this peak hour demand, 2 loading bays will be required in the off-street loading area

3 Proposed Servicing Strategy

Deliveries will primarily be made to the site using the dedicated off-street servicing area, which will be accessed from Holborn, via Brooke Street. Larger vehicles will off-load on Brooke Street.

4 Waste Generation

The following waste generations have been calculated based on waste surveys from similar developments and generation rates taken from 'BS 5906:2005 Waste Management in Buildings'.

4.1 Residential Waste Generation

Based on 6 residential units totalling 979m^2 floor area and an average of two bedrooms per unit, it is estimated that the residential units will generate a total of 1.2m^3 of waste in a typical 8 day period.

4.2 Commercial Waste Generation

Based on 11,384m² (GEA) office and 2,889m^2 (GEA) retail space the expected waste generated in two days by the total commercial development is approximately 19.5m^3.

5 Waste Facilities

5.1 Residential Waste Facilities

The waste storage requirements to accommodate eight days residential waste generation are shown in **Table 3**.

Waste Stream	Storage Requirements
Refuse	1 No. 1100 litre eurobin
Mixed Dry Recyclables	1 No. 1100 litre eurobin

Table 3: Estimated eight days' residential waste storage requirements

The storage containers required to store the eight day waste generation for the residential units include one 1,100 litre bin for non-recoverable waste and one 1,100 litre bin for recyclable waste.

Figure 2 shows the proposed layout of the central residential waste storage area on the ground floor of the development.

5.2 Commercial Waste Facilities

The waste storage requirements to accommodate two days' commercial waste generation are shown in the **Table 4**.

Waste Stream	Storage Requirements
Refuse	9 No. 1100 litre eurobins
Dry Mixed Recyclables	9 No. 1100 litre eurobins

Table 4: Estimated two days' commercial waste storage requirement

Recyclable and non-recyclable waste will be stored together in the same waste room. Nine 1,100 litre bins will be designated for non-recoverable waste and nine 1,100 litre bins for recyclables.

To optimise space, a single waste room to hold both office and retail waste storage containers will be provided on the ground floor. The bins for the office and retail tenants can be colour coded to clearly identify ownership should this be required.

Figure 2 shows the proposed layout of the central commercial waste storage area on the ground floor.

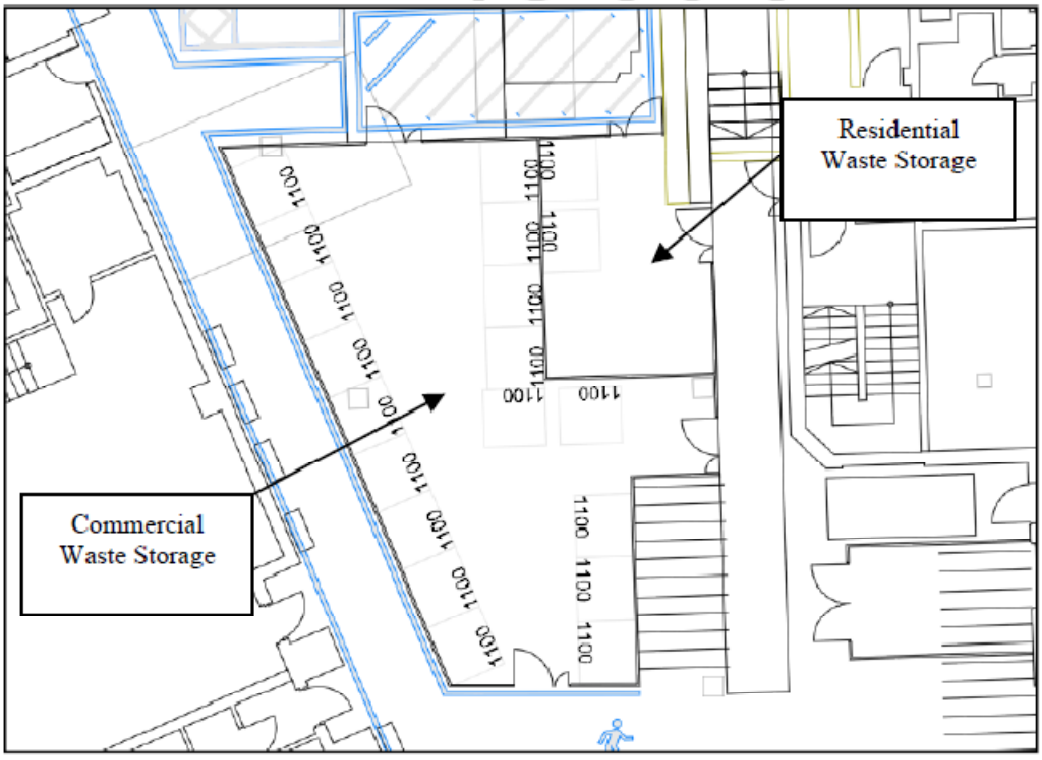


Figure 2: Indicative central residential and commercial waste storage area layout

6 Waste Strategy

6.1 Residential Waste Strategy

Residents will segregate their waste at source. The proposed central waste storage area for the residential units at 150 Holborn is located on the ground floor. Residents will deposit their waste in dedicated 1100 litre bins for refuse and mixed dry recyclable waste located in the central waste room.

These waste containers will be taken to the loading area by the site waste management team for collection by London Borough of Camden refuse vehicles twice weekly. As required by the Council provision has been made to accommodate the waste generated in an 8 day period.

6.2 Commercial Waste Strategy

The proposed central waste storage area for the commercial land use at 150 Holborn is located on the ground floor. Each office floor and retail unit will be provided with adequate mixed dry recyclable bins or containers for waste disposal together with general refuse bins. Office kitchenettes will have at least two bins or containers to store mixed recyclables and general refuse.

Waste will be collected from the commercial development by the waste management team using wheeled bins (240 litre or 360 litre) to transfer waste bags to the store room on the ground floor for storage in 1,100 litre bins. These waste containers will be taken to the loading area by the site waste management team for collection by the commercial refuse vehicle on a daily basis.

Although typically commercial waste will be collected on a daily basis, the waste facilities serving commercial areas have been sized to store two days' waste generation to allow for disruptions to the waste collection service and any peaks in generation. It is envisaged that commercial waste collection will take place out of peak hours daily.

7 Layouts and Swept Path Analysis

7.1 Off-Street Loading Bay Area

The layout for the off-street loading area at ground level is shown in **Figure 3**. A total of number of two loading bays are dedicated for this development: one bay for 7.5 tonne vehicles and one bay for 3.5 tonne vehicles. Delivery vehicles larger than 7.5 tonne will off-load on Brooke Street. Waste collection vehicles will be granted access to the service area.

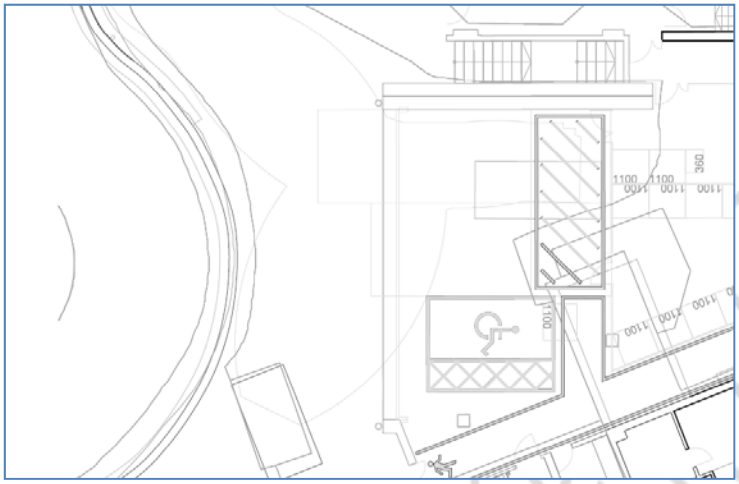


Figure 3: Off-street loading area layout

7.2 Loading Bay Swept Path Analysis

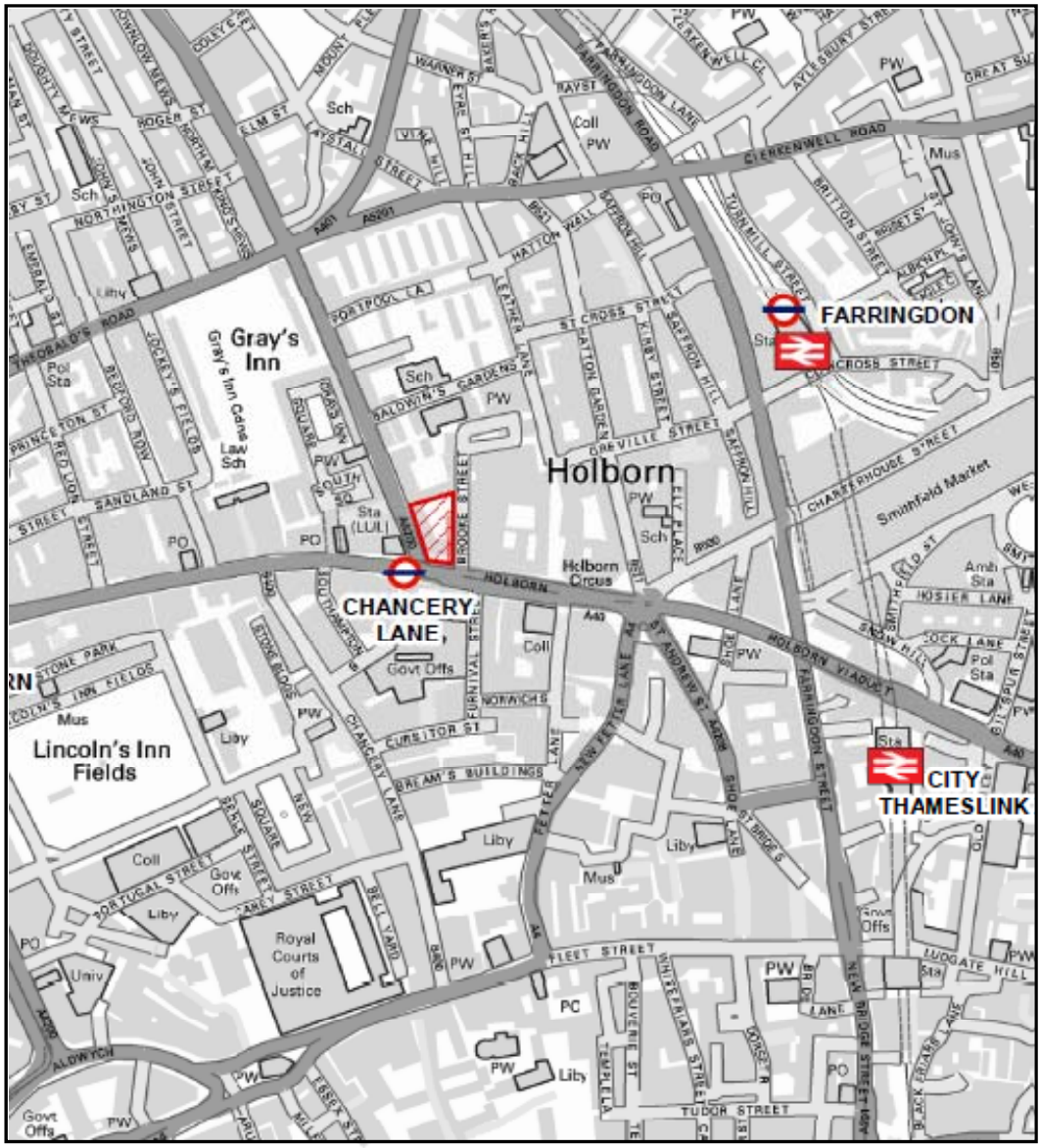
Entry and exit vehicle tracking analysis has been undertaken for the appropriate sized vehicles for the loading bay area situated at ground level, shown in Appendix A3 of this report.

8 Conclusion

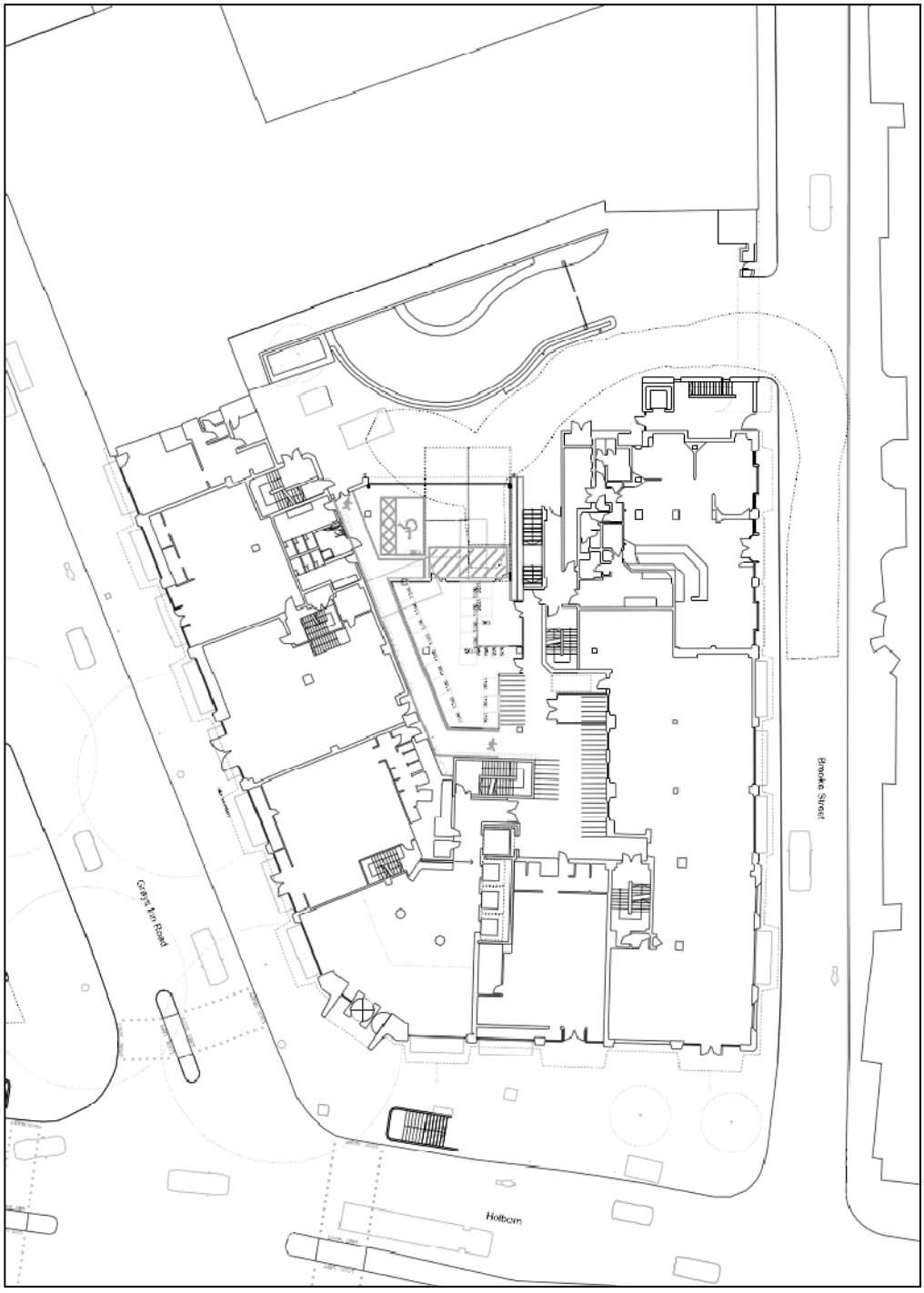
The above strategy will ensure efficiency in the servicing and waste operations for the development at 150 Holborn, with no adverse impact on the surrounding public highway.

The provision of the off-street loading area for delivery and refuse vehicles will ensure safety of pedestrians and other vehicles on the public highway.

A1 Site Location

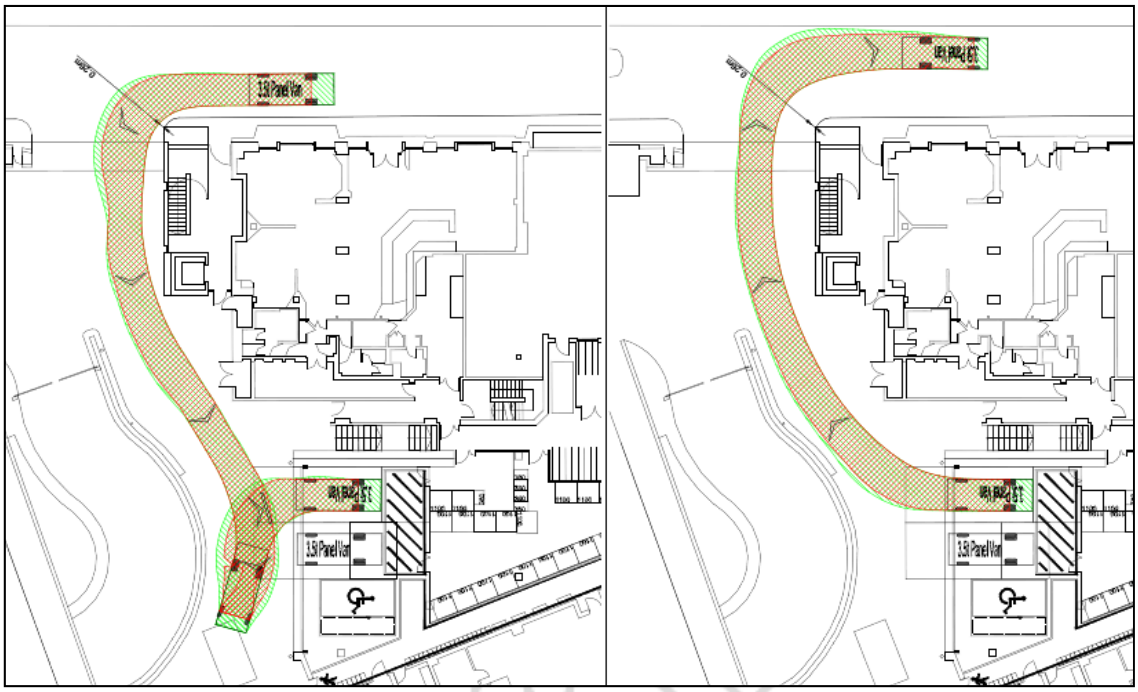


A2 Site-wide Layout

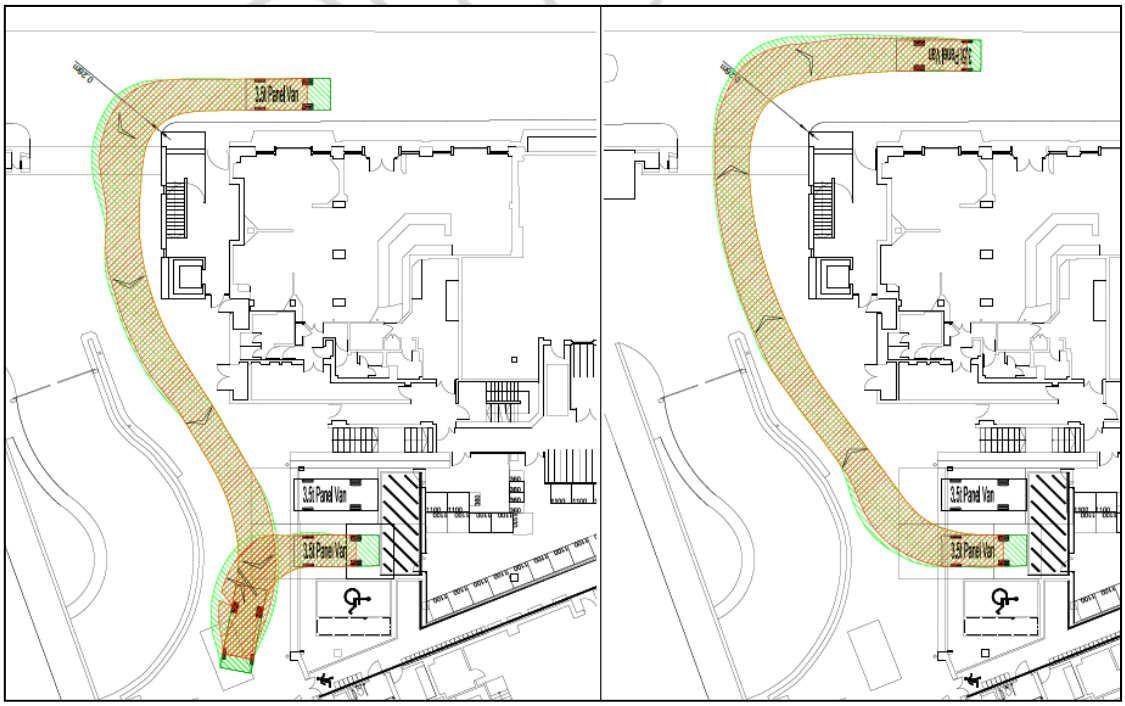


A3 Swept Path Analysis

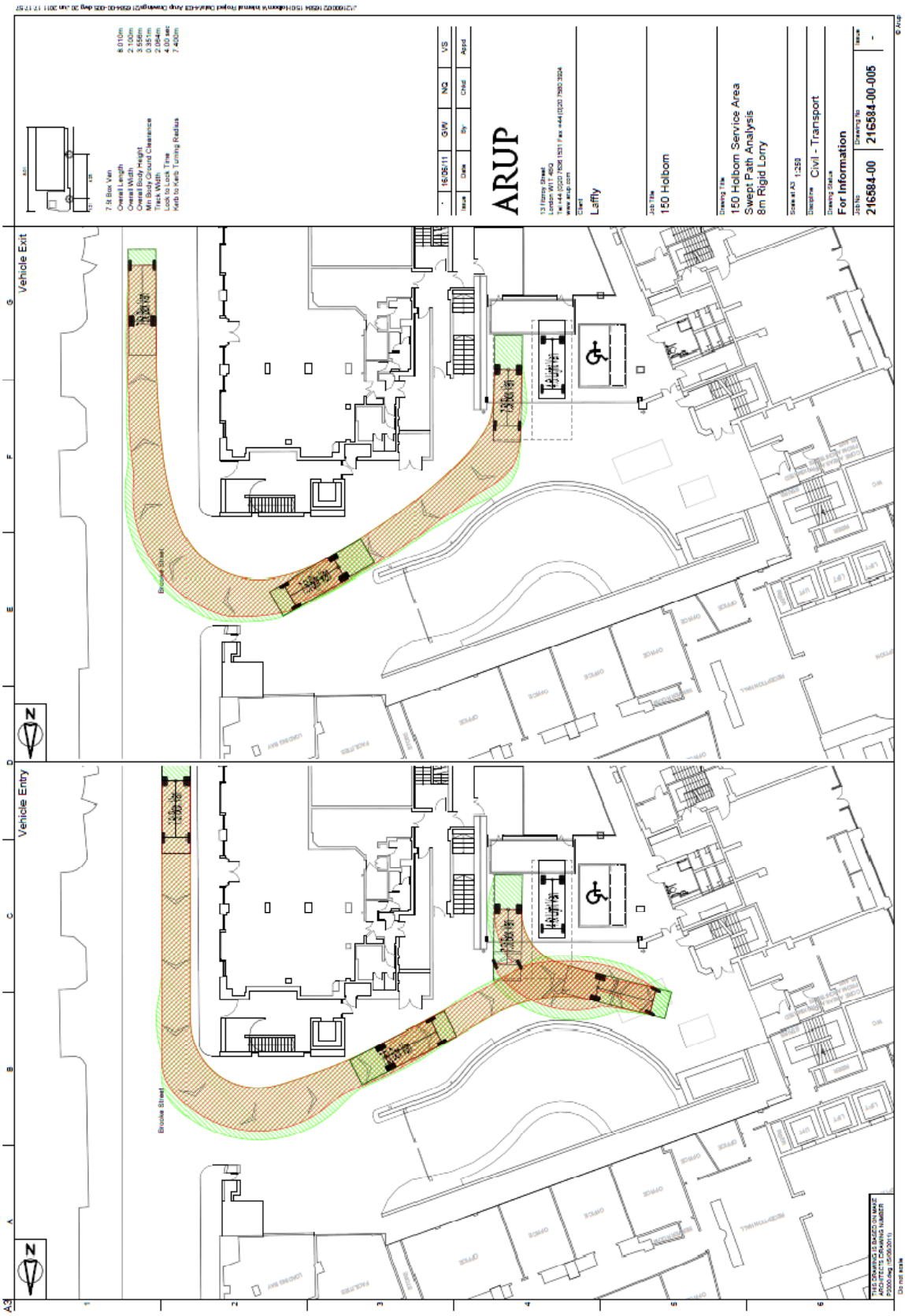
A3.1 5.35m vehicle swept path East Bay



A3.2 5.35m vehicle swept path West Bay



A3.3 8m vehicle swept path east Bay



A3.4 9m refuse collection vehicle