



Plot 4200 ARC Oxford

Transport Assessment

On behalf of **Advanced Research Clusters GP Limited**



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Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: Caversham Bridge House, Waterman Place, Reading, Berkshire RG1 8DN
T: +44 (0)118 950 0761 E: Reading.uk@stantec.com

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	Name	Position	Signature	Date
Prepared by:	Harry Keech	Graduate Transport Planner	HK	November 2023
Reviewed by:	Ellen Few	Principal Transport Planner	EF	November 2023
Approved by:	Simon Speller	Director	SRS	November 2023
For and on behalf of Stantec UK Limited				

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1 Introduction

1.1 Preamble

- 1.1.1 Stantec have been commissioned by Advanced Research Clusters GP Limited (ARC) to prepare a Transport Assessment (TA) in support of a detailed application for the re-development of Plot 4200 located on ARC Oxford for a laboratory-enabled research building.
- 1.1.2 This Transport Assessment has been prepared to accompany the application and has acknowledged relevant national and local policies to support the application proposals. It provides an overview of the proposed development and planned improvements, summarises existing transport conditions, opportunities for sustainable travel and an assessment of the trip generation of the proposed development.

1.2 Site Context

- 1.2.1 Formerly known as Oxford Business Park, ARC Oxford is a well-established employment site comprising 88 acres in the Cowley area of Oxford. It is home to a range of businesses, including several focused-on science and innovation, set within a landscaped 'Campus' environment. In addition to employment space, other uses at ARC Oxford include Oxford Factory (café/restaurant), Oxford Works, a Premier Inn hotel and restaurant, a David Lloyd Racket & Health Centre and Bright Horizons Day nursery.
- 1.2.2 Plot 4200 lies within the southern part of ARC Oxford to the west of John Smith Drive. It currently comprises of 7 individual office buildings organised around areas of car parking and intermittent tree planting. Residential development lies to the west and an existing private footpath runs alongside the southern side of the site.

1.3 Planning History

- 1.3.1 In 1992, outline planning permission (ref: 91/01303/NO) was granted for the demolition of all buildings associated with the Morris Motor Works factory and construction of buildings for 125,023sqm of B1 office space and 10,451sqm of C1 hotel space. This outline permission has been the foundation for much of the site as it exists today, including Plot 4200 which was developed under this permission in the 1990s via Reserved Matters app ref: 95/01818/NR.
- 1.3.2 ARC is bringing forward several planning applications on land across ARC Oxford that will deliver high-quality lab-enabled office space. This will be alongside supporting amenities and structural changes to its layout that will enhance its experience and will strengthen its position as a cluster for science and innovation. The proposals considered in this document relate to the redevelopment of Plot 4200.

1.4 Development Proposals

- 1.4.1 The development proposals consist of:

“Demolition of existing office buildings and erection of 1no. laboratory-enabled office building for research and development with ancillary commercial space (all within use Class E). Provision of new access, enhancements to existing footpath, motor vehicle and cycle parking, landscaping and services infrastructure”.
- 1.4.2 The building will have a GEA of 12,452sqm and NIA of 9,580sqm and will consist of one ground plus 2 storey lab-enabled building, with additional rooftop amenity space. The building will also contain internal ancillary amenity on the upper floors to serve employees working in Plot 4200.

1.5 Consultation

- 1.5.1 A number of pre-application meetings were held with Oxford City Council to discuss the proposals for the scheme. OCC was supportive of the scheme and the reduction in parking spaces proposed for the site. The proposed enhancements to the existing pedestrian and cycle access to Boswell Road to improve the connectivity of the park to the wide area were well received.
- 1.5.2 The views of Oxfordshire County Council have been sought in relation to the wider ARC site through consultation on the outline planning application and considered in the development of this plot.
- 1.5.3 In addition, a public consultation has been undertaken which ran between 16th October to 27th October. Two in person events were also held at ARC Oxford on the 18th October and 25th October to seek the views of the public. More information can be found in the Statement of Community Involvement which has been submitted as part of this planning application.

1.6 Report Structure

- 1.6.1 The remainder of the report is as follows:
- **Section 2: Policy Context** – This section sets out the relevant local and national guidance relating to the site and development proposals
 - **Section 3: Existing Conditions** – This section details the current walking, cycling, public transport within a close proximity of the site in addition to the review of the local highway network.
 - **Section 4: Development Proposals** – This section includes the development proposals for Plot 4200
 - **Section 5: Parking Provision** – this section justifies the number of vehicle parking bays which are proposed for the site
 - **Section 6: Trip Generation and Impact**– this section sets out the anticipated trip generation for the development proposals
 - **Section 7: BREEAM compliance** – Reviews the BREEAM credentials of the proposed development
 - **Section 8: Summary and Conclusions** – Provides a summary and conclusion to the report

2 Policy Context

2.1 Introduction

- 2.1.1 This section presents the national and local policies relating to planning and transport. It examines how the proposed development complies with relevant policy.

2.2 National Policy

National Planning Policy Framework (December 2023)

- 2.2.1 The Government published the revised National Planning Policy Framework (NPPF) in December 2023. The NPPF sets out the Government's planning policies and outlines how these are to be expected to be applied to development proposals. It also provides guidance for both the local planning authorities and decision takers when drawing up applications and used as a material consideration when determining planning applications.
- 2.2.2 When assessing the site for a development proposal, the NPPF Paragraph 114 states it should be ensured that:
- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
 - b) safe and suitable access to the site can be achieved for all users;*
 - c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46;*
 - d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*
- 2.2.3 When considering a development proposal, the NPPF states at Paragraph 115 that:
- Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.*
- 2.2.4 In regard to a transport perspective, the NPPF states at Paragraph 116 that applications for development should:
- a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
 - b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
 - c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards*
 - d) allow for the efficient delivery of goods, and access by service and emergency vehicles;*
and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

- 2.2.5 To assess a development proposal from a transport perspective, the NPPF states at Paragraph 117 that:

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

- 2.2.6 The NPPF has therefore been considered in the appraisal of the development proposals for Plot 4200 at ARC Oxford from a transport perspective and the opportunities to access the site by sustainable modes of transport.

National Planning Practice Guidance (March 2014)

- 2.2.7 Though the NPPF was updated in July 2021, the most recent updates to the transport guidance in the National Planning Practice Guidance (NPPG) were in 2014 and so do not refer to the updated NPPF; however, the most recent guidance has been reviewed for this TA. The NPPG provides support to the NPPF with the Travel Plans, Transport Assessments and Statements document. This document advises on when a TA is necessary for a planning application.

- 2.2.8 Paragraph 002 [Ref: 42-002-20140306] states:

“Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements.”

- 2.2.9 This TA has been prepared to support the planning application to assess the impact that the development will have on the local transport network, within the scope agreed with the Oxfordshire County Council, and to propose measures that promote sustainable travel to and from the site.

2.3 Local Policy

Local Transport and Connectivity Plan

- 2.3.1 The Local Transport and Connectivity Plan (LTCP) was adopted in full by the council in July 2022. The plan aims to help the county to achieve future growth aspirations while doing so in an environmentally sustainable manner in a time period up to 2050. The LTCP states:

“The LTCP outlines a clear vision to deliver a net-zero Oxfordshire transport and travel system that enables the county to thrive whilst protecting the environment and making Oxfordshire a better place to live for all residents.”

- 2.3.2 The LTCP has several policies that will contribute to achieving the vision and key targets in the document:

- 2.3.3 Policy 1: Oxfordshire County Council will develop a hierarchy scheme that priorities transport developments for walking at the top and motorised vehicles at the bottom.

- 2.3.4 Policy 2: Oxfordshire Country Council will ensure that all new development have safe and attractive walking and cycling connections to the site within the development and that the internal routes connect easily and conveniently to community facilities.

- 2.3.5 Policy 33: Oxfordshire County Council will take measures to reduce and restrict car park availability which includes introducing parking costs for business such as a workplace parking levy.
- 2.3.6 Policy 35: Oxfordshire County Council will investigate demand management measures in order to discourage private car use, engaging with key stakeholders during the development of any schemes.
- 2.3.7 Policy 36; Oxfordshire County Council will adopt a 'decide and provide' approach which will require transport assessments accompany planning application for new developments to follow the County Council's 'Implementing 'Decide & Provide': Requirements for Transport Assessments' document.'
- 2.3.8 Policy 39: Oxfordshire County Council will support the provision of zero emission shared cars and car clubs, in combination with other measures, to reduce the dominance of private motor vehicles and create a more balanced transport network. This will include working proactively to encourage zero emission shared cars and car clubs in rural areas, smaller towns and villages.

Oxford Local Plan 2016 – 2036

- 2.3.9 The Oxford Local plan 2036 (adopted in June 2020) forms part of the statutory development plan and contains policies that planning applications will be judged against. The Oxford Local Plan vision is linked to the City Council's Vision 2050 that is to bring the aspirations and requirements of Oxford citizens to reality. The main aim of the Oxford Local Plan 2036 is to:

"Look ahead 20 years and beyond, giving considerations to how it can best address the pressures and challenges Oxford faces. Oxford will continue to grow and develop. This growth will be associated with a liveable and sustainable environment that balances economic, social, and environmental needs, ensuring that the city remains a highly desirable place to live, work and visit."

- 2.3.10 Section 7 of the Plan is named Ensuring Efficient Movement into and around the City which sets out to make Oxford a:
 - 2.3.11 *"World class cycling city with improved air quality, reduced congestion and enhanced public realm. Road space within the city is clearly limited and to achieve its ambition there is a need to prioritise road space and promote the sustainable modes of travel, walking, cycling and public transport."*
- 2.3.12 The following policies have been laid out which are relevant to the development proposals and that have been set within the plan to achieve these ambitions.
- 2.3.13 Policy M1: There are proposals to enhance the City's rail network, in particular the redevelopment of Oxford Station and additional rail capacity to accommodate more services, including opening of the Cowley Branch Line for passengers and land provision of new stations at ARC Oxford/Retail Park (Cowley area) and Oxford Science Park. It also states that planning permission will only be granted for development that minimises the need to travel and is laid out and designed in a way that prioritises walking, cycling and public transport.
- 2.3.14 Policy M3: The objectives of this Plan to promote and achieve a shift towards sustainable modes of travel. The presumption will be that vehicle parking will be kept to the minimum necessary to ensure the successful functioning of the development.
- 2.3.15 Policy M4: Planning permission will only be granted for non-residential development that includes parking spaces if a minimum of 25% of the spaces are provided with electric charging points.

- 2.3.16 Policy M5: For businesses (B1), the minimum bicycle parking standards are set out as 1 space per 90m² or 1 space per 5 staff members. Bicycle parking should be well designed, well located, convenient, secure, covered and provide level unobstructed external access to the street. The parking facilities should be designed to accommodate an appropriate amount of parking for the needs of disabled persons, bicycle trailers and cargo bikes as well as facilities for electric charging infrastructure. For new non-residential development, the CC will seek to provide showers and changing facilities in accordance with the thresholds and minimum standards.
- 2.3.17 Policy SP10: Planning permission will be granted for B1 and B2 employment uses at ARC Oxford. Other complementary uses will be considered on their merits. Opportunities should be sought to enhance and promote more sustainable travel modes to the site. A biodiversity survey will be expected to assess the biodiversity value of the undeveloped plots on the site and it should be demonstrated how harm will be avoided, mitigated or compensated.
- 2.3.18 Policy AOC7: Planning permission will be granted for new development within the area of change that seeks to make more efficient use of space through intensification of existing sites - including rationalisation of parking and reduction in surface-level car parking; and improved connectivity between different parts of the area.

Implementing 'Decide and Provide': Requirements for Transport Assessments

- 2.3.19 Oxfordshire County Council's 'Decide and Provide': Requirements for Transport Assessments is a supplementary document to the LTCP. This document outlines a change in approach from 'predict and provide' where past traffic trends are no longer used to 'decide and provide' where a vision is decided and then means are provided to work towards that vision.
- 2.3.20 This TA has been prepared in accordance with the guidance set out within the document.

OCC Parking standards for New Development (October 2022)

- 2.3.21 Oxfordshire County Councils Parking Standards for New Developments was adopted by cabinet in October 2022. This document replaces OCC's previous parking guidance "Transport for New Development Parking Standards for New Residential Developments" dated December 2015.
- 2.3.22 The document sets out OCC's approach to parking for all new developments proposals and is to be used to inform the design process of the development site. For Use class E Commercial Business and Services – office, research and development and light industrial process the maximum vehicular standards are 1 space per 45sqm.
- 2.3.23 However, each development will be considered on merit, the guidance states: *"the type of land use will determine the maximum amount of commercial/ employment vehicle parking per development site. Should a reduction in parking provision be proposed, each application will be individually assessed on its merits"*.
- 2.3.24 In relation to Electric charging points the document states *"non-residential developments are expected to provide a minimum level of active charging points (25% of all vehicle spaces)"*.

Oxford Local Cycling and Walking Infrastructure Plan (March 2020)

- 2.3.25 Oxfordshire County Council's Local Cycling and Walking Infrastructure Plan (LCWIP) sets out a series of measures and programmes to increase levels of cycling and the attractiveness of walking in Oxford. This includes increasing commuter cycling and all cycling trips in Oxford by 50% in 2031.
- 2.3.26 This TA has been prepared in accordance with the guidance set out within the document.

2.4 Summary

- 2.4.1 This section has outlined the national and local policies and guidance that are relevant to the site and development proposals. This TA has been prepared in line with this guidance.

3 Site Background and Existing Conditions

3.1 Introduction

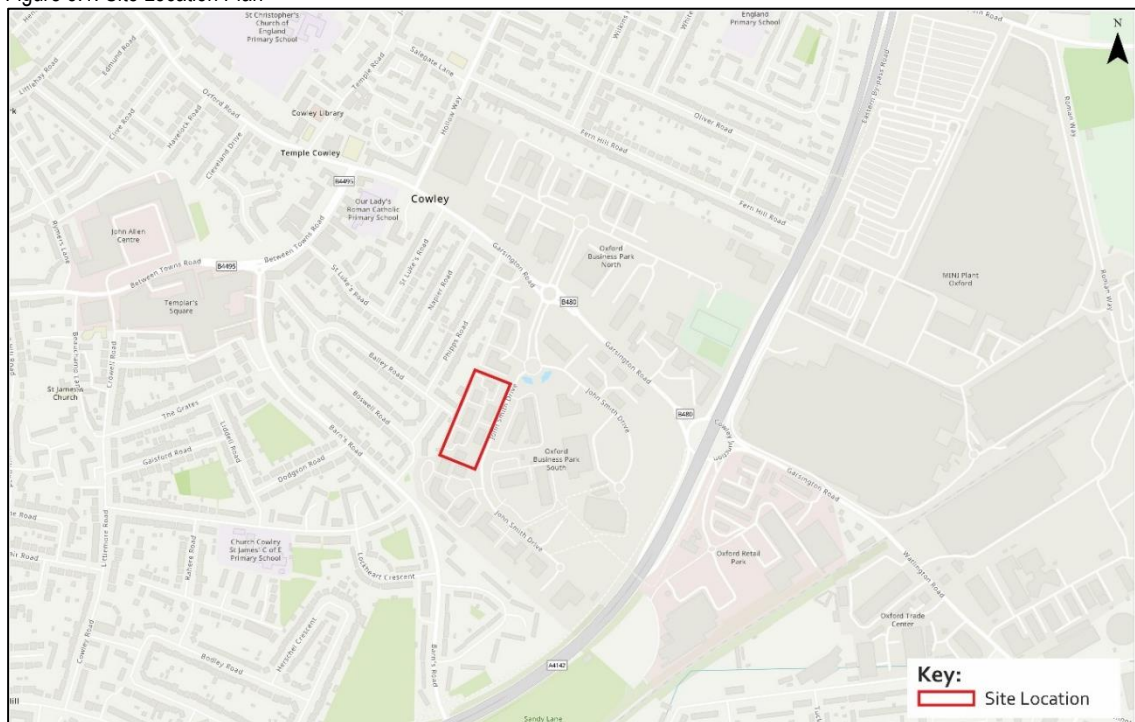
3.1.1 This section describes the existing use and conditions in the vicinity of the site. It reviews the local highway network and access to the site by sustainable modes of travel by walking, cycling and public transport.

3.2 Site Location

3.2.1 Plot 4200 is currently occupied by a cluster of seven office buildings with 243 parking spaces combining to approximately 1.2ha in size. It is bounded to the east by John Smith Drive with one access central to the plot which provides access for all users.

3.2.2 Plot 4200 is located within the southern section of ARC Oxford. The site is bounded to the east by John Smith Drive, by existing businesses to the north, to the south by a footpath connecting John Smith Drive to Boswell Road and existing residential area to the west. The location of Plot 4200 is shown in **Figure 3.1** below.

Figure 3.1: Site Location Plan



3.3 Walking and Cycling

3.3.1 There are a number of pedestrian and cycle access which connect ARC Oxford with the surrounding transport network as illustrated in **Figure 3.2**. These include access to Barns Road through the pedestrian access to the south of the site, access to Garsington Road via the main site access and a footway/cycleway connection under the Eastern Bypass.

Figure 3.2: Pedestrian and Cycle Route



- 3.3.2 Formal footways are provided along with street lighting within ARC Oxford and across the local transport network. Additional pedestrian and cycle infrastructure is also provided including the segregated footway/ cycleway which runs along the Eastern By Pass to the south of ARC Oxford. A number of formal and informal crossing points are also provided internally and immediately adjacent to the site.
- 3.3.3 The Eastern Bypass underpass to the south provides direct access from ARC Oxford to the local retail facilities. There are no formal Public Rights of Way which run through or adjacent to the site.
- 3.3.4 There are off road cycle lanes along Garsington Road, a main cycle route as identified in the Oxford LCWIP, and on road cycle lanes which provides a connection to Route 57 of the National Cycle Network. NCN 5, 51 and 57 provide cycle access to plot 4200. NCN 5 provide a north-south route through Oxford and towards Abingdon and Didcot to the south and Yarnton and Woodstock to the north. To the west of the site NCN 57 provide a cycle link to Oxford City Centre, where there is a connection to NCN 5. To the east, cycle access is provided to Horspath and Thame. NCN 51 provide access from Kidlington to Oxford City Centre.
- 3.3.5 The local cycle network is displayed in **Figure 3.3** below.

Figure 3.3: Existing cycle routes in Oxford



3.4 Local Amenities

- 3.4.1 There are a range of amenities located on ARC Oxford including Oxford Factory café/ restaurant, Premier Inn Hotel, David Lloyd Health Centre, Bright Horizons Day Nursery and the Market Place (an outdoor events space). In addition, there are a range of facilities located within walking distance of the park including the Oxford Retail Park to the west and Templars Square to the east.
- 3.4.2 In addition to the current amenities in the vicinity of the site it is proposed that the building will provide ancillary uses with a gym and café/ restaurant and roof level amenity space for tenants of the building.
- 3.4.3 The walking distance to these amenities is shown in **Table 3.1** below.

Table 3.1: Distance of Amenities from Plot 4200

Amenities	Distance from Site
Oxford Factory Café	150m
Shell Garage	350m
Premier Inn and befeater	500m
Bright Horizons Day Nursery	550m
Oxford Retail Park (GAME, Next, M&S, Sports Direct, Tesco etc.)	650m
David Lloyds Gym	750m

3.5 Public Transport

Bus Services

- 3.5.1 The nearest bus stop is located on Barns Road, approximately 350m (5 minute walk) from the site entrance via the pedestrian access to ARC Oxford to the south of the site. This stop serves the 1,5 100, 10 and 3A bus services.
- 3.5.2 The Longwall bus stop is an alternative and is located on Garsington Road, approximately 450m (7-minute walk) from the site entrance. This stop serves the 11 and 46 services.
- 3.5.3 Further detail on the local bus services is provided in **Table 3.2** below.

Table 3.2: Bus Services

Bus Stop	Service	Destinations	Approximate Frequency		
			Weekday	Saturday	Sunday
Barns Road	1/5	Oxford Rail Station > City Centre > Cowley > Blackbird Leys	Every 5 mins 05:19 to 03:28	Every 5 mins 05:18 to 03:28	Every 10 mins 07:20 – 01:43
	100	John Radcliffe Hospital > New Marston > Headington > Wood Farm > Cowley	Every 30 mins 05:58 to 20:52	No Service	No Service
	10	City Centre > Cowley > JR Hospital	Six buses between 04:59 and 07:14 to Hospital and six buses between 19:03 and 21:00 to city centre	Four buses between 06:09 and 07:39 to Hospital and five buses between 18:55 and 20:51 to city centre	Three buses between 06:09 and 07:09 to Hospital and three buses between 19:26 and 20:26 to city centre
	3A	City Centre > Iffley > Greater Leys > Blackbird Leys > Cowley	Every 30 mins	Every 30 mins	Every hour
Garsington Road	11	City Centre > Cowley (The Longwall) > Garsington > Chiselhampton > Stadhampton > Chalgrove > Watlington	Every hour to hour and a half 07:38 to 19:04	Every hour to hour and a half 08:35 to 18:22	09:43, 12:03, 15:13 and 17:23
	46	City Centre > New Hinksey > Florence Park > Cowley > Horspath > Great Milton	Every hour 07:06 to 00:36	Every hour 07:12 to 00:36	Every hour 07:12 to 00:36

Source: Oxford Bus Company (January 2024)

Rail Services

- 3.5.4 Oxford Rail Station is approximately 6km northwest of the site. The railway station can be accessed from ARC Oxford using bus services 1 and 5 or approximately a 26-minute cycle ride. Oxford station provides storage for 758 cycles on site.

- 3.5.5 The Oxford Rail Station has access to Great Western Railway, Cross Country and Chiltern Railway services.
- 3.5.6 Great Western Railway provide direct services to London Paddington, Reading and Didcot Parkway. Reading station provides connections to Bristol, Exeter, Guildford, Southampton, London Waterloo and Gatwick. There is also a local stopping service to Tackley, Heyford and Kings Sutton.
- 3.5.7 Chiltern Railway has services that run to Oxford Parkway, Bicester Village, High Wycombe and London Marylebone. The service to London Marylebone runs approximately six times every hour.
- 3.5.8 The Cross Country service runs to Banbury, Birmingham New Street, Manchester Piccadilly, Leeds, Newcastle and on to Scotland in the northbound direction. In the Southbound direction there is services to Reading, Basingstoke, Southampton and Bournemouth.

3.6 Future Transport Provision

- 3.6.1 Oxford City Council are proposing to introduce a new bus route in Oxford to connect the eastern arc (Headington) directly to the south of the City (avoiding the need to interchange in the City Centre). The County Council are anticipating the delivery of this service which will initially provide a half hourly service to start in October 2024. The exact routing is subject to agreement with OCC but it is ARC's aspiration to see the service diverted into ARC Oxford in the future to promote the use of the service by employees on the park.
- 3.6.2 There are aspirations for Oxford City Council to reopen the Cowley Branch Line for passenger transport, as set out within the Adopted Local Plan 2036. This would consist of a route between Oxford Railway Station and ARC Oxford with a new station south of the park. The Oxfordshire Rail Connectivity Study stated the delivery of passenger services to the Cowley Branch Railway Line by 2026 at the earliest but this is subject to a Business Case which is presently under development and is being promoted and supported financially by ARC. A new station would be served by a half hourly service, most likely via Oxford and onwards to London Marylebone.
- 3.6.3 Oxfordshire County Council are proposing six traffic filters in Oxford with one location being Hollow Way. When the filters are operating, cars without a permit driving through the filters will receive a fine.
- 3.6.4 ARC is currently exploring wider pedestrian and cycle improvements across the ARC Oxford site that will tie into the existing infrastructure on Garsington Road.

3.7 Highway Network

- 3.7.1 ARC Oxford lies adjacent to the Eastern Bypass Road (A4142) accessed via Cowley Interchange and Garsington Road. Garsington Road is a single carriageway road subject to 30mph which provides a direct link into Oxford City Centre. Cowley Interchange is a five arm roundabout providing access to the Eastern By-Pass to the north and south, the B480 to the east and west and Oxford Retail Park to the southeast.
- 3.7.2 ARC Oxford is well situated to the wider highway network. The Eastern Bypass Road runs along the east of the city and provides access to the A40. The A40 provides access to the M40 connecting to London to the south and Birmingham to the north. The A4142 also connects to the A34 which provides a link to Didcot and Winchester to the south and provides a connection to the M4.

3.8 Summary

- 3.8.1 Plot 4200 is currently occupied by a cluster of seven office buildings with associated parking comprising of approximately 1.2ha. ARC Oxford is served by a well-developed network of

pedestrian footways and cycleways which connect to the existing infrastructure on the wider network.

- 3.8.2 The closest bus stop to the site is located on Barns Road a short 350m walking distance. This stop is served by the 1, 5, 10, 100 and 3A services which provide access to Oxford City Centre. There is also additional services from Garsington Road.
- 3.8.3 The Eastern Bypass (A4142) lies adjacent to ARC Oxford and provides access to the residential areas of Oxford. It also provides a direct link to the A40 to the east and the A34 to the west providing wider connections.

4 Development Proposals

4.1 Introduction

- 4.1.1 This section of the report details the development proposals for Plot 4200 at ARC Oxford including access arrangements, parking provision and delivery and servicing arrangements. The site layout is included in **Appendix A**.

4.2 Proposals

- 4.2.1 The development proposals consist of:

“Demolition of existing office buildings and erection of 1no. laboratory-enabled office building for research and development with ancillary commercial space (all within use Class E). Provision of new access, enhancements to existing footpath, motor vehicle and cycle parking, landscaping and services infrastructure”.

- 4.2.2 The building will have a GEA of 12,452sqm and NIA of 9,580sqm and will consist of one ground plus 2 storey lab-enabled building, with additional rooftop amenity space. The building will also contain internal ancillary amenity on the upper floors to serve employees of working in Plot 4200.

4.3 Access Arrangements

Pedestrian and Cycle Access

- 4.3.1 Pedestrian and cycle access will be provided from John Smith Drive. Dropped kerb crossings with tactile paving will be provided at the vehicle accesses so the entrance to the building, located centrally between the access roads, can be accessed safely by pedestrians via the footways that run along John Smith Drive to the front of the site.
- 4.3.2 A controlled gate between Plot 4200 and the footway/cycleway to Boswell Road will provide direct pedestrian and cyclist access to the site during the operational hours of the building.
- 4.3.3 Cyclists will be able to directly access the cycle facilities to the rear of the building either using the gated access from Boswell Road or using the main vehicular accesses to the site from John Smith Drive.

Vehicular Access

- 4.3.4 Vehicular access will be provided to Plot 4200 from John Smith Drive via two priority junctions. The existing access to the centre of the plot will be stopped up and provide a focal entrance for pedestrians with a direct route to the building. It is proposed that two new points of access will be provided to the north and south of the plot to provide access to car parking and servicing areas. A taxi drop off bay is also provided to the front of the site.
- 4.3.5 John Smith Drive is subject to a 20mph speed limit and has traffic calming measures to enforce a low-speed environment. Visibility splays of 2.4m x 25m are achievable from the accesses which is in accordance with Manual for Streets (MfS) for 20mph roads. This is illustrated on **Drawing 332610670_5500_002** provided in **Appendix B**.
- 4.3.6 The speed cushion that is currently located in front of the southern proposed access road will be relocated to ensure safe access into the site while also maintaining the traffic calming features within the park.

4.3.7 The proposed location of the accesses are considered acceptable given the 20mph speed limit and low speed environment of the park. The flows of traffic that will be associated with the proposed access will be low and tidal in flow given the business expected to occupy the building will be spread across the peak period due to the nature of the research work.

4.4 Building Access

4.4.1 The new building will be inclusive and have level access so that wheelchairs and disabled users can safely access the building. The disabled parking will be provided adjacent to the rear building access and disabled WC facilities provided in accordance with Building Regulations. External lighting will be installed around the building and parking areas for safety and security.

4.5 Footway/ Cycleway Improvements

4.5.1 As part of the planning application there will be significant enhancements to the footway/ cycleway route which connects John Smith Drive and Boswell Road to the south of Plot 4200 to encourage an increase in walking and cycling and wider connectivity of the park. The improvements include:

- Removal of the existing gates at entrance to Boswell Road allowing for 24 hour access;
- Re-paved plaza area to match plot 4200 with lighting bollards and a widened opening at the campus end;
- Low level lamp columns to provide improved lighting along the route;
- Planting bordering the footpath for a more open effect;
- Extension of CCTV Coverage
- Improved wayfinding signage; and
- Timber topped benches.

Figure 4.1: Footway/ Cycleway Improvements – Boswell Road Connection



Source: Macgregor Smith

4.6 Parking Provision and Facilities

Cycle Parking

4.6.1 The Proposed Development accommodates cycle parking in accordance with the ratio set by Oxfordshire County Council in its document 'Parking Standards for New Development', at

minimum of 1:100sqm for employees and 1:250sqm per visitors. This exceeds the required standard set out in Policy M5 of the Local Plan.

- 4.6.2 In total, 135 cycle parking spaces will be provided on site. 59 cycle spaces will be provided within the dedicated Travel Hub to the rear of the building for use by staff, comprising of stacked provision to accommodate 34 cycles and Sheffield hoops to accommodate 25 cycles. Further provision for staff and visitors will be provided within a secure shelter to the west of the building, inclusive of stacked provision to accommodate 44 cycles and Sheffield hoops to accommodate 32 cycles.
- 4.6.3 The combination of stacker and Sheffield hoop provision would enable cycle parking provision in line with requirements, whilst allowing accommodation for larger bikes. All would be provided at ground level and therefore accessible for all users and moreover are in safe and convenient locations.
- 4.6.4 Showers and changing facilities will be provided to encourage active travel as a mode of choice for employees, particularly cycling. These have been aligned in accordance with BCO guidance, which states 1 shower should be provided per 10 staff cycle spaces, with the number of lockers matching the number of staff cycle spaces.
- 4.6.5 In total, 11 showers are provided by the proposed building alongside 103 locker spaces. These are largely provided in the dedicated cycle hub to the rear of the building (6 and 89, respectively) which also includes 4 drying cabinets. The additional provision (5 and 14, respectively) are provided on Level 02 of the building.
- 4.6.6 In total, for staff cycle provision (97) this exceeds the Applicant's BCO requirements and the equivalent requirements set out in Appendix 7.1 of the Local Plan.

Car Parking

- 4.6.7 The proposals include 166 car parking spaces including 6 which will be accessible for blue badge holders via a level access and with 29% of total provision (48 spaces) will be provided with electric charging points. 12 motorcycle spaces will be provided within the car park.
- 4.6.8 ARC are willing to repurpose a number of spaces into other uses should the CBL come forward in the future and serve ARC Oxford with two trains per hour during peak hours.
- 4.6.9 The justification for parking is set out in Section 5.

4.7 Delivery, Servicing and Refuse Strategy

- 4.7.1 Delivery and Servicing, including refuse collection, will be undertaken on site. Delivery areas are located to the rear of each wing of the building with bin storage at the rear. There are also two gas stores located on either side of the plot.
- 4.7.2 Swept path analysis has been undertaken to demonstrate that these service vehicles can access and manoeuvre on site and is provided in **Appendix C**.
- 4.7.3 For further information of the delivery, servicing and refuse strategy, refer to the Delivery and Servicing Plan which has been provided alongside this TA as part of the Plot 4200 planning application.

5 Parking Provision

5.1 Introduction

- 5.1.1 This section sets out the justification of the number of parking bays proposed for Plot 4200.
- 5.1.2 ARC have had a number of recent discussions with OCC to agree suitable level of parking for the future schemes. Based on the current travel patterns of employees and future accessibility improvements coming forward a 40% mode share target has been agreed. This has therefore also been applied to this application with the justification for this scheme set out below.
- 5.1.3 It should be noted that the parking proposed is a reduction on the existing site which currently has 251 parking spaces and as such is in compliance with Policy M3 of the Local Plan.

5.2 Policy

- 5.2.1 The Oxford Local Plan 2036 was adopted in June 2020 and Policy M3 details the guidelines for new non-residential developments regarding car parking. This policy promotes a shift towards sustainable modes of travel. Vehicle parking will be kept to a minimum to ensure the successful functioning of the development.
- 5.2.2 Policy M3 is as follows:

“The parking requirements for all non-residential development, whether expansions of floorspace on existing sites, the redevelopment of existing or cleared sites, or new non-residential developments on new sites, will be determined in the light of the submitted Transport Assessment or Travel Plan, which must take into account the objectives of this Plan to promote and achieve a shift towards sustainable modes of travel. The presumption will be that vehicle parking will be kept to a minimum necessary to ensure the successful functioning of the development.”

- 5.2.3 OCC have updated standards for parking at new developments. These new standards follow the themes of the LTCP and Oxford LP 2036 and aim to promote sustainable and active travel. Similarly, to M3 of the Local Plan the standards state that “each application will be individually assessed on its merits” with a maximum vehicular standard of 1 space per 45sqm for Use Class E Commercial Business and Services.

5.3 Mode Share Targets

- 5.3.1 As a part of the ongoing engagement with the employees of ARC Oxford, travel surveys are undertaken as part of the Travel Plan monitoring. The most recent survey was undertaken in 2019 prior to COVID. No new survey has been undertaken to date given the slow return of employees to the office for a number of occupiers across the park.
- 5.3.2 The survey results and the proposed five-year mode share targets for Plot 4200 are set out in **Table 5.1**. These targets are challenging but achievable considering the investment and Travel Plan proposed.

Table 5.1: Proposed Mode Share Targets

Mode	2019 ARC Oxford Travel Surveys	Travel Target
Single Occupancy Vehicle	74%	35%
Car Share Drivers	4%	5%
Car Share Passenger	3%	9%

Mode	2019 ARC Oxford Travel Surveys	Travel Target
Walking	6%	9%
Cycling	8%	22%
Public Transport	4%	19%
Other	1%	1%
<i>Total</i>	<i>100%</i>	<i>100%</i>

5.3.3 It should be noted that the 2019 survey included the option to 'work from home'. However, as the working arrangements for future occupiers will be dependent on the type of operation and the organisations based at the plot so this has been removed for the purpose of this assessment and the table above updated to reflect this.

5.3.4 With the proposed improvements and travel measures it is considered that a target of 19% is achievable for public transport as well as an increase in car share to 14% overall. The car driver target is 40% of which 5% is car share drivers. This will be a very challenging but realistic for Plot 4200.

5.4 Parking Provision

5.4.1 Based on the mode share targets presented in **Table 5.1** the following assessment has been undertaken to calculate the proposed parking provision for the site.

5.4.2 The assessment has sought to determine the level of car parking need based on the anticipated number of employees accommodated at the site. The proposals are speculative and there is no identified occupier at this stage. The design of the building is based upon providing laboratory enabled office floorspace and is expected to accommodate total employees to in the order of 500 staff.

5.4.3 It is anticipated that around 80% of staff will be on site on any given day taking account of leave, sickness, working from home and business trips. It is noted that the long-term impacts of the COVID 19 pandemic on staff and travel patterns remains to be seen but given the research nature of the work that will be undertaken on site it is expected a high proportion of staff will commute to the proposed new building at Plot 4200 for most of the week. This results in a travel demand of around 400 staff on any given day to the new building.

5.4.4 Targeting a challenging and ambitious mode share of 40% by car would result in a demand for staff parking of circa 160 spaces.

5.4.5 As well as staff parking there will be a need for elements of visitor parking which reflect the need to accommodate visitors both relating to collaborative working with academics as well as investors which will make up the remainder of the spaces.

5.5 Visitor Parking

5.5.1 The use of the building will provide world class accommodation for research. This is located in Oxford precisely because of the opportunities of the wider expertise and academic interactions. Given the intended use of the buildings it is an operational requirement to provide visitor parking to a suitable level and to accommodate those coming to the site. These spaces are needed in addition to staff parking specifically for those coming to the site for meetings and collaborative working. On this basis a minimum of 6 spaces are required for visitors.

5.6 Overall Parking Demand

- 5.6.1 Based on the above assessment it is considered that the provision set out in **Table 5.2** is fully justified and represents the operational requirements of the development. Consideration has been undertaken of the future accessibility of ARC Oxford and the needs of the proposed buildings based on the forecast future travel patterns forecast.
- 5.6.2 Dedicated visitor parking in addition to staff parking is essential to the operation of the building given the need for collaborative research.

Table 5.2: Proposed Development Parking Allocation Plot 4200

Parking Allocation	Provision
Staff Drivers	160
Visitors	6
Total	166

5.7 Future Reduction - Cowley Branch Line

- 5.7.1 ARC are willing to accept a planning condition to reduce the level of parking on the site once the Cowley Branch Line is operational. This would be triggered when the new station at ARC Oxford is open, and the park is served by a minimum of two trains an hour during commuter peak hours. It is proposed that this would bring the car driver mode share for staff down to circa 31% which is in line with the level that has been discussed for other applications locally.

5.8 Accessible Parking Bays

- 5.8.1 Across the site 6 accessible parking bays will be provided, located at ground floor level within the surface car parking areas, to the front of the building close to main entrance and lift wells.

5.1 Electric Vehicle Charging Provision

- 5.1.1 29% (48 spaces) of all car parking spaces will be fitted with electric charging points which exceeds the requirements of Policy M4 of the Oxford Local Plan 2036. In addition, the ducting will be provided to all spaces to enable additional charging points in the future as demand requires.

6 Trip Generation and Impact

6.1 Introduction

6.1.1 This section presents the trip generation assessment for the proposed development. It sets out the forecast vehicle travel demand associated with the existing and proposed uses and compares these to understand the net change in trips. Given the reduction in parking on the site there is expected to be a reduction in overall trips.

6.2 Methodology

6.2.1 A first principles approach has been applied to calculate the change in trips resulting from the development. The same approach that has been agreed with OCC in relation to the Outline Planning Application.

6.2.2 The trip generation has been calculated using the proposed parking provision for the development. Given the intended lab and science research uses expected for this building, occupiers will operate longer working hours with shift patterns resulting in trips spread out across the day rather than being concentrated in the peak hours. On this basis, it is expected that during the AM peak hour, 30% of staff will arrive with 10% of these departing to account of drop off, visitors or servicing vehicles. In the PM, this will be reversed with 30% departing and 10% arriving. The remain of the trips associated with the building will be spread across the day.

6.3 Trip Generation

6.3.1 166 car parking spaces are proposed at Plot 4200 which is a reduction from the existing 243 car parking spaces. Using the above methodology, the predicted peak hour trip generation is set out in **Table 6.1**.

Table 6.1: Peak Hour Trip Generation

	AM Peak Hour 0800-0900			PM Peak Hour 1700-1800		
	Arrive	Depart	Two-way	Arrive	Depart	Two-way
Existing Site (243 Spaces)	73	7	80	7	73	80
Proposed Development (166 Spaces)	50	5	55	5	50	55
Net Change	-23	-2	-25	-2	-23	-25

6.3.2 It is forecast that during the AM and PM peak hours there will be an overall reduction of 25 two-way. It is expected that as a result of recent changes in travel patterns post COVID and required shifts with this type of occupier, trips associated with the proposed development could be spread out further across the day and as such reduce peak hour travel further.

6.4 TRICS Comparison

6.4.1 The TRICS database (V7.10.3) has been used to provide a comparison to the first principles assessment. There is an existing survey of ARC Oxford (OX-02-B-01) within the TRICS database, which is considered the most appropriate site to apply to this assessment. The resultant vehicular trip rates are included in **Appendix D**.

6.4.2 The trip rates have been applied to the number of parking spaces on the existing site and proposed development with the net change set out in **Table 6.2**.

Table 6.2: Vehicle Trip Generation – TRICS

	AM Peak Hour 0800-0900			PM Peak Hour 1700-1800		
	Arrive	Depart	Two-way	Arrive	Depart	Two-way
Existing Site (243 Spaces)	96	9	105	9	69	78
Proposed Development (166 spaces)	65	6	71	6	46	52
Net Change	-31	-3	-34	-3	-23	-26

- 6.4.3 A comparison of **Table 6.1** and **6.2** demonstrate that both methods display a similar reduction in trip generation as a result of the proposals. In the AM peak hour TRICS shows a greater reduction in two-way flows by 8 vehicles. In the PM peak hour, the reduction in two-way flows are very similar.
- 6.4.4 Given that this demonstrates a reduction from the existing use of the site no further modelling has been undertaken of the local highway network.

7 BREEAM

7.1 Introduction

7.1.1 This TA has been prepared to review the existing and proposed infrastructure for users, and it has been prepared in accordance with BREEAM UK New Construction 2018 requirements.

7.2 Tra 01 Transport Assessment and Travel Plan (2 credits)

7.2.1 These credits are earned by recognising developments in proximity to good public transport networks, thereby helping to reduce transport-related pollution and congestion. The assessment criteria includes;

- During the feasibility and design stages, develop a site-specific transport assessment (or develop a travel statement) and draft travel plan;
- The travel plan includes proposals to increase or improve sustainable modes of transport and movement of people and goods during the buildings operation and use.
- If the occupier is known, involve them in the development of the travel plan.
- Demonstrate that the travel plan will be implemented post construction and be supported by the buildings management in operation.

7.3 Tra 02 Sustainable Transport Measures (10 credits)

7.3.1 These credits are earned by recognising developments in close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants. **Table 7.1** below, specifies the individual requirements and points achieved.

Table 7.1: BREEAM Compliance

Assessment Option	Public Transport Measures	Points	Comments
1	The existing AI calculated in Tra 01 achieves the following: ≥ 8 for all other building types	1	The AI for this site is 5.58. This credit is not achievable. See attached AI Calculator in Appendix E .
3	Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure.	1	Feasibility of this to be considered by future tenants.
Assessment Option	Private Transport Measures	Points	Comments
4	Provide electric recharging stations of a minimum of 3kw for at least 10% of the total car parking capacity for the development	1	In line with Policy M4 of the Oxford Local Plan, the development will provide 29% of total parking bays with electric charging infrastructure which exceeds this requirement (1 credit achievable).
5	Set up a car sharing group or facility to facilitate and encourage building users to car share. Raise awareness of the sharing scheme with marketing and	1	Feasibility of this to be considered by future tenants. Awareness of car sharing schemes could be provided via marketing and

Assessment Option	Public Transport Measures	Points	Comments
	communication materials. Provide priority spaces for car sharers for at least 5% of the total car parking capacity for the development. Locate priority parking spaces nearest the development entrance used by the sharing scheme participants		communication and allocation of car sharing spaces.
Assessment Option	Active Travel Measures	Points	Comments
6	During preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. Agree and implement one proposition chosen with the local authority. The proposition supported by the development is additional to existing local plans and has a significant impact on the local cycling network or on pedestrian routes open to the public.	2	Proposed improvements to the footpath to the south of plot 4200 which connects to Boswell Road meets this requirement. (2 credits achievable)
7	Install compliant cycle storage spaces to meet the minimum levels (1 per 20 building users)	1	The provision of cycling parking on site will exceed this minimum provision. The site will provide storage for 135 cycles. (1 credit achievable)
8	Option 7 must have been achieved. Provide at least two compliant cyclists' facilities for the building users, (including pupils where appropriate to the building type) Showers / Changing facilities/ Lockers / Drying spaces.	1	Showers and changing facilities will be included on the ground floor and L2 of the development to meet this requirement. (1 credit achievable)
9	At least 3 existing accessible amenities are present within 500m	1	1 credit achievable. The Premier Inn, Day Horizons Nursery and the Oxford Factory Café are all located within 500m of the site. (1 credit achievable).

7.4 Achievable BREEAM Credits

- 7.4.1 Based on the 2 credits achieved for TR01 and 6 credits attained through the assessment of sustainable transport measures (TR02) 8 credits are achieved.

8 Summary and Conclusions

8.1 Summary

- 8.1.1 Stantec have been commissioned by ARC to provide highways and transport advice in relation to redevelopment of Plot 4200 at ARC Oxford.
- 8.1.2 The proposals comprise of the “*demolition of all existing the buildings and the erection of a single lab- enabled office building with ancillary uses*”. The single building will provide employment floorspace GEA of 12,452sqm and NIA of 9,580sqm. In addition to the employment floorspace the building will include ancillary uses with a gym and café/ restaurant and roof level amenity space for tenants of the building.
- 8.1.3 The site is well located to existing pedestrian and cycle infrastructure which provide an attractive option for accessing the site sustainably, as do local bus services which are accessible from bus stops located on Barns Road and Garsington Road. OCC proposals for the new Headington bus service and aspirations for reopening of the Cowley Branch Line will improve the accessibility of the park in the future.
- 8.1.4 Access will be provided via two new access junctions to John Smith Drive to serve the development. The development will provide a reduction in car parking with 166 car parking spaces including 6 accessible spaces and 29% EV provision in line with policy M3 and M4. ARC is willing to accept a reduction in parking spaces once the reopening of the Cowley Branch Line is open to passengers.
- 8.1.5 135 cycle parking spaces are proposed across the site with a dedicated cycle hub proposed at the rear of the building and an external shelter to the east of the site for staff and visitors. Changing and shower facilities will be provided within the building to encourage active travel.
- 8.1.6 The scheme will also deliver enhancements to the footway/cycleway connection to the south of Plot 4200 linking to Boswell Road and the bus stops on Barns Road. These improvements include planting, benches, lighting and 24 hour access to encourage active travel and improve the wider connectivity of ARC Oxford which is a key component the City Council and County Council have expressed they would like the scheme to deliver.
- 8.1.7 A Draft Travel Plan has been prepared to accompany the application. The Travel Plan provides a framework of measures designed to encourage sustainable transport choices by employees and visitors to reduce single occupancy trips.

8.2 Conclusion

- 8.2.1 It is considered that the proposed development meets the three transport tests for new developments set out in the NPPF, these being:
- Appropriate opportunities to promote sustainable travel modes can be taken up through the proposed improvements to the footway/cycleway to the south of the site, along with providing a cycle hub with parking, showers and changing facilities for employees and the accompanying Travel Plan;
 - Safe and suitable access to the site can be achieved for all users through the new access junctions on John Smith Drive; and
 - The traffic impacts from the development will not have a material impact on the operation of the local highway network. The proposals will result in a reduction in trips from the existing use of the site and therefore provide a betterment.
- 8.2.2 It is therefore considered that this application should be considered acceptable on transport and highway grounds by OCC.

Appendix A Site Layout

Boswell Road

- Key**
- Application boundary
 - Soft Landscape**
 - Existing retained trees
Refer to Macgregor Smith drawing 1389-003 and Aspect Trees' Tree Survey report and drawing
 - Proposed semi mature trees
20-40cm girth, clear stem
 - Proposed multi-stemmed trees
2.5-4.0m height, multi-stemmed
 - Proposed ornamental planting
Wide planted beds with a species mix visually connecting with the wider campus landscape
 - Rain Garden Planting
A robust and adaptive plant mix suited to seasonally wet soils with tall grasses and colourful flowering perennials
 - Car park and boundary planting
A shade-tolerant groundcover beneath existing and retained trees with scattered perennials and shrubs

- Proposed amenity lawn
Durable ornamental lawn with an attractive fine-leaved appearance
- Proposed hedge
Clipped evergreen hedges
- Hard landscape**
- Textured block paving to the plazas and building apron
High quality pre-cast concrete blocks in a blend of three buff tones giving a unified character to the plaza spaces
- Textured block paving to vehicular roadways
Permeable pre-cast concrete blocks in warm buff tones
- Textured block paving to car park bays
High quality pre-cast concrete blocks in light grey tones
A combination of permeable and non-permeable paving
- Macadam to plot entrances

- Linear grass paving feature
Permeable grass strip feature through central row of car bays
- Existing asphalt to public footpath
Existing asphalt and edgings retained
- Existing road-side pavement
Concrete block pavior pavement with matching blocks to new drop-off bay and associated pavement
- EV dual charging points
Twin charger with guard rail for dual vehicle charging positioned in planted beds / paved area
- Flexible furniture
Movable tables and benches
- Straight benches
Timber topped bench with back rest
- Timber enclosures
Vertical timber clad enclosure
- Metal frame structure
Feature gateway referencing the site's industrial past

- Wayfinding Signage
- Cycle stands
Stainless steel Sheffield cycle stand
- Proposed metal fence
Vertical metal railings 1.2m height
- Proposed metal fence
Vertical metal railings 1.6m height
- Existing green mesh fence
To be retained, 1.8m height
- Existing timber fence on brick wall.
To be retained, 2.3m height fence on top of 1.4m brickwall.

Bailey Road

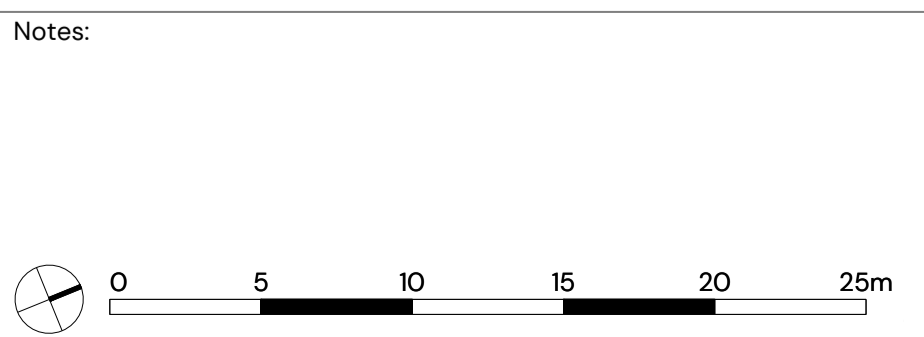
John Smith Drive

John Smith Drive

4100

4150

Rev	Description	Dwn by	Chkd by	Date	Notes
P1	Draft	HW	LP	10.11.2023	
P2	Draft	HW	LP	01.12.2023	
P3	Draft	HW	LP	26.01.2024	
P4	For Planning	HW	LP	02.02.2024	



Macgregor Smith				www.macgregorsmith.co.uk 0225 464 690 hello@macgregorsmith.co.uk
Project	Plot 4200 ARC Oxford	Drawn by	HW	
Status	Planning	Checked by	LP	
Title	Landscape General Arrangement Plan Ground Level	Scale	1:250@A1	
Drawing	1389-001	Revision	P4	

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Appendix B Site Access Drawing

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KEY:

— Visibility of 2.4m x 25m in accordance with 20mph MFS

PO3 UPDATED LAYOUT	HK	EF	2024.02.01
PO2 UPDATED LAYOUT	HK	EF	2024.01.24
PO1 FIRST ISSUE	HK	EF	2023.10.04
Issued/Revision	By	Appd	YYYY.MM.DD
	HK	EF	2024.02.01
	Dwn.	Dsgn.	Chkd.
			YYYY.MM.DD

Issue Status

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Client/Project Logo



Client/Project
 Plot 4200

ARC Oxford

Title

GENERAL ARRANGEMENT OF ACCESS
 ARRANGEMENTS FOR PLOT 4200

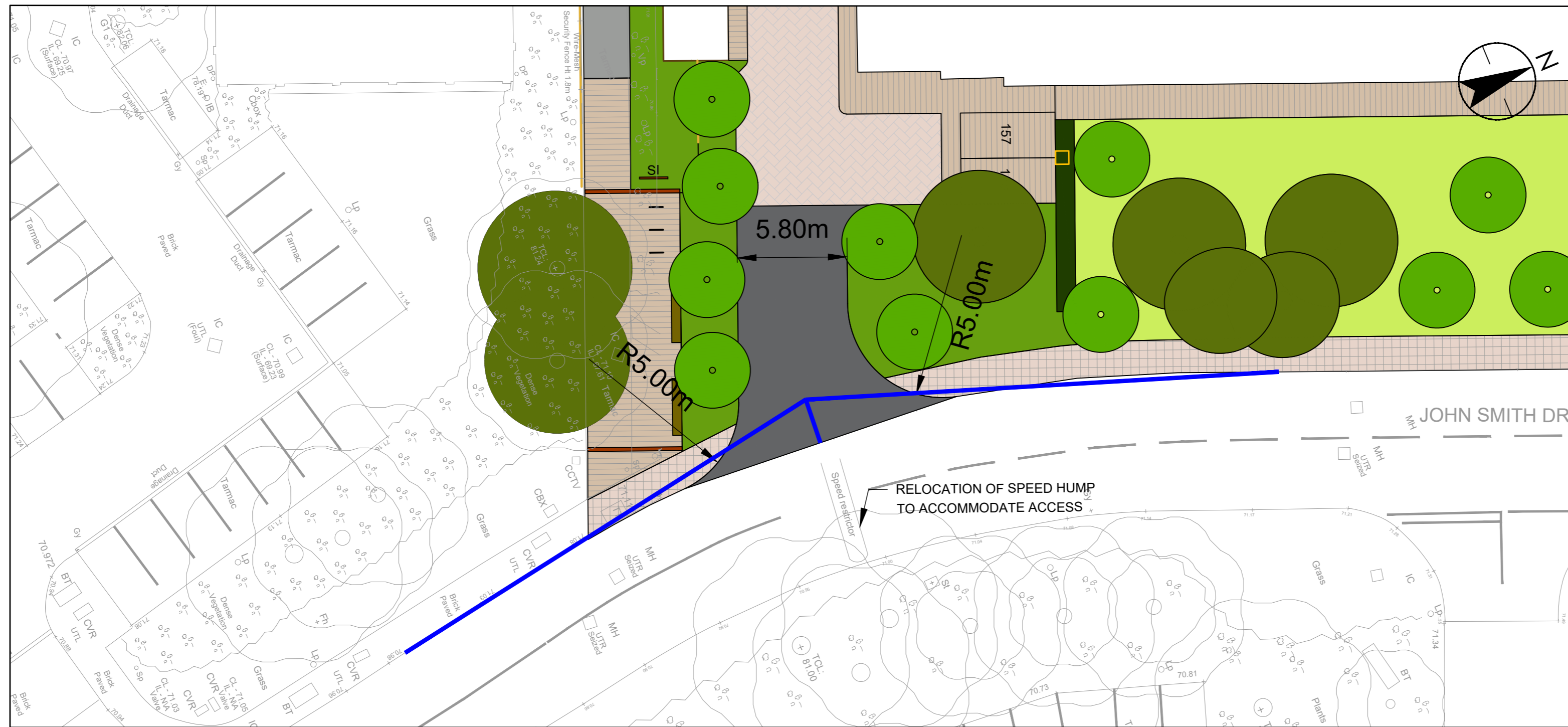
Project No.
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A2 Scale
 1:200

Revision
P03

Drawing No.

332610670-5500-001



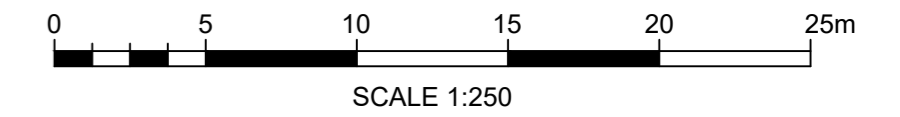
Appendix C Swept Path Analysis

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PO2 UPDATED LAYOUT	HK	EF	2024.01.24
PO1 FIRST ISSUE	CE	EF	2023.11.20
Issued/Revision	By	Appd	YYYY.MM.DD
	CE	-	2024.01.29
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 Plot 4200

ARC OXFORD

Title
SWEPT PATH ANALYSIS OF REFUSE VEHICLE

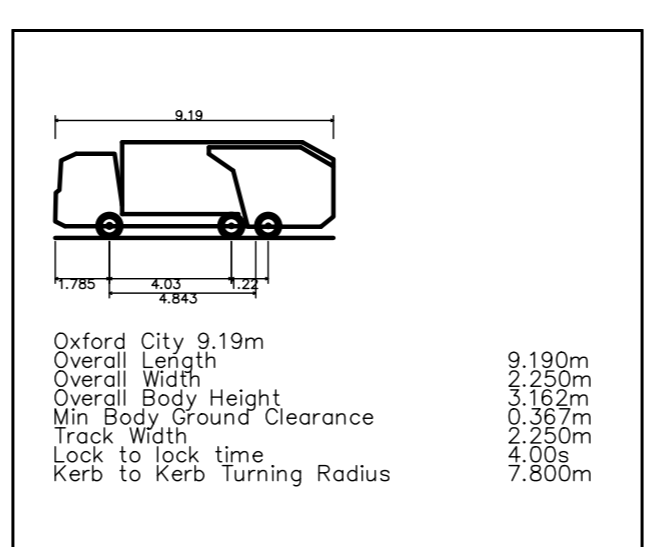
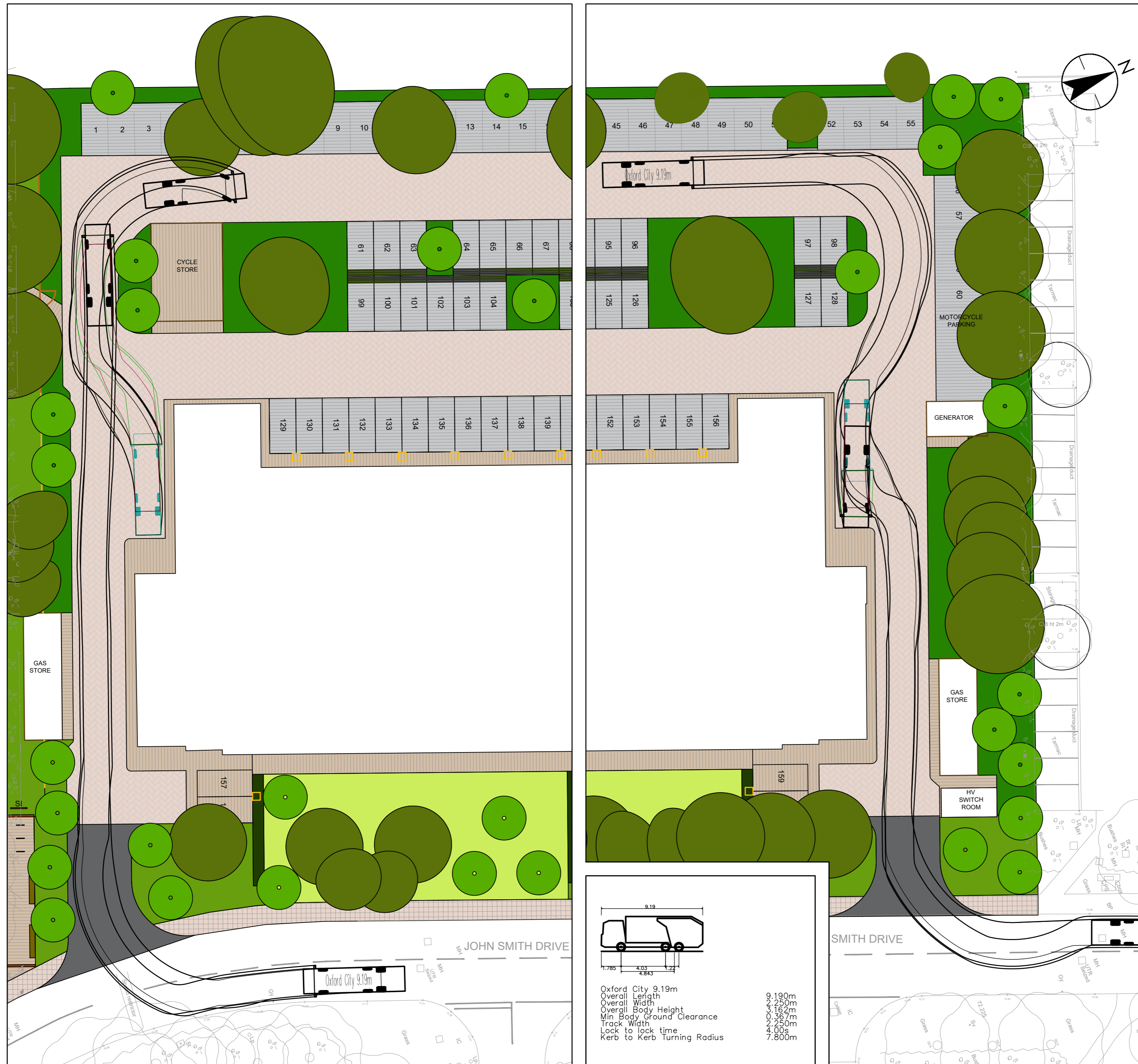
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Revision
P03

Drawing No.

332610670-5500-004



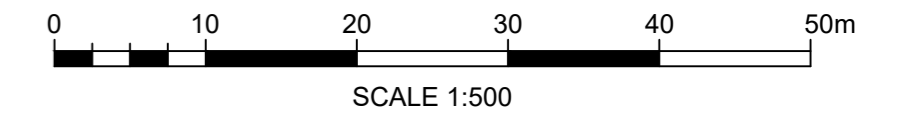
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Issued/Revision	By	Appd	YYYY.MM.DD
	HK	-	2024.01.29
	Dwn.	Dsgn.	Chkd.
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Issue Status

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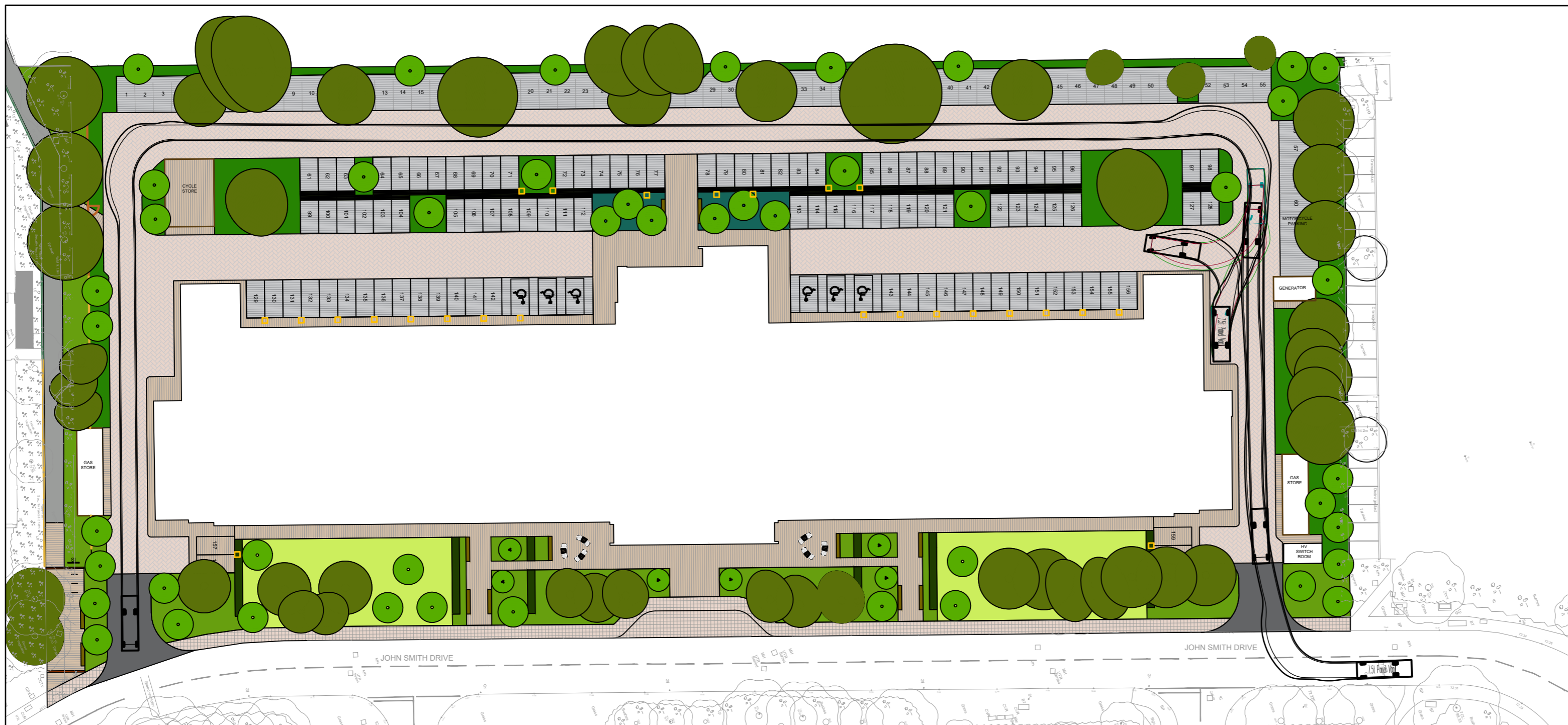
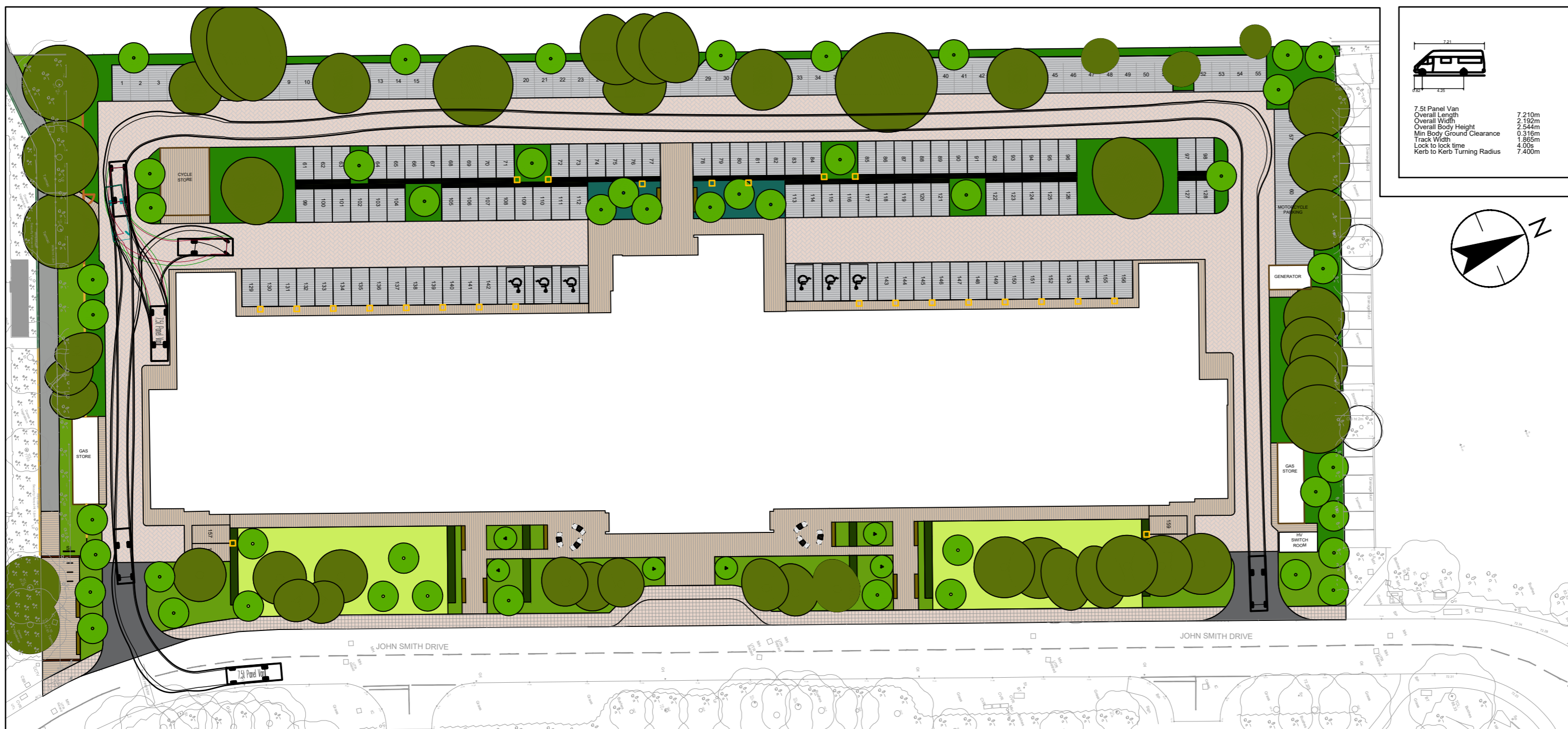
Client/Project
 Plot 4200

ARC Oxford

Title
SWEPT PATH ANALYSIS OF SERVICING VEHICLES

Project No. 332610670 A2 Scale 1:500

Revision **P03** Drawing No. 332610670-5500-008

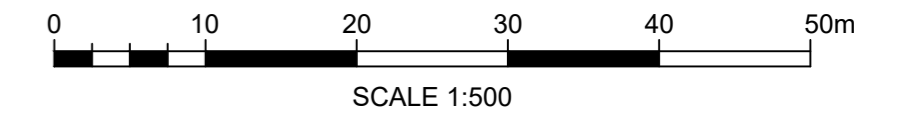


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PO3 UPDATED LAYOUT	HK	EF	2024.02.01
PO2 UPDATED LAYOUT	HK	EF	2024.01.24
PO1 FIRST ISSUE	HK	EF	2024.01.15
Issued/Revision	By	Appd	YYYY.MM.DD
	HK	EF	2024.01.29
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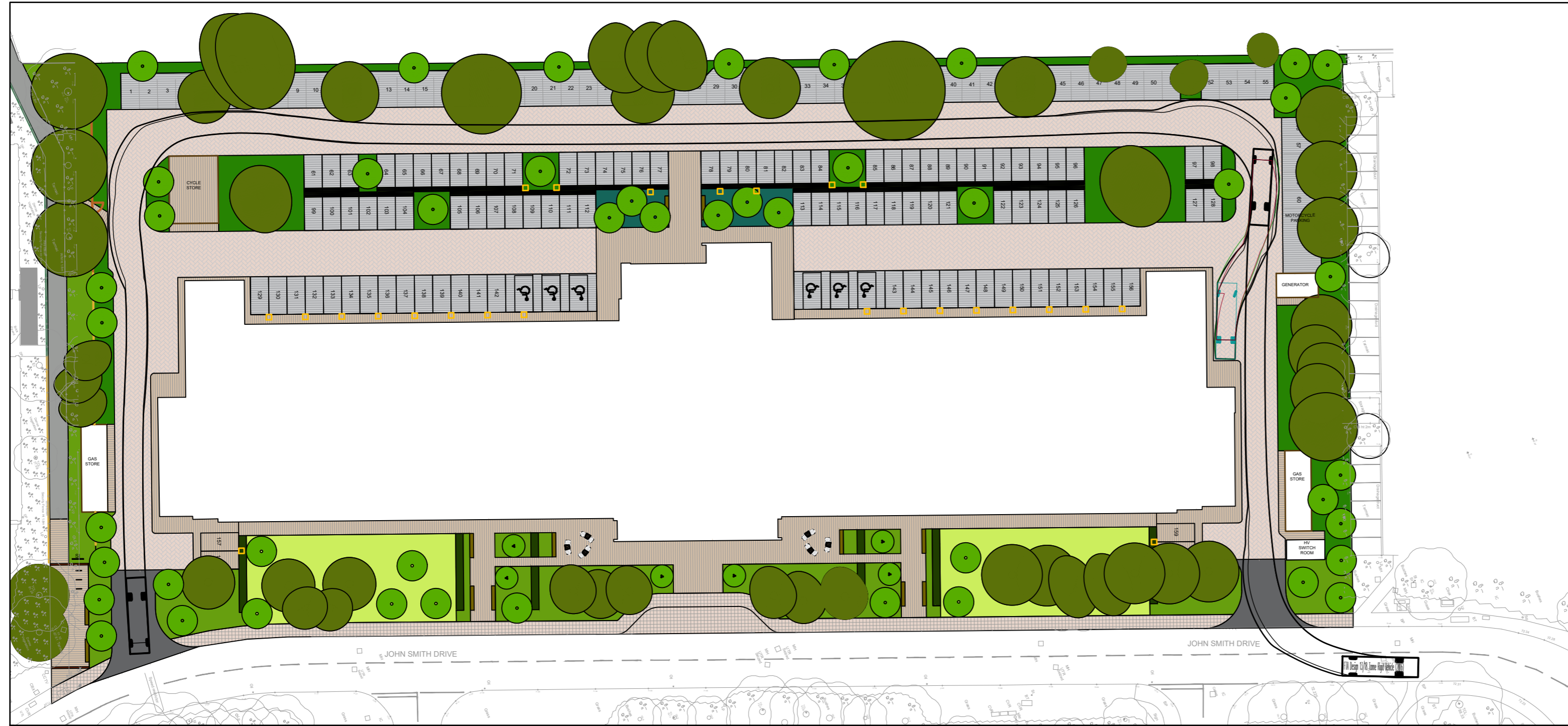
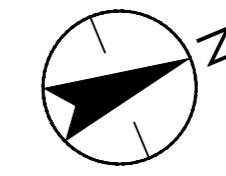
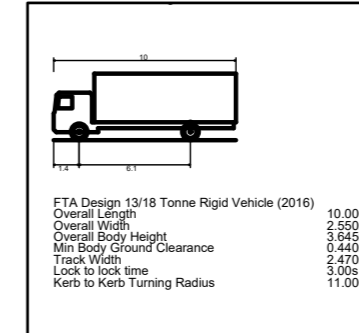
Client/Project
 Plot 4200

ARC Oxford

Title
SWEPT PATH ANALYSIS OF SERVICING VEHICLES

Project No. 332610670 A2 Scale 1:500

Revision **P03** Drawing No. 332610670-5500-009

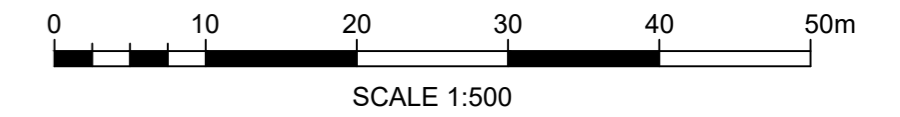


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PO2_UPDATED LAYOUT	HK	EF	2024.02.01
PO1_FIRST ISSUE	HK	EF	2024.01.24
Issued/Revision	By	Appd	YYYY.MM.DD
	HK	EF	2024.01.24
	Dwn.	Dsgn.	Chkd.
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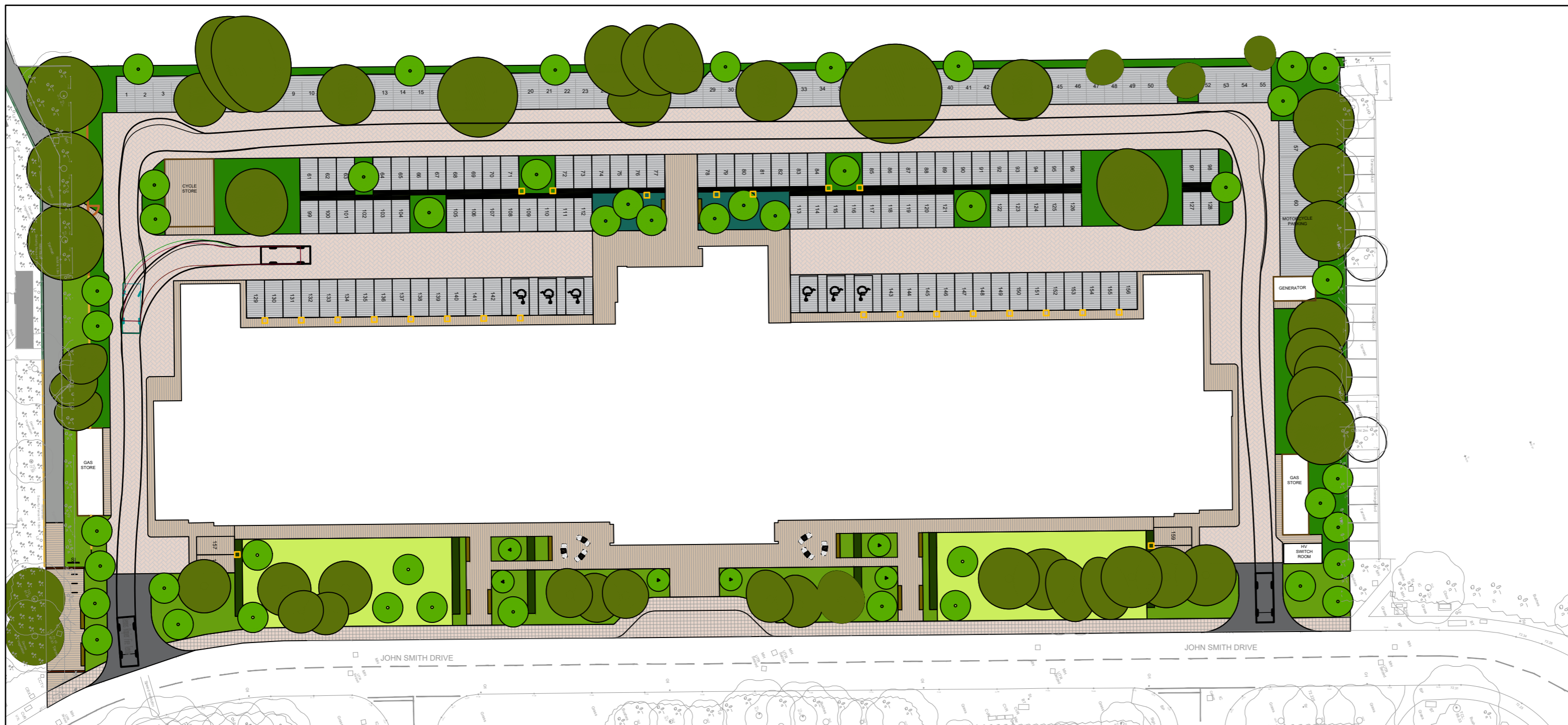
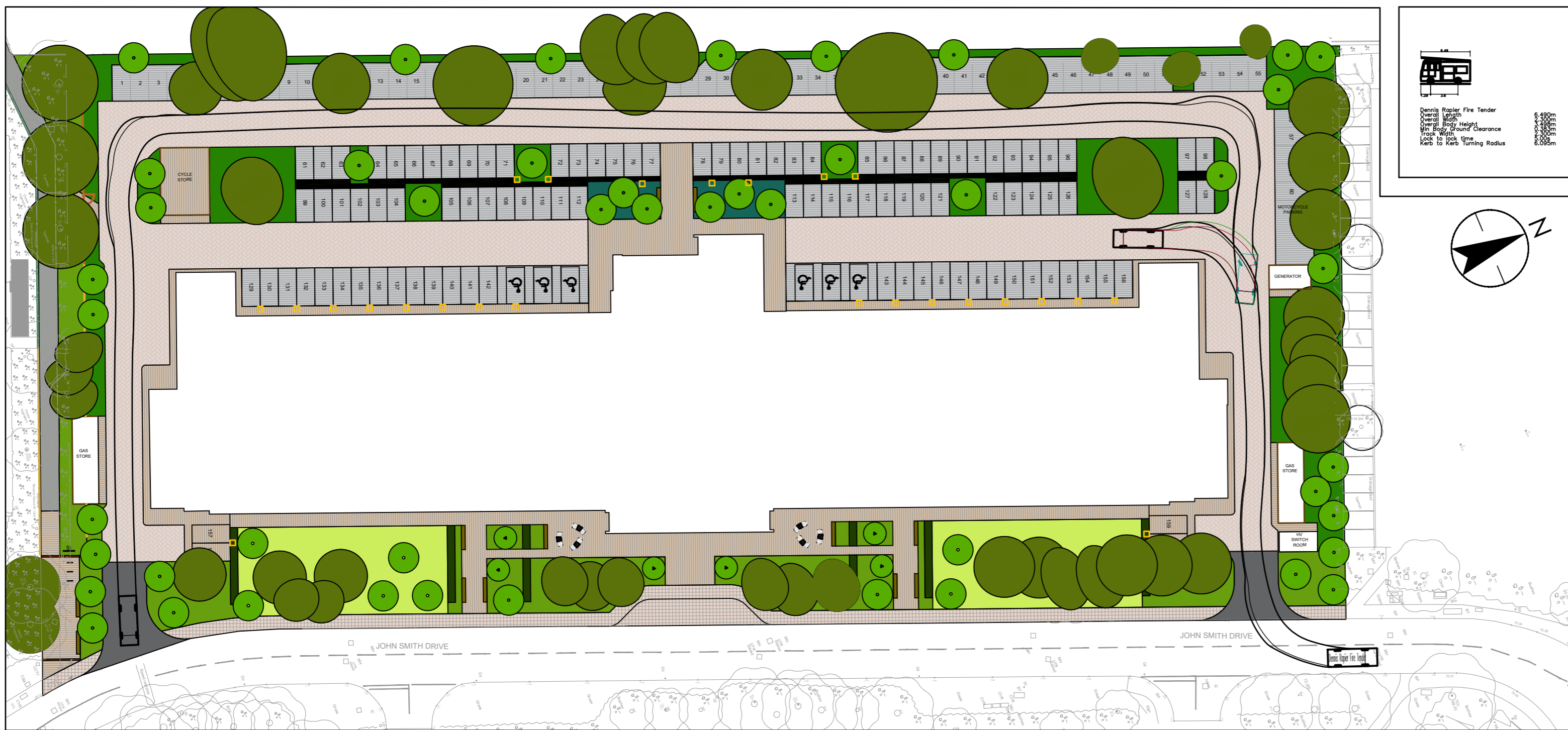
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ARC Oxford

Title
SWEPT PATH ANALYSIS OF FIRE TENDER

Project No. 332610670 A2 Scale 1:500

Revision **P02** Drawing No. 332610670-5500-010



Appendix D TRICS Outputs

Calculation Reference: AUDIT-706701-240129-0136

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : B - BUSINESS PARK

MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02 SOUTH EAST
OX OXFORDSHIRE 1 days

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

Primary Filtering selection:

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

Parameter: Parking spaces
 Actual Range: 1750 to 1750 (units:)
 Range Selected by User: 1750 to 1750 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/00 to 21/10/03

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

Selected survey days:

Tuesday 1 days

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

Selected survey types:

Manual count 1 days
 Directional ATC Count 0 days

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

Selected Locations:

Edge of Town 1

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

Selected Location Sub Categories:

Commercial Zone 1

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included X days - Selected
 Servicing vehicles Excluded 1 days - Selected

Secondary Filtering selection:

Use Class:

Not Known 1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:

All Surveys Included

Population within 500m Range:

All Surveys Included

Population within 1 mile:

25,001 to 50,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

75,001 to 100,000 1 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*Car ownership within 5 miles:

0.6 to 1.0 1 days

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

No 1 days

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

No PTAL Present 1 days

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

LIST OF SITES relevant to selection parameters

1	OX-02-B-01	BUSINESS PARK	OXFORDSHIRE
	GARSINGTON ROAD		
	OXFORD		
	COWLEY		
	Edge of Town		
	Commercial Zone		
	Total Parking spaces:	1750	
	Survey date: TUESDAY	21/10/03	Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 PARKING SPACES

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 1.41

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PARKING	Trip Rate	No. Days	Ave. PARKING	Trip Rate	No. Days	Ave. PARKING	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	1750	0.153	1	1750	0.015	1	1750	0.168
08:00 - 09:00	1	1750	0.397	1	1750	0.039	1	1750	0.436
09:00 - 10:00	1	1750	0.239	1	1750	0.063	1	1750	0.302
10:00 - 11:00	1	1750	0.063	1	1750	0.035	1	1750	0.098
11:00 - 12:00	1	1750	0.051	1	1750	0.044	1	1750	0.095
12:00 - 13:00	1	1750	0.101	1	1750	0.165	1	1750	0.266
13:00 - 14:00	1	1750	0.153	1	1750	0.128	1	1750	0.281
14:00 - 15:00	1	1750	0.064	1	1750	0.083	1	1750	0.147
15:00 - 16:00	1	1750	0.042	1	1750	0.125	1	1750	0.167
16:00 - 17:00	1	1750	0.033	1	1750	0.229	1	1750	0.262
17:00 - 18:00	1	1750	0.035	1	1750	0.282	1	1750	0.317
18:00 - 19:00	1	1750	0.013	1	1750	0.122	1	1750	0.135
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.344			1.330			2.674

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

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

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Parameter summary

Trip rate parameter range selected:	1750 - 1750 (units:)
Survey date range:	01/01/00 - 21/10/03
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Appendix E Accessibility Index Calculator

BREEAM-NOR v6.0 Tra 01 Accessibility Index Calculator



Using the drop down boxes make the relevant selections and press the 'Select' button

Building type:

No. nodes required:

Select

NODE 1

Public transport type	Bus									
Distance to node (m)	350									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	12	2	2							

NODE 2

Public transport type	Bus									
Distance to node (m)	450									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	1	1								

Accessibility Index: 5.58