CANEPARO ASSOCIATES
Transport Planning & Highway Design

# St Catherine's School

# St Catherine's School, Twickenham

Construction Management Plan

February 2024

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# 1 INTRODUCTION

1.1 Caneparo Associates is appointed by St Catherine's School ('the Applicant') to prepare a Construction Management Plan ('CMP') in relation to the proposed planning application at St Catherine's School Twickenham, ('the site'), located in the London Borough of Richmond upon Thames ('LBRuT').

1.2 The site forms of an existing school, situated to the west of Cross Deep and north of Pope's Grove. The Regional Plan, Local Context Plan, and Community Considerations Plan are included within **Figures 1-3**.

## Development Proposal

1.3 The proposal seeks to demolish the existing music block at St Catherine's School to allow for a new building comprising 2 storeys which will offer a new and improved Music and Arts Building. The proposal also includes planting and landscape improvements.

## Objectives of CMP

1.4 This CMP details the expected management of traffic during the demolition and construction periods. It seeks to provide a robust construction strategy that will minimise the potential for disruption to 'Community Considerations' such as local residents, businesses, members of the public and attendees of the site as well as other users of the adjacent highway network.

1.5 It also seeks to minimise the environmental impact of the construction process on the locality and will provide best endeavours to be part of a coordinated and collaborative approach with surrounding developments, including consultation when necessary and appropriate.

1.6 Site specific objectives are as follows:

- To ensure construction vehicles are timed such that only one attends the site at any one time.
- To ensure construction vehicles stop within the designated loading area.
- To ensure pedestrian and cyclist safety is always maintained along Grotto Road and Cross Deep during the construction programme.

## CMP Structure

1.7 This CMP has been prepared in accordance with LBRuT Local Validation Checklist for All Applications and TfL's Construction Logistics Planning Guidance.

1.8 The remainder of the CMP will be structured as follows:

- **Section 2** details the existing situation from the context of construction vehicles;
- **Section 3** includes the construction programme and methodology; and
- **Section 4** details the vehicular routing and site access;
- **Section 5** details the strategies and measures of the CMP;
- **Section 6** details the estimated vehicle movements;
- **Section 7** includes details of the monitoring and review process for the CMP; and
- **Section 8** presents the summary and conclusion.

# 2 CONTEXT, CONSIDERATIONS AND CHALLENGES

## Policy Context

### National Planning Policy Framework (December 2023)

2.1 The NPPF sets out long-term strategies for sustainable development which includes the management of traffic, including those associated with construction activity. Paragraph 116 of the NPPF states that within this context, applications for development should: *"Allow for the efficient delivery of goods, and access by service and emergency vehicles*."

### London Plan (March 2021)

2.2 The London Plan, Point G of the 'Policy T7 Deliveries, Servicing and Construction' states the following regarding Construction Logistics Plans;

*"Development proposals should facilitate safe, clean, and efficient deliveries and servicing. Provision of adequate space for servicing, storage and deliveries should be made off-street, with on-street loading bays only used where this is not possible. Construction Logistics Plans and Delivery and Servicing Plans will be required and should be developed in accordance with Transport for London guidance and in a way which reflects the scale and complexities of developments."*

### Mayor's Transport Strategy (2018)

2.3 The Mayor's Transport Strategy states at Proposal 15 that *'The Mayor, through TfL and the boroughs, will work with business and the freight industry to improve the efficiency and safety of freight and servicing in London by:*

***A.*** *Developing tailored and targeted approaches to address the unique challenges faced by the individual sectors such as food and construction deliveries.*

***D.*** *Ensuring that all London is within a 30-minute drive of a construction consolidation centre and encouraging their use through Construction Logistics Plans and the planning process.'*

## Richmond's Local Plan (2018)

2.4 Policy LP 10 – Construction and Demolition

*"G. The Council will seek to manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basement and subterranean developments. To deliver this the Council required the submission of Construction Management Statements (CMS) for the following types of developments:*

*1. all major developments;*

*2. any basement and subterranean developments;*

*3. developments of sites in confined locations of near sensitive receptors; or*

*4. if substantial demolition / excavation works are proposed."*

## LBRuT Local Validations Check List

2.5 This document set out the information to be provided within a Construction Management Statements, which is the following;

1. *"The size, number, routing and manoeuvring tracking of construction vehicles to and from the site, and holding areas for these on/off site;*
2. *Site layout plan showing manoeuvring tracks for vehicles accessing the site to allow these to turn and exit in forward gear;*
3. *Details and location of parking for site operatives and visitor vehicles (including measures taken to ensure satisfactory access and movement for existing occupiers of neighbouring properties during construction);*
4. *Details and location where plant and materials will be loaded and unloaded;*
5. *Details and location where plant and materials used in constructing the development will be stored, and the location of skips on the highway if required;*
6. *Details of any necessary suspension of pavement, roadspace, bus stops and/or parking bays;*

7. *Details where security hoardings (including decorative displays and facilities for public viewing) will be installed, and the maintenance of such;*

8. *Details of any wheel washing facilities;*

9. *Details of a scheme for recycling/disposing of waste resulting from demolition and construction works (including excavation, location and emptying of skips);*

10. *Details of measures that will be applied to control the emission of noise, vibration and dust including working hours. This should follow Best Practice detailed within BS5288:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites & Best Practice produced by the Greater London Authority (GLA).*

11. *Details of any highway licences and traffic orders that may be required (such as for licences for any structures / materials on the highway or pavement; or suspensions to allow the routing of construction vehicles to the site);*

12. *Details of the phasing programming and timing of works;*

13. *Where applicable, the Construction Management Statement should be written in conjunction with the Arboricultural Method Statement, and in accordance with British Statement 5837:2012 'Trees in relation to design, demolition and construction – recommendations', in particular section 5.5, 6.1, 6.2, 6.3 and 7;*

14. *A construction programme including a 24 hour emergency contact number.*

15. *See also TfL guidance on Construction Logistics Plans."*

## Traffic Management Act (2004)

2.6 The Traffic Management Act 2004 aims to reduce traffic congestion in towns and cities when construction is occurring within the area. This CMP will comply with the Traffic Management Act.

### Healthy Streets Approach & Vision Zero

2.7 TfL has adopted the Healthy Streets Approach (2017) to improve air quality, reduce congestion and help people lead a more active and healthier lifestyle. The Healthy Streets Approach puts people and their health at the centre of planning and therefore, this Demolition and Construction Management and Logistics Plan has sought to align the key transport planning proposals towards people first. This has been done in conjunction with Vision Zero, as set out in the Mayor's Transport Strategy (2018), which aims to remove all deaths and serious injuries from London's transport network by 2041.

## Site Context

2.8 The site is located to the west of the A310 Cross Deep, south of Grotto Road and north of Pope's Grove. The site is situated within St Catherine's School in Twickenham, forming of the existing music block.

2.9 The site is located within a predominantly residential area with some commercial establishments in the form of public houses and community centres surrounding the site. **Figure 1** appended to the end of this report shows a regional plan of the site in the context of Greater London and the local highway network. **Figure 2** appended to this report shows the local level plan for the site location. **Figure 3** includes the site Boundary Plan including the Community Considerations (discussed later within this section) as well as highway detail.

## Local Highway Network

### A310 Cross Deep

2.10 The A310 Cross Deep offers two-way traffic flow operating in a predominantly north to south direction, joining with Heath Road in the north and Strawberry Vale in the south. There is a bus lane which operates on the western side of the carriageway for northbound traffic flow, controlled Monday – Friday 07:00-10:00. On the eastern side of the carriageway there is a cycle lane operating southbound which joins onto Strawberry Vale.

2.11 Across the frontage of the site on Cross Deep there is a single yellow line which controls loading / stopping on-street between Monday – Friday 07:00-18:30 and Saturday 08:00-18:30 and loading Monday – Friday 07:00-10:00. There is also a signalised pedestrian crossing at this location near to the school's entrance.

### Grotto Road

2.12 Grotto Road is located to the north of the site, offering one-way traffic flow in a westbound direction from Cross Deep to Radnor Road. Grotto Road is subject to a speed limit of 20mph and is controlled by single yellow lines on either side of the carriageway which controls loading on-street, 00:00-08:00 and 18:30-00:00.

2.13 Grotto Road offers vehicle access into the school's playing fields via a set of gates measuring circa 4.5m in width. **Figure 2.1** below details a photograph of this vehicle access.

**Figure 2.1: Vehicle Access from Grotto Road**

## Controlled Parking Zone

2.14 The site is located within Controlled Parking Zone (CPZ) 'D - Central Twickenham' which is operational Monday – Saturday 08:30 – 18:30. The site is bound to the south by CPZ 'E – South Twickenham' controlled Monday to Friday 10:00-16:30. **Figure 2.2** details the location of the site in context to the local CPZs.

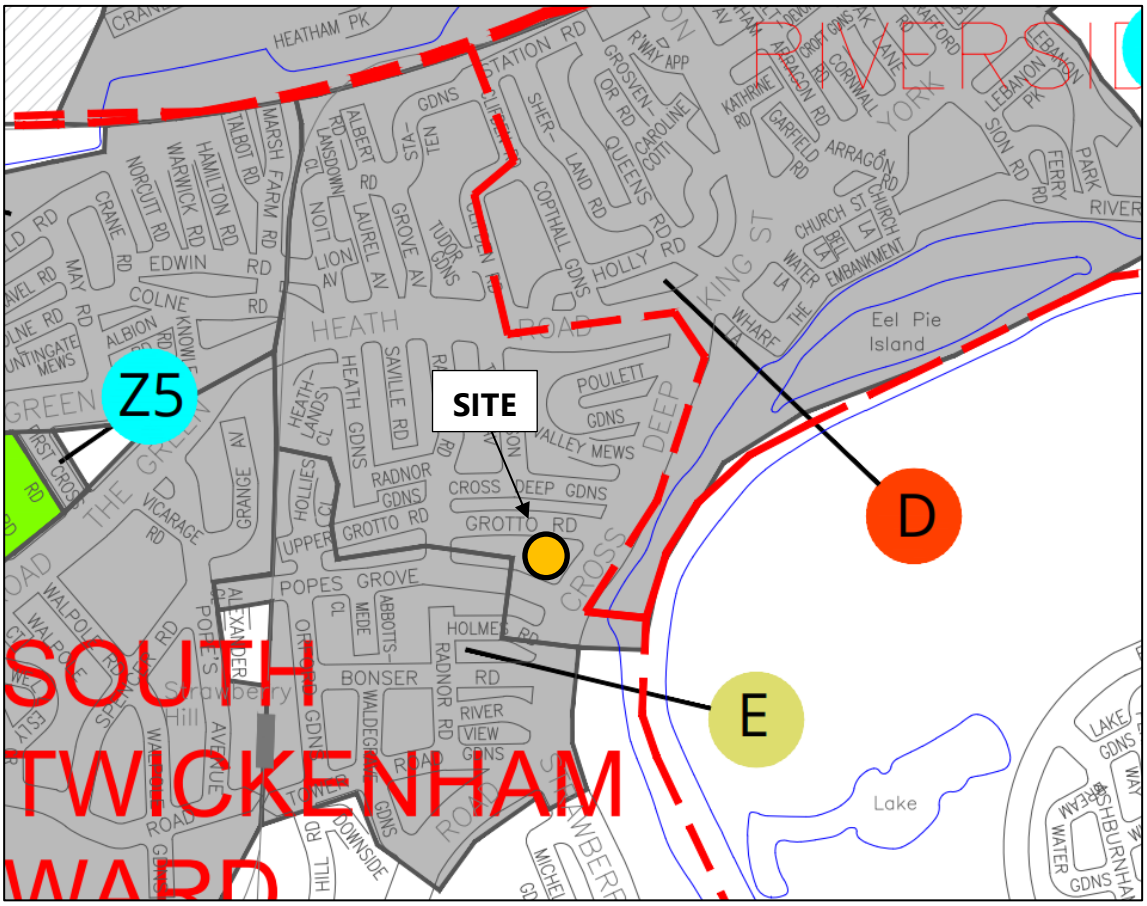


**Figure 2.2: Controlled Parking Zones** *Source: Royal Borough of Richmond Upon Thames*

## Local Accessibility

### Walking

2.15 The Healthy Streets Approach is set out as part of the Mayor's Transport Strategy (2018) and puts human health and experience at the centre of planning. The aims of the strategy are to encourage all Londoners to do at least 20 minutes of active travel each day by 2041. TfL has defined 20-minute walking and cycling distances as an Active Travel Zone (ATZ).

2.16 There are sufficient footways located on both sides of the carriageway on Cross Deep, approximately 2m in width. There is a signalised crossing situated directly opposite the site on Cross Deep offering pedestrian priority between the carriageways. The signalised crossing is equipped with dropped kerbs, tactile paving and green man controls. There is no designated footway along Grotto Road which forces pedestrians to share the carriageway with vehicles.

### Cycling

2.17 Guidance on cycling can be found in 'Planning for Cycling' guidelines published by the Institution of Highways and Transportation. This guidance highlights previous research by the DfT that 67% of all journeys are less than 5 miles. Locations such as Richmond, Whitton, Hampton Court and Kingston are within a 5km cycle ride of the site.

2.18 There are a number of cycle routes within the vicinity of the site, with the nearest operating along Cross Deep providing a cycle route which has been "marked for the use of cyclists" offering access north towards Twickenham and south towards Teddington. There is also a cycle route which operates parallel to the River Thames, which is an off-road cycle route, providing access north towards Richmond and southwest towards Bushy Park.

## Public Transport

2.19 The Public Transport Accessibility Level (PTAL) of the centre of the site is 4, meaning the site achieves a moderate score in terms of public transport accessibility.

#### Bus Services

2.20 The nearest bus stops to the site are located approximately 30-90m from the site along Cross Deep (Popes Grotto Stop SL and SK). **Table 2.1** provides a summary of bus services available within walking distance of the site.

**Table 2.1: Bus Services and Frequencies**

| Bus No. | Route | Frequency (minutes) | | |
|---|---|---|---|---|
| | | Weekday | Saturday | Sunday |
| 33 | Lonsdale Road / Fulwell Station | 6 - 11 | 7 – 10 | 15 |
| 110 | School Road / Hammersmith | 15 | 14 | 20 |
| 267 | Fulwell / Hammersmith | 12 - 14 | 12 - 14 | 15 |
| 281 | Hounslow Bus Station / Tolworth Tower | 10 - 12 | 8 - 12 | 20 |
| 290 | Arragon Road / Staines Bus Station | 20 | 20 | 20 |
| 490 | Pools on the Park / Heathrow | 8 - 12 | 10 - 13 | 20 |
| H22 | The Bell / West Middlesex Hospital | 10 - 13 | 10 - 12 | 20 |
| R68 | Kew Retail Park / Hampton Court Station | 15 | 13 | 15 |
| R70 | Richmond / Nurserylands Shopping Centre | 6 - 10 | 6 - 13 | 15 |

## Rail Services

2.21 Strawberry Hill rail station is located approximately 750m / 9 minute walk southwest of the site. Strawberry Hill station offers a National Rail service on the South Western Railway line, providing train services to London Waterloo, Richmond and Wimbledon. Strawberry Hill station offers step-free access to platform and cycle parking.

## Car Clubs

2.22 The site is located near 3 x Car Club bays:

- Queen's House – 1 vehicle (650m / 8 minute walk);
- Lion Road – 1 vehicle (850m / 10 minute walk); and
- Strafford Road – 1 vehicle (850m / 10 minute walk).

## Community Considerations

2.23 The Community Considerations are included within **Figure 3**. The site takes frontage to Cross Deep to the east, Grotto Road to the north and Popes Grove to the south, therefore the impact on pedestrians, cyclists and other vulnerable road users utilising this road as well as local residents must be considered.

2.24 Consideration will also be required in relation to how larger construction vehicles are managed when accessing / egressing the site and wider vicinity.

### Local Residents

2.25 Local residents along Grotto Road, Cross Deep and Popes Grove will be notified of the construction works occurring at St Catherine's School. Vehicles entering and exiting the site will be considerate of existing residents along all surrounding roads and within close proximity to the site. Construction will not take place outside of the controlled working hours preventing interference with neighbouring local residents.

## Schools

2.26 St Catherine's School will be aware of the construction works happening at the site and the proposed vehicle access arrangements. All staff and student will be made aware of the construction works to maintain safety within the school.

2.27 Radnor House Independent school is located within the vicinity of the site. Important considerations will be taken when mitigating vehicle activity to not conflict with the school day. It will also be paramount to engage with school's where necessary to promote pedestrian safety.

## Commercial Developments

2.28 The Alexandra Pope hotel and public house will be notified of the construction works occurring at the site and that construction vehicles will be utilising Popes Grove. Construction workers will be notified of the neighbouring development and will take extra consideration when manoeuvring vehicles around the local highway network.

## Community Engagement

2.29 A member of the site management team will be elected as a Community Liaison Officer whose contact details will be made available on the site hoarding including a 24-hour emergency number. Their role and responsibilities will include being the primary point of contact for the local community and answering queries and questions where necessary.

# 3 CONSTRUCTION PROGRAMME & METHODOLOGY

3.1 The programme of construction has been informed by general knowledge of construction methodology as well as detailed information provided by the project team. The Final CMP secured by condition will include further information provided by the Main Contractor.

## Construction Programme

3.2 An indicative construction programme is detailed in **Table 3.1**. The phasing across the site is expected to start in July 2024. Once a Contractor has been appointed a more detailed construction programme can be provided.

**Table 3.1: Indicative Construction Programme**

| Construction Phase | Start Month | End Month |
|---|---|---|
| Site setup and demolition | July 2024 | August 2024 |
| Piling | September 2024 | September 2024 |
| Sub-structure | September 2024 | October 2024 |
| Super-structure | October 2024 | February 2025 |
| Fit-out, testing and commissioning | February 2025 | June 2025 |

## Proposed Construction Arrangement

3.3 The construction arrangements detailed within the following paragraphs will be used to assist in making the site safe and secure for pedestrians, cyclists and road users as well as site operatives in association with the loading area. It will be necessary for the Contractor to apply to the Council in order to obtain the appropriate permissions for any necessary temporary highway licenses and traffic management measures to allow this arrangement to occur. The existing highway arrangement and proposed construction arrangements are displayed at **Appendix A**.

3.4 The building will be fully secured with a hoarding to all exposed boundaries. The hoarding will be provided in line with all TfL / LBRuT regulations with a noticeboard placed in prominent visible positions. The noticeboards will be standardised across the entire the site. The hoarding will include decorative displays organised by the Main Contractor.

3.5 Fully equipped offices and welfare facilities for staff and operatives will be provided on-site. All plant, material and equipment will be stored on-site and not on the public highway.

3.6 To facilitate vehicles entering the site, the existing gated access on Grotto Road will be widened to allow construction vehicles to manoeuvre into and out of the playing fields. A loading area will be positioned on-site utilising the available space within the school's playing fields, screened-off and gated, to prevent unauthorised access. Gravel will be used on-site to form the loading area. Wheel washing facilities, site offices and material storage will be stored on-site within the loading area and clear of the public highway at all times.

3.7 Banksmen will be positioned on Grotto Road near to the vehicle access to assist with vehicles accessing the on-site loading area. Traffic marshals will be located on Grotto Road to hold pedestrians, cyclists and vehicles utilising Grotto Road whilst vehicles are manoeuvring into and out of the site. This will take no more than 30 seconds. Traffic marshals and Banksmen will also be located near to the junction with Grotto Road and Radnor Road for vehicles exiting the site, given the tight manoeuvre and ensure safety is maintained for all other road users when the vehicle is turning onto the junction.

3.8 There is the opportunity for construction vehicles to exit the loading area onto Grotto Road and turn right to travel towards Cross Deep, keeping construction vehicles away from the silver birch tree near the access gate and reducing the distance construction vehicles travel on Grotto Road for residential amenity. To facilitate this, a Temporary Traffic Management Order (TTMO) would be required to convert part of Grotto Road into two-way during the construction period. Banksmen will be present to assist all exit manoeuvres out of the site onto Grotto Road. A TTMO Plan detailing this arrangement is included at **Appendix A**.

3.9 Pedestrian gates and a level crossing will be provided near the construction site, to allow for staff and students to continue to travel around the school in a safe manner throughout term time. All staff and student's movements within the school will be monitored by traffic marshals and banksmen to ensure safety at all times.

## Construction Traffic Hours

3.10 It is proposed that the core operational hours for construction traffic will be as follows:

- Weekdays: 09:00 – 14:30 & 16:30 - 18:00
- Saturday: 08:00 – 13:00
- Sunday & bank holidays: subject to agreement between TfL, LBRuT and resident groups.

3.11 Part of the construction works will take place outside of school term time, therefore construction traffic will be able to occur from 08:00-18:00 between July and August 2024. The above times present a worst-case scenario for when the school is in operation and construction traffic will need to be mitigated to prevent conflict with school activity.

3.12 In other circumstances it is anticipated that there will be a requirement for vehicles to arrive and depart outside of usual construction hours to allow specialist construction activities to be undertaken; or to deliver bulky machinery / materials (plant, mini-cranes, mini-piling rig etc.) before busy traffic periods in London. The Council will be provided with prior notification in regards to any special dispensation for out-of-hours vehicle activity. Such deliveries will not be on a regular occurrence.

3.13 There will be no working on Sundays and bank holidays unless there is a requirement for emergency works or abnormal deliveries. The Council will be provided with prior notification in these instances.

3.14 The site will be provided with 24 hour security to prevent any unauthorised access outside of the construction traffic hours.

## Vehicle Types

3.15 Numerous types of vehicles will be used to bring materials to and from the site. The main vehicle types will include:

- 14m length, 2.5m width Articulated lorry
- 10m length, 2.5m width Rigid Flatbed;
- 8.4m length, 2.4m width Concrete Mixer;
- 8.2m length, 2.5m width Medium Tipper; and
- 3.5T Luton Vans / 5.5m length LGVs.

3.16 It is noted that the exact type of vehicle to be used will be subject to the specific requirements of the Contractor and will be provided within the Final CMP, however, the above vehicles provide a detailed breakdown of likely vehicles used during construction.

## Construction Phasing across the Site

3.17 The outline construction arrangement would comprise the following stages:

### Phase 1: Site Set Up and Demolition

3.18 The site within the school will be secured with a hoarding around the building perimeter and will be created for the handling of demolition arisings. Welfare facilities created on site. Demolition comprises the removal of the existing building and removal of spoil and clearing of the current grounds of the building entirely. Demolition will be carried out using standard techniques to control noise and dust.

### Phase 2: Piling

3.19 This phase will involve the piling works to form the structure of the building. This period will require an intense period of concrete pouring into the site although the foundations are minimal. Once the piles have been installed, excavation of the building structure will begin with spoil transferred to waiting tipper lorries within the site boundary.

### Phase 2: Sub-Structure

3.20 Once piling is complete, the concrete works can commence for the remaining floors of the building. Vertical elements, lining walls & slabs will be installed at each level. During this period, concrete vehicles will be positioned on-site.

### Phase 3: Super-Structure

3.21 Upon completion of ground floor slab, verticals will then start on the upper floors. Vertical elements (walls & columns) will be cast, decking to the upper floors and slab construction to follow. This will require the delivery of steel via articulated lorries alongside the erection of a temporary mini-crane required on a limited number of days (confirmation to be provided following the appointment of a contractor).

### Phase 5: Fit-Out & External Works and Commissioning

3.22 Building fit out (services, ceilings and raised floors) would be undertaken, commencing from the ground floor upward.

# 4 VEHICULAR ROUTEING AND SITE ACCESS

## Site Access

4.1 All construction vehicles will utilise the agreed vehicular route to access the proposed loading area. All vehicles will access from Cross Deep turning onto Grotto Road to access the proposed on-site loading area.

## Pedestrian and Cyclist Access

4.2 Pedestrian and cyclist access will be retained from Grotto Road into the site for constructions staff. All accesses will be gated for the use of construction staff pedestrians and cyclists accessing the site. There will be a dedicated space on-site to accommodate any cycle parking.

4.3 Staff and students' access will be retained as per the existing situation. Appropriate hoarding will be positioned around the site and around the designated loading area to protect staff / students. Pedestrian gates and a controlled level crossing will be provided to enable safe access around the school for staff and students during term time. The existing cycle parking on-site for staff / students will be relocated to maintain use throughout construction.

4.4 A hoarding perimeter around the building under construction will be provided to protect the staff and students from construction activity. No footway closure will occur throughout the construction works, although pedestrians may be held on Grotto Road temporarily whilst vehicles are entering / egressing the proposed loading area.

## Proposed Vehicular Route

4.5 All construction vehicles will approach the site from either the A310 Strawberry Vale or A305 York Street. The proposed vehicle routing for the site is included at **Figure 4,5 & 6** appended to this report.

4.6 The proposed construction vehicle routes throughout construction are detailed below:

- **Arrival Route (Option 1):** A305 York Street – King Street – Cross Deep – Grotto Road – Site.
- **Departure Route (Option 1):** Site – Grotto Road – Radnor Road – Pope's Grove – A310 Cross Deep.
- **Arrival Route (Option 2):** A310 Strawberry Vale – Cross Deep – Grotto Road – Site.
- **Departure Route (Option 2):** Site – Grotto Road – Radnor Road – A305 Heath Road.
- **Departure Route (Option 3):** Site – Grotto Road - Cross Deep.

4.7 The proposed vehicle routes are considered to be the most appropriate and suitable for larger vehicles and seek to minimise disruption to local road users, especially option 3 which reduces the distance of vehicles travelling on Grotto Road and therefore reducing the impact on residential amenity. All vehicle arrivals will be managed by traffic marshals / banksmen at the site to ensure appropriate safety and traffic management measures are adhered to.

4.8 Banksmen and traffic marshals shall be employed throughout the contract to manage the flow of vehicles to ensure that public and pedestrian safety is maintained at all times. In particular, banksmen will be located near to the vehicle access into the site on Grotto Road and within the on-site / on-street loading areas. Banksmen and traffic marshals will also be located near to the junction with Grotto Road and Radnor Road to assist vehicles departing the site.

4.9 The surrounding highway will be kept open for normal traffic to ensure satisfactory access and movement for existing occupiers of neighbouring properties during construction. Coordination will also be carried out with surrounding developments when necessary, to minimise potential disruption.

## Swept Path Analysis

4.10 Vehicle swept path analysis has been prepared to demonstrate that the vehicle types and sizes proposed will be able to safely access and egress the proposed on-site loading area. A copy of the drawings prepared are included at **Appendix B.** All movements will be under strict banksmen control.

# 5 STRATEGIES TO REDUCE CONSTRUCTION IMPACTS

## Overview

5.1 **Table 5.1** below sets out the committed, proposed and considered checklist replicated from the TfL Construction Logistics Plan guidance (July 2017).

| Table 5.1: Medium Impact Site Planned Measures Checklist | | | |
|---|---|---|---|
| | **Committed** | **Proposed** | **Considered** |
| **Measures Influencing Construction Vehicles and Deliveries** | | | |
| Safety & environmental standards and programmes | X | | |
| Adherence to designated routes | X | | |
| Delivery scheduling | | X | |
| Re-timing for out of peak deliveries | | X | |
| Re-timing for out of hours deliveries | | X | |
| Use of holding areas and vehicle call off areas | | X | |
| Use of logistics and consolidation centres | | X | |
| **Measures to Encourage Sustainable Freight** | | | |
| Freight by Water | | | n/a |
| Freight by Rail | | | n/a |
| **Material Procurement Measures** | | | |
| DfMA and off-site manufacture | | | X |
| Re-use of materials on Site | | X | |
| Smart procurement | | X | |
| **Other Measures** | | | |
| Collaboration amongst other Sites in the area | X | | |
| Implement a staff travel plan | | | X |

## Site Manager

5.2 Contact details for the Site Manager will be provided below within the Final CMP:

**Name:**

**Company:**

**Address:**

**Email:**

5.3 The Main Contractor will assume all responsibility for implementing the measures within the CMP and submitting relevant details to LBRuT and TfL. The contact details for the Site Manager will be displayed at the site and published on any temporary licenses granted by the Council.

5.4 The Site Manager will liaise with local stakeholders and the project managers for other construction activity in the local area. The Site Manager will also be responsible for monitoring and reviewing this CMP on an ongoing basis to reflect the changing needs of the project and/or any changes to the local road network.

5.5 The appointed Site Manager will act as a point of contact between local stakeholders / businesses so that in the event of issues / concerns arising during the construction process, action can be taken without delay. There are a number of development proposals ongoing in the surrounding area and so the Site Manager will liaise with the project managers for any other sites where work is carried out concurrently such that matters can be coordinated where required.

5.6 Information boards will be displayed at the site highlighting the key personnel on site including their contact details. A 24-hour emergency contact number will also be provided.

5.7 Local neighbours will be able to call the site office to raise any concerns and the Site Manager will personally deal with any comments or complaints to ensure that they are resolved quickly. A record will be kept of any / all comments and complaints received.

### Neighbourhood Consultation

5.8 As part of the construction process, neighbourhood consultation will be undertaken with local businesses / residents / communities in order to effectively manage construction impacts. This will take the form of monthly newsletters as well as neighbourhood meetings when required. The hoarding of the site will also be provided with contact details for the Site Manager so that the general community can remain in contact throughout the build.

## Measures Influencing Construction Vehicles and Deliveries

### Safety and environmental standards and programmes

5.9 The construction project will be registered with the Considerate Constructors Scheme in order to minimise any negative impact that construction activity may have on the local area.

5.10 It will be a requirement for Contractors to be registered with the FORS scheme and to ensure all subcontractors are also registered. FORS will be a mandatory requirement where applicable which recognises that FORS:

- Creates safer drivers – with significantly reduced occurrence of accidents;
- Will encourage suppliers to improve fuel economy associated with the project;
- Provides a system to identify 'at risk' drivers, allowing the project team and suppliers to target training and incentives effectively;
- Improves certainty of deliveries and collections; and
- Promotes a reduction in journeys to and from the site.

5.11 A collision reporting system will be mandated to ensure all collisions and accidents involving the project's vehicles and drivers are reported to the Site Manager and relevant parties. In order to effectively undertake this, the 'FORS Manager' reporting tool will be utilised.

5.12 It is a requirement for all contractors to be signatories of the Construction Logistics and Community Safety (CLOCS) initiative. Operating to the CLOCS standard will ensure that transport and logistics are managed to the highest industry standard during all stages of demolition and construction.

5.13 Banksmen will be located within the loading area when in use throughout the construction period to ensure appropriate safety and traffic management measures are adhered to.

## Adherence to Dedicated Routes

5.14 Details of routes to be used for journeys to and from site for road operations are provided in Section 4. The routes to/from the Transport for London Road Network and Strategic Road Network are specified. These access routes have been reviewed with respect to potential impacts, conflicts and hazards. Junctions and parts of the routes of particular potential concern have been identified in terms of coming into conflict with other road users, with particular attention paid to pedestrians and cyclists around access to work sites.

5.15 A copy of the routing plan, shown at **Figure 4** will be given to all suppliers when orders are placed to ensure drivers are fully briefed on the required route to take. The supplier will be made aware that these routes are required to be followed at all times unless agreed or alternate diversions are in place.

5.16 Vehicle arrivals / departures will be programmed and staggered to reduce the potential for unnecessary delay and congestion at the site.

5.17 A web-based delivery management system will be used to control the volume of deliveries to site. This system will work by defining the number of 'resources' a site has and thus can service. It then limits the number of delivery bookings to manage an efficient process to the defined capacity. Sub-contractors and hauliers must be booked in a minimum of 48-hours in advance in order to allow the request to be reviewed and subsequently approved/declined. The system can be accessed by completing a new user application form and submitting it, countersigned by your supplier relationship manager or package manager to the delivery manager.

## Delivery Scheduling

5.18 The scheduling of deliveries will be managed in order to effectively utilise the loading area on-site. Suppliers will be given instructions asking the vehicle driver to call ahead to ensure that the site is ready to receive a vehicle. In addition, verbal briefings of the access route will be provided to all suppliers, contractors and visitors prior to them undertaking a journey.

5.19 An efficient and effective logistical operation could provide material benefits to the efficiency of deliveries and, as such, a robust delivery system will be implemented.

5.20 In the event an unauthorised vehicle arrives at site the vehicle will be accommodated within the on-site loading area. Persistent unauthorised deliveries will be dealt with via a 3-strike policy whereby their contract to deliver to the site will be reviewed.

5.21 In the event space is not available at the site for unauthorised deliveries, the driver will be instructed to exit the area and re-schedule a delivery time with the main contractor.

## Key Performance Indicators – Vehicle Deliveries / Collections

5.22 In order to effectively manage vehicle movements into and out of the site during construction the Site Manager will implement Key Performance Indicators which will be used to monitor the scheme. The KPI's to be implemented are as follows:

- Zero unplanned vehicles.
- Zero non-complaint vehicles.
- Zero instances of project-related vehicles involved in a collision.

### Re-timing for Out-of-Peak / Out-of-Hours Deliveries

5.23 Re-timing out of peak time will aid the operational efficiency of the construction site and also the neighbouring area. The Applicant commits to re-timing as many deliveries as possible out of the traditional peak hour periods and school drop-off and pick-up hours (08:00-09:00, 14:30-15:30 and 17:00-18:00).

### Use of Holding Areas and Vehicle Call-Off

5.24 The use of off-site holding areas and vehicle call-off areas will be discussed once a contractor is appointed to ensure an appropriate management procedure is in place in the event the loading area is fully occupied by vehicles / materials.

### Use of Logistics and Consolidation Centres

5.25 The Applicant will explore the use of logistics and consolidation centres for appropriate deliveries, for example general deliveries during site set-up, fit-out, testing and commissioning, where smaller levels of material are required and, as such, can be more easily consolidated.

## Measures to Encourage Sustainable Freight

5.26 It is not possible to undertake deliveries by water or rail for this project owing to its separation from both. The Main Contractor will constantly monitor the CMP and in the event deliveries by rail are possible / feasible, will provide an update to the Council for approval.

## Material Procurement Measures

### Spoil / Waste Collection

5.27 Where possible, segregation of recyclable and non-recyclable material will be employed for all waste generated throughout the construction process.

5.28 All waste materials will be deposited into containers held on site with each trade responsible for clearing their own waste. All site waste will be collected by a licensed waste carrier and will be taken to a registered waste transfer station for sorting and recycling / re-use.

5.29 Waste Management will be monitored and recorded as part of the Site's 'Smart Waste' obligations.

5.30 A Site Waste Management Plan (SWMP) will be implemented to detail the disposal and management procedures relevant to the demolition phase. If implemented, the SWMP will seek to minimise and reduce waste production.

## Re-use of Materials on-site

5.31 The re-use of materials will be considered by the Applicant and where possible as much material as possible will be recycled. Both the piling matt and filling material can be made from re-used concrete and bricks will also be reused throughout construction.

## DfMA and Off-Site Manufacture, and Smart Procurement

5.32 Consideration will be given to the opportunities to employ off-site manufacturing processes upon appointment of a contractor.

5.33 Consideration will be given to the employment of smart procurement measures such as last mile logistics solutions and sourcing local suppliers. This will also be explored following the appointment of a contractor.

## Control of Dirt and Dust

5.34 The objective in regards to the control of dirt and dust is to ensure footways and carriageways adjacent to the site are kept clean at all times.

5.35 The following measures will be implemented where necessary:

- All HGVs removing demolition materials will be sheeted over before leaving the site to limit dust particulates.
- The Site Manager will ensure that the perimeter of the site is regularly patrolled each day to ensure that the footway and highway is kept clear of any construction debris.
- Road sweeping to clean the site hard standing and any mud or debris deposited by wite vehicles on roads or footpaths in the vicinity of the site.
- Sufficient bins and waste facilities.
- Litter picking facility for un-attributable materials.
- Wheel washing facilities provided on-site to prevent the spread of dust and construction waste onto the local highway network.
- Banksmen will be charged with the responsibility of checking the cleanliness of vehicles exiting the site.

### Noise

5.36 Noise and vibration caused by site activities will be controlled as far as is reasonably practicable so that surrounding receptors are protected from excessive levels arising from the construction process.

5.37 All hand operated tools and equipment shall be effectively silenced and will bear the manufacturer's guaranteed maximum sound level generated. The recommendations made in BS 5228-1: 2009 "Code of Practice for Noise and Vibration control on Construction and Open Sites" will be adopted by subcontractors.

5.38 The Contractor will work under the guidelines set out in the legislation below.

- Public Health Act 1961
- Health & Safety at Work act 1974
- Control of Pollution Act 1974
- Environmental Protection Act 1990
- The Noise at Work regulations 2005
- British Standard 5228

5.39 The Contractor will aim to keep noise levels to a minimum. This will be carried out by:

- Ensuring all plant is fitted with the correct and working exhaust mufflers and noise suppression kits.
- Changing where possible methods and processes to keep noise levels low.
- Position plant as far away from residential property as physically possible.
- Limit the hours worked on noisy operations.

## Other Measures

### Collaboration amongst other Construction Sites in the area

5.40 The developer and appointed contractor will consult with LBRuT, TfL, and other contractor/developers in the area to minimise disruption and undertake joint trip generation analysis. The Final CMP will include details of cumulative developments in the area which will be on site at similar time.

## Implementing Staff Travel Plan

5.41 A Staff Travel Plan for construction workers will be implemented for the construction programme and will include details of local public transport options, in particular all surrounding stations within a 20 minute walk from the site, as well as a suite of measures to discourage the use of private transport. Furthermore, temporary cycle parking facilities will be provided within the site during construction to encourage active modes.

5.42 All construction workers and visitors will be encouraged to travel to and from the site by public transport and no car parking will be provided, however, in the event operatives are required to bring vehicles to site, operatives will be expected to unload any materials or equipment using the loading area proposed before finding a parking opportunity near the site. The nearest pay and display parking is located on Radnor Road. This approach will not be promoted and will be prevented wherever possible throughout the construction programme.

## Public Highway

5.43 At no time will material or plant be stored on the public highway.

5.44 The Contractor will monitor the condition of the public highway in the immediate vicinity of the site. A conditions survey of the local highway network will be undertaken before and after construction works and will be submitted to LBRuT.

5.45 The Contractor will make contact with the relevant utility companies in order to co-ordinate any scheduled work.

## Pedestrian and Cyclist Safety

5.46 Construction traffic can pose a potential risk to pedestrian and cyclist safety when not managed effectively. Vulnerable road users' safety will be paramount throughout the construction period. The use of traffic marshals will assist pedestrian and cyclist safety, particularly when vehicles are accessing and egressing the loading area.

5.47 A hoarding will be installed around the perimeter of each site element when under construction. The hoarding will screen off any works or activities and protect passers-by as well as reduce dust and noise emissions. In addition, the hoarding will be decorated to suit local authority requirements and contain illumination, so it is easily seen at night by traffic and pedestrians using the surrounding roads. Gates will be locked each evening by the contractor's project team.

5.48 Traffic marshals will be positioned either side of the vehicle access into the site to assist pedestrians and cyclists travelling along Grotto Road whilst a vehicle is manoeuvring into / out of the site.

# 6 ESTIMATED VEHICULAR MOVEMENTS

6.1 A breakdown of expected vehicle movements and anticipated dwell times during each construction phase are detailed in **Figure 6.1-6.3** and **Table 6.1**.

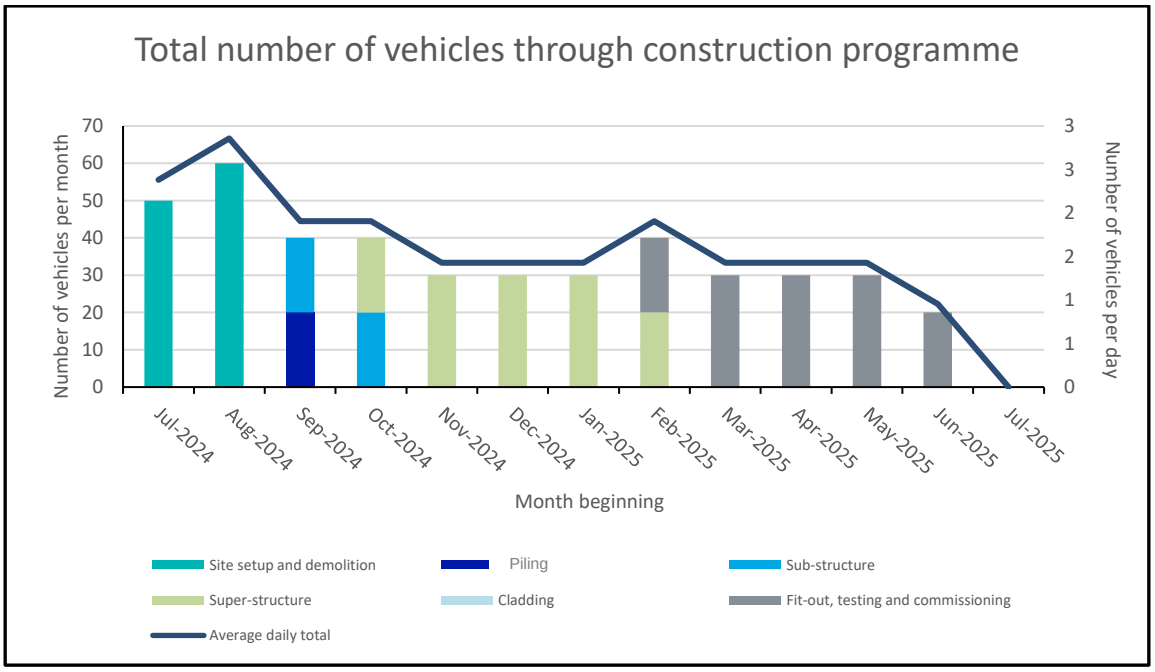


**Figure 6.1: Estimated Construction Vehicles (Monthly and Daily) (Source: TfL)**

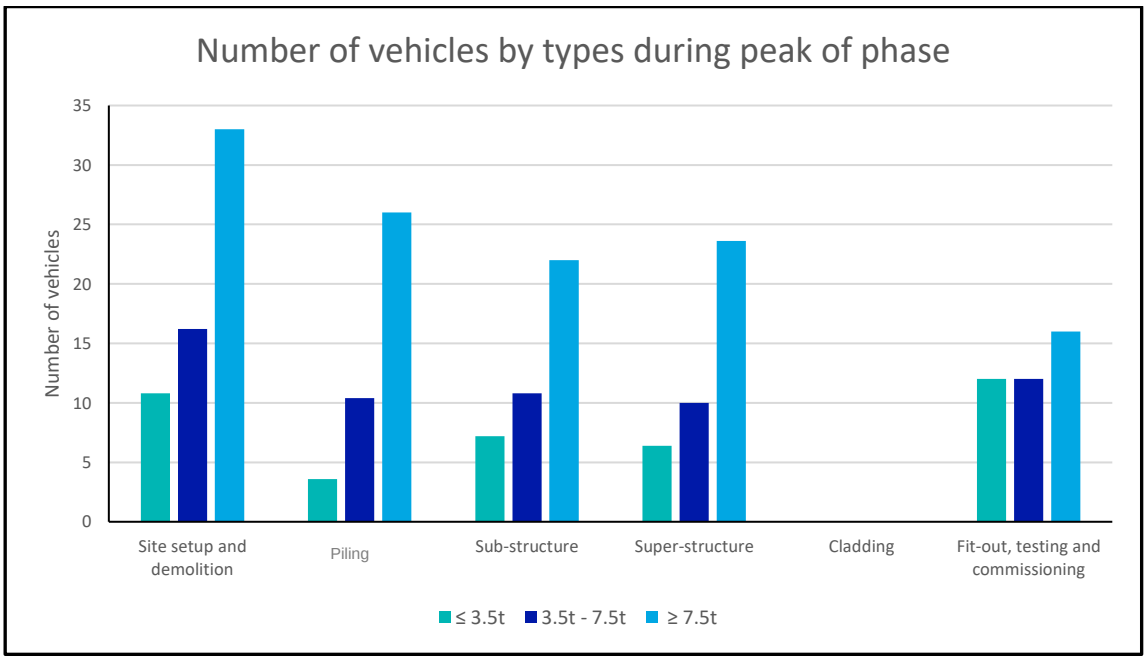


**Figure 6.2: Number and vehicle type by phase of construction (Source: TfL)**

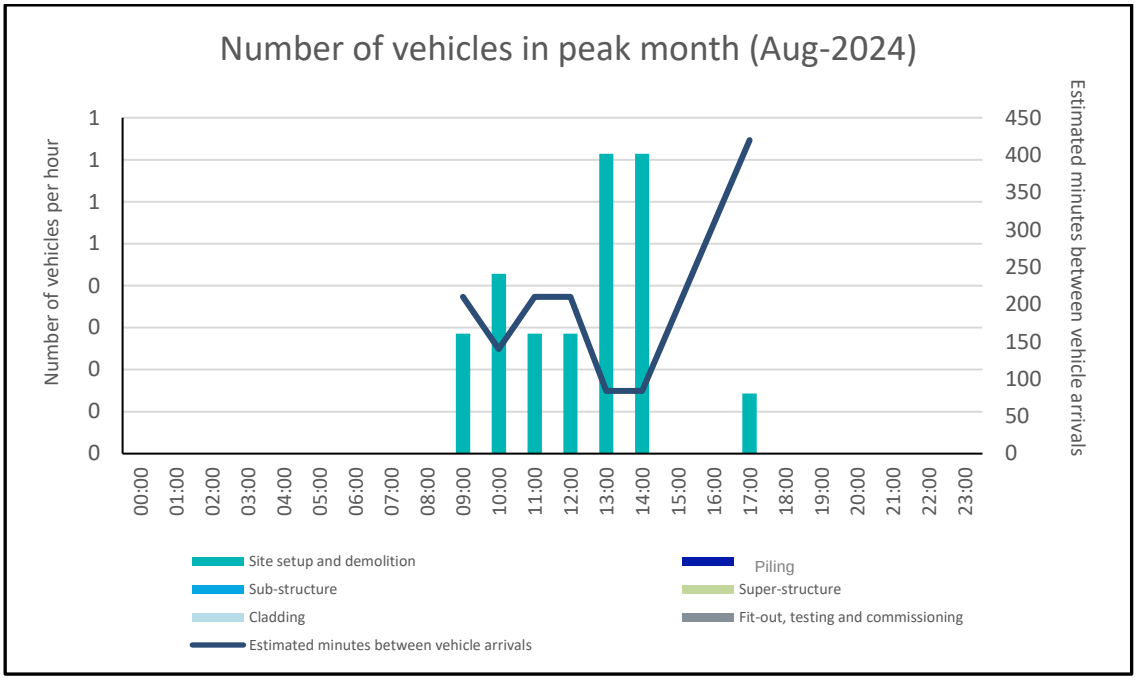


**Figure 6.3: Hourly arrival profile of vehicles during peak (Source: TfL)**

| Table 6.1: Estimated Construction Vehicles – Monthly and Daily | | | |
|---|---|---|---|
| **Phase** | **Period of Stage** | **No. of Trips (monthly)** | **Peak no. of Trips (daily)** |
| Site setup and demolition | Q3 2024 - Q3 2024 | 60 | 3 |
| Piling | Q3 2024 - Q3 2024 | 20 | 1 |
| Sub-structure | Q3 2024 - Q4 2024 | 20 | 1 |
| Super-structure | Q4 2024 - Q1 2025 | 30 | 1 |
| Fit-out, testing and commissioning | Q1 2025 - Q2 2025 | 30 | 1 |
| Peak period of construction* | Q3 2024 - Q3 2024 | 60 | 3 |

6.2 The peak number of construction vehicles is expected to occur between the site set up phase, with 3 construction vehicles accessing the site within a day associated with setting up the site for construction and the demolition of the existing building. The remainder of the construction phases will receive between 3-1 construction vehicles per day.

6.3 Where possible, peak times will be avoided for deliveries. **Figure 6.3** provides a summary of the average daily construction trips during each construction period with three distinct arrival / departure slots throughout the day. This is subject to change based on the daily vagaries of London traffic as well as the specific requirements of the Contractor, once appointed, who will provide specific delivery schedule information. Vehicles greater than 5 tonnes will not be permitted on Grotto Road before 08:00 and after 18:30 in accordance with the existing restrictions.

# 7 IMPLEMENTING, MONITORING AND UPDATING

7.1 An appointed Construction Logistics Manager will be in charge of implementing the CMP and may be a part-time role undertaken by the Main Contractor. It is recognised that the CMP is a 'live' document and as such will be subject to constant review and monitoring in order to react to any changes during the CMP. The Construction Logistics Manager will monitor and record information on the following:

## Number of Vehicle Movements to the Site

- Total;
- By vehicle type / size;
- Time spent on-site; and,
- Delivery/collection accuracy compared to schedule.

## Breaches and Complaints

- Community concerns about construction activities;
- Vehicle routing;
- Unacceptable queuing;
- Unacceptable parking; and
- Compliance with safety and environmental standards and programmes.

## Safety

- Record of associated fatalities and serious injuries;
- Ways staff are travelling to site; and
- Vehicles and operators not meeting safety requirements.

7.2 Data will be recorded at the entrance of the site by a member of staff, as well as through the delivery booking and tracking system to be implemented. This will be an online system accessible to all construction workers. People will be advised of this prior to the commencement of construction.

7.3 A Contractor Handbook and Driver Handbook will be produced as part of the CMP, in order to distribute information relating to site operations. The information to be provided is as follows:

## Contractors Handbook

- Safety procedures;
- Anti-idling procedures;
- Vehicle routing and delivery scheduling; and
- Driver training.

## Drivers Handbook

- Authorised routes to and from the site;
- Site opening times;
- Booking and scheduling information;
- Site entry and exit points, and other information relating to access;
- Anti-Idling; and
- Vulnerable road user safety.

# 8 SUMMARY

8.1 The Draft CMP provides all details required for the successful management of construction vehicles to and from the site. This Draft CMP forms the basis of the Final CMP, which will be provided following appointment of the Contractor and will be a live document to be updated if any changes are required throughout the construction period.

# Figures


## NOTES

1. Do not scale from this drawing.
2. This drawing is to be read & printed in colour.
3. This drawing is for illustrative purpose only.

## KEY:

| Rev | Details | Drawn | Check | Date |
|---|---|---|---|---|
| A | Location Plan (strategic Context) | DAG | SW | 16.09.2022 |

REVISION HISTORY

Client:

St Catherine's School

Project:

St Catherine's School New Music and Art Building

Drawing Title:

Regional Context Plan

| Scale: | Size: | Drawn by: | Checked by: | Date: |
|---|---|---|---|---|
| NTS | A3 | DA.G | S.W | 16.09.2022 |

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21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

| Scheme Ref: | Drawing No: | Sheet: | Rev: |
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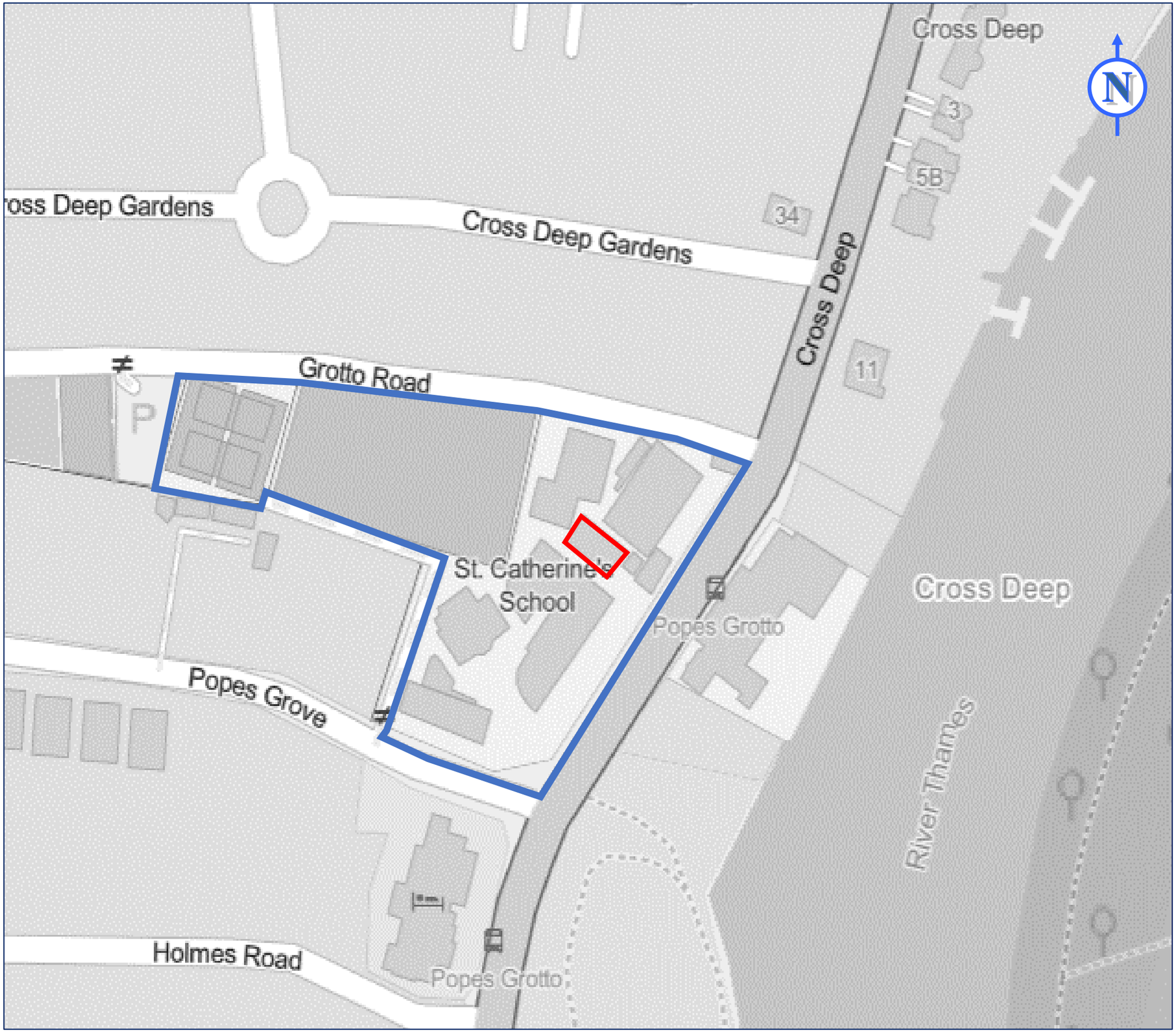


**NOTES**

1. Do not scale from this drawing.
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**KEY:**

Site

Blue Line Boundary

| Rev | Details | Drawn | Check | Date |
|---|---|---|---|---|
| A | Location Plan (Local Context) | DAG | SW | 16.09.2022 |

**REVISION HISTORY**

Client:

St Catherine's School

Project:

St Catherine's School New Music and Art Building

Drawing Title:

Local Context Plan

| Scale: | Size: |
|---|---|
| NTS | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| DA.G | S.W | 16.09.2022 |

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| Scheme Ref: | Drawing No: | Sheet: | Rev: |
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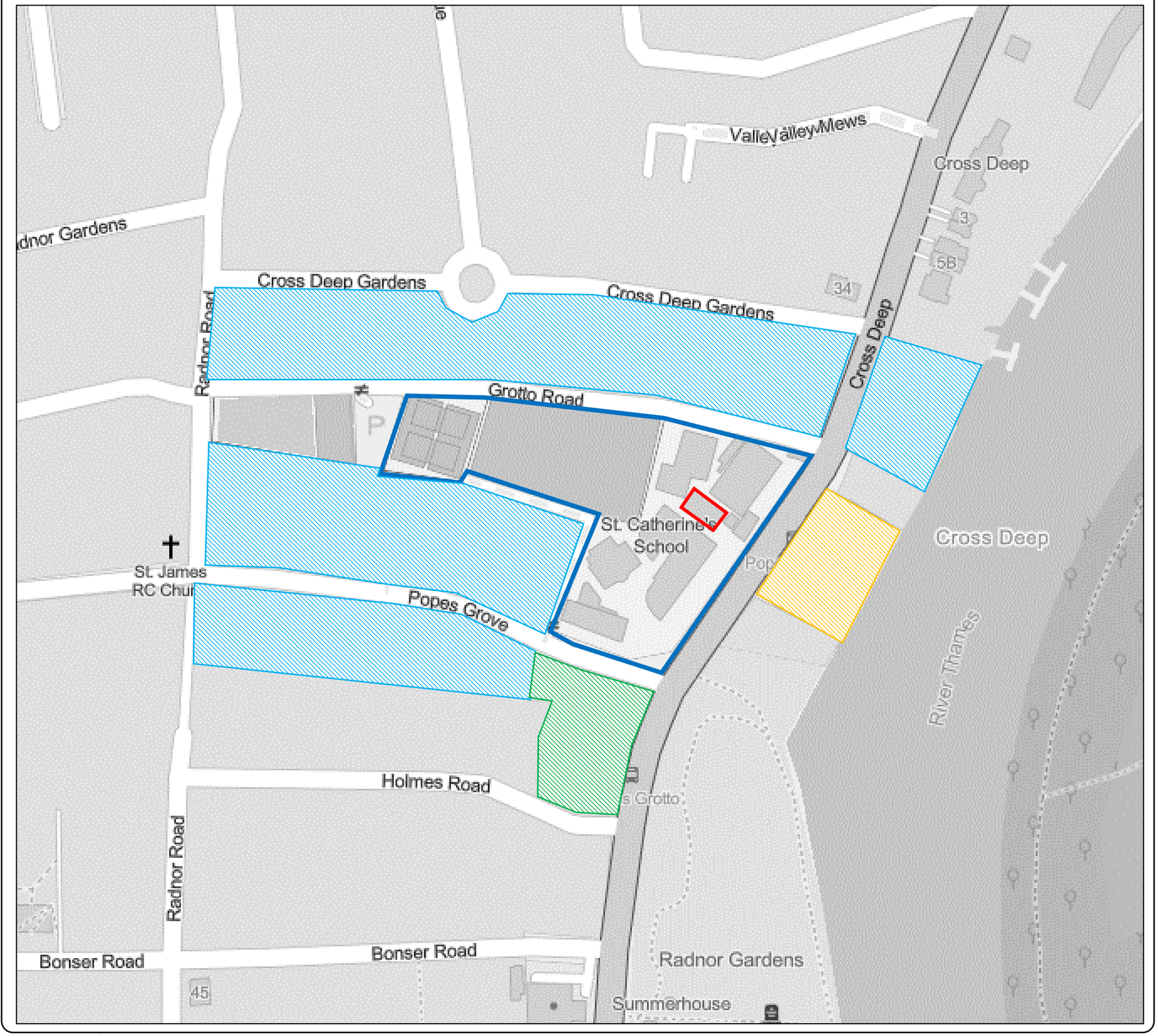


## NOTES

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## KEY:

Site

Blue Line Boundary

Residential

Radnor House Independent School

Public House

| Rev | Details | Drawn | Check | Date |
|---|---|---|---|---|
| A | Location Plan (Local Context) | DAG | SW | 16.09.2022 |

REVISION HISTORY

Client:

St Catherine's School

Project:

St Catherine's School New Music and Art Building

Drawing Title:

Local Context Plan (Community Considerations)

| Scale: | Size: |
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| NTS | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
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| Scheme Ref: | Drawing No: | Sheet: | Rev: |
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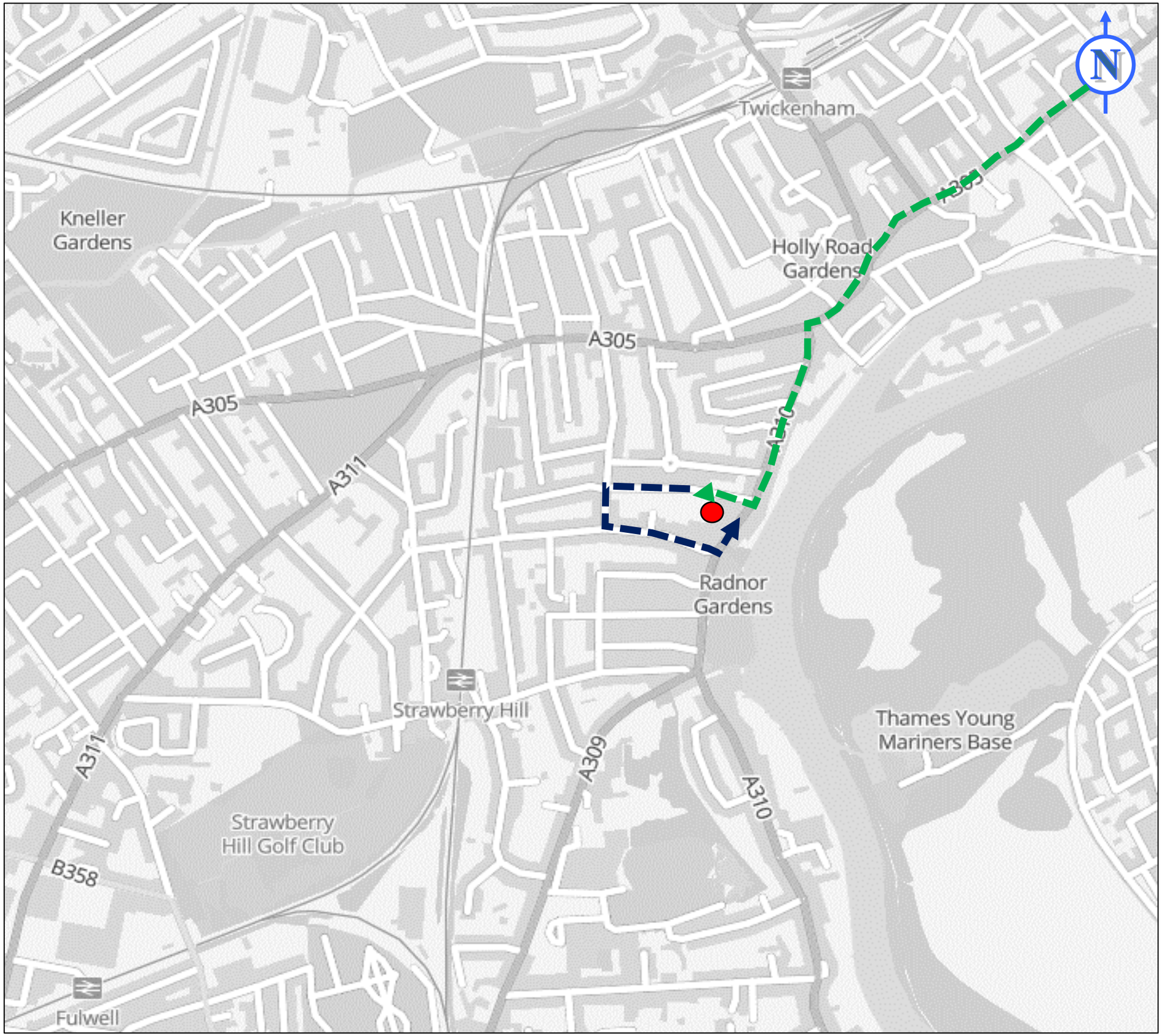


## NOTES

1. Do not scale from this drawing.
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## KEY:

Site

Arrival

Departure

| Rev | Details | Drawn | Check | Date |
|---|---|---|---|---|
| A | Vehicle Routing Plan | DAG | SW | 16.09.2022 |

REVISION HISTORY

Client:

St Catherine's School

Project:

St Catherine's School New Music and Art Building

Drawing Title:

Vehicle Routing Plan (Option 1)

| Scale: | Size: |
|---|---|
| NTS | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| DA.G | S.W | 16.09.2022 |

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| Scheme Ref: | Drawing No: | Sheet: | Rev: |
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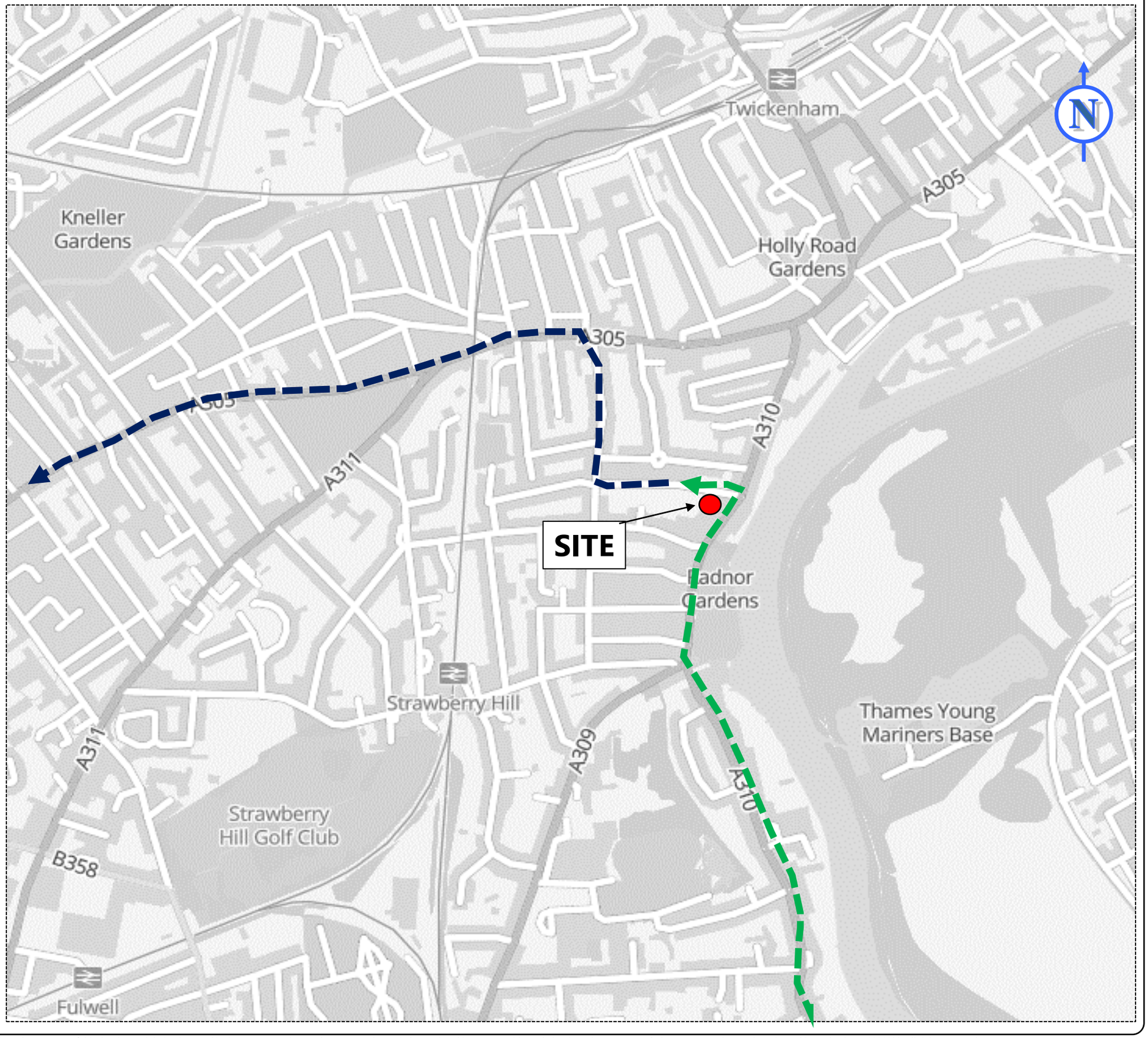


## NOTES

1. Do not scale from this drawing.
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**KEY:**

Site

Arrival

Departure

| Rev | Details | Drawn | Check | Date |
|---|---|---|---|---|
| A | Vehicle Routing Plan | DAG | SW | 16.09.2022 |

REVISION HISTORY

Client:

St Catherine's School

Project:

St Catherine's School New Music and Art Building

Drawing Title:

Vehicle Routing Plan (Option 2)

| Scale: | Size: |
|---|---|
| NTS | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| DA.G | S.W | 16.09.2022 |

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| Scheme Ref: | Drawing No: | Sheet: | Rev: |
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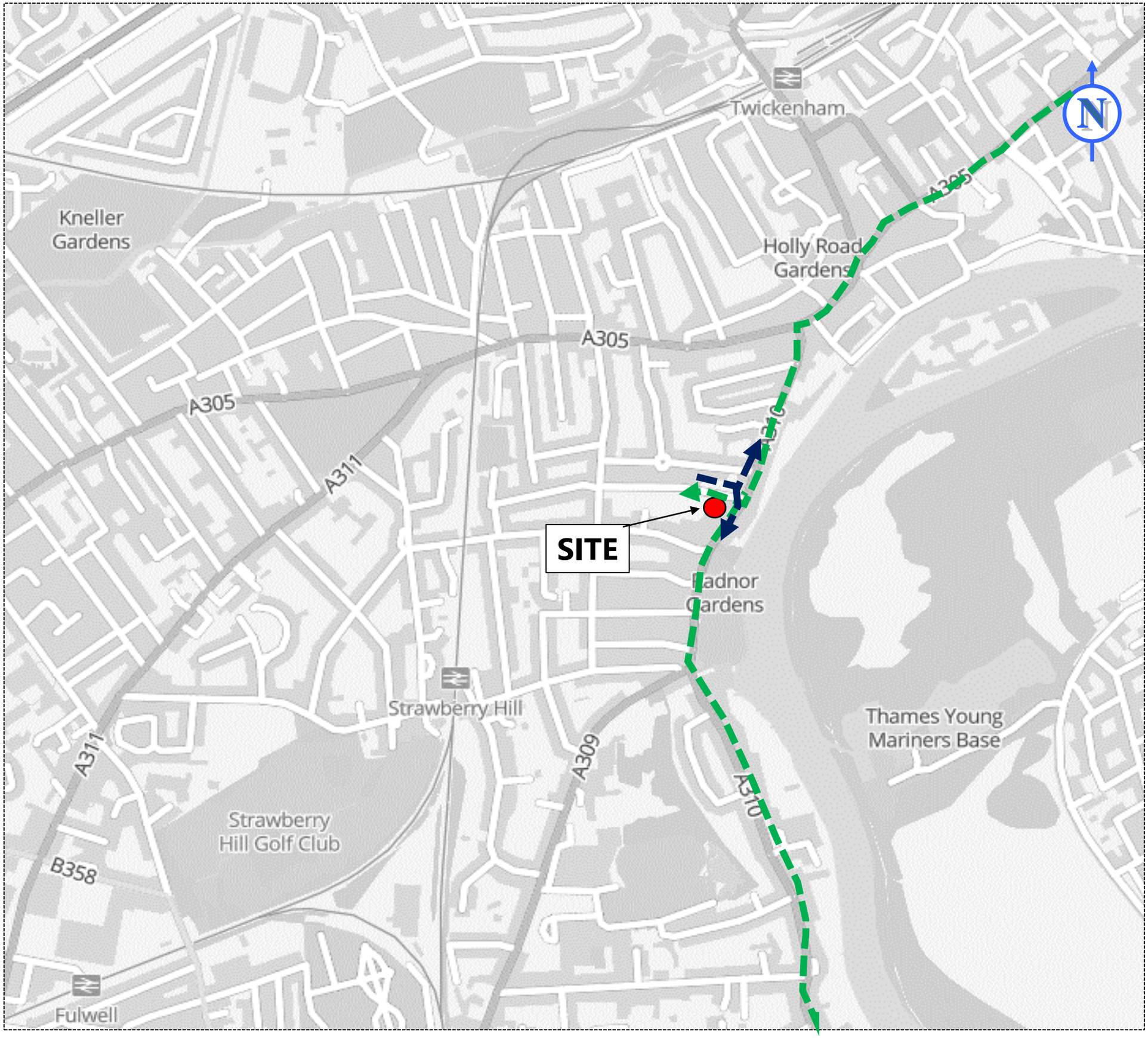


## NOTES

1. Do not scale from this drawing.
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## KEY:

Site

Arrival

Departure

| Rev | Details | Drawn | Check | Date |
|---|---|---|---|---|
| A | Vehicle Routing Plan | DAG | SW | 16.09.2022 |

REVISION HISTORY

Client:

St Catherine's School

Project:

St Catherine's School New Music and Art Building

Drawing Title:

Vehicle Routing Plan (Option 3)

| Scale: | Size: |
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| NTS | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| DA.G | S.W | 16.09.2022 |

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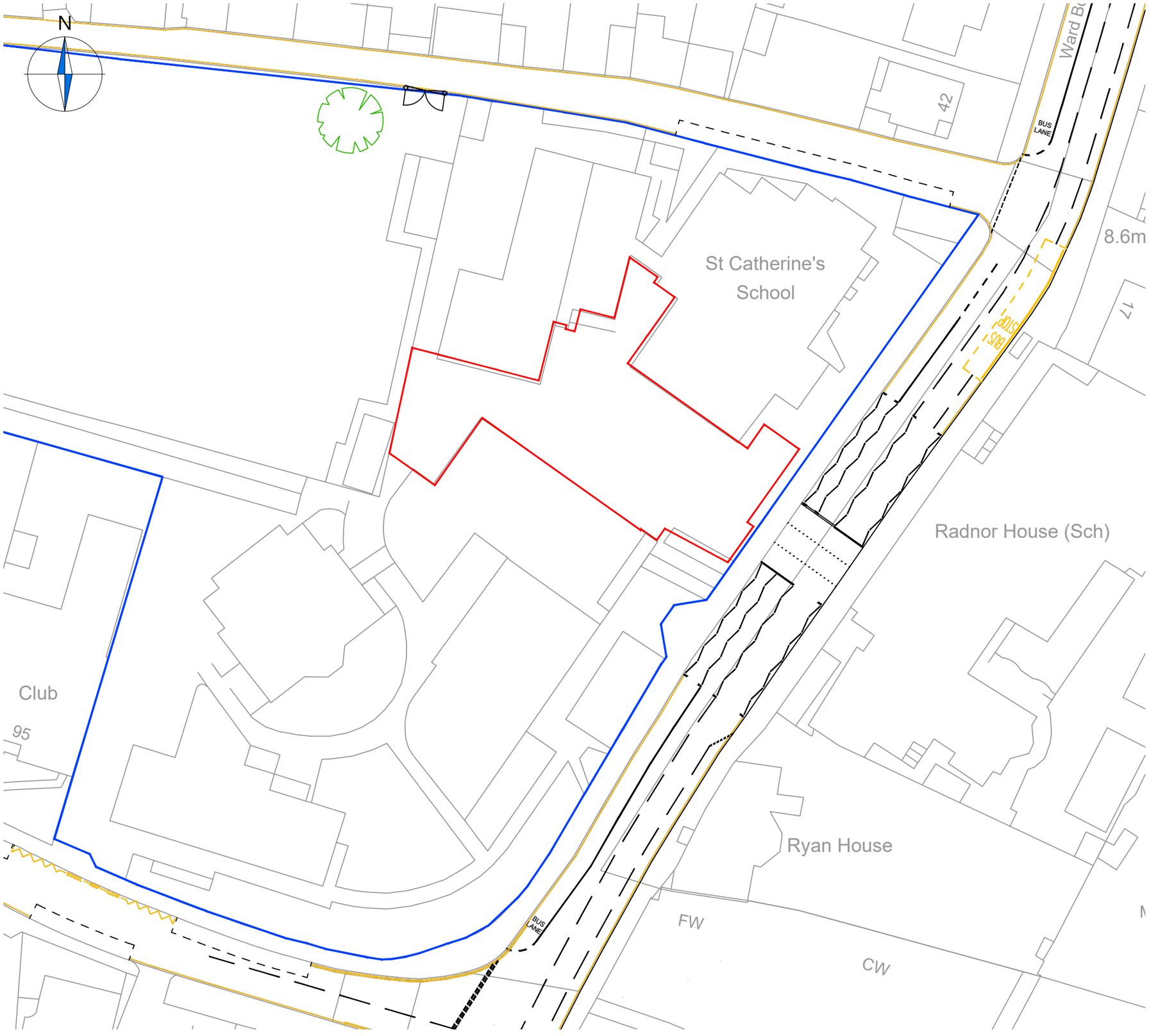
# Appendix A




## NOTES

1. This drawing to be read & printed in colour.
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**KEY:**

| | |
|---|---|
| | OWNERSHIP BOUNDARY |
| | APPLICATION BOUNDARY |
| | EXISTING GATE |
| | EXISTING TREE LOCATION |

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| B | Tree location updated. | RLM | SW | 26.02.2024 |
| A | Boundary updated. | RLM | SW | 13.11.2023 |

**REVISION HISTORY**

Status:
- ☐ Preliminary
- ☐ For Approval
- ☐ For Construction
- ☑ For Information
- ☐ For Tender
- ☐ As Built

Client: St Catherine's School

Project: St Catherine's School, Twickenham

Drawing Title: Existing Highway Arrangement

| Scale: | Size: | Drawn by: | Checked by: | Date: |
|---|---|---|---|---|
| 1:500 | A3 | COS | SW | 23.08.2022 |

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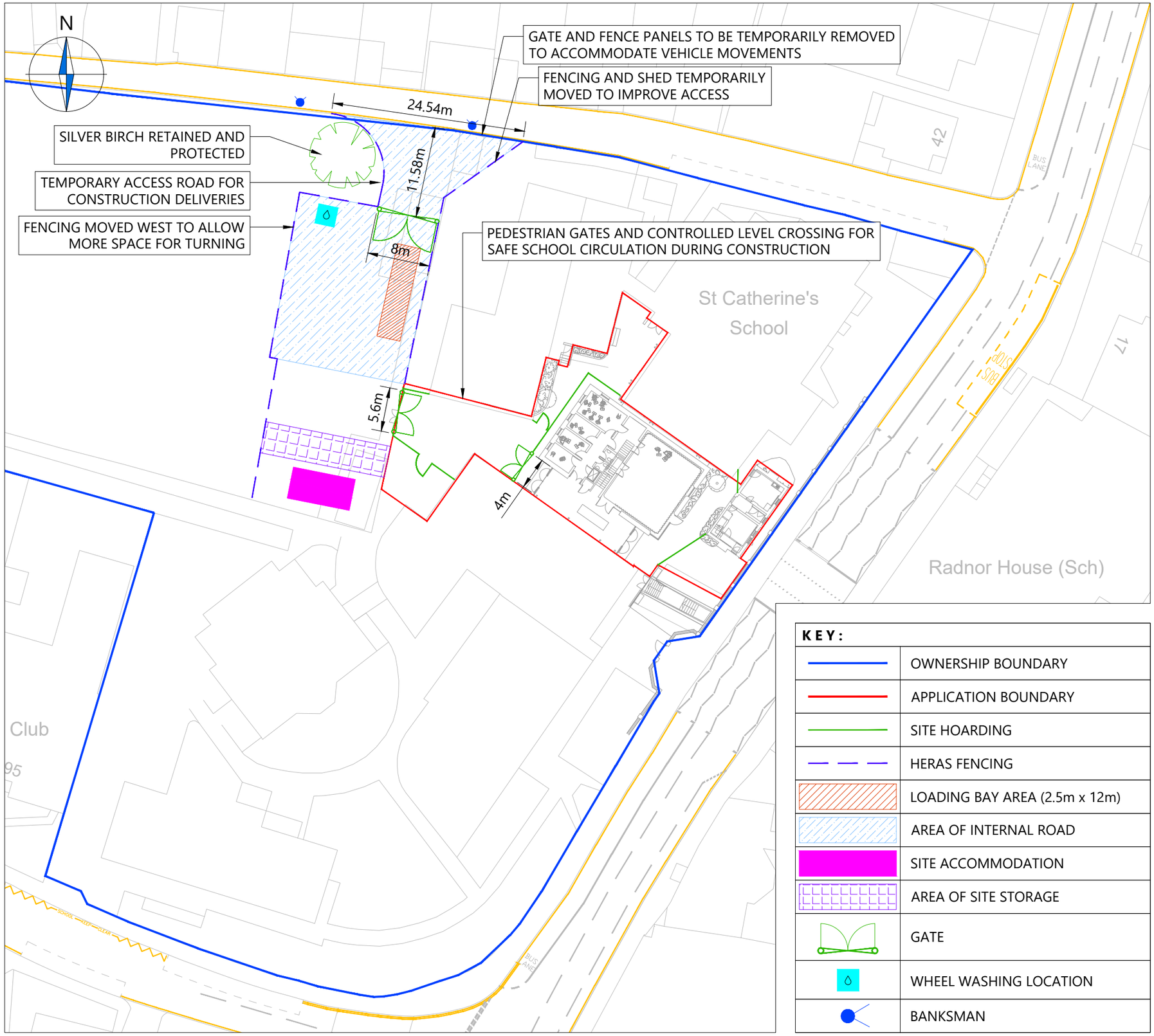
| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | 001 | 1 of 1 | B |

CA_4952_001_B - EXISTING HIGHWAY ARRANGEMENT.DWG




**KEY:**

| | |
|---|---|
| | OWNERSHIP BOUNDARY |
| | APPLICATION BOUNDARY |
| | SITE HOARDING |
| | HERAS FENCING |
| | LOADING BAY AREA (2.5m x 12m) |
| | AREA OF INTERNAL ROAD |
| | SITE ACCOMMODATION |
| | AREA OF SITE STORAGE |
| | GATE |
| | WHEEL WASHING LOCATION |
| | BANKSMAN |

**NOTES**

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |
| D | Updates following Internal Review. | JS | SW | 17.11.23 |
| C | Proposed Gate Amended. | RLM | SW | 16.11.23 |
| B | Updated Site Layout. | RLM | SW | 13.11.23 |
| A | Updated based on Client Comments. | JS | SW | 28.10.22 |

**REVISION HISTORY**

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client:

St Catherine's School

Project:

St Catherine's School, Twickenham

Drawing Title:

Proposed Construction Arrangement A

| Scale: | Size: |
|---|---|
| 1:500 | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| COS | SW | 30.08.2022 |

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| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
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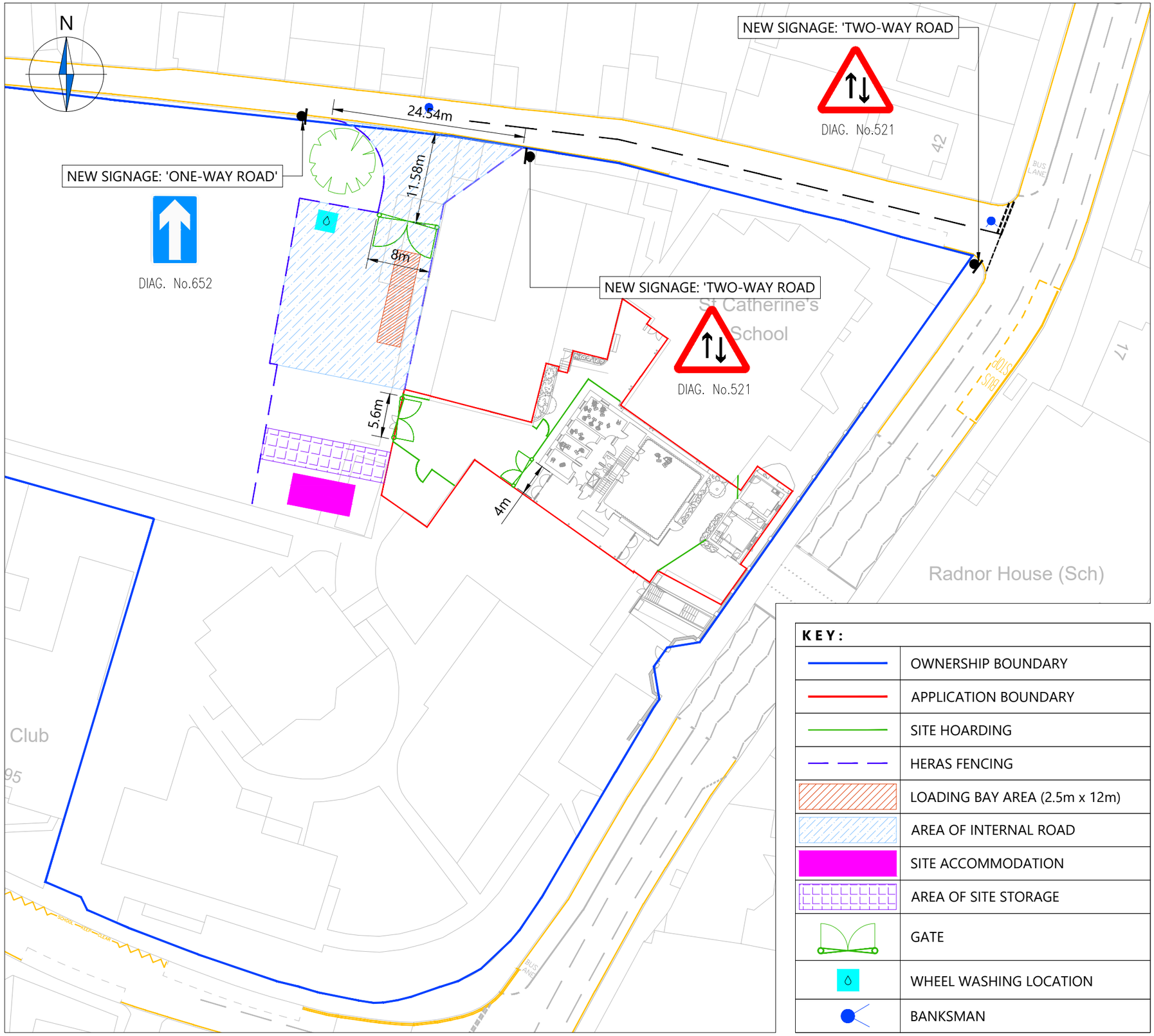
CA_4952_002_G - PROPOSED CONSTRUCTION ARRANGEMENT.DWG




**KEY:**

| | |
|---|---|
| | OWNERSHIP BOUNDARY |
| | APPLICATION BOUNDARY |
| | SITE HOARDING |
| | HERAS FENCING |
| | LOADING BAY AREA (2.5m x 12m) |
| | AREA OF INTERNAL ROAD |
| | SITE ACCOMMODATION |
| | AREA OF SITE STORAGE |
| | GATE |
| | WHEEL WASHING LOCATION |
| | BANKSMAN |

## NOTES

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2. This drawing is for illustrative purposes only.

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |
| D | Updates following Internal Review. | JS | SW | 17.11.23 |
| C | Proposed Gate Amended. | RLM | SW | 16.11.23 |
| B | Updated Site Layout. | RLM | SW | 13.11.23 |
| A | Updated based on Client Comments. | JS | SW | 28.10.22 |

**REVISION HISTORY**

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client:

St Catherine's School

Project:

St Catherine's School, Twickenham

Drawing Title:

Temporary Traffic Order
Arrangement B
Grotto Road Two-Way

| Scale: | Size: |
|---|---|
| 1:500 | A3 |

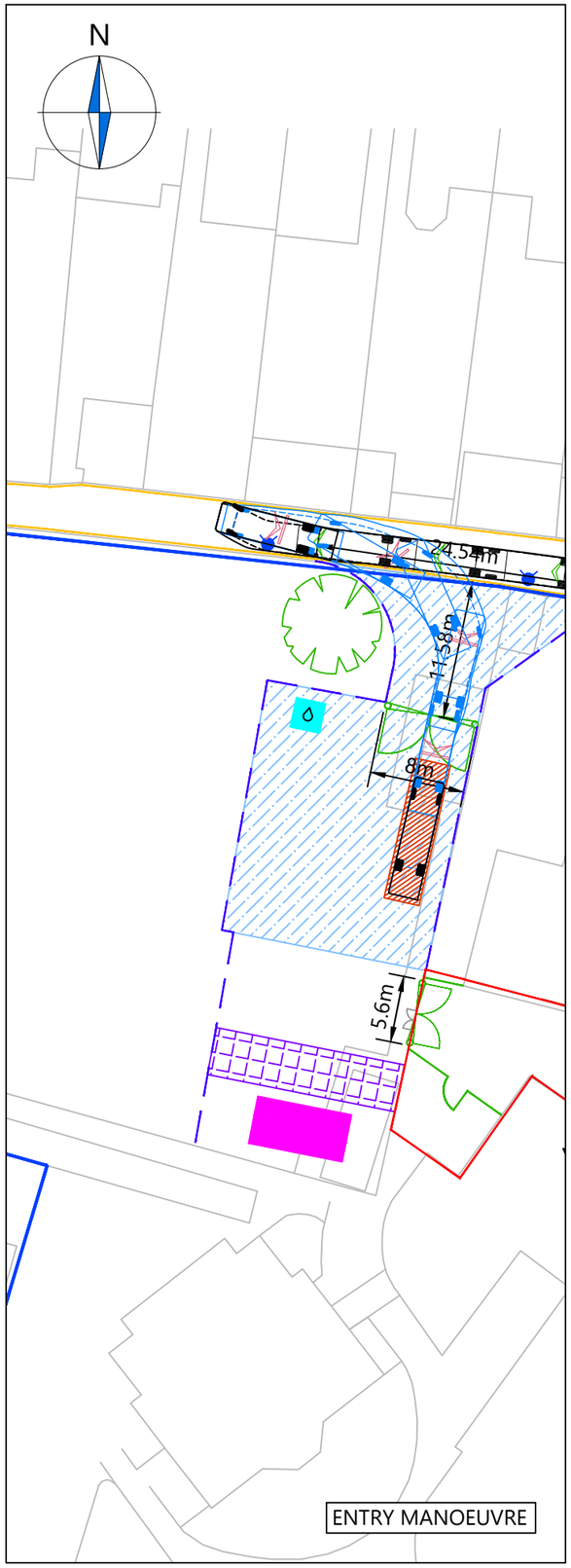
| Drawn by: | Checked by: | Date: |
|---|---|---|
| COS | SW | 30.08.2022 |

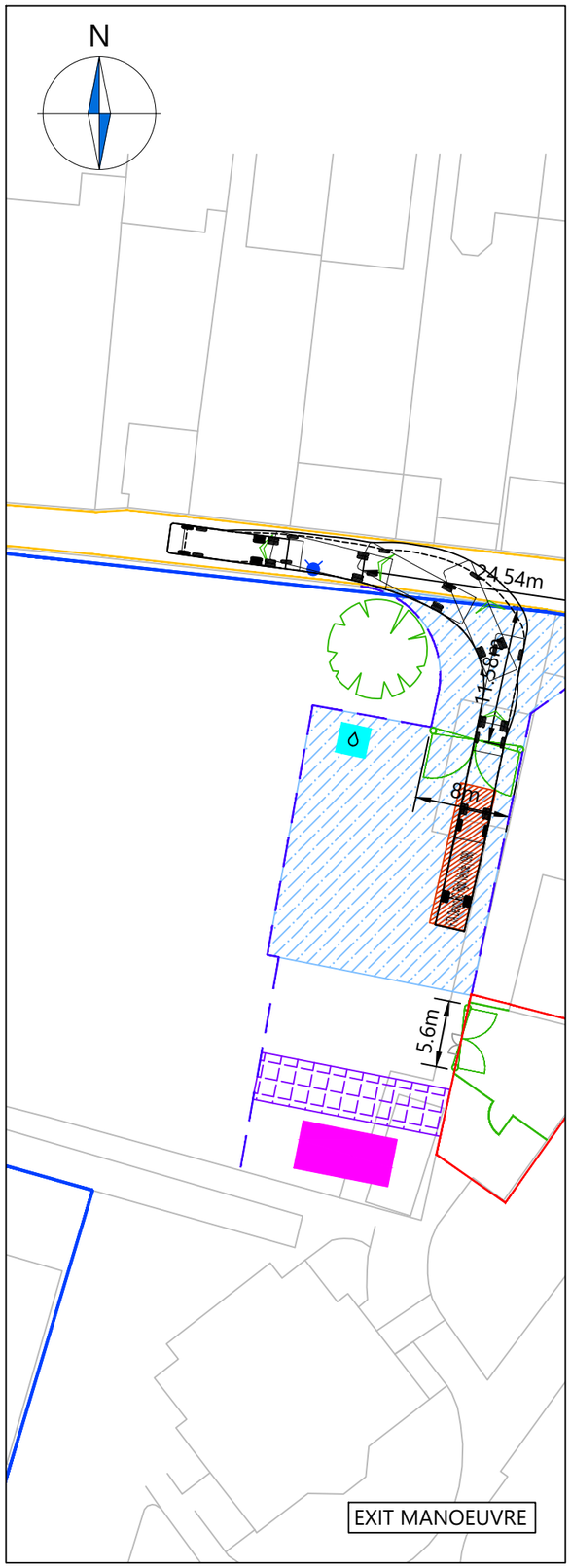
CANEPARO ASSOCIATES
Transport Planning & Highway Design
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

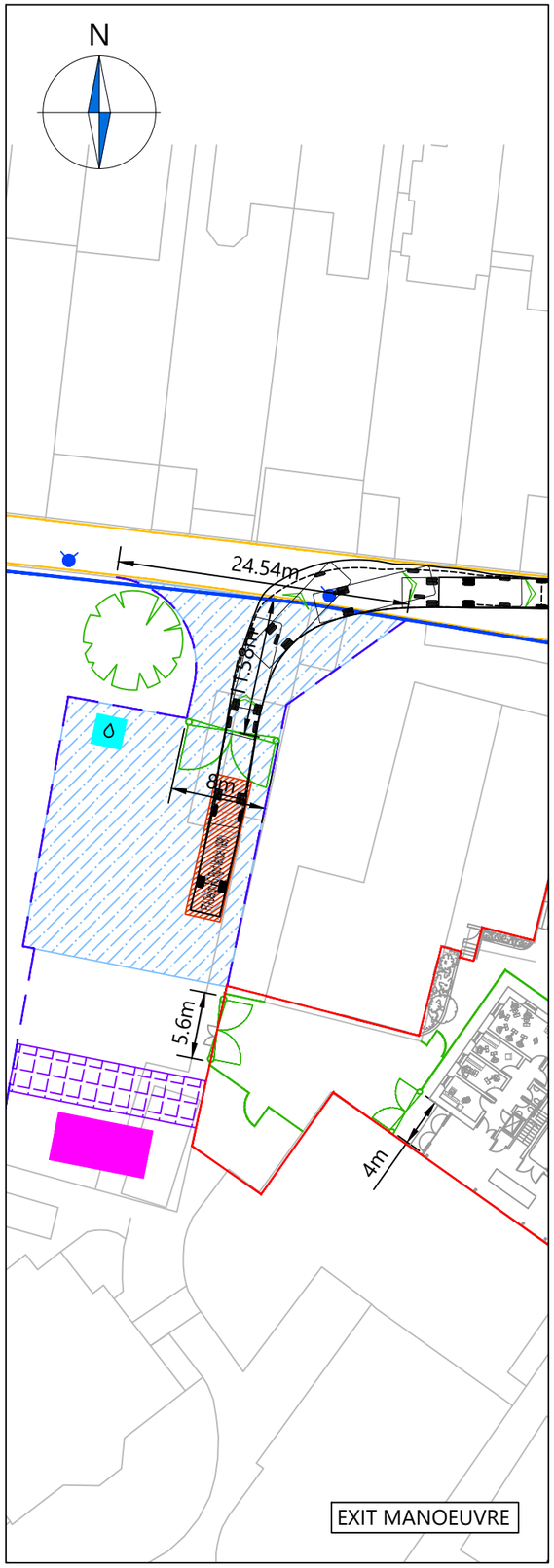
| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | 002 | 2 of 2 | G |

CA_4952_002_G - PROPOSED CONSTRUCTION ARRANGEMENT.DWG

# Appendix B



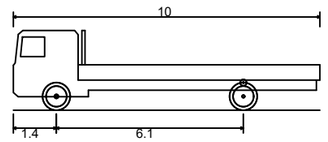




## NOTES

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.
3. Stationary steering has not been used as part of the vehicle swept path analysis on this drawing.

## RIGID FLATBED




| | |
|---|---|
| Overall Length | 10.000m |
| Overall Width | 2.500m |
| Overall Body Height | 2.602m |
| Min Body Ground Clearance | 0.440m |
| Track Width | 2.470m |
| Lock to Lock Time | 3.00s |
| Kerb to Kerb Turning Radius | 11.000m |

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client:

St Catherine's School

Project:

St Catherine's School, Twickenham

Drawing Title:

Vehicle Swept Path Analysis for a Rigid Flatbed Lorry

| Scale: | Size: |
|---|---|
| 1:500 | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| COS | SW | 24.08.2022 |

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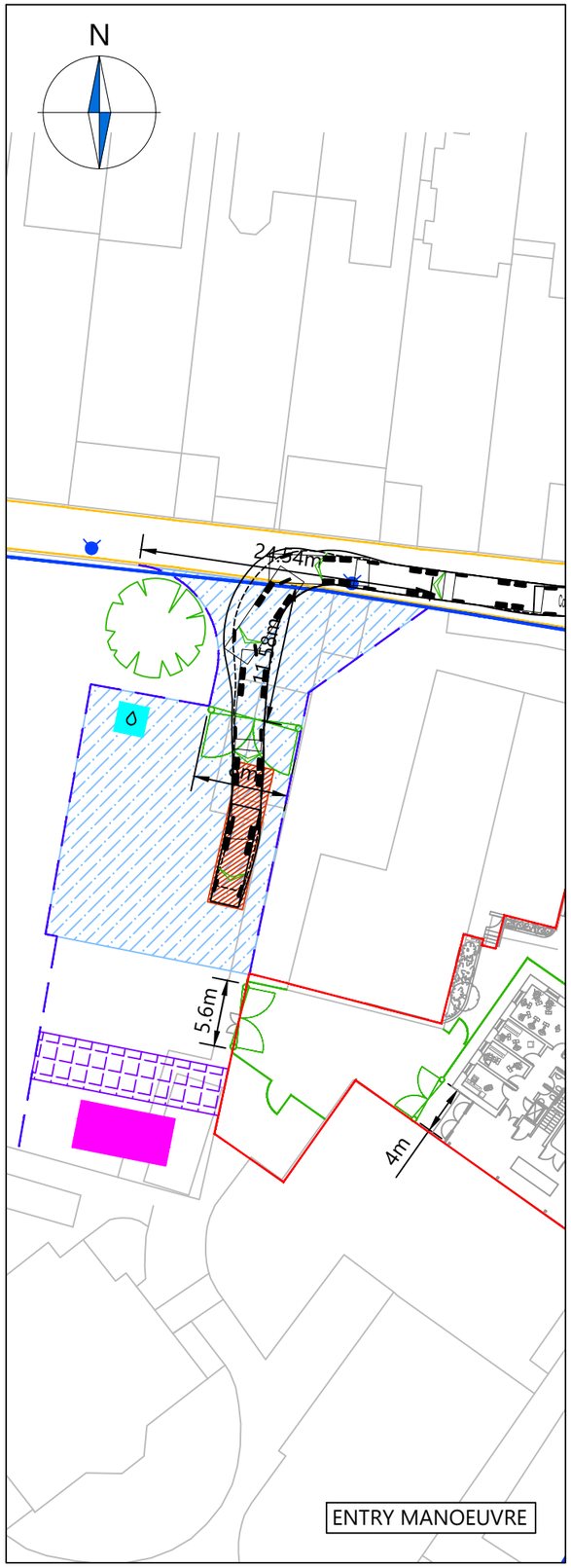
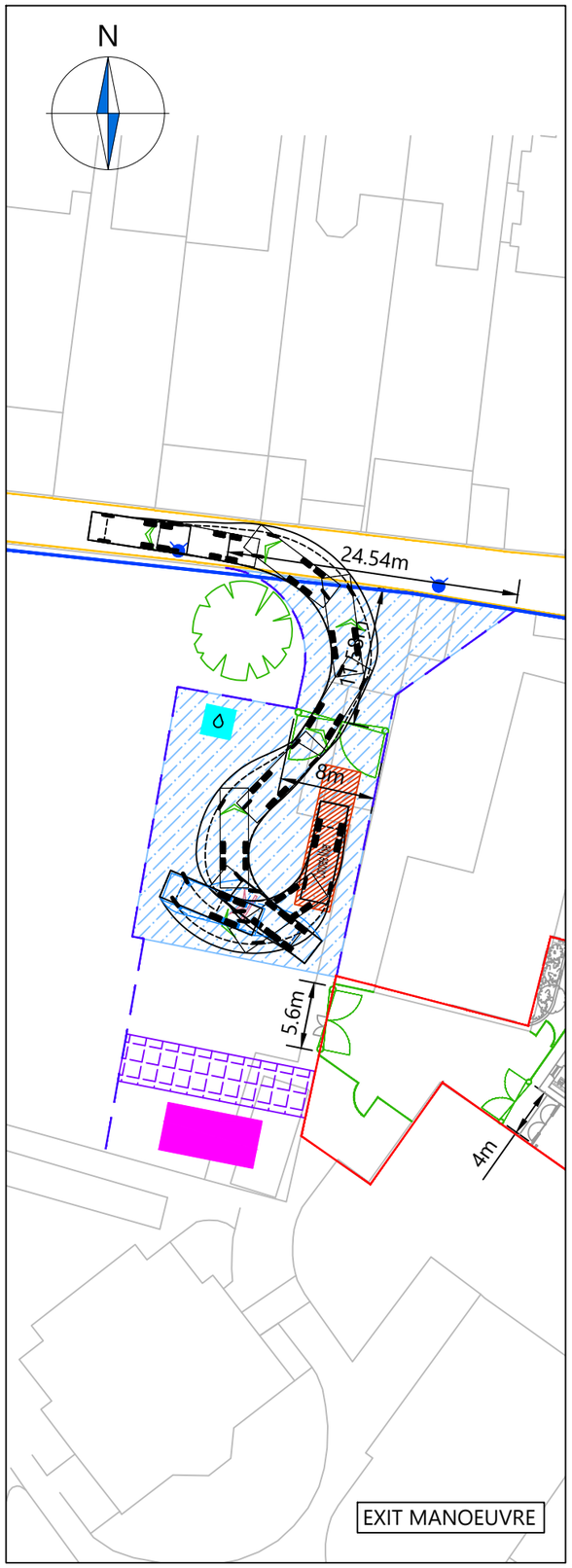
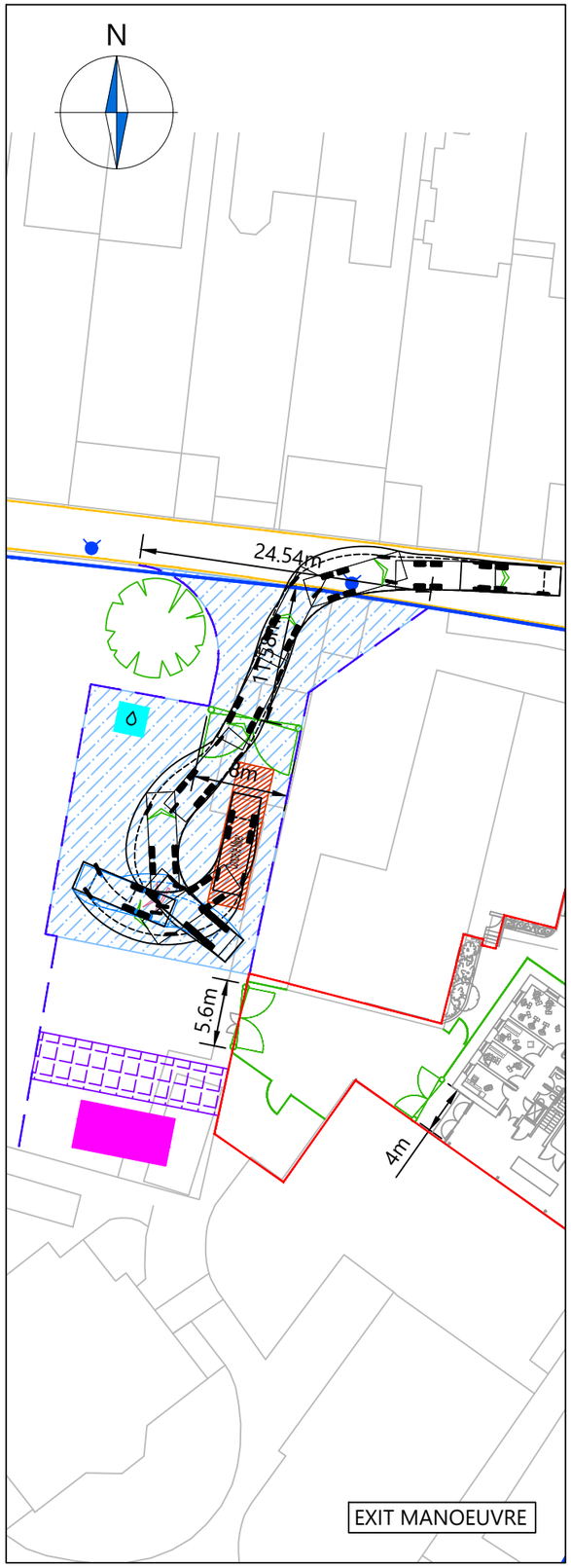
Transport Planning & Highway Design
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | TR001 | 1 of 4 | G |

CA_4952_TR001_G - VEHICLE SWEPT PATH ANALYSIS FOR PROPOSED CONSTRUCTION ARRANGEMENT.DWG



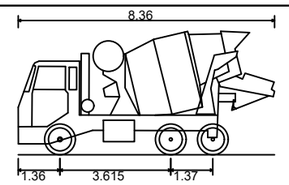




## NOTES

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.
3. Stationary steering has not been used as part of the vehicle swept path analysis on this drawing.

## CONCRETE MIXER




| | |
|---|---|
| Overall Length | 8.360m |
| Overall Width | 2.390m |
| Overall Body Height | 4.027m |
| Min Body Ground Clearance | 0.358m |
| Max Track Width | 2.413m |
| Lock to Lock Time | 6.00s |
| Kerb to Kerb Turning Radius | 8.210m |

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client: St Catherine's School

Project: St Catherine's School, Twickenham

Drawing Title: Vehicle Swept Path Analysis for a Concrete Mixer

| Scale: | Size: | Drawn by: | Checked by: | Date: |
|---|---|---|---|---|
| 1:500 | A3 | COS | SW | 24.08.2022 |

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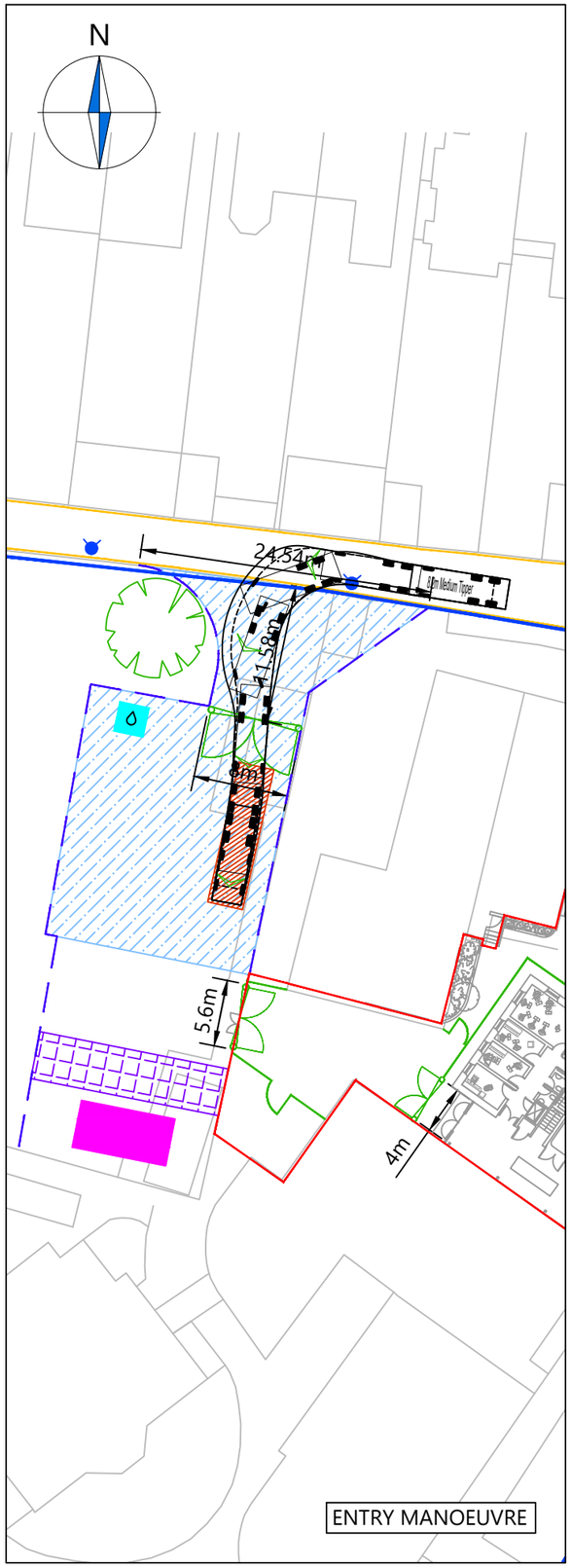
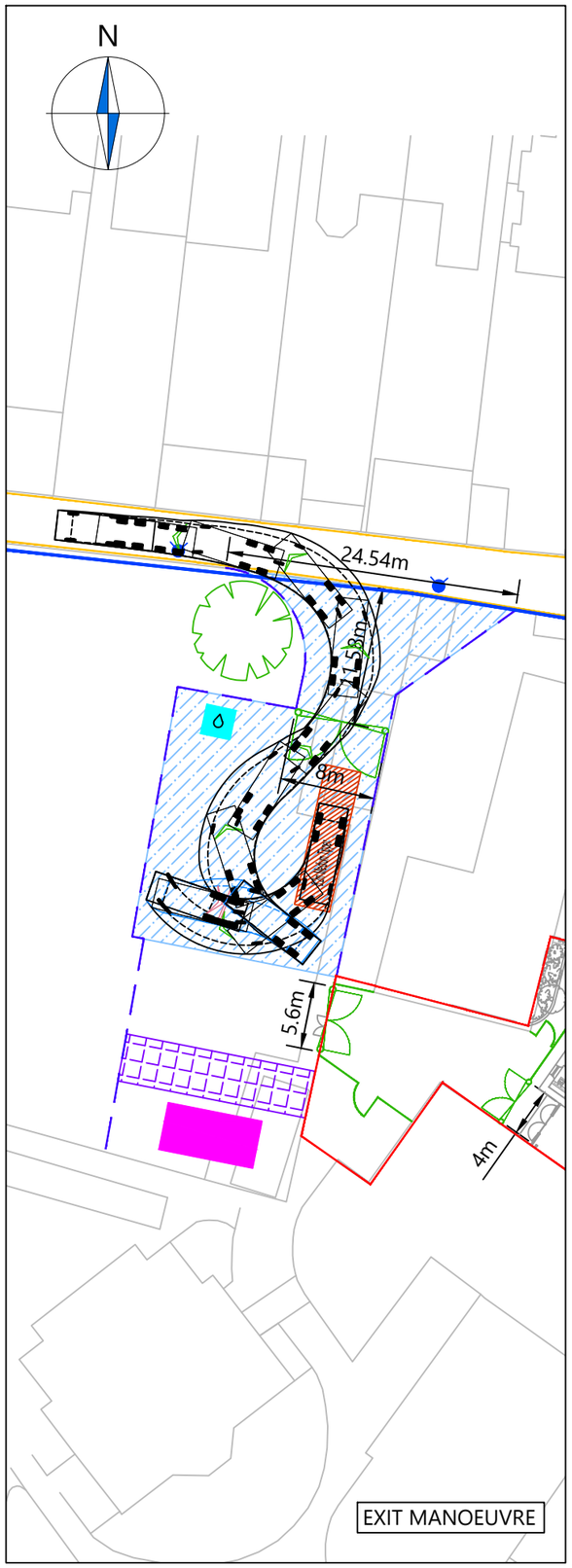
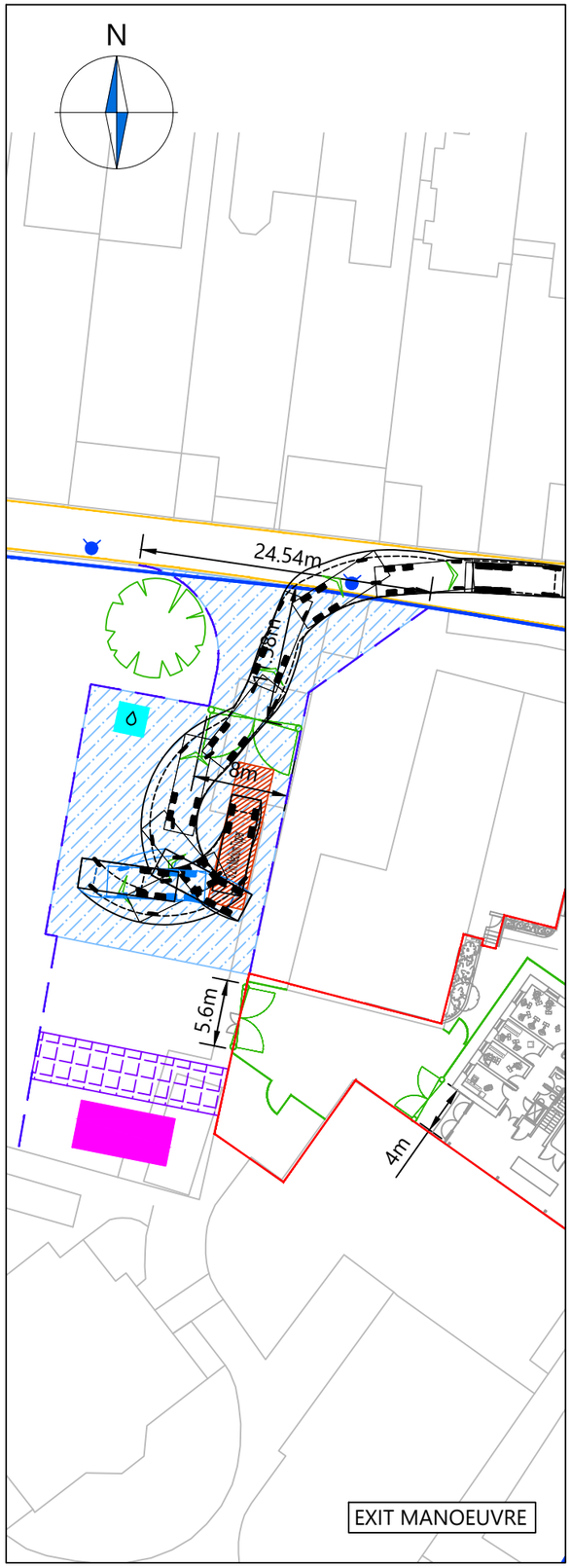
Transport Planning & Highway Design
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | TR001 | 2 of 4 | G |

CA_4952_TR001_G - VEHICLE SWEPT PATH ANALYSIS FOR PROPOSED CONSTRUCTION ARRANGEMENT.DWG



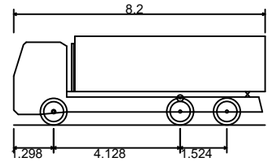




## NOTES

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.
3. Stationary steering has not been used as part of the vehicle swept path analysis on this drawing.

## MEDIUM TIPPER




| | |
|---|---|
| Overall Length | 8.200m |
| Overall Width | 2.500m |
| Overall Body Height | 2.894m |
| Min Body Ground Clearance | 0.344m |
| Max Track Width | 2.500m |
| Lock to Lock Time | 5.00s |
| Kerb to Kerb Turning Radius | 9.284m |

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client: St Catherine's School

Project: St Catherine's School, Twickenham

Drawing Title: Vehicle Swept Path Analysis for a Medium Tipper

| Scale: | Size: | Drawn by: | Checked by: | Date: |
|---|---|---|---|---|
| 1:500 | A3 | COS | SW | 24.08.2022 |

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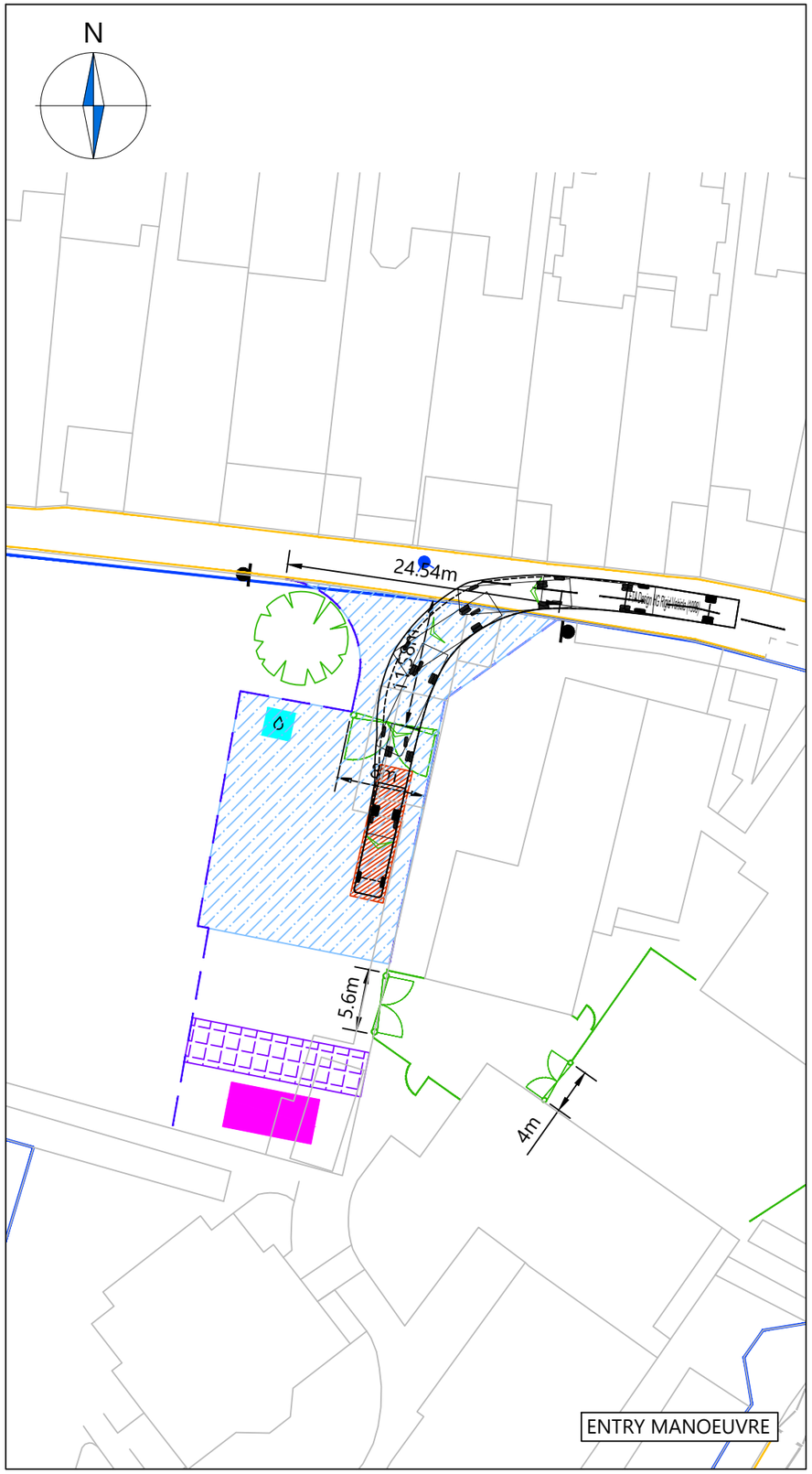
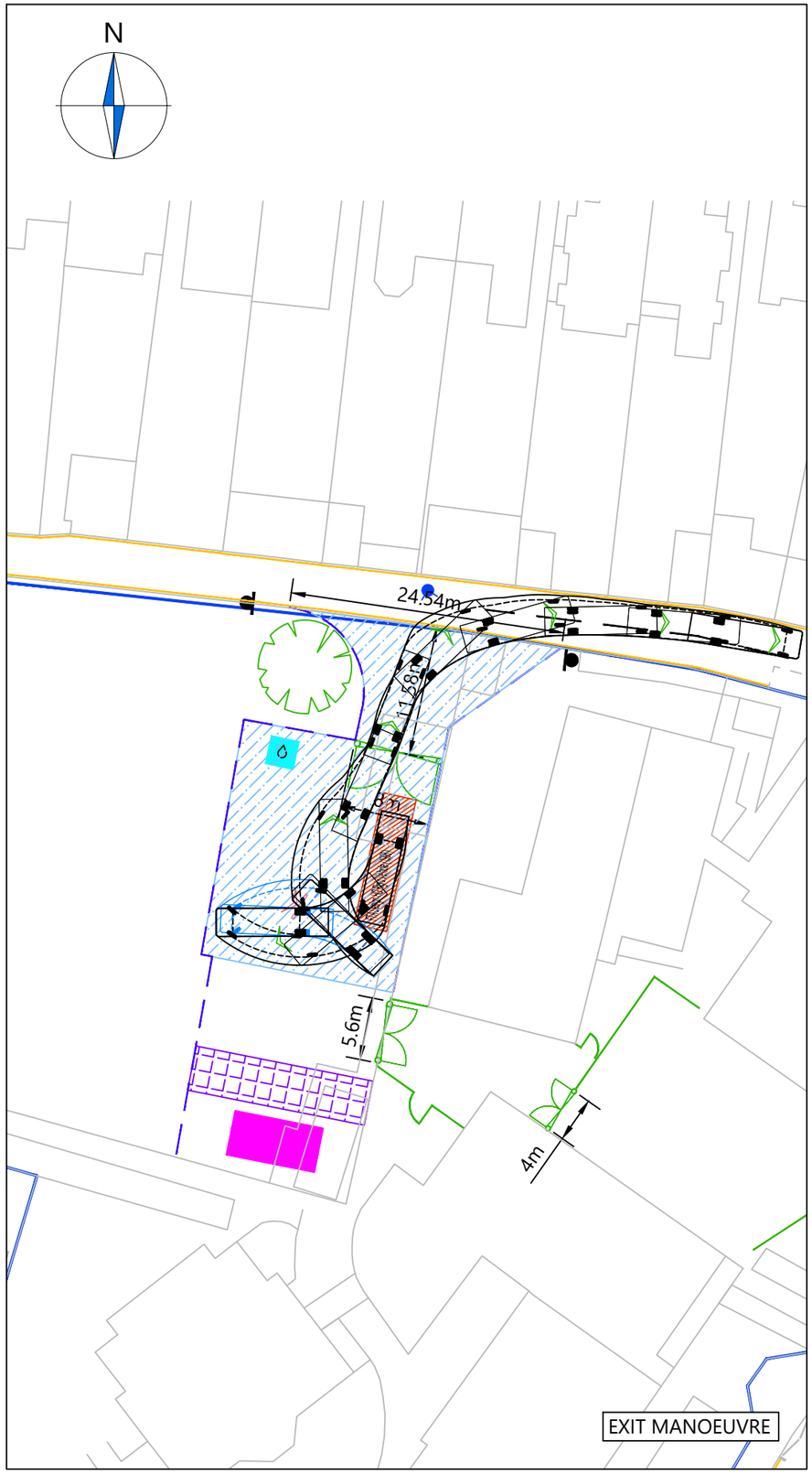
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | TR001 | 3 of 4 | G |

CA_4952_TR001_G - VEHICLE SWEPT PATH ANALYSIS FOR PROPOSED CONSTRUCTION ARRANGEMENT.DWG

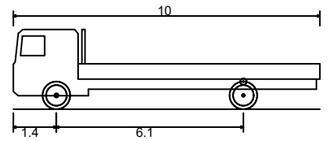



## NOTES

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.
3. Stationary steering has not been used as part of the vehicle swept path analysis on this drawing.

## RIGID FLATBED




| | |
|---|---|
| Overall Length | 10.000m |
| Overall Width | 2.500m |
| Overall Body Height | 2.602m |
| Min Body Ground Clearance | 0.440m |
| Track Width | 2.470m |
| Lock to Lock Time | 3.00s |
| Kerb to Kerb Turning Radius | 11.000m |

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |

REVISION HISTORY

Status:
- ☐ Preliminary
- ☐ For Approval
- ☐ For Construction
- ☑ For Information
- ☐ For Tender
- ☐ As Built

Client:

St Catherine's School

Project:

St Catherine's School, Twickenham

Drawing Title:

Vehicle Swept Path Analysis
Grotto Road Two-Way
Rigid Flatbed Lorry

| Scale: | Size: |
|---|---|
| 1:500 | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| COS | SW | 24.08.2022 |

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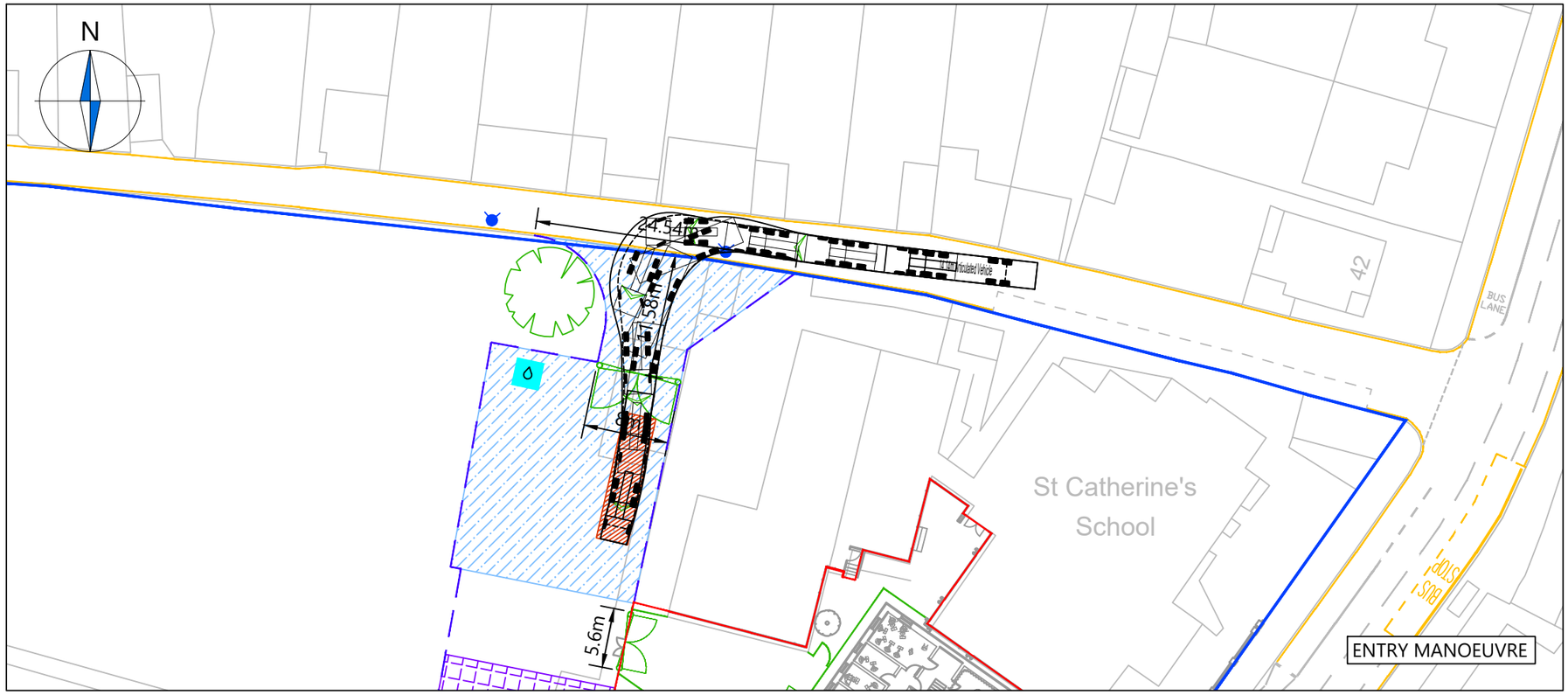
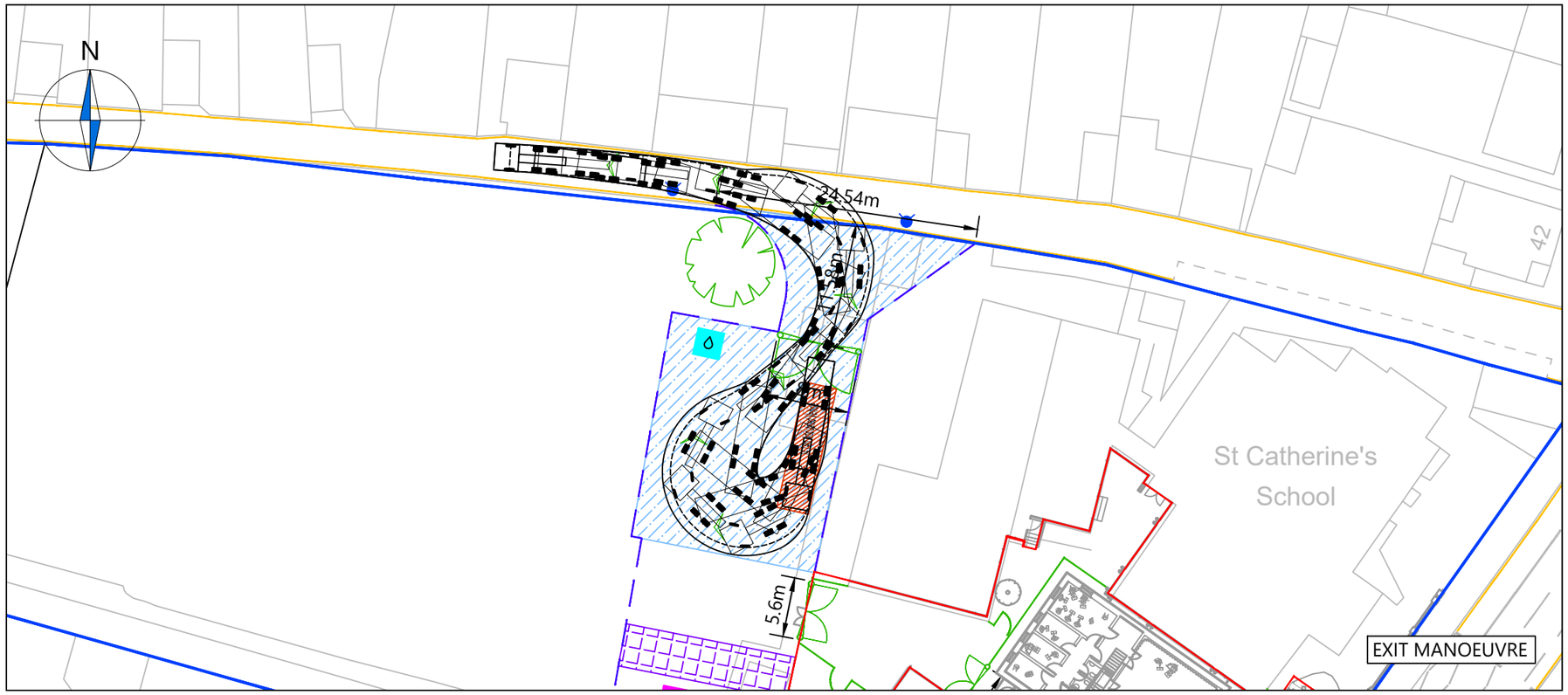
Transport Planning & Highway Design
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | TR001 | 4 of 4 | G |

CA_4952_TR001_G - VEHICLE SWEPT PATH ANALYSIS FOR PROPOSED CONSTRUCTION ARRANGEMENT.DWG

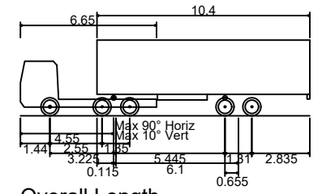



## NOTES

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.
3. Stationary steering has not been used as part of the vehicle swept path analysis on this drawing.

## 14.14m ARTICULATED VEHICLE




| | |
|---|---|
| Overall Length | 14.140m |
| Overall Width | 2.500m |
| Overall Body Height | 3.695m |
| Min Body Ground Clearance | 0.427m |
| Track Width | 2.500m |
| Lock to lock time | 6.00s |
| Kerb to Kerb Turning Radius | 7.052m |

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client: St Catherine's School

Project: St Catherine's School, Twickenham

Drawing Title: Vehicle Swept Path Analysis Articulated Vehicle

| Scale: | Size: | Drawn by: | Checked by: | Date: |
|---|---|---|---|---|
| 1:500 | A3 | COS | SW | 06.10.2022 |

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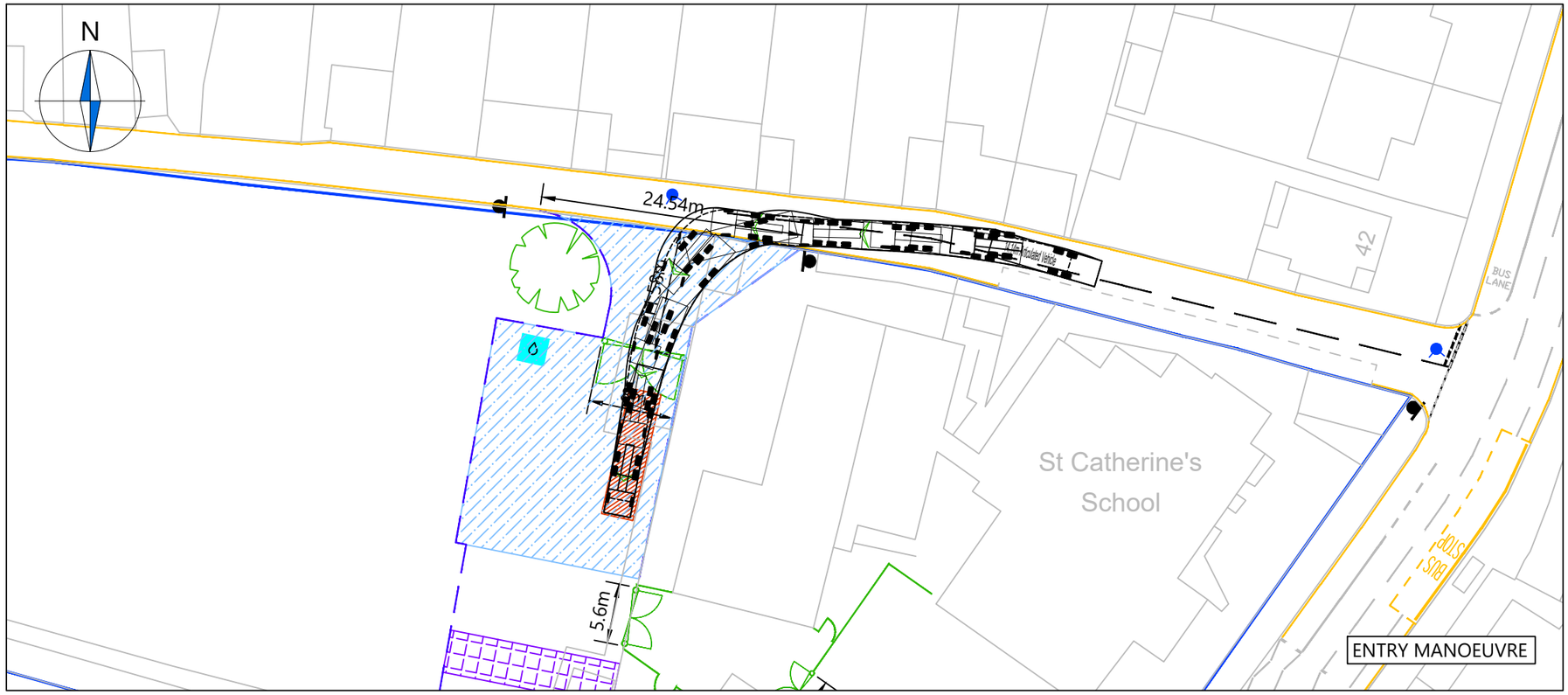
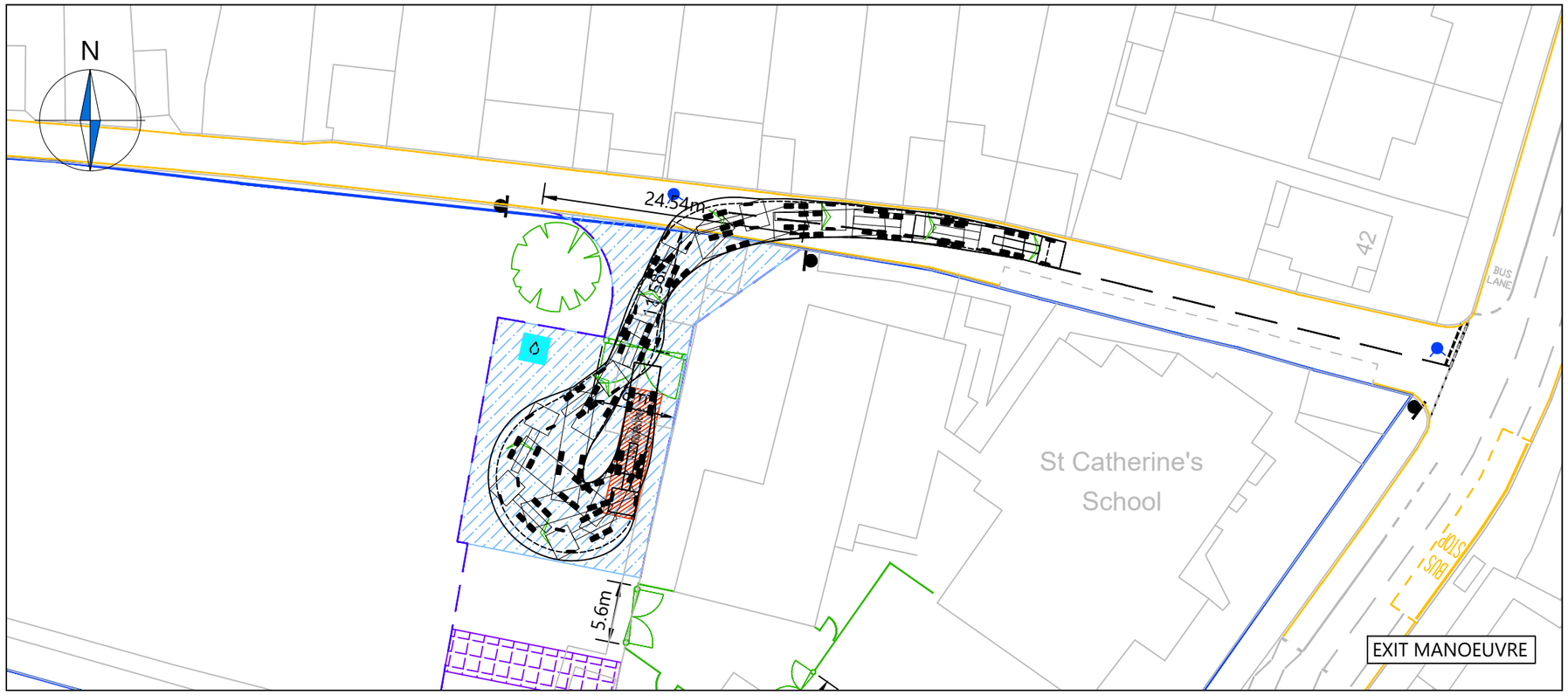
| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | TR003 | 1 of 2 | G |

CA_4952_TR003_G - PROPOSED CONSTRUCTION ARRANGEMENT (ARTICULATED VEHICLE).DWG

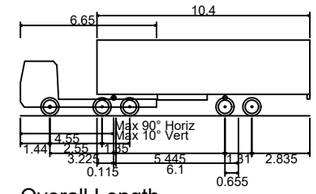



## NOTES

1. This drawing to be read & printed in colour.
2. This drawing is for illustrative purposes only.
3. Stationary steering has not been used as part of the vehicle swept path analysis on this drawing.

## 14.14m ARTICULATED VEHICLE




| | |
|---|---|
| Overall Length | 14.140m |
| Overall Width | 2.500m |
| Overall Body Height | 3.695m |
| Min Body Ground Clearance | 0.427m |
| Track Width | 2.500m |
| Lock to lock time | 6.00s |
| Kerb to Kerb Turning Radius | 7.052m |

FORWARD MOVEMENTS ARE SHOWN IN BLACK *(design speed - 5kph)*

REVERSE MOVEMENTS ARE SHOWN IN BLUE *(design speed - 2.5kph)*

| Rev | Details | Drawn | Checked | Date |
|---|---|---|---|---|
| G | Updated based on Client's comments. | RLM | SW | 27.02.24 |
| F | Updated based on Client's comments. | RLM | SW | 26.02.24 |
| E | Updated based on Client's comments. | RLM | SW | 22.02.24 |

REVISION HISTORY

Status: ☐ Preliminary ☐ For Approval ☐ For Construction ☑ For Information ☐ For Tender ☐ As Built

Client: St Catherine's School

Project: St Catherine's School, Twickenham

Drawing Title: Vehicle Swept Path Analysis Grotto Road Two-Way Articulated Vehicle

| Scale: | Size: |
|---|---|
| 1:500 | A3 |

| Drawn by: | Checked by: | Date: |
|---|---|---|
| COS | SW | 06.10.2022 |

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Transport Planning & Highway Design
21 Little Portland Street • London • W1W 8BT • Tel. 020 3617 8200

| Scheme Ref: | Drawing No: | Sheet : | Rev: |
|---|---|---|---|
| 4952 | TR003 | 2 of 2 | G |

CA_4952_TR003_G - PROPOSED CONSTRUCTION ARRANGEMENT (ARTICULATED VEHICLE).DWG