Civil – Traffic – Stormwater –Access – Waste - Flooding

Traffic and Parking Impact Assessment Report

Proposed Childcare Centre Development
Lots 15-16 DP 29528
31-32 Park Avenue
KINGSWOOD, NSW 2747

Prepared For: MIM Property Pty Ltd (DA Submission)

Report V5 August 2021
Ref. Job 177

PO Box 5468
Greystanes, NSW 2145
ABN: 57 615 352 540
Telephone: 0419242726 Email: zulfik@bigpond.com
Website: www.multiproconsultants.com

Contents

1 Introduction

MultiPro was commissioned by Miletic-Mieler Development Consultants to prepare a report detailing the Traffic and Parking to support the proposed Childcare Centre at 31-32 Park Avenue, Kingswood. The proposed development is located on Lots 15 and 16, DP 29528. The subject allotments is zoned R3 - Medium Density Residential (pub. 27-9-2019) under the Penrith Local Environmental Plan 2010. The locality of the site is shown in Figure 1.

This Traffic & Parking Impact Assessment has been prepared in accordance with the RMS *Guide to Traffic Generating Developments* procedure manual where applicable and Penrith Development Control Plan 2014.

The proposed land use is defined as a 'Childcare Centre and it is permissible, with consent, in the R3 zone under Penrith Local Environmental Plan 2010(PLEP).

The report addresses, but not limited to, traffic generation, access, carparking, and manoeuvring including the following:

- Existing Conditions – a review of existing road features, adjacent developments, traffic volumes, driveways, parking arrangements, pedestrian facilities, and sight distances;
- Proposed Development – a review of additional traffic generated from the proposed development, the development daily traffic profile, internal car parking layout and access driveway; and
- Development Impact– assessment of the impact of the traffic generated by development on the road network.

Figure 1 Locality of the Site

2 Existing Condition

2.1. Road Hierarchy

The classification of the road hierarchy in accordance with the Roads and Maritime Services (RMS) road hierarchy classifications in the vicinity of the proposed development are as follows:

- M4 Motorway – Classified as State Road which provides link between Concord and Emu Plains and carries three traffic lanes on each direction. Based on the information obtained from the Roads and Maritime Services (RMS), the 2018 Average Daily Traffic (ADT) on M4 is approximately 59,000 vehicles per day.
- The Great Western Highway (GWH) - Classified as State Road that runs in an east-west direction. The GWH is a six lane divided road (three lanes each direction).
- Park Avenue–is a two lane (one lane each direction) local road that runs in an east-west direction. The width of the road is approximately 10.2m with unrestricted on-street parking available on both sides of the road.

Figure 2 shows a picture of the street (looking east). - It is noted that there are no adjoining properties on the southern side of Park Avenue.

Figure 2 Park Avenue – Looking East at the Site

Figure 3 shows a picture of the street (looking west).

Figure 3 Park Avenue – Looking West at the Site

Figure 4 shows a picture of the street network

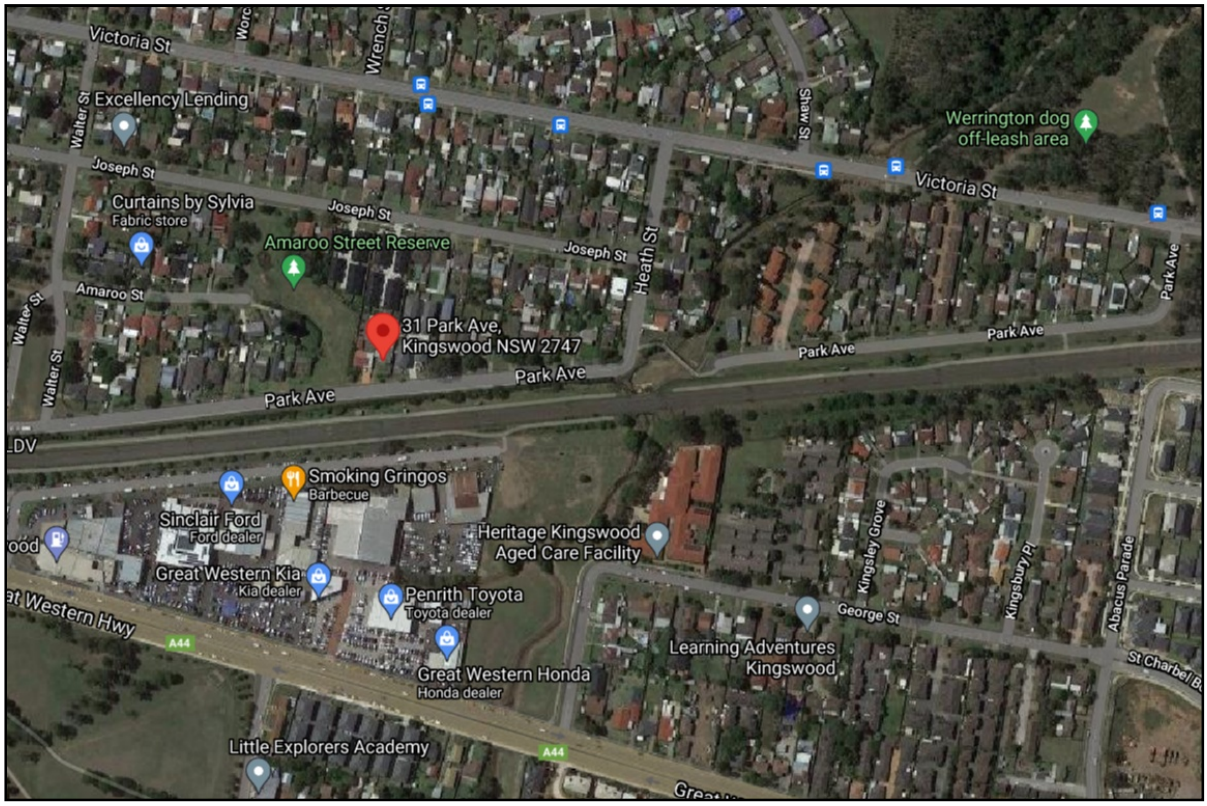


Figure 4 Street Network

2.2. Existing Traffic Management Controls

The existing road network near the vicinity of the development site comprises the following important traffic management features.

Uncontrolled Road

- The street is mostly unmarked with no traffic control devices

Sign-Posted Speed Limits:

- 50 km/h un-sign posted (default) speed limit on Park Avenue

2.3. Public Transport

2.3.1. Rail Services

The proposed development site is located approximately 500m from Kingswood Railway. Kingswood Station is serviced by Sydney Trains T1 North Shore, Northern and Western Line service. A detail of the Sydney Train network map is shown in Figure 5.

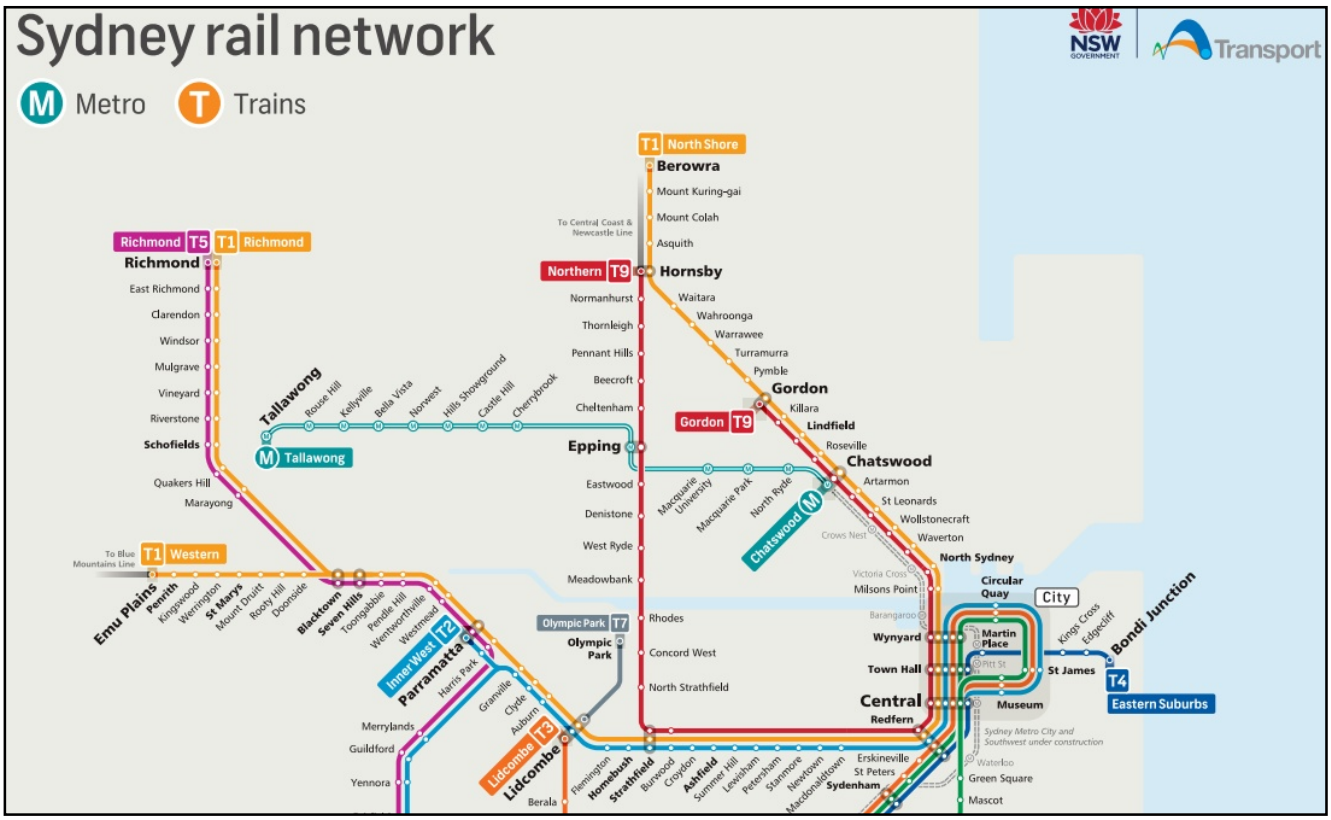
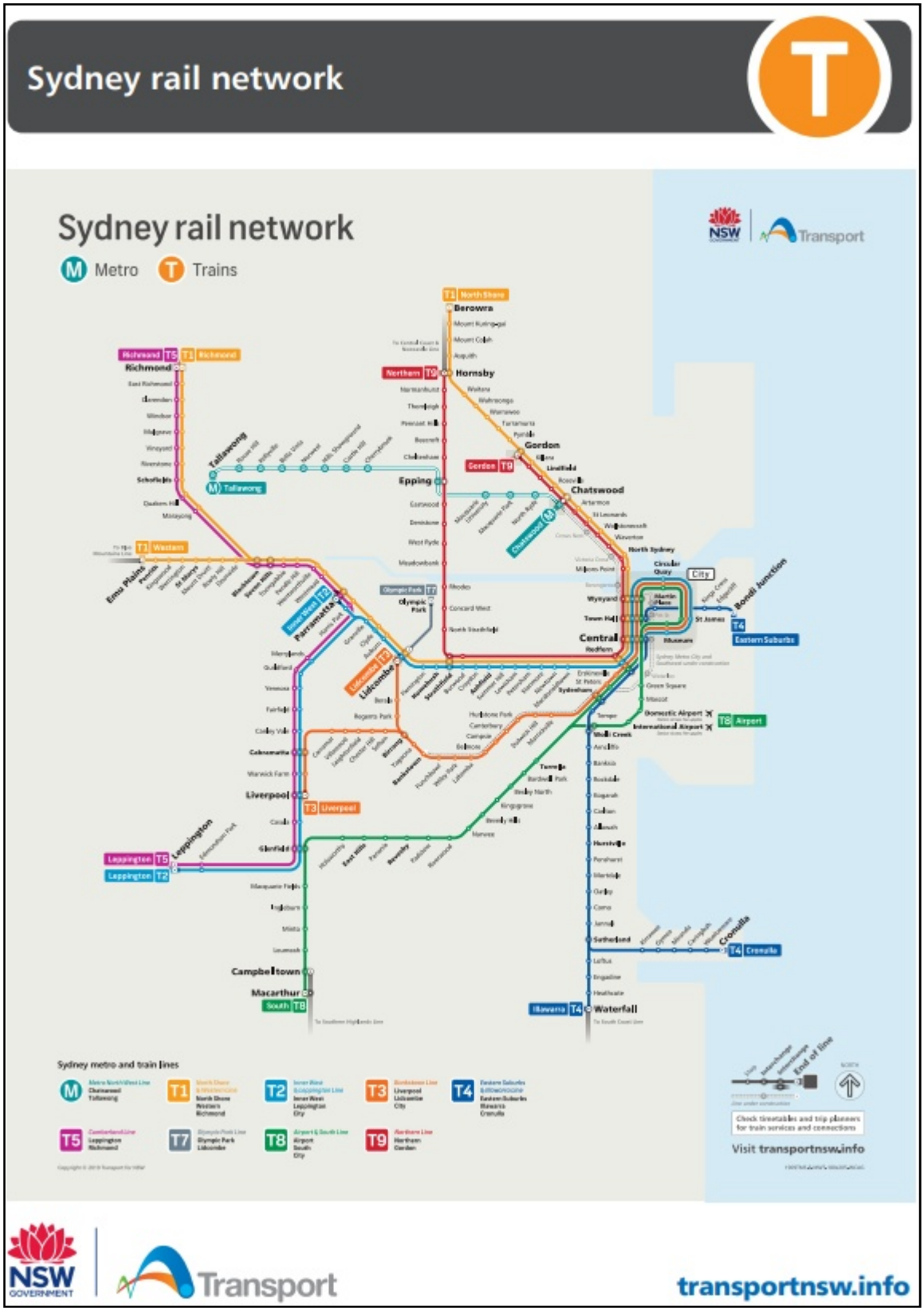


Figure 5 Sydney Train Network Map



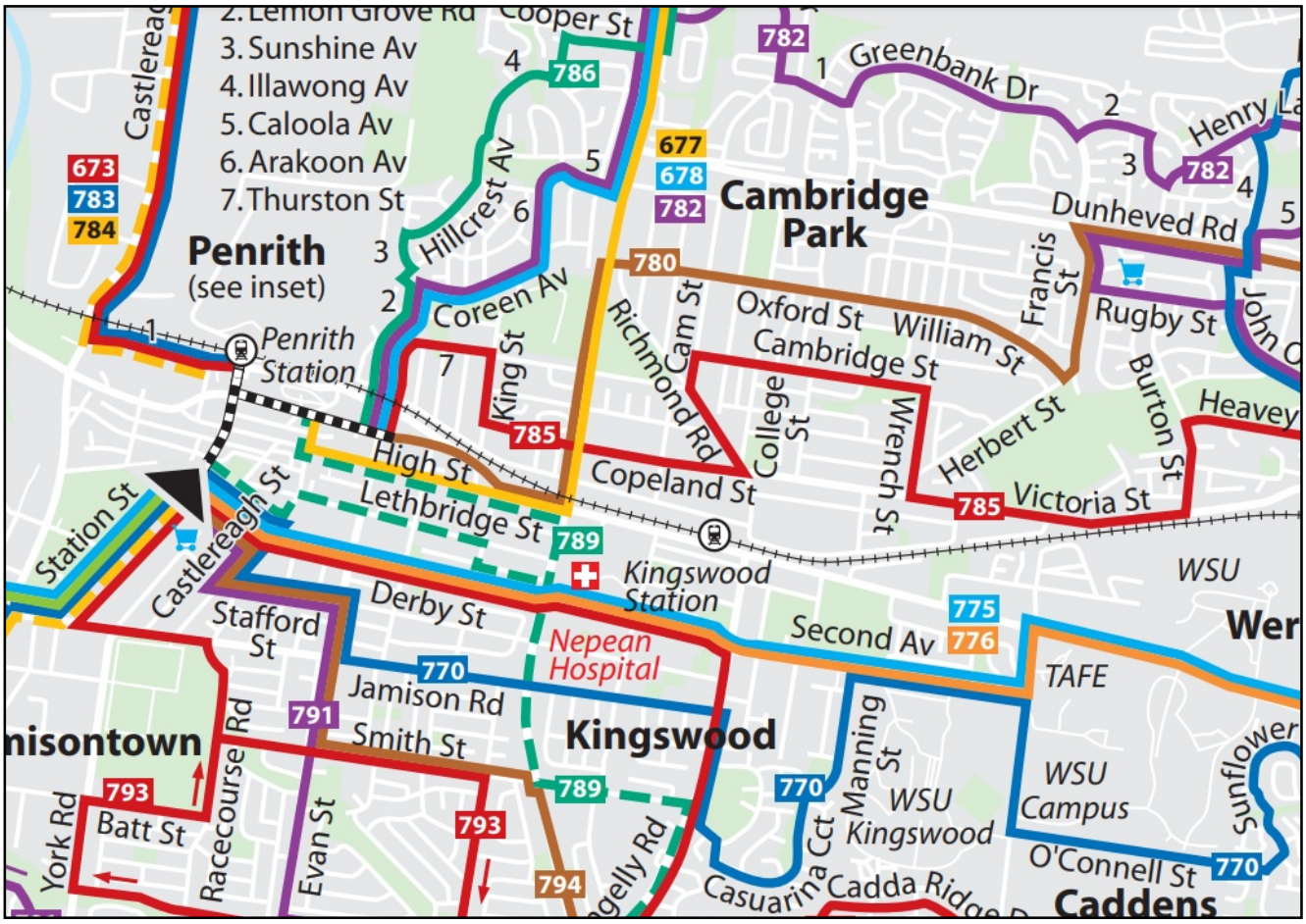
2.3.2. Bus Services

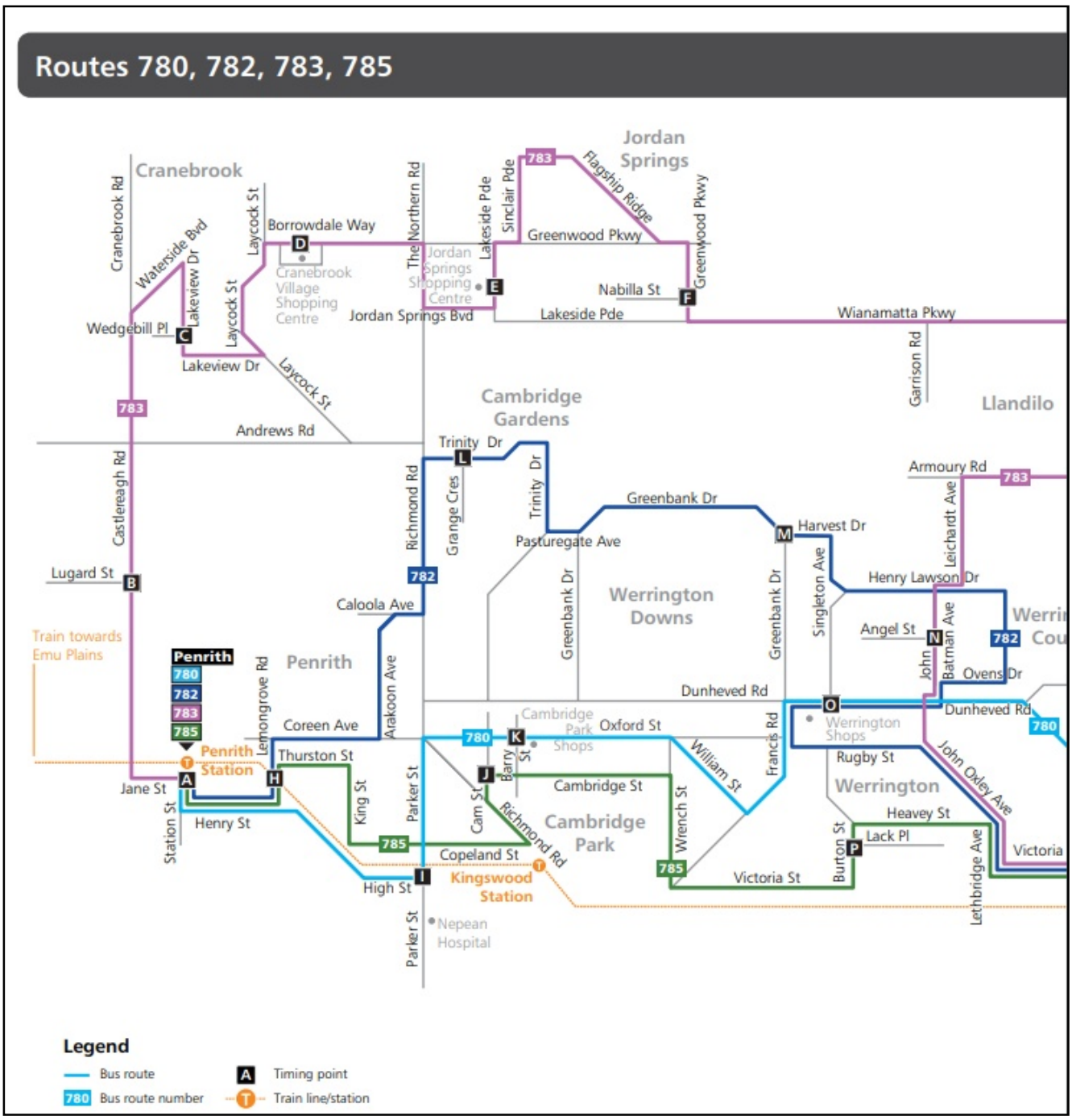
Busways Western Sydney Region provides public transport services to the residents in the area. The following bus routes are available within the walking distance to the proposed development site:

- Route 785: Werrington to Penrith via Cambridge Park
- Route 789: Luddenham to Penrith

Details of the bus routes provided by Busways Western Sydney Region in the vicinity of the subject site are shown in Figure 6.

Figure 6 Bus Route Map





3. Proposed Development

The proposed development site is at 31 and 32 Park Avenue, Kingswood with a total frontage of approximately 31.6 m with a the total site area of 1476m^2. The proposed development site is zoned R3 (Medium Density residential) under the Penrith LEP 2010 and Penrith Council DCP 2014 applies to this site.

3.1.Features of the Proposed Development

The proposed development is a childcare centre with a capacity for up to 116 children.

- 16 x 0-2 year
- 20 x 2-3 years and
- 80 x 3-5 year olds
- 16 Staff

- Total of 28 parking spaces within basement level including:
  - 11 Visitor parking spaces
  - 17 Staff parking spaces
  - 1 Disabled parking space
  - 1 Space for Garbage pickup

- Entry / exit point provided via Park Avenue.

4. Parking and Site Access

4.1. Parking Requirements

Car parking provision will be required to accommodate staff, pick up / drop offs and visitors. The required number of parking spaces for the proposed development in accordance with the requirements of Penrith City Council's DCP is provided in Table 1.

Table 1 Off-Street Parking Requirements (Council's DCP)

Type	No. of Children	Rate	Parking Required	No. of Employees	Rate	Parking Required	Total	Provided
Council's DCP								
Child Care Centre	116	1 per 10	11.6	16	1 per employee	28	28	28

Note: Number of parking spaces has been rounded up. There are no rates available for separate visitors and staff parking.

The total number of parking spaces provided in the basement of the proposed development is 28 including 6 stack parking for staff.

The proposed development has provided sufficient car parking spaces as per Council's DCP car parking requirements, as it is appropriate to provide parking based upon the parking demand of the child care centre.

4.2. Parking and Driveway Layout

The access driveway and internal parking layout of the proposed development has been designed in accordance with the requirements of the AS2890 1, 2 & 6 and Council's Development Control Plan (DCP) including DCP C10 and DCP D5.2-2004. Details of the parking layout requirements are provided in Table 2.

Table 2 Parking Layout Requirements

Components	Proposed	AS Requirement	Comply
Parking Space Dimensions	Min.2.6m x 5.4m	2.4m x 5.4m	ü
Disabled Parking space	2.6m x 5.4m with shared zone	2.6m x 5.4m with shared zone	ü
Aisle Width	6.0m min	6.0m min	ü
Spaces Bounded by Wall	Widened by 300mm	Widened by 300mm	ü
Blind Aisle	1m aisle extension	1.0m min.	ü
Driveway Width	6.0m	Min.5.8m	ü
Two-way Roadways and Ramps (one way flow)	Min.3.0m	Minimum 3.0m	ü

Sight Distance (50km/h)	Minimum 80m	At 5s gap, min. 45m	ü
Access Driveway	3.79m	Min.3.0m	
Ramp Grade	1:4 Max Grade	1:4 Max Grade	ü
Ramp Grade Changes	1:8 Grade Changes	1:8 Grade min.	ü
Headroom	3.60m	2.2m minimum 3.5 min. (SRV)	ü
Headroom (Disabled Space)	3.6m – 4.0m	2.8m	ü
Headroom (Vehicular path Disabled Space)	2.2m minimum	2.8m	ü
Column Location & Spacing	Min. X-750mm, Y-3650mm	Min. X-750mm, Y-3650mm	ü
Pedestrian sight line	Triangular area 2.5m x 2m	2.5m x 2m in accordance with the Figure 3.3 of AS2890.1:2004	ü

5 Traffic Implications

Traffic Generation

The RMS 'Guide to Traffic Generating Developments' specifies traffic generation rates for various types of land uses.

The projected traffic generation of the proposed development is provided in Table 3 below.

Table 3 Traffic Generated from the Proposed Development

Component	Number of Children	Daily Traffic Generation Rate (vpd)	Traffic Generation Rate (vtph)		Traffic Generation (vtph)		Daily Traffic Generation (vpd)
			Peak Hour		Peak Hour		
			AM	PM	AM	PM	
Long Day Care	116		0.8	0.7	93	82	

Vtph – Vehicle Trips Per Hour

The proposed development will generate 93 and 82 vehicle trips (two way) during AM and PM peak hours respectively.

Park Avenue is a two lane (one lane each direction) local road that runs in an east-west direction. The width of the road is approximately 10.2m with unrestricted on-street parking available on both sides of the road. The estimated traffic volume is approximately 4000 vehicles per day (both ways) and with estimated peak hourly flow at 500 vehicles per hour.

The incremental traffic flow is estimated at 593 vehicles per day (both direction) or 297 vehicle per hour per direction.

Environmental Mid-Block Capacity

The RMS Guide to Traffic Generating Development has identified the Environmental Mid-Block Capacity of a road based on the impact of traffic, road and location aspects. The recommended Environmental Capacity on local roads is defined in Table 4.

Table 4 Environmental Capacity Performance on Sub-Arterial Roads

Typical mid-block capacities for urban roads with interrupted flow

Type of Road	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane:	Divided Road	1,000
	Undivided Road	900
Outer or kerb lane:	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided:	Occasional Parked Cars	1,500
	Clearway Conditions	1,800
4 lane divided:	Clearway Conditions	1,900

Source: RMS Guide to Traffic Generating Development

The proposed 116 place childcare centre has been assessed to generate a maximum of 93 vehicle movements corresponding to the morning peak hour period.

The Roads & Maritime Services (RMS) within their Guide to Traffic Generating Developments provide environmental capacity performance standards to measure the level of amenity experienced by the general community, not just motorists.

The existing estimated peak hour traffic demands within Park Avenue in the vicinity of the site frontage affected by the additional traffic generated by the proposed development are approximately less than 300 vehicle movements. This existing demand, coupled with the additional 93 peak hour vehicles likely to be generated by the proposed development, maintains comfortably within the identified threshold for local roads of 900 vehicles per hour, as per RMS' Guide to Traffic Generating Developments specifications.

With regards to the above, it is reiterated that whilst the proposed development is expected to introduce some additional traffic activity within the abovementioned adjoining road hierarchy, it is however, unlikely to generate any noticeable impacts for traffic flow within the

surrounding local roads that would compromise the existing residential amenity in the surrounding area. In addition, it is recommended that the childcare centre should consider implement an Operational Traffic and Pedestrian Management Plan (OTPMP) in order minimise traffic and parking impacts on the surrounding residential amenity. The Plan will include a series of measures to assist with the safe and efficient integration of the childcare centre into and minimise its traffic impact on the surrounding road network. It is noted that there are no adjoining properties on the southern side of Park Avenue.

5.1. Swept Path Analysis

Swept path analysis has been undertaken by using Vehicle Tracking software package. Details of the analysis are provided in Appendix A. The analysis indicates that the proposed driveway and parking layout comply with the requirements of the AS2890.1:2004. The swept path analysis also revealed that proposed parking layout provides safe and efficient internal maneuvering and parking space accessibility in accordance with the requirements of AS2890.1:2004, AS2890.3:2015 and AS2890.6:2009.

5.2. Waste Collection & Other Service Vehicles

A bin storage area is provided in the basement carpark for a SRV vehicle. Swept path analysis of a garbage truck accessing the site is provided in Appendix A for SRV.

5.3. Wall Clearance

All car spaces adjoining walls have been widened by minimum 300mm in accordance with AS2890.1.

5.4. Sight Distance

Sight distance analysis was undertaken in accordance with AS/NZS 2890.1:2004.

The analysis indicates that the Stopping Sight Distance (SSD) available for the exit driveway as:

- SSD – 80m for 50kph speed limit (Right Side), and
- SSD – 80m for 50kph speed limit (Left Side)

The minimum SSD in accordance with AS 2890.1 Figure 3.2 Sight Distance Requirements at Driveways and Minimum Sight Lines for Pedestrian Safety is 45m at 5s gap.

The minimum Sight Distance Requirements established at Access Driveways is 80m respectively for approach vehicles.

Table 5 provides a summary of the compliance.

Table 5 Sight Distance Requirements – Australian Standard 2890.1:2004

Frontage Road (Park Avenue) Speed Limit – km/h	Distance (Y) along Frontage road (Park Avenue) – metres [m]			
	Domestic Property Access Minimum Stopping Sight Distance (SSD) - m	Minimum SSD (m)	Exit Driveway Available SSD (m)	Compliance with Figure 3.2 AS/NZ 2890.1:2004
50	69	45	80	YES

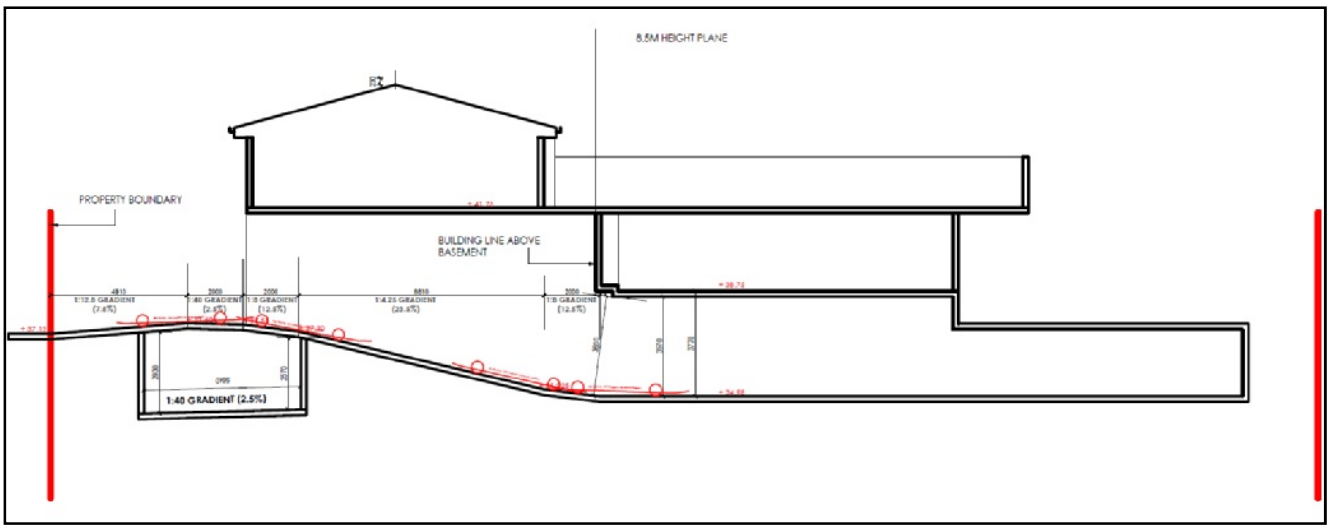
5.5. Scraping

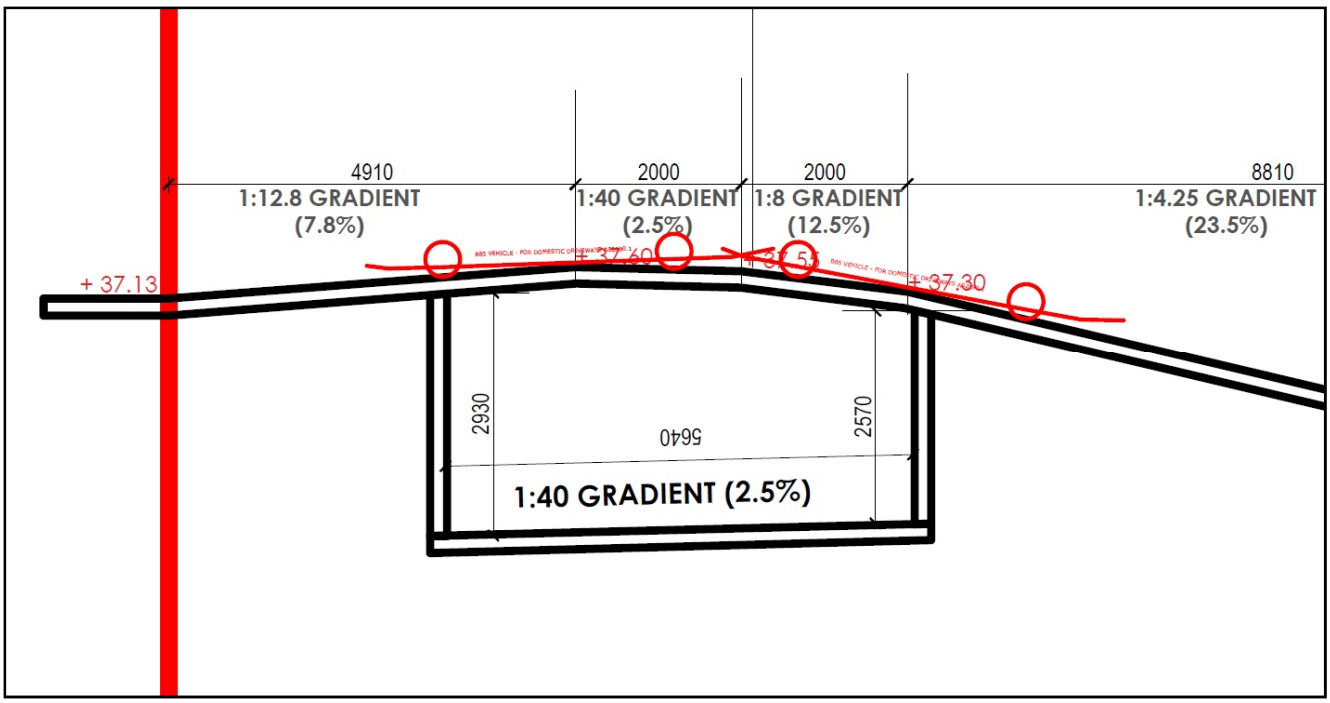
The dimension longitudinal section of the driveway and basement access ramp and cross section plan of the basement showing provision of Council specification complying driveway grades including 2% crossfall at the footpath.

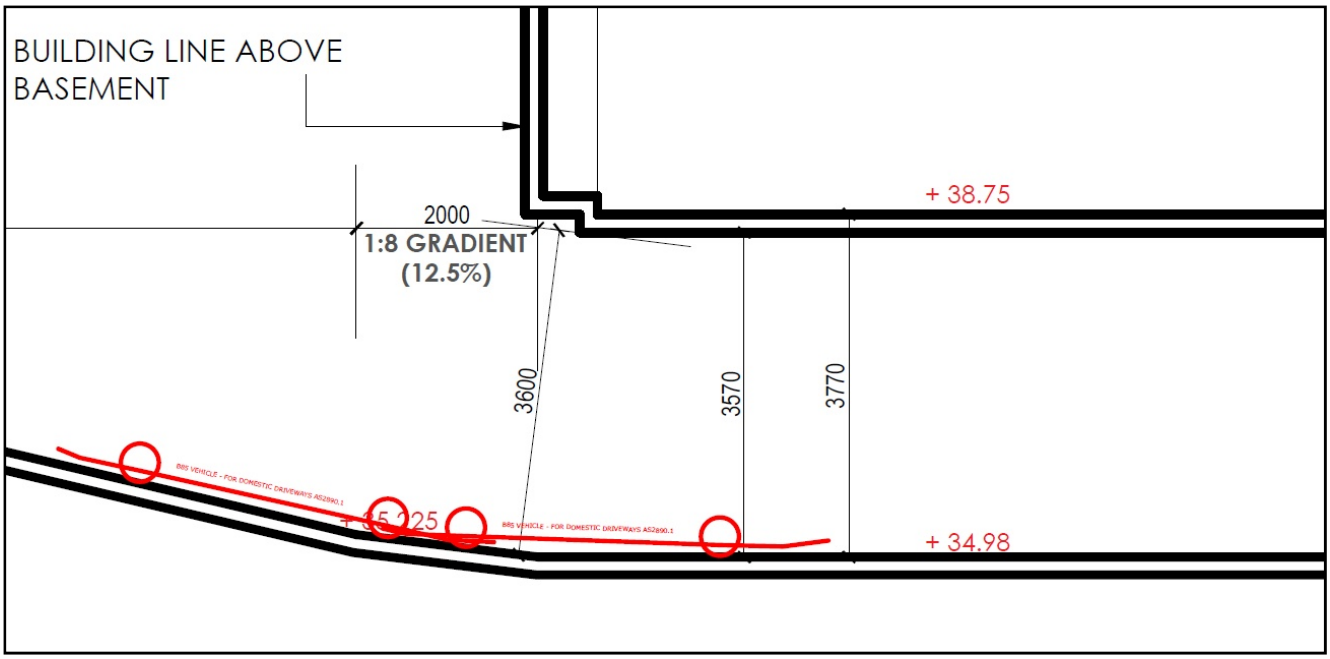
The required greater of 300mm above top of kerb level or 300mm above the 1% AEP water surface level. AS 2890.1 complying dimensions is provided.

See Figure 7 for Scraping diagrams on Longitudinal Sections

Figure 7 Scrapping Diagram







6. Conclusions

The outcomes of this Traffic and Parking assessment are as follows:

- The increase in traffic generated by the development will have minimal impact on the surrounding road network or nearby intersections.
- Public transport area available to residents within the walking distance to the site.
- The number of parking spaces provided by the proposed development meets the minimum required parking spaces based required by the Council's DCP, and RMS Guide to Traffic Generating Developments.
- The proposed parking layout complies with the requirements of the AS2890.1:2004.
- Garbage trucks can collect wastes from the bin storage area provided within basement of the proposed development.
- Other service, delivery and removalist vehicles can collect from the storage area provided in front of the proposed development on Park Avenue.
- The access driveway complies with the requirements of the AS2890.1:2004.
- The accessible pedestrian access from the car park to the buildings and from the fronting footway to the buildings complies in accordance with AS2890.6.
- Swept path plans have been demonstrated that access, car parking, and manoeuvring details comply with AS2890 Parts 1, 2 & 6 and Council's Development Control Plan including:

  - A car can pass another car at all passing areas (especially on the basement ramp)
  - A car can enter and exit parking spaces.
  - A car can turn around within the site with all car spaces are occupied (including visitors car space) using no more than three-point turn
  - A car entering and exiting restricted spaces.
  - A car turning around within the site when all resident/visitor spaces are occupied
  - Stacked parking is only provided for staff as per Council DCP
  - The number of accessible parking spaces should comply with AS2890.6

- All vehicles enter and exit the site in a forward direction.
- All dead-end aisles provide a turnaround with no more than 3-point turns and drive out in a forward direction in accordance with AS2890.
- Pedestrian walkway is provided but not used for manoeuvring clearance at the end of blind aisles.
- The walkway is wide enough for two prams to pass each other.

- The dimension longitudinal section of the driveway and basement access ramp and cross section plan of the basement showing provision of Council specification complying driveway grades including 2% crossfall at the footpath, the required greater of 300mm above top of kerb level or 300mm above the 1% AEP water surface level.

- All car spaces adjoining walls have been widened by minimum 300mm in accordance with AS2890.1

- Headroom clearance for the disabled space is minimum 2.5m in accordance with Figure 2.7 of AS2890.6. The vehicular path of travel to the disabled space has a headroom clearance of minimum 2.2m is provided.

- Widths of all ramps, parking aisles and circulating roadways comply with the requirements of AS2890 Parts 1, 2 & 6 and Council's Development Control Plans (DCPs) including DCP C10 and DCP D2.

- The access clearances from obstructions (walls and columns), ramp and car park headroom to overhead obstructions (including service pipes, lights etc.) are in compliance with AS2890 Parts 1, 2 & 6.

- The proposed driveway/ramp grades comply with AS2890.1 part 3.3 & 2.5.3.

- The Sight distance requirements and driveway widths are met in accordance with AS 2890.1 and Council requirements. This includes the requirements set out in AS 2890.1 Figure 3.2 Sight Distance Requirements at Driveways and Figure 3.3 Minimum Sight Lines for Pedestrian Safety. The required sight lines around the driveway entrance and exit are not compromised by street trees, landscaping, fencing or signposting.

Prepared by:

Mr. Zulfi Khan

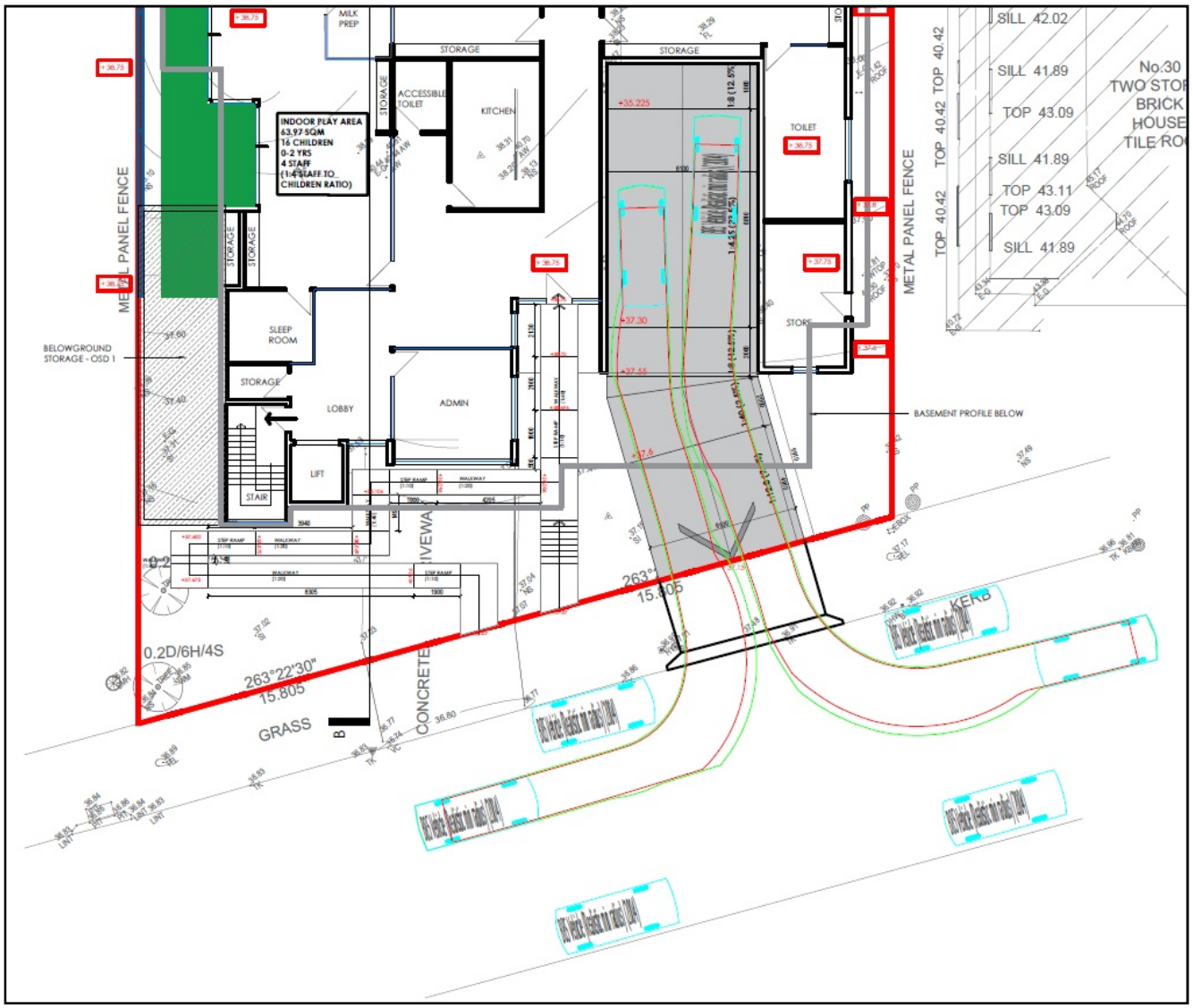
MEngSc, BSc [CE-Honors], BSc [Horticulture], MIEAust CPEng NER (2500471)

Civil / Structural Engineer

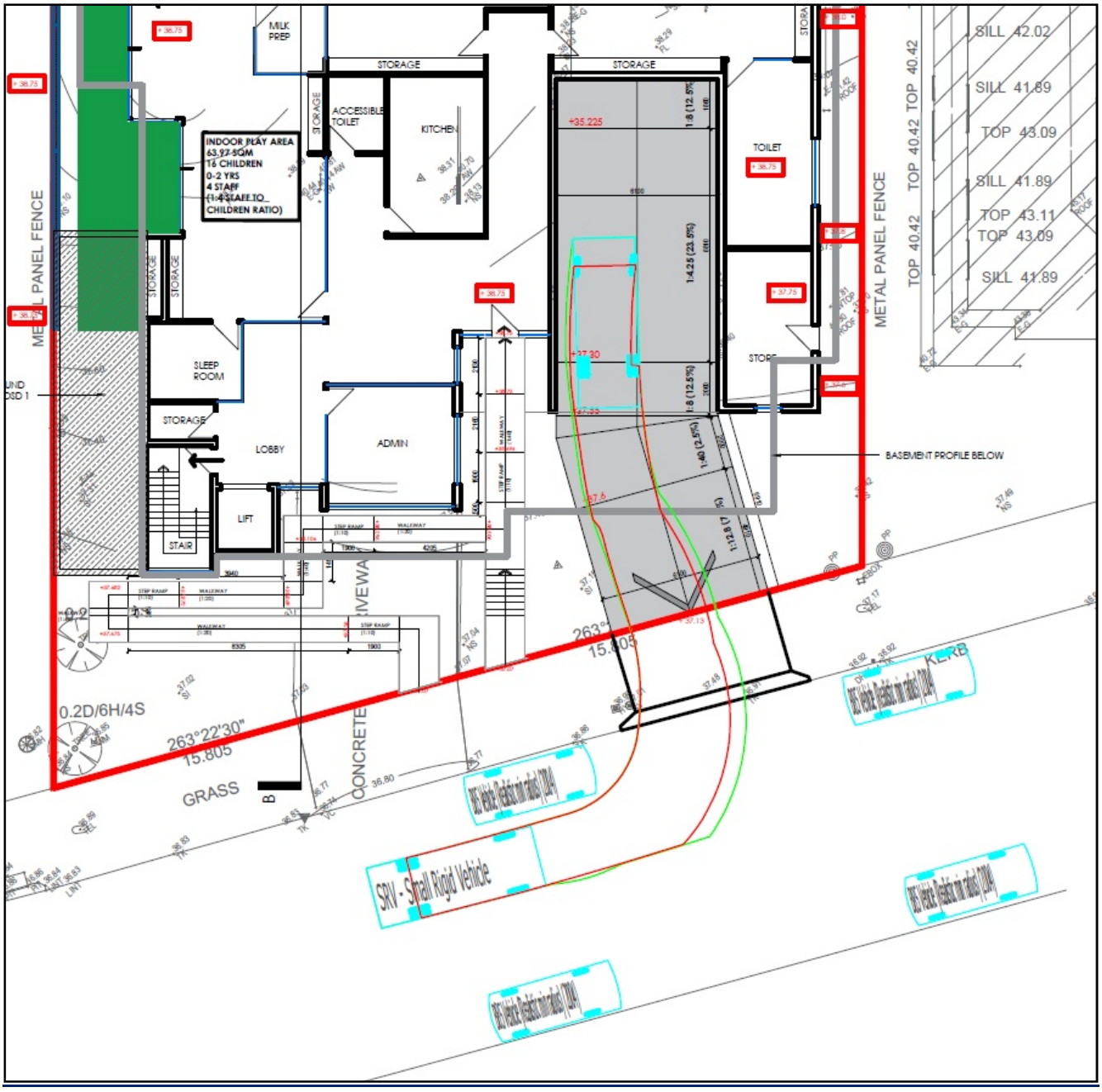
Director

Appendix A Swept Path Analysis

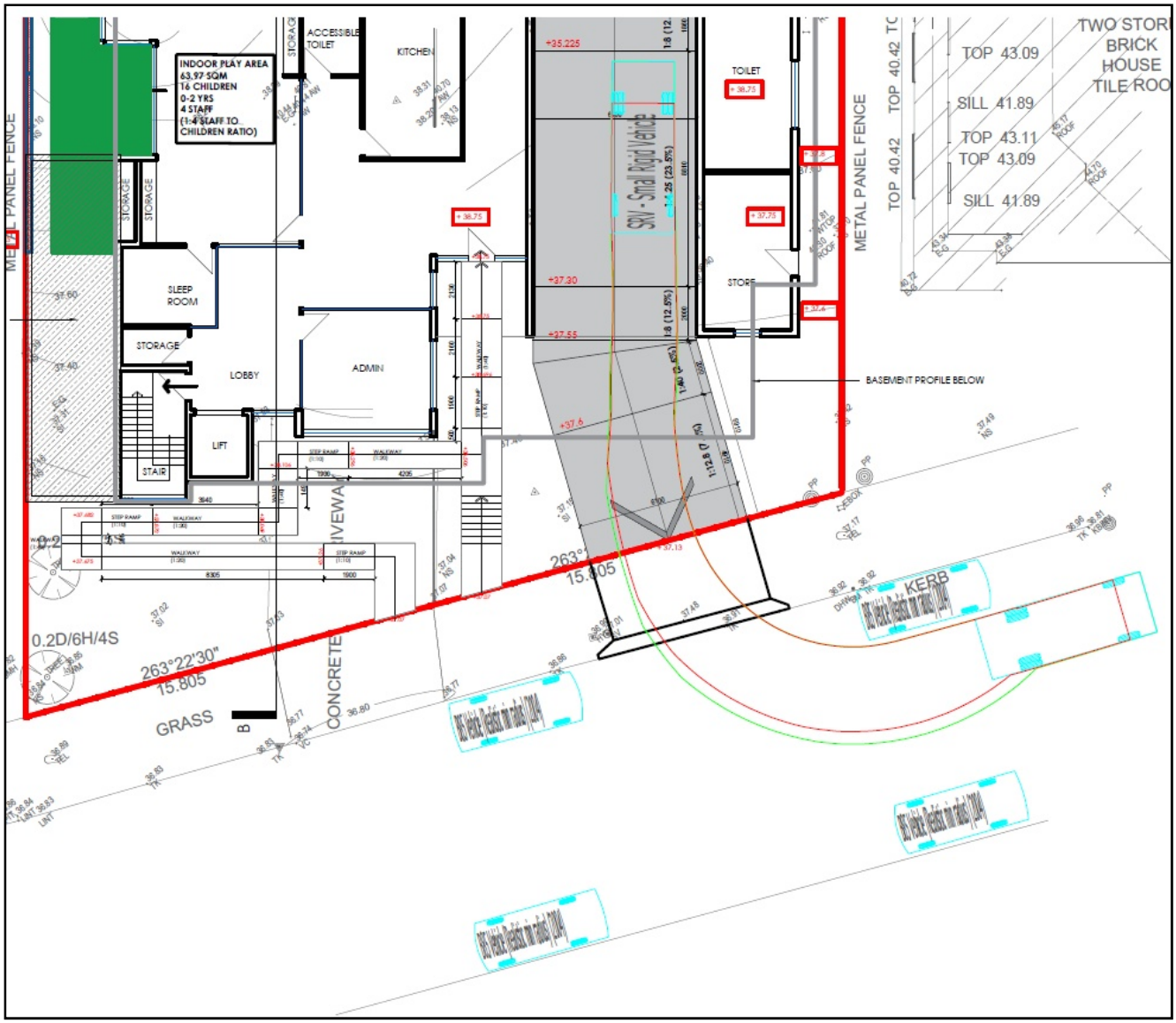
Access into Site (Entry/Exit)



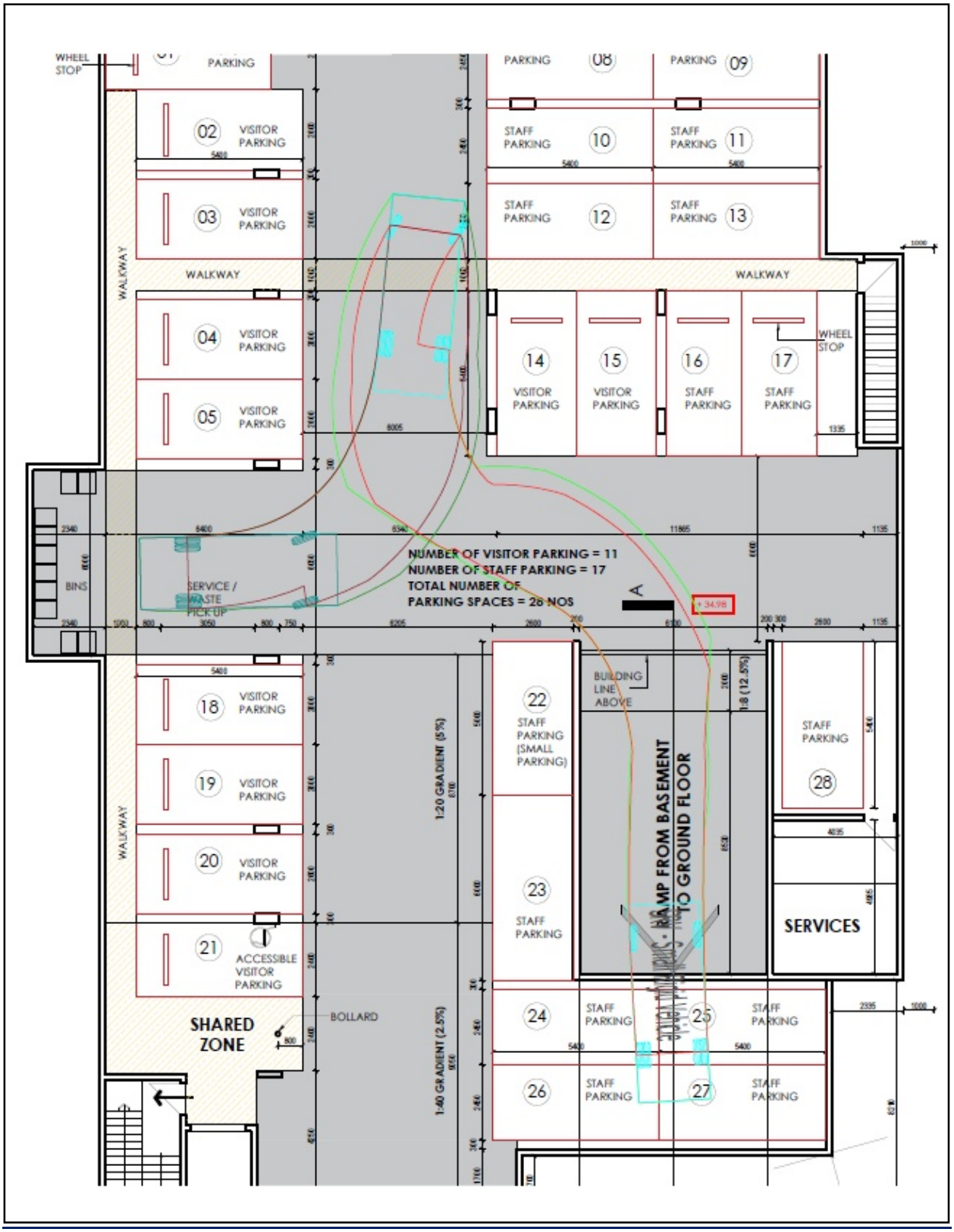
SRV Entry into Site



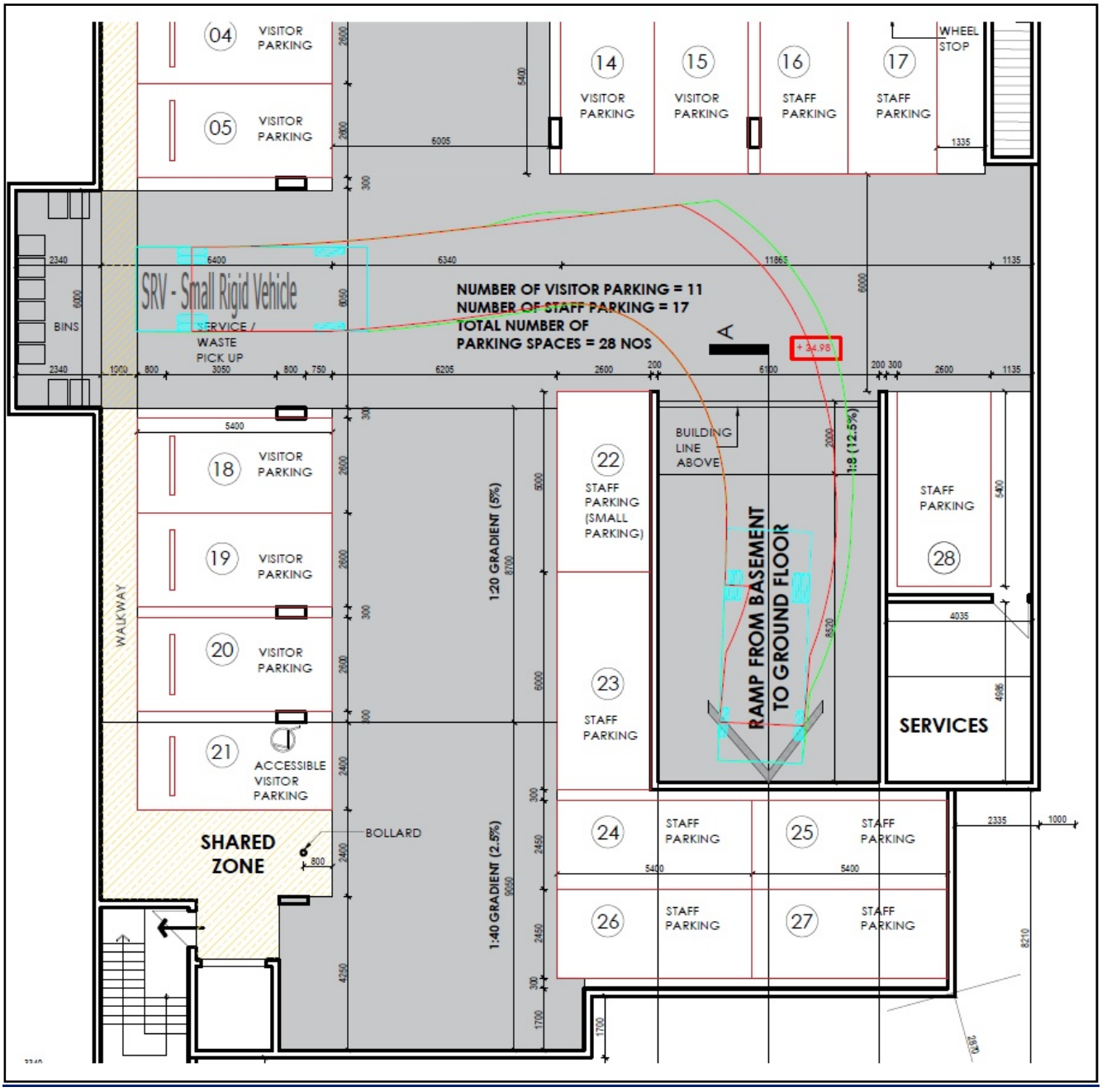
SRV Exit out of Site



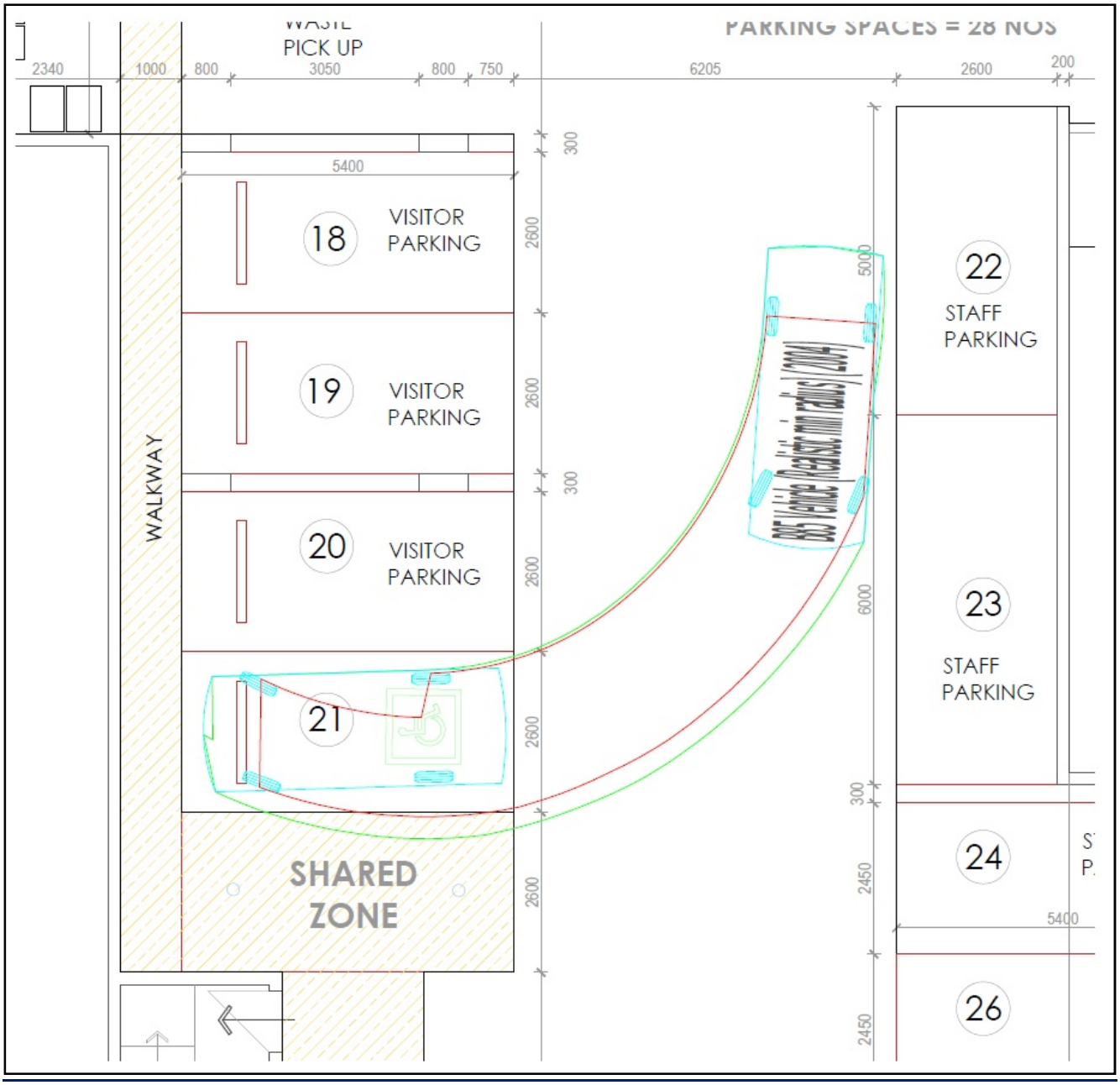
SRV Entry into Bin Collection area



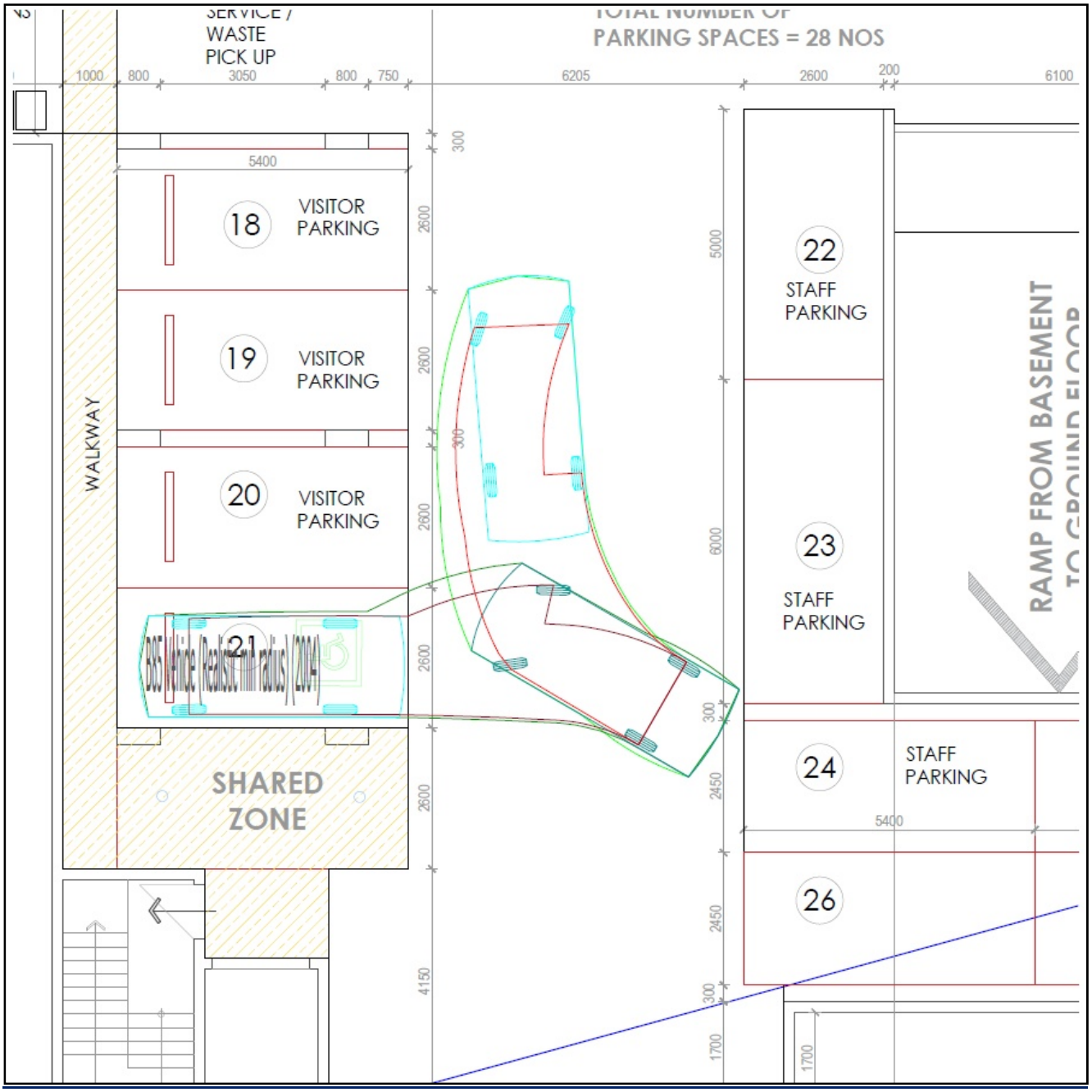
SRV Entry out of Bin Collection area



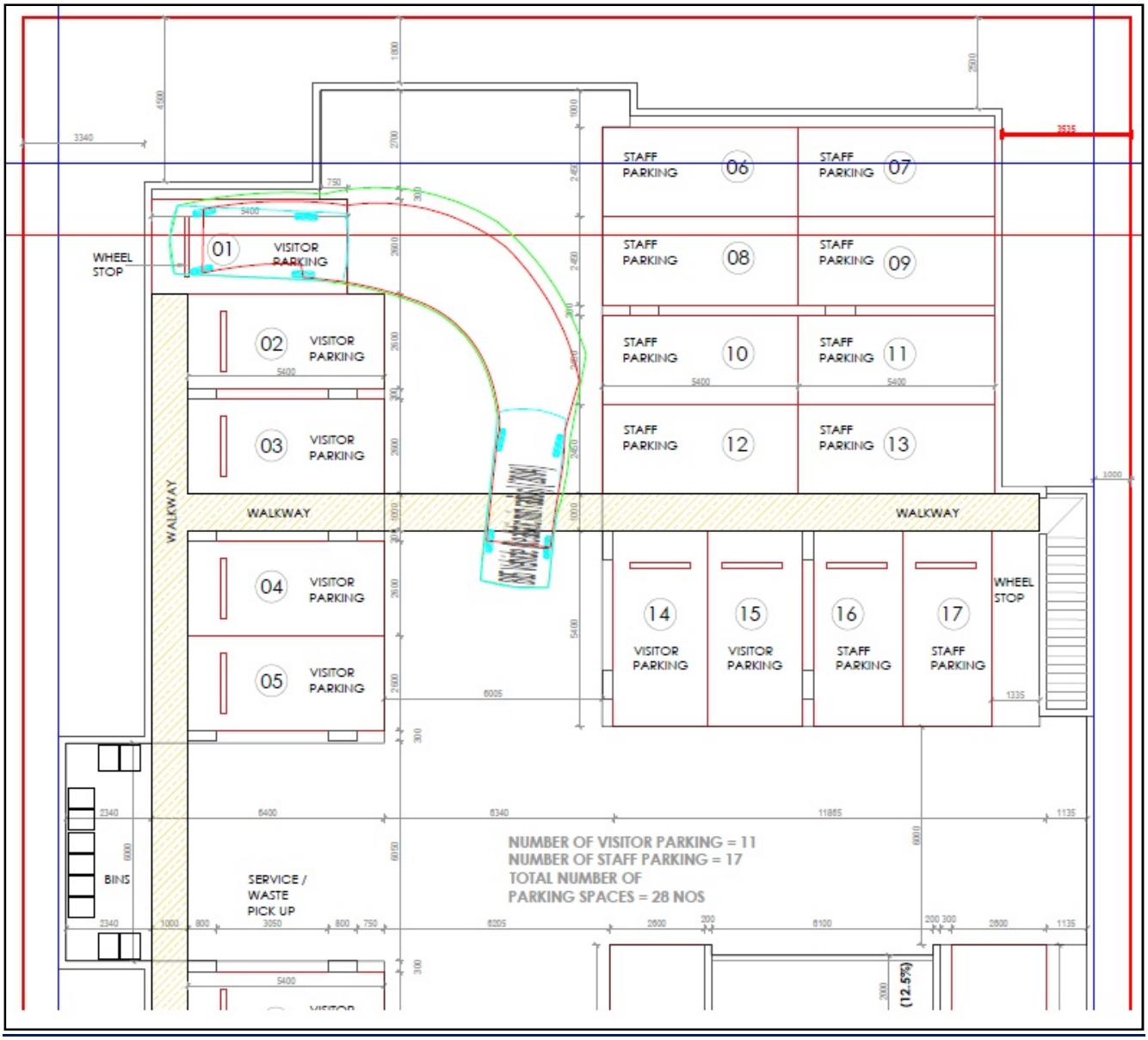
Disabled Space (Entry)



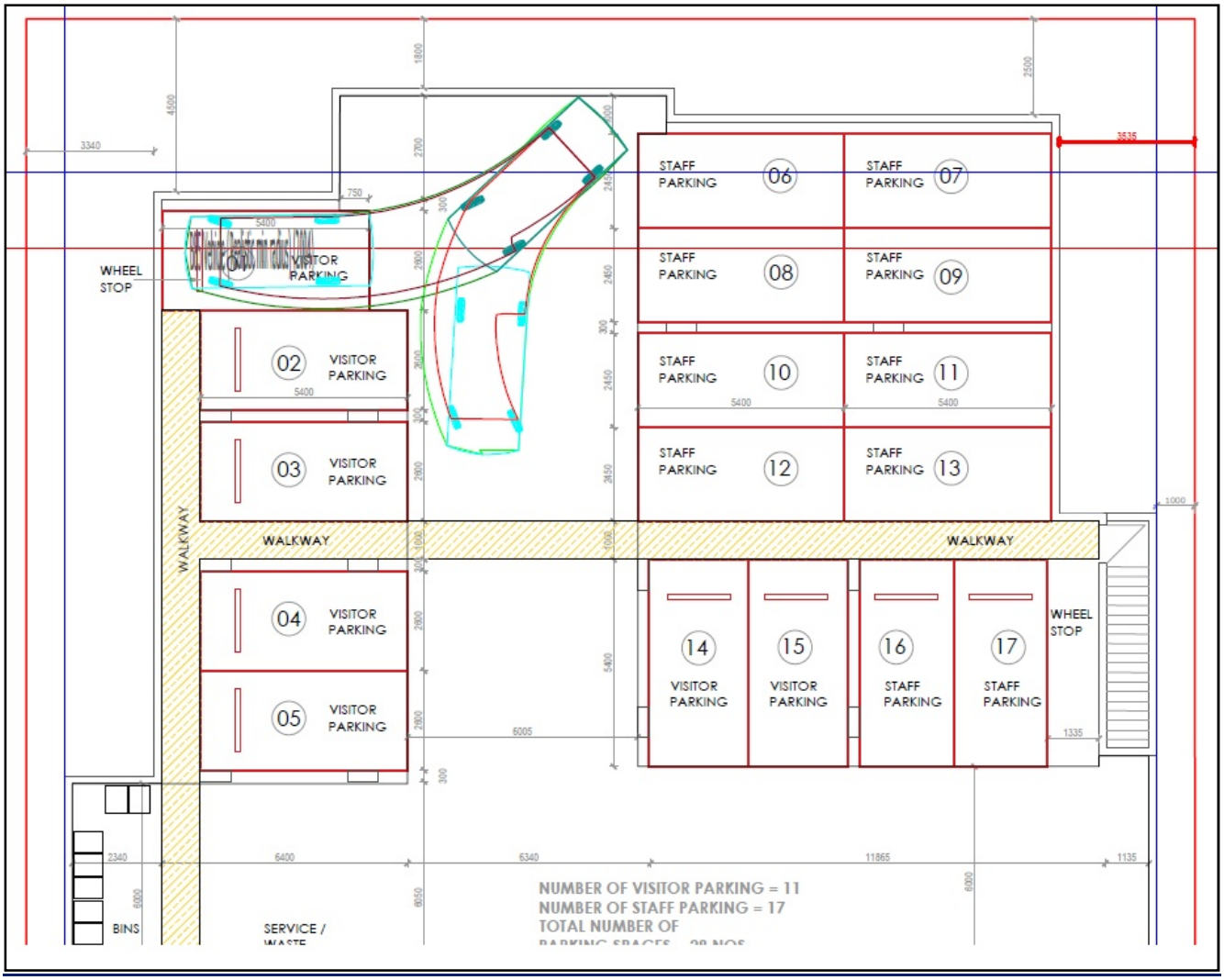
Disabled Space (Exit)



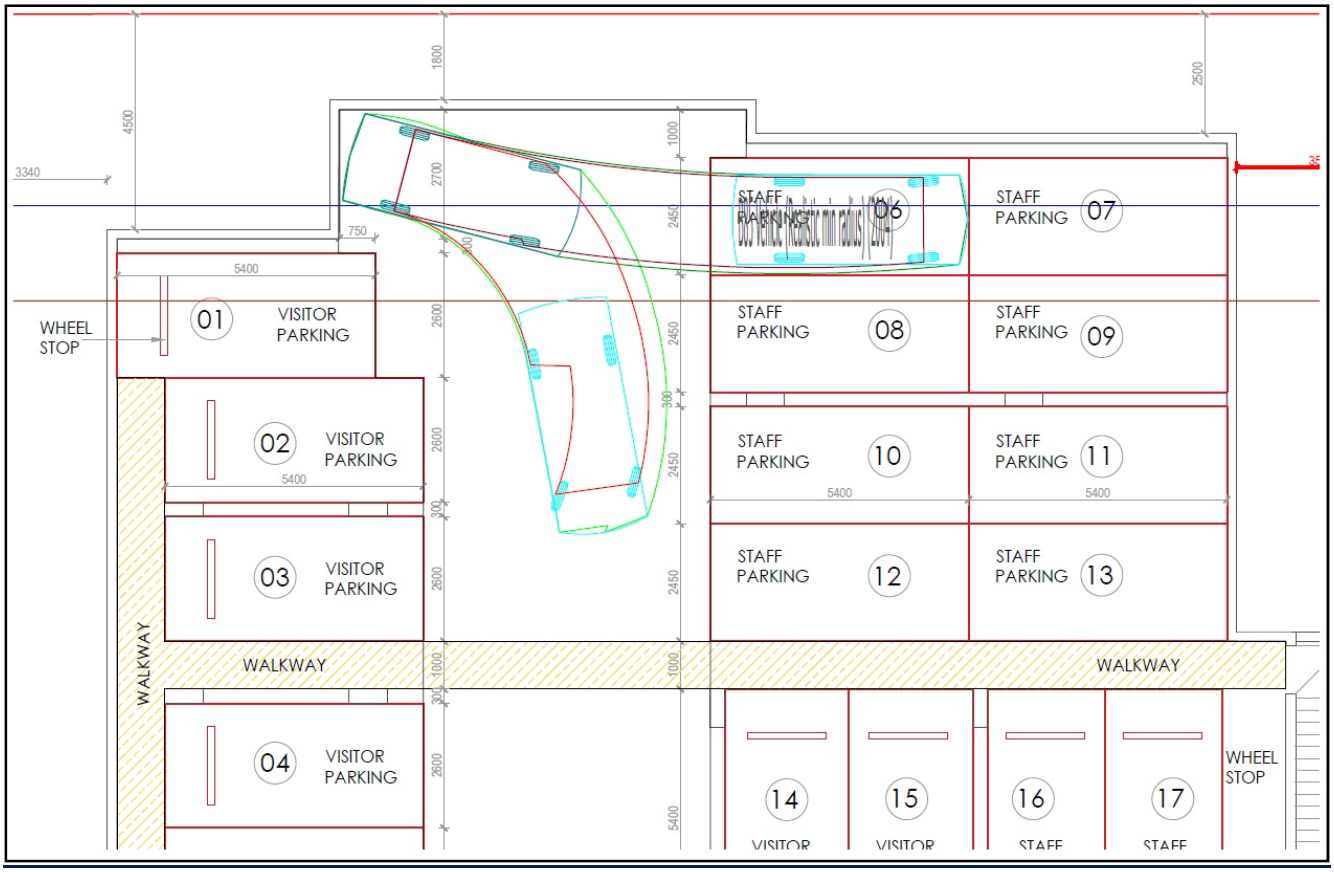
Space 1 (Entry)



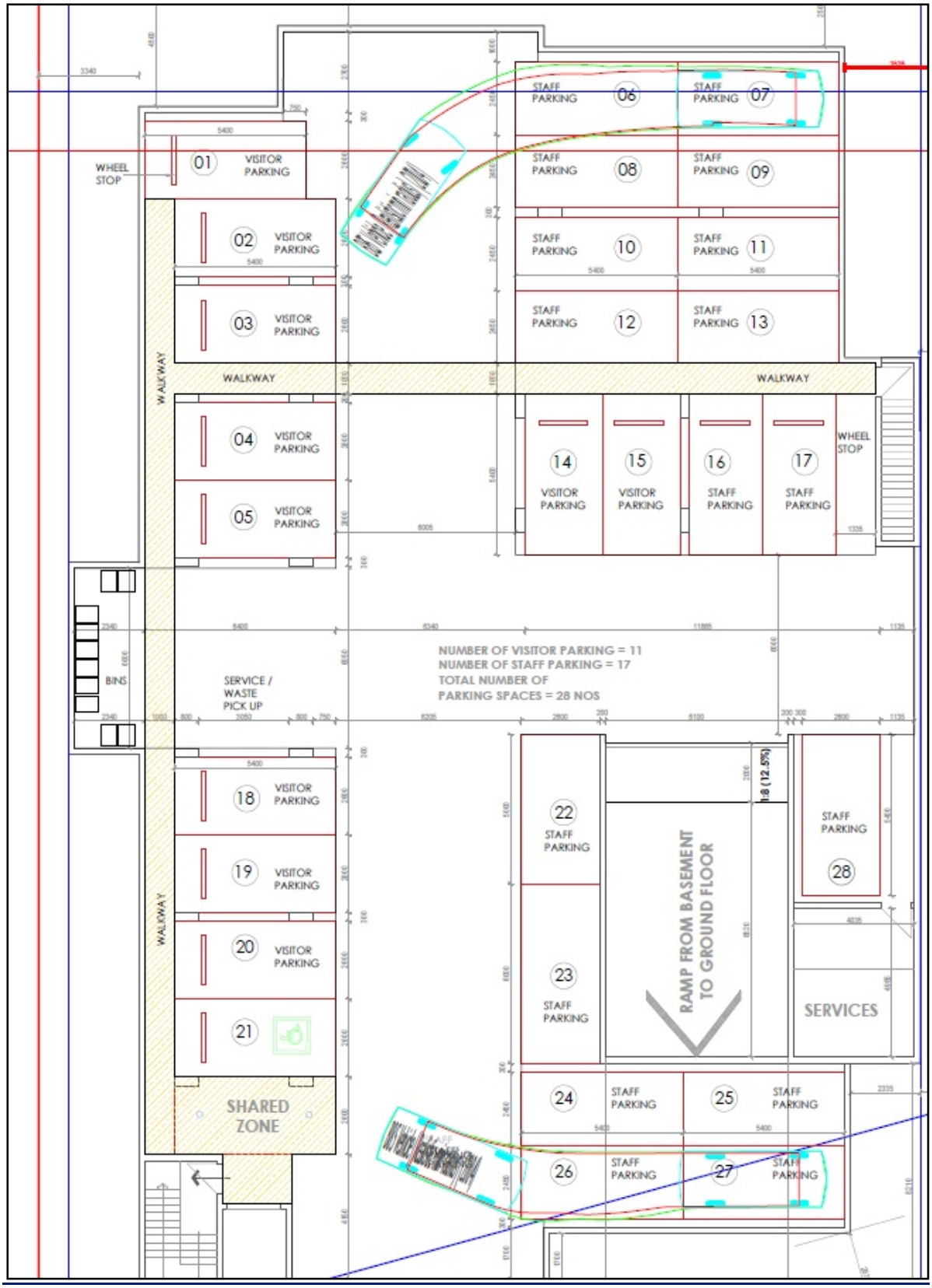
Space 1 (Exit)



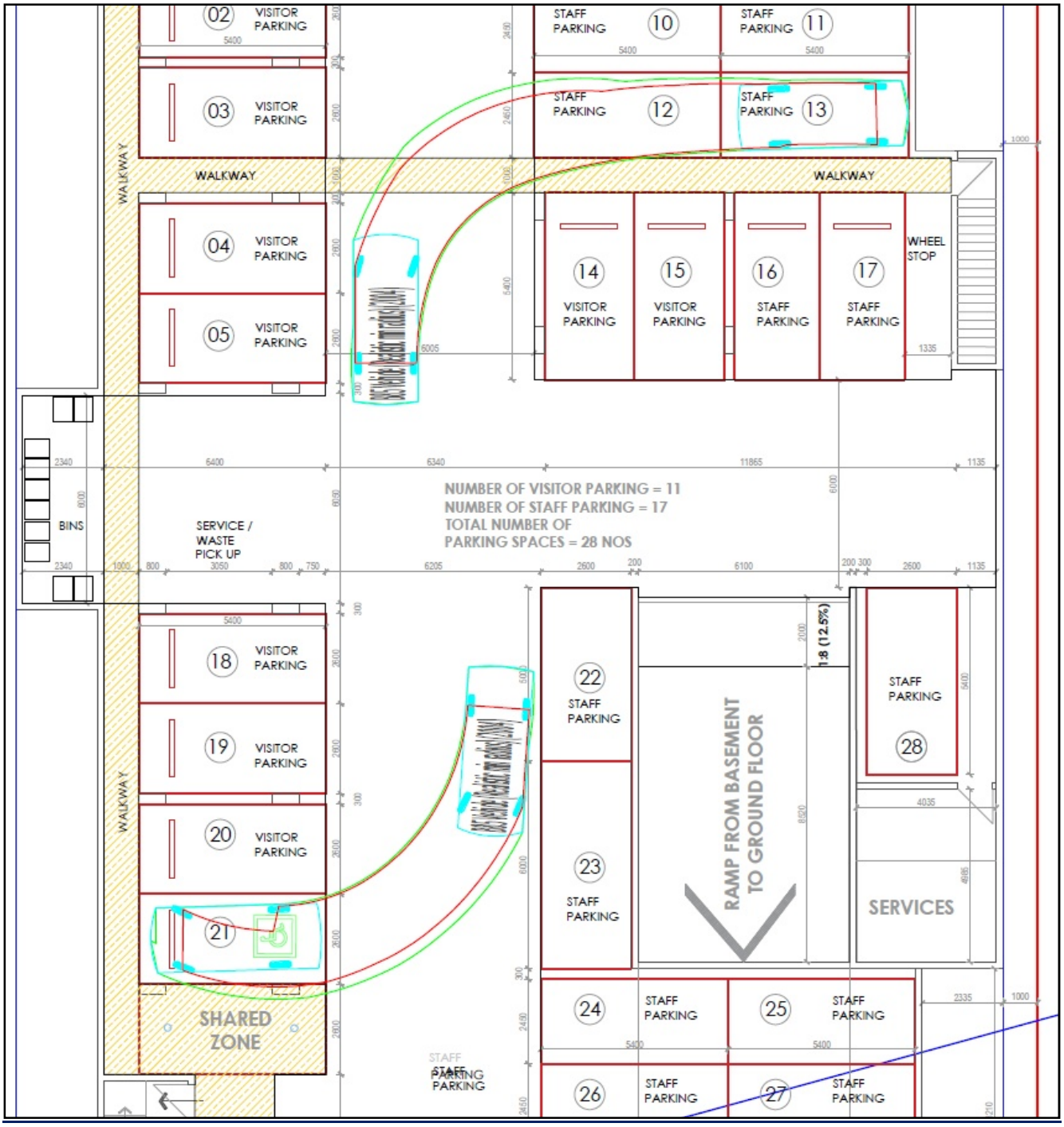
Space 6 (Exit)



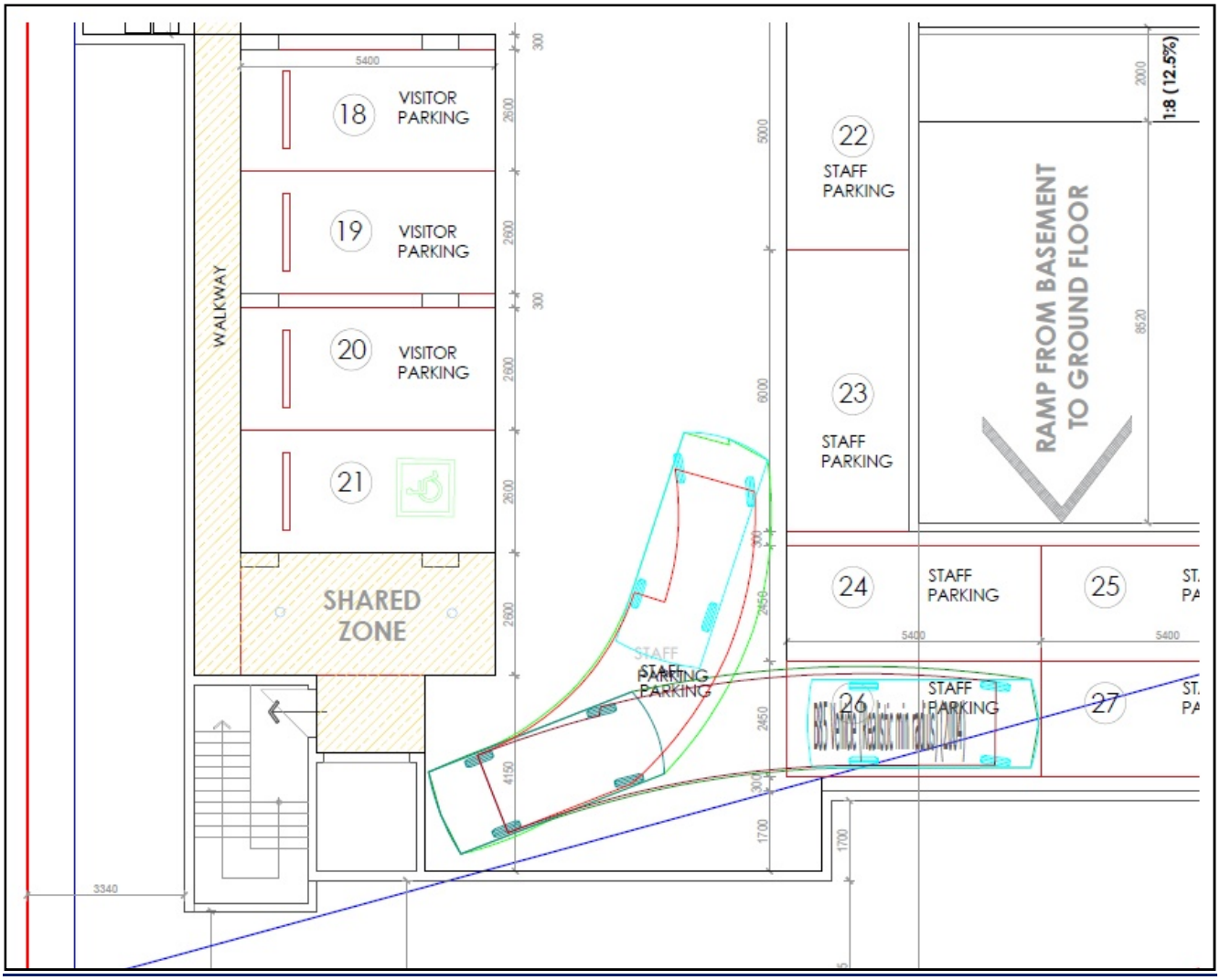
Space 7 & 27 (Entry)



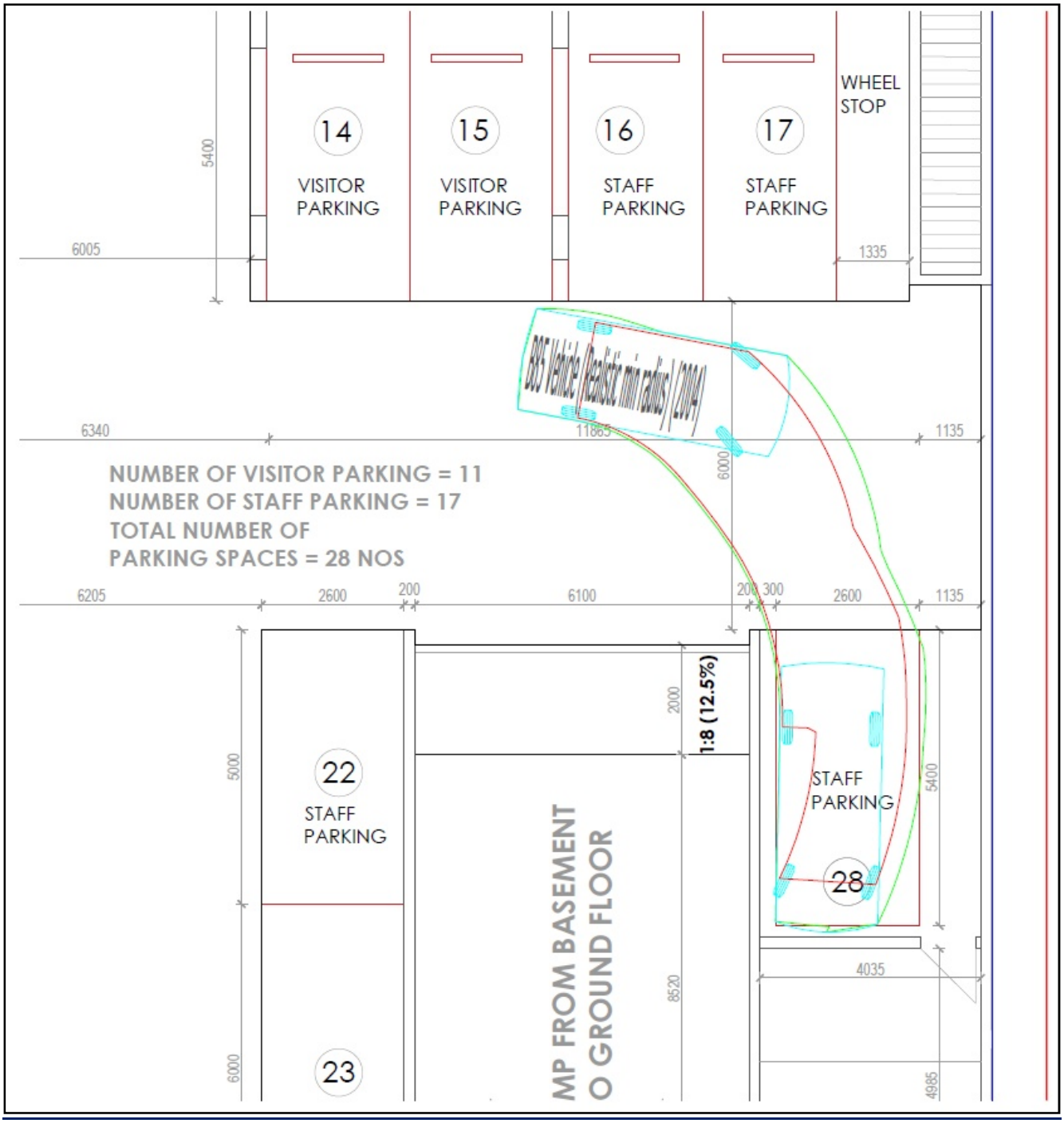
Spaces 13 & 21 (Entry)



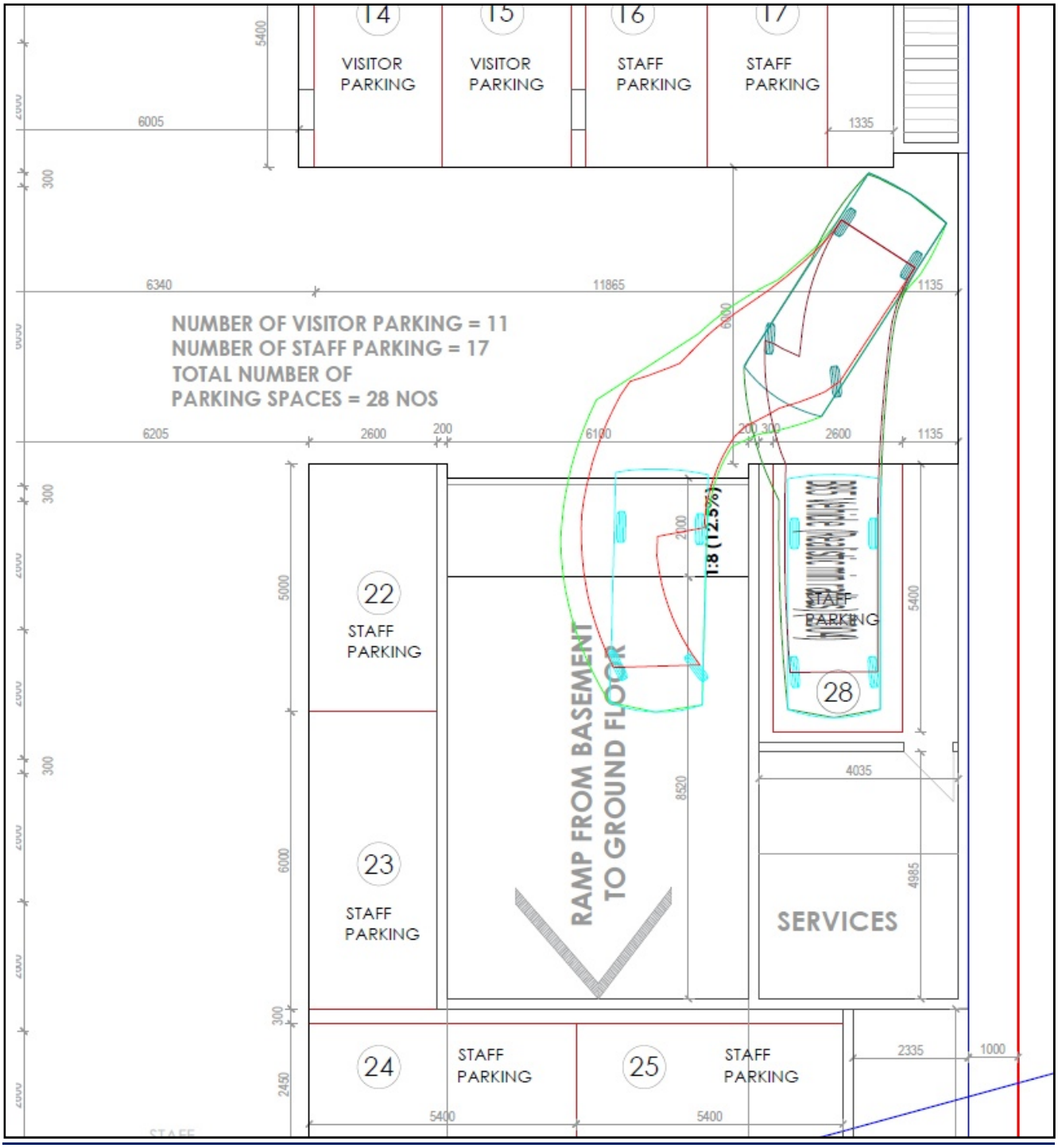
Space 26 (Exit)



Space 28 (Entry)



Space 28 (Exit)



Appendix B BUS ROUTES