

Traffic Impact Assessment

116-120 Frenchs Forest West and 11 Gladys Avenue,
Frenchs Forest

Proposed Residential Development

GT23018

Prepared for

Young Assets Holding Pty Ltd

12 November 2024



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Document Information

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1 Introduction

1.1 Background

This report has been prepared to accompany a Development Application to Northern Beaches Council for a proposed residential development at 116-120 Frenchs Forest West and 11 Gladys Avenue, Frenchs Forest (Figure 1-1).

Figure 1-1 Site



Source: Mecone (modified by Genesis Traffic)

The proposed development involves a multi-storey residential complex with associated basement car park.

1.2 Scope of Works

The purpose of this report is to:

- describe the site and the proposed development scheme
- describe the road network serving the site and the prevailing traffic conditions
- assess the adequacy of the proposed parking provision
- assess the potential traffic implications
- assess the suitability of the proposed vehicle access, internal circulation and servicing arrangements



1.3 Reference Documents

Reference has been made to the following documents when preparing this report:

- Australian Standard Part 1: Off-street Car Parking (AS2890.1:2004)
- Australian Standard Part 2: Off-street Commercial Vehicle Facilities (AS2890.2:2018)
- Australian Standard Part 3: Bicycle Parking (AS2890.3:2015)
- Australian Standard Part 6: Off-street Parking for People with Disabilities (AS2890.6:2022)
- Development Control Plan (Northern Beaches Council)
- Guide to Traffic Generating Developments, RMS, 2002
- Guide to Traffic Generating Developments, Updated Traffic Surveys, RMS, TDT 2013/14a
- State Environmental Planning Policy (Housing) 2021, NSW

2 Existing Conditions

2.1 Site and Surrounding Context

The development site (Figure 2-1) is a consolidation of Lots 1, 2, 14 and 24 in DP 213608 and DP 25713 located at 116-120 Frenchs Forest West and 11 Gladys Avenue, Frenchs Forest. The site occupies an irregular-shaped area of 5,740m² and is bounded by Frenchs Forest Road West to the south and Gladys Avenue to the north.

Figure 2-1 Site Context



Source: Nearmap (Modified by Genesis Traffic)

Four (4) residential dwellings occupy the site at present, with vehicle accesses located at French Forest Road West and Gladys Avenue. Surrounding the site are predominantly residential developments. The Northern Beaches Hospital and The Forest High School are on the southern side of Frenchs Forest Road.

The subject site is located within the Frenchs Forest Town Centre - a new town centre accommodating multiple land uses including retail, medium and high-density residential blocks, and commercial zonings. An indicative layout plan published by the Northern Beaches Council in the Warringah DCP, G9 Frenchs Forest Town Centre is illustrated in Figure 2-2.



Figure 2-2 Indicative Layout Plan for Frenchs Forest Town Centre



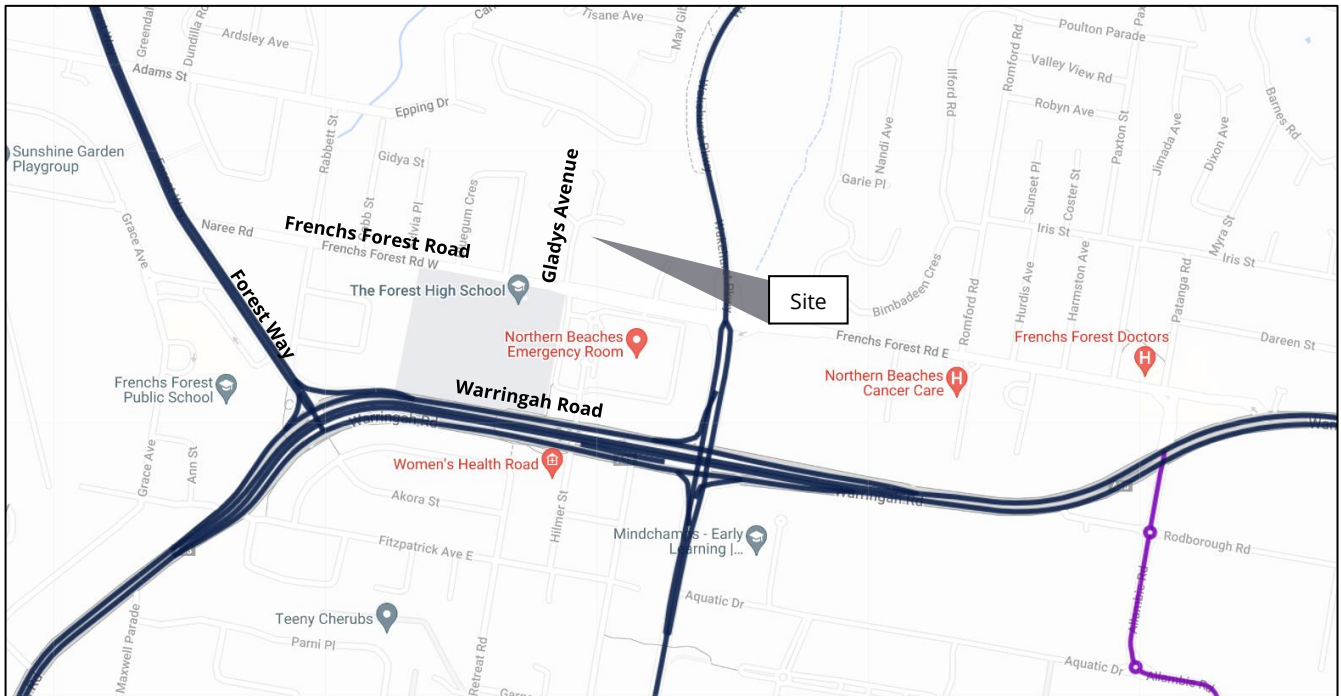
Source: Northern Beaches Council



2.2 Road Network

The road network serving the site area (Figure 2-3) comprises:

Figure 2-3 Road Network



Source: Mecone (modified by Genesis Traffic)

- Warringah Road – an east-west Classified Main Road (MR 328) connecting Pittwater Road in the east and Babbage Road in the west. It is subject to a 70km/h speed limit and generally consists of 3 traffic lanes in either direction on a divided carriageway. On-street parking is not permitted along the outer lanes in both directions.
- Frenchs Forest Road West – an east-west local road between Warringah Road in the east and Naree Road in the west. It is subject to a 50km/h speed limit near the site. At the intersection of Frenchs Forest Road and Gladys Avenue, Frenchs Forest Road consists of 2 eastbound lanes and 3 westbound lanes. The outer lanes operate as Bus Lanes.
- Gladys Avenue – a deadend cul-de-sac and a local road that connects to Frenchs Forest Road. It is subject to a 50km/h speed limit and permits a single traffic lane in either direction with a carriageway width of 7m. On-street parking is permitted along the western side of the street.



2.3 Traffic Controls

The traffic controls on the road system in the vicinity of the site comprise:

- the traffic control signal along Frenchs Forest Road (including the intersection at Gladys Avenue and Frenchs Forest Road)
- the Bus Lane at French Forest Road West between Wakehurst Parkway and Gladys Avenue
- the 40km/h School Zone speed restriction along Frenchs Forest Road between Gladys Avenue and Bluegum Crescent

2.4 Public Transport Services

The nearest bus stop (Frenchs Forest Road opposite Northern Beaches Hospital) is located at the site frontage, providing several bus services in the locality. These bus services are tabulated in Table 2-1.

Table 2-1 Bus Services Provision

Bus Line	Bus Route	Frequency
141	Austlink to Manly via Frenchs Forest & Seaforth	1-2 trip(s) per hour
155	Bayview Garden Village to Narrabeen and Frenchs Forest	1 trip per hour
160X	Dee Why to Chatswood via Frenchs Forest (Express Service)	6 trip(s) per hour
166	Frenchs Forest to Manly via Dee Why Beach	3-6 trip(s) per hour
193	Warringah Mall to Austlink via Frenchs Forest	1-2 trip(s) per hour
280	Warringah Mall to Chatswood	2 trip(s) per hour

2.5 Existing Traffic Conditions

Traffic surveys were commissioned as part of this assessment to record the AM peak and PM peak traffic flows at the intersection of Gladys Avenue and Frenchs Forest West.

The traffic survey data is reproduced in **Attachment 1**.

The existing intersection's operation has been assessed using SIDRA traffic modelling program. SIDRA is a micro-analytical tool for individual and network intersection modelling based on collected traffic survey data. SIDRA provides a few performance indicators, as follows:

- Degree of Saturation – the total usage of the intersection expressed as a factor of 1, with 1 representing 100% use/saturation.
- Average Delay – the average delay encountered by all vehicles passing through the intersection.



- 95% Queue Length (Q95) – is defined to be the queue length in metres that has only a 5% probability of being exceeded during the analysis period. It transforms the average delays into measurable distance units.
- Level of Service (LOS) – this is a categorisation of average delay, intended for simple reference. The RMS adopts the following bands (Table 2-2)

Table 2-2 Intersection Performance – Levels of Service

Level of Service	Average Delay (s/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & Spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity. At signals, incidents would cause excessive delays. Roundabouts require other control mode	At capacity and requires other mode of control
F	> 70	Extra capacity required	Extreme delay, major treatment required

An indication of prevailing traffic operations at these intersections is provided in the SIDRA assessment (Table 2-3).

Table 2-3 Existing Intersection Traffic Circumstance

Intersection	AM Peak		PM Peak	
	LOS	AVD	LOS	AVD
Gladys Avenue & Frenchs Forest West	A	11.4s	B	15.5s

Details of SIDRA results are reproduced in **Attachment 2**.

The assessment found the local road network operating with ample spare capacity under existing traffic demand (including the existing site's traffic movements).



3 Proposed Development

It is proposed to demolish the existing buildings and outbuildings on the site, undertake excavation to provide three (3) level basement car park and a level building platform on the site, on which a building will be constructed comprising:

- A total of 124 apartments in the following composition:
 - 9 x one-bedroom apartments
 - 77 x two-bedroom apartments
 - 38 x three-bedroom apartments
- Three (3) basement levels will be provided to accommodate 176 car parking spaces including 13 accessible parking spaces in the following composition:
 - 140 x Residents
 - 13 x Visitor
 - 3 x Car Wash Bay
 - 3 x Electric Vehicle Charging Space
 - 17 x Car Share

Vehicle access will be provided at Gladys Avenue.

Details of the proposal are indicated in the architectural plans prepared by BMHP which accompany the submission and are reproduced in part in **Attachment 3**.



4 Parking Assessment

4.1 Car Parking Requirement

The Warringah DCP specifies the applicable car parking rates in Table 4-1.

Table 4-1 DCP Car Parking Rates

Development Type		Parking Rates (Maximum)
Residential	One-bedroom	0.6 spaces per dwelling
	Two-bedroom	1 space per dwelling
	Three-bedroom	1.5 spaces per dwelling
	Visitors	0.1 space per dwelling
	Parking Rates (Minimum)	
	Car Share Dedicated Space	2 spaces per 15 dwellings
	Electric Vehicle Charging Space	2% of dwellings or 2 per development (whichever is greater)
	Car Wash Bay	1 bay per 50 dwellings, up to a maximum of 4 spaces per building

Application of the proposal using the above criteria would indicate the following requirements in Table 4-2.

Table 4-2 Number of Required Car Parking Spaces

Element	No	Requirement	Provision
One-bedroom units	9	6	140 spaces
Two-bedroom units	77	77	
Three-bedroom units	38	57	
Total (Maximum)		139.4(140) spaces (Max)	
Residential visitors (Maximum)	124	13	13
Car Share (Minimum)	124	17	17
Electric Vehicle (Minimum)	124	3	3
Car Wash Bay	124	3	3

* The DCP requires numerical decimals to be rounded up to the next integer.

Accordingly, it is proposed to provide 176 parking spaces in the basement to comply with the above criteria. These spaces will include:



- 140 x Residents
- 13 x Visitors
- 17 x Car Share
- 3 x Car Wash Bay
- 3 x Electric Vehicle Charging Space

4.2 Accessible Car parking Requirement

The applicable accessible car parking rate is:

- *10% of all dwellings*

Therefore, the requirement based on the provided car spaces is 13 space(s). The proposal of 13 accessible car spaces complies.

4.3 Motorcycle Parking Requirements

The Warringah DCP provides motorcycle parking rates of 0.5 space per dwelling. Applying this rate would indicate a minimum of 62 spaces and the proposal to provide 64 motorcycle spaces meets the above criteria.

4.4 Bicycle Parking Requirements

The Warringah DCP provides the applicable minimum parking rates in Table 4-3.

Table 4-3 DCP Bicycle Parking Rates

Element		Rates	Requirement
Bicycle	Residents	2 spaces per dwelling	248 spaces
	Visitors	0.25 space per dwelling	31 spaces
Total			279 spaces

Accordingly, to meet the DCP requirement, the minimum bicycle requirement is 279 spaces. 31 bicycle spaces for visitors will be provided in basement 2. 124 bicycle spaces for residents will be provided in mezzanine level while 124 bicycle spaces will be provided within the individual enclosed storage spaces.



5 Access and Circulation Design

5.1 Access

An 8.6m wide two-way driveway will be provided at the Gladys Avenue cul-de-sac to provide access to the at-grade loading bay and basement car park. The access driveway has been designed in accordance with the AS2890.1 criteria and has regard to the minor road and infrequent servicing access design criteria contained in the AS2890.2. Details of swept path assessment demonstrating the above are provided in **Attachment 4**.

5.2 Design Assessment and Internal Circulation

A detailed review of the carpark has been undertaken to assess its conformance with AS2890.1 design criteria. The assessment is summarised in Table 5-1.

Table 5-1 Compliance Check against Off-street Car Parking (AS2890.1:2004)

Features	Requirement	Provision	Compliance	Notes
Access Driveways				
Access Width	(Category 2) 6.0m - 9.0m	8.6m	Yes	
Sight Triangle (Pedestrian)	2.5m long x 2.0m wide	Provided	Yes	
First 6m Ramp Grade	Max 5% (1:20)	Provided	Yes	
Type of Vehicular Control Point	Island with Intercom / Security Gate	Provided	Yes	
Circulation Roadways / Ramp				
Ramp Grade	Max 25% (1:4)	1:5	Yes	
Transitions	Min 2.0m	2.0m	Yes	
Grade Transitions	Max 12.5% (1:8)	1:8	Yes	
Roadways Width (Two-way)	Min 5.5m	5.5m	Yes	
Kerbs	300mm on both sides	Provided	Yes	
Headroom Clearance	Min 2.2m	Provided	Yes	
Parking Modules				
Car Space Dimension	User Class 1A 5.4m long x 2.4m wide	5.4m long x 2.4m wide	Yes	



Aisle Width	User Class 1A 5.8m	5.8m-6.6m	Yes	
Door Clearance	300mm	Provided	Yes	
Blind Aisle	Min 1.0m	Provided	Yes	
Height Clearance	Min 2.2m	3.1m	Yes	
Gradient	Max 5% (1:20)	Level	Yes	
Motorcycle Space Dimension	2.5m long x 1.2m wide	2.5m long x 1.2m wide	Yes	

Table 5-2 Compliance Check against Bicycle Parking (AS2890.3:2015)

Features	Requirement	Provision	Compliance	Notes
Horizontal Bicycle Parking				
Space Dimension	1.8m long x 0.5m wide	1.8m long x 0.5m wide	Yes	
Aisle	1.5m	Provided	Yes	
Gradient	Max 5% (1:20)	Level	Yes	
Height Clearance	Min 2.2m	Provided	Yes	
Vertical Bicycle Parking				
Space Dimension	1.2m long x 0.5m wide	1.2m long x 0.5m wide	Yes	
Aisle	1.5m	Provided	Yes	
Gradient	Max 5% (1:20)	Level	Yes	
Height Clearance	Min 2.2m	Provided	Yes	

In summary, the design provisions in relation to the access, parking circulation and arrangement generally comply with AS2890.1 and AS2890.2. A swept path analysis has been provided to demonstrate satisfactory vehicle manoeuvres and circulation within the carpark. Details of the swept path analysis outcome are provided in **Attachment 4**.

5.3 Servicing Arrangement

Refuse collection will occur on-site in the provided loading bay which will be accessed via Gladys Avenue. Council waste trucks will enter the loading area in a reverse manner and exit the site in a forward direction.

A swept path analysis has been undertaken to demonstrate the intended vehicle circulation movements within the site. These swept path diagrams are provided in **Attachment**



6 Traffic Assessment

6.1 Existing Traffic Generation

The updated Technical Direction TDT 2013/04a¹ provides revised trip generation rates for low-density residential dwellings during peak hours. The relevant trip rates are as follows:

- 0.95 vtpd per unit during the morning peak hour
- 0.99 vtpd per unit during the evening peak hour

Applying these trip rates to four (4) existing dwellings would indicate a peak hour traffic generation outcome of four (4) vtpd during AM and PM peaks.

6.2 Development Traffic Generation

Residential

The updated Technical Direction TDT 2013/04a also provides trip generation rates for high-density residential apartment blocks. The relevant trip rates are as follows:

- 0.19 vtpd per unit during the morning peak hour
- 0.15 vtpd per unit during the evening peak hour

Application of these trip rates to the 124 proposed residential units would indicate a peak hour traffic generation outcome in Table 6-1.

Table 6-1 Traffic Generation During Peak Hour

Period	Total	In	Out
AM peak	24 vtpd	5 vtpd	19 vtpd
PM peak	19 vtpd	15 vtpd	4 vtpd

¹ NSW Government Roads and Maritime Services 2013, Guide to Traffic Generating Developments: Updated traffic surveys



6.3 Overall Traffic Generation and Distribution

Having regard to the above, the net traffic generation outcome is tabulated in Table 6-2 as follows:

Table 6-2 Net Peak Hour Traffic Generation

Period	AM Peak (vtph)		PM Peak (vtph)	
	In	Out	In	Out
(Existing)	0	-4	-4	0
Residential	5	19	15	4
Net Traffic	5	15	11	4

The projected development traffic movements are then added onto the surveyed background traffic and reanalysed using SIDRA. The assessment considers the existing state, the existing state with the subject development to provide an objective comparison in terms of traffic generation impact on the network. The assessed model outcome is summarised in Table 6-3.

Table 6-3 Existing and Post-Development SIDRA Assessment Outcome

Intersection	AM Peak		PM Peak	
	LOS	AVD	LOS	AVD
Pre-Development				
Gladys Avenue & Frenchs Forest West	A	11.4s	B	15.5s
Post Development				
Gladys Avenue & Frenchs Forest West	A	12.4s	B	16.3s

*WRT = West approach Right Turn movement

The SIDRA output is reproduced in **Attachment 2**.

The assessment found the existing road network operate with ample spare capacity and the road network levels of service will be maintained following the addition of the subject development.

On this basis, the assessment concludes that the development would not adversely impact the existing road network.



7 Conclusion

The traffic and parking assessment undertaken for the proposed residential development at 116-120 Frenchs Forest West and 11 Gladys Avenue, Frenchs Forest has concluded that:

- the traffic generation of the proposed development will not present any adverse traffic implications
- the proposed parking provision will comply with the Council's DCP criteria and will adequately serve the development
- the proposed access, internal circulation and parking arrangements will be consistent with the nature of the development and are appropriate to the relevant AS design criteria



Attachment 1

Traffic Survey

Location	Gladys Avenue
	Frenchs Forest Road West
	Gladys Avenue
	Frenchs Forest Road West
Suburb	FRENCH FOREST

Duration	7:00 - 9:00
	16:00 - 18:00
	-
Day/Date	Thursday, 30 November 2023
Weather	-

All Vehicles Time Per 15 Mins	NORTH										EAST														
	Gladys Avenue										Frenchs Forest Road West														
	L			T			R			TOTAL	L			T			R			TOTAL	TOTAL		TOTAL		
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY			
7:00 - 7:15	0	0	0	2	0	2	2	0	2	4	23	0	23	74	6	80	0	0	0	103	186	15	201		
7:15 - 7:30	1	0	1	1	0	1	1	0	1	3	38	0	38	81	9	90	3	0	3	131	260	13	273		
7:30 - 7:45	4	0	4	0	0	0	2	0	2	6	56	0	56	108	11	119	4	0	4	179	311	16	327		
7:45 - 8:00	3	0	3	4	0	4	2	0	2	9	66	0	66	107	10	117	7	0	7	190	396	17	413		
8:00 - 8:15	3	0	3	0	0	0	2	0	2	5	40	0	40	100	11	111	2	0	2	153	371	18	389		
8:15 - 8:30	3	0	3	1	0	1	3	0	3	7	40	0	40	130	0	130	1	0	1	171	413	10	423		
8:30 - 8:45	6	1	7	1	0	1	3	0	3	11	47	0	47	156	6	162	3	0	3	212	447	16	463		
8:45 - 9:00	2	0	2	5	0	5	2	0	2	9	43	0	43	153	9	162	4	0	4	209	377	19	396		
Period End	22	1	23	14	0	14	17	0	17	54	353	0	353	909	62	971	24	0	24	1348	2761	124	2885		
16:00 - 16:15	2	0	2	1	0	1	1	1	2	5	13	0	13	133	11	144	6	0	6	163	364	22	386		
16:15 - 16:30	2	0	2	0	0	0	5	0	5	7	22	0	22	106	6	112	2	0	2	136	345	15	360		
16:30 - 16:45	5	0	5	1	0	1	1	0	1	7	20	0	20	108	6	114	4	0	4	138	335	11	346		
16:45 - 17:00	2	0	2	0	0	0	2	0	2	4	16	0	16	129	8	137	1	0	1	154	356	14	370		
17:00 - 17:15	4	0	4	0	0	0	1	0	1	5	16	0	16	132	7	139	4	0	4	159	361	13	374		
17:15 - 17:30	0	0	0	1	0	1	1	0	1	2	10	0	10	162	8	170	2	0	2	182	382	16	398		
17:30 - 17:45	2	0	2	0	0	0	2	0	2	4	20	0	20	127	6	133	2	0	2	155	323	13	336		
17:45 - 18:00	2	0	2	0	0	0	2	0	2	4	12	0	12	102	4	106	3	0	3	121	286	8	294		
Period End	19	0	19	3	0	3	15	1	16	38	129	0	129	999	56	1055	24	0	24	1208	2752	112	2864		

All Vehicles Time Per 15 Mins	SOUTH										WEST															
	Gladys Avenue										Frenchs Forest Road West															
	L			T			R			TOTAL	L			T			R			TOTAL	TOTAL		TOTAL			
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY				
7:00 - 7:15	3	0	3	0	0	0	6	1	7	10	0	0	0	66	7	73	10	1	11	84	186	15	201			
7:15 - 7:30	7	0	7	0	0	0	9	0	9	16	0	0	0	103	4	107	16	0	16	123	260	13	273			
7:30 - 7:45	4	0	4	0	0	0	14	0	14	18	0	1	1	107	4	111	12	0	12	124	311	16	327			
7:45 - 8:00	11	0	11	0	0	0	10	0	10	21	2	0	2	158	7	165	26	0	26	193	396	17	413			
8:00 - 8:15	7	0	7	1	0	1	11	0	11	19	1	0	1	189	6	195	15	1	16	212	371	18	389			
8:15 - 8:30	6	0	6	0	0	0	6	0	6	12	1	0	1	208	10	218	14	0	14	233	413	10	423			
8:30 - 8:45	3	0	3	0	0	0	19	0	19	22	2	0	2	195	8	203	12	1	13	218	447	16	463			
8:45 - 9:00	7	0	7	3	0	3	11	0	11	21	2	0	2	134	10	144	11	0	11	157	377	19	396			
Period End	48	0	48	4	0	4	86	1	87	139	8	1	9	1160	56	1216	116	3	119	1344	2761	124	2885			
16:00 - 16:15	33	0	33	0	0	0	56	0	56	89	0	0	0	112	10	122	7	0	7	129	364	22	386			
16:15 - 16:30	20	0	20	2	0	2	53	0	53	75	1	0	1	127	9	136	5	0	5	142	345	15	360			
16:30 - 16:45	16	0	16	1	0	1	59	0	59	76	2	0	2	110	5	115	8	0	8	125	335	11	346			
16:45 - 17:00	25	0	25	4	0	4	32	0	32	61	2	0	2	138	6	144	5	0	5	151	356	14	370			
17:00 - 17:15	16	0	16	0	0	0	44	0	44	60	1	0	1	135	6	141	8	0	8	150	361	13	374			
17:15 - 17:30	20	0	20	2	0	2	41	0	41	63	5	0	5	134	8	142	4	0	4	151	382	16	398			
17:30 - 17:45	16	0	16	1	0	1	33	0	33	50	0	0	0	116	7	123	4	0	4	127	323	13	336			
17:45 - 18:00	10	0	10	0	0	0	36	0	36	46	3	0	3	112	4	116	4	0	4	123	286	8	294			
Period End	156	0	156	10	0	10	354	0	354	520	14	0	14	984	55	1039	45	0	45	1098	2752	112	2864			

Location Gladys Avenue
Frenchs Forest Road West
Gladys Avenue
Frenchs Forest Road West
Suburb FRENCH FOREST

Duration 7:00 - 9:00
16:00 - 18:00
Day/Date Thursday, 30 November 2023
Weather -

All Vehicles Time Per Hour	NORTH Gladys Avenue										EAST Frenchs Forest Road West												
	L			T			R			TOTAL	L			T			R			TOTAL	TOTAL		TOTAL
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	
	7:00 - 8:00	8	0	8	7	0	7	7	0	7	22	183	0	183	370	36	406	14	0	14	603	1153	61
7:15 - 8:15	11	0	11	5	0	5	7	0	7	23	200	0	200	396	41	437	16	0	16	653	1338	64	1402
7:30 - 8:30	13	0	13	5	0	5	9	0	9	27	202	0	202	445	32	477	14	0	14	693	1491	61	1552
7:45 - 8:45	15	1	16	6	0	6	10	0	10	32	193	0	193	493	27	520	13	0	13	726	1627	61	1688
8:00 - 9:00	14	1	15	7	0	7	10	0	10	32	170	0	170	539	26	565	10	0	10	745	1608	63	1671
Period End																							
16:00 - 17:00	11	0	11	2	0	2	9	1	10	23	71	0	71	476	31	507	13	0	13	591	1400	62	1462
16:15 - 17:15	13	0	13	1	0	1	9	0	9	23	74	0	74	475	27	502	11	0	11	587	1397	53	1450
16:30 - 17:30	11	0	11	2	0	2	5	0	5	18	62	0	62	531	29	560	11	0	11	633	1434	54	1488
16:45 - 17:45	8	0	8	1	0	1	6	0	6	15	62	0	62	550	29	579	9	0	9	650	1422	56	1478
17:00 - 18:00	8	0	8	1	0	1	6	0	6	15	58	0	58	523	25	548	11	0	11	617	1352	50	1402
Period End																							

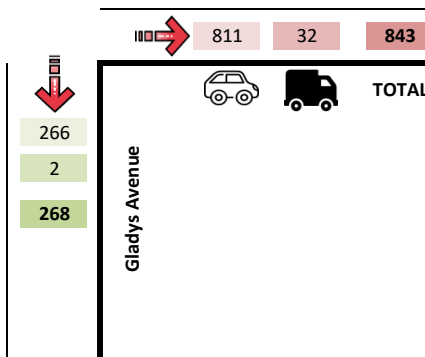
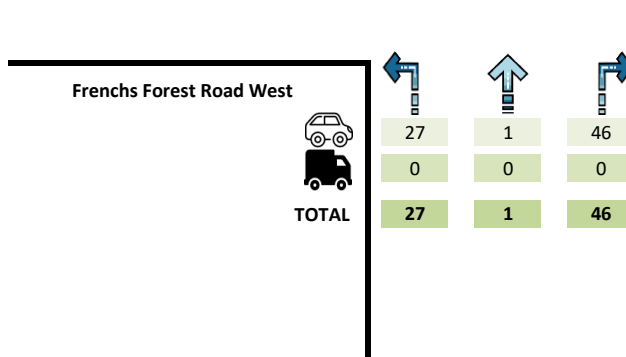
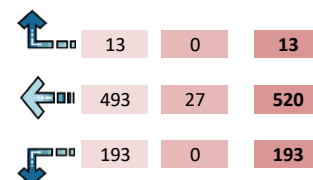
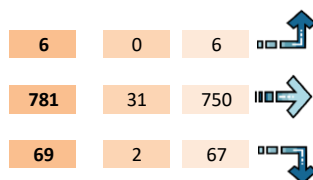
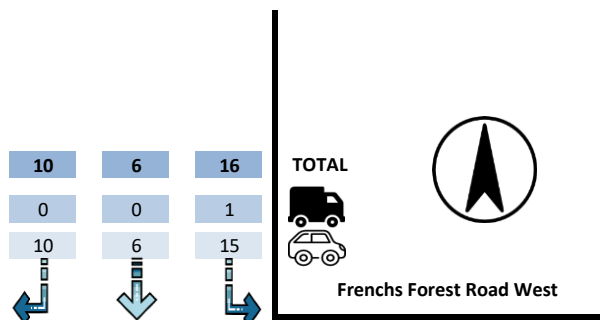
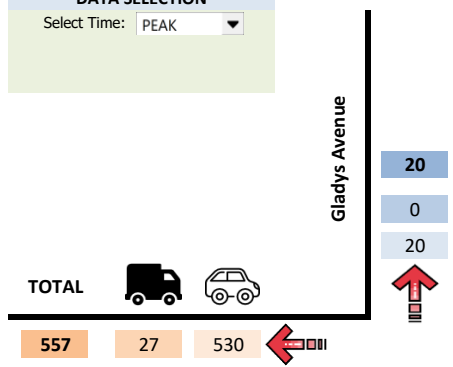
All Vehicles Time Per Hour	SOUTH Gladys Avenue										WEST Frenchs Forest Road West												
	L			T			R			TOTAL	L			T			R			TOTAL	TOTAL		TOTAL
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	
	7:00 - 8:00	25	0	25	0	0	0	39	1	40	65	2	1	3	434	22	456	64	1	65	524	1153	61
7:15 - 8:15	29	0	29	1	0	1	44	0	44	74	3	1	4	557	21	578	69	1	70	652	1338	64	1402
7:30 - 8:30	28	0	28	1	0	1	41	0	41	70	4	1	5	662	27	689	67	1	68	762	1491	61	1552
7:45 - 8:45	27	0	27	1	0	1	46	0	46	74	6	0	6	750	31	781	67	2	69	856	1627	61	1688
8:00 - 9:00	23	0	23	4	0	4	47	0	47	74	6	0	6	726	34	760	52	2	54	820	1608	63	1671
Period End																							
16:00 - 17:00	94	0	94	7	0	7	200	0	200	301	5	0	5	487	30	517	25	0	25	547	1400	62	1462
16:15 - 17:15	77	0	77	7	0	7	188	0	188	272	6	0	6	510	26	536	26	0	26	568	1397	53	1450
16:30 - 17:30	77	0	77	7	0	7	176	0	176	260	10	0	10	517	25	542	25	0	25	577	1434	54	1488
16:45 - 17:45	77	0	77	7	0	7	150	0	150	234	8	0	8	523	27	550	21	0	21	579	1422	56	1478
17:00 - 18:00	62	0	62	3	0	3	154	0	154	219	9	0	9	497	25	522	20	0	20	551	1352	50	1402
Period End																							

Location Gladys Avenue
Frenchs Forest Road West
Gladys Avenue
Frenchs Forest Road West
 Suburb FRENCH FOREST

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Thursday, 30 November 2023
 Weather -

DATA SELECTION
 Select Time:

TIME RANGE		
PEAK	-	AM
PEAK		
7:45	-	8:45

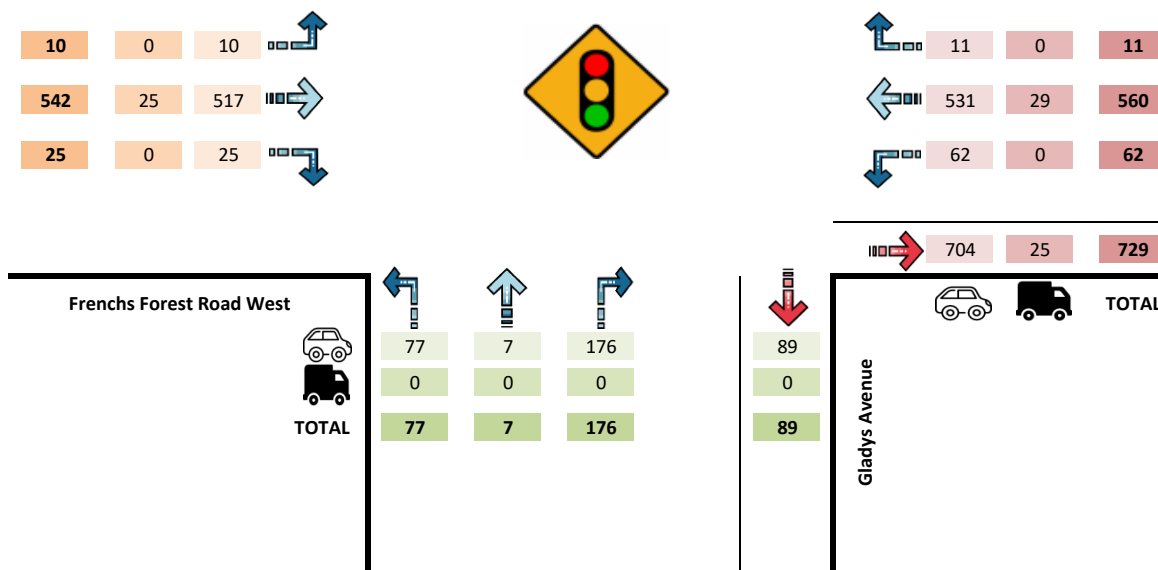
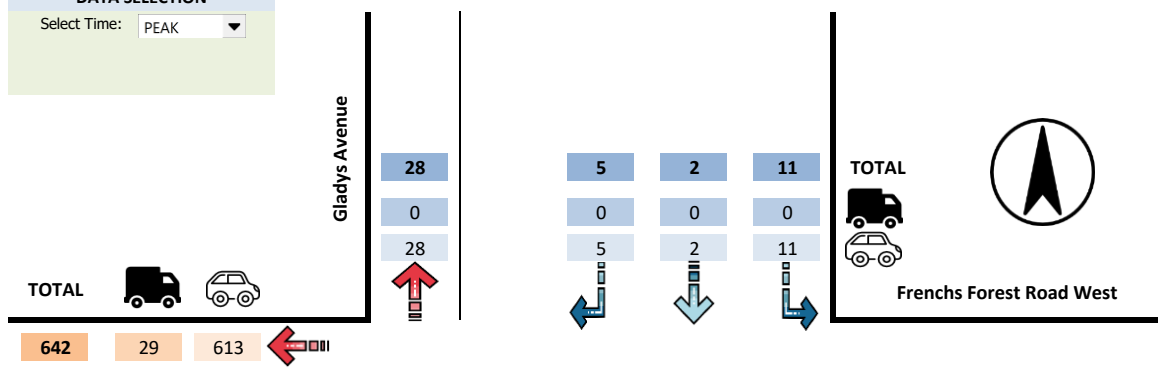


Location Gladys Avenue
Frenchs Forest Road West
Gladys Avenue
Frenchs Forest Road West
 Suburb FRENCH FOREST

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Thursday, 30 November 2023
 Weather -

DATA SELECTION
 Select Time: PEAK

TIME RANGE		
PEAK	-	PM
PEAK		
16:30	-	17:30





Attachment 2

SIDRA Result

MOVEMENT SUMMARY

 Site: 101 [AM Peak - Gladys Avenue | Frenchs Forest Road West | Hospital Access (Site Folder: Existing Traffic)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

7:45am - 8:45am

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				km/h
			veh/h	%	veh/h	%	v/c	sec			m				
South: Hospital Access															
1	L2	All MCs	28	0.0	28	0.0	0.044	28.1	LOS B	1.1	7.5	0.66	0.64	0.66	30.2
2	T1	All MCs	1	0.0	1	0.0	0.044	38.4	LOS C	1.1	7.5	0.66	0.64	0.66	30.5
3	R2	All MCs	48	0.0	48	0.0	0.120	43.9	LOS D	2.3	16.0	0.84	0.71	0.84	26.9
Approach			78	0.0	78	0.0	0.120	38.1	LOS C	2.3	16.0	0.77	0.68	0.77	28.1
East: Frenchs Forest Road West															
4	L2	All MCs	203	0.0	203	0.0	* 0.262	9.1	LOS A	1.8	13.8	0.19	0.76	0.19	15.5
5	T1	All MCs	547	5.2	547	5.2	0.313	11.5	LOS A	5.6	39.3	0.39	0.36	0.39	35.5
6	R2	All MCs	14	0.0	14	0.0	0.295	71.1	LOS F	0.9	6.1	1.00	0.68	1.00	22.3
Approach			764	3.7	764	3.7	0.313	11.9	LOS A	5.6	39.3	0.35	0.47	0.35	26.3
North: Gladys Avenue															
7	L2	All MCs	17	6.3	17	6.3	* 0.295	27.4	LOS B	1.3	9.5	0.99	0.72	0.99	27.7
8	T1	All MCs	6	0.0	6	0.0	* 0.295	55.1	LOS D	1.3	9.5	0.99	0.72	0.99	13.8
9	R2	All MCs	11	0.0	11	0.0	0.295	49.4	LOS D	1.3	9.5	0.99	0.72	0.99	27.7
Approach			34	3.1	34	3.1	0.295	39.5	LOS C	1.3	9.5	0.99	0.72	0.99	23.3
West: Frenchs Forest Road West															
10	L2	All MCs	6	0.0	6	0.0	0.409	5.6	LOS A	3.7	26.5	0.17	0.15	0.17	38.3
11	T1	All MCs	822	4.0	822	4.0	* 0.409	3.3	LOS A	4.2	30.1	0.18	0.16	0.18	38.6
12	R2	All MCs	73	2.9	73	2.9	0.319	56.0	LOS D	3.7	26.6	0.89	0.77	0.89	13.0
Approach			901	3.9	901	3.9	0.409	7.6	LOS A	4.2	30.1	0.23	0.21	0.23	33.3
All Vehicles			1777	3.6	1777	3.6	0.409	11.4	LOS A	5.6	39.3	0.32	0.35	0.32	29.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Hospital Access												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

East: Frenchs Forest Road West												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: Gladys Avenue												
P3	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Frenchs Forest Road West												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All		200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [PM Peak - Gladys Avenue | Frenchs Forest Road West | Hospital Access (Site Folder: Existing Traffic)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

4:30pm-5:30pm

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				km/h
			veh/h	%	veh/h	%	v/c	sec			m				
South: Hospital Access															
1	L2	All MCs	81	0.0	81	0.0	0.132	30.4	LOS C	3.4	23.5	0.69	0.70	0.69	34.7
2	T1	All MCs	7	0.0	7	0.0	0.132	30.1	LOS C	3.4	23.5	0.69	0.70	0.69	35.3
3	R2	All MCs	185	0.0	185	0.0	* 0.333	39.6	LOS C	8.4	58.9	0.82	0.77	0.82	32.0
Approach			274	0.0	274	0.0	0.333	36.6	LOS C	8.4	58.9	0.78	0.75	0.78	32.9
East: Frenchs Forest Road West															
4	L2	All MCs	65	0.0	65	0.0	0.127	9.4	LOS A	1.0	8.8	0.23	0.70	0.23	16.1
5	T1	All MCs	589	5.2	589	5.2	0.313	9.0	LOS A	5.0	35.0	0.33	0.31	0.33	44.6
6	R2	All MCs	12	0.0	12	0.0	0.125	64.3	LOS E	0.7	4.6	0.95	0.67	0.95	26.2
Approach			666	4.6	666	4.6	0.313	10.0	LOS A	5.0	35.0	0.33	0.35	0.33	37.6
North: Gladys Avenue															
7	L2	All MCs	12	0.0	12	0.0	0.128	25.8	LOS B	0.6	4.5	0.96	0.69	0.96	33.0
8	T1	All MCs	2	0.0	2	0.0	* 0.128	56.1	LOS D	0.6	4.5	0.96	0.69	0.96	14.5
9	R2	All MCs	5	0.0	5	0.0	0.128	50.4	LOS D	0.6	4.5	0.96	0.69	0.96	33.0
Approach			19	0.0	19	0.0	0.128	36.0	LOS C	0.6	4.5	0.96	0.69	0.96	28.9
West: Frenchs Forest Road West															
10	L2	All MCs	11	0.0	11	0.0	0.335	11.4	LOS A	5.0	36.6	0.32	0.29	0.32	43.9
11	T1	All MCs	571	4.6	571	4.6	* 0.335	8.6	LOS A	5.3	38.8	0.33	0.29	0.33	44.7
12	R2	All MCs	26	0.0	26	0.0	* 0.283	70.2	LOS E	1.5	10.8	0.97	0.72	0.97	12.8
Approach			607	4.3	607	4.3	0.335	11.3	LOS A	5.3	38.8	0.36	0.31	0.36	40.3
All Vehicles			1566	3.6	1566	3.6	0.335	15.5	LOS B	8.4	58.9	0.43	0.41	0.43	37.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Hospital Access												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

East: Frenchs Forest Road West												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: Gladys Avenue												
P3	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Frenchs Forest Road West												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All		200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [AM Peak - Gladys Avenue | Frenchs Forest Road West | Hospital Access (Site Folder: Post Development Traffic)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

7:45am - 8:45am

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				km/h
			veh/h	%	veh/h	%	v/c	sec			m				
South: Hospital Access															
1	L2	All MCs	28	0.0	28	0.0	0.051	32.4	LOS C	1.2	8.2	0.71	0.66	0.71	29.2
2	T1	All MCs	1	0.0	1	0.0	0.051	43.7	LOS D	1.2	8.2	0.71	0.66	0.71	29.4
3	R2	All MCs	48	0.0	48	0.0	0.156	49.7	LOS D	2.4	17.1	0.89	0.72	0.89	25.8
Approach			78	0.0	78	0.0	0.156	43.3	LOS D	2.4	17.1	0.83	0.70	0.83	27.0
East: Frenchs Forest Road West															
4	L2	All MCs	203	0.0	203	0.0	* 0.262	9.1	LOS A	1.7	12.9	0.19	0.76	0.19	15.5
5	T1	All MCs	547	5.2	547	5.2	0.307	10.7	LOS A	5.3	37.4	0.37	0.35	0.37	35.8
6	R2	All MCs	17	0.0	17	0.0	0.181	63.7	LOS E	1.0	6.8	0.96	0.69	0.96	23.4
Approach			767	3.7	767	3.7	0.307	11.4	LOS A	5.3	37.4	0.34	0.46	0.34	26.4
North: Gladys Avenue															
7	L2	All MCs	25	4.2	25	4.2	* 0.337	26.2	LOS B	2.0	14.3	0.98	0.74	0.98	27.9
8	T1	All MCs	6	0.0	6	0.0	* 0.337	54.9	LOS D	2.0	14.3	0.98	0.74	0.98	13.8
9	R2	All MCs	19	0.0	19	0.0	0.337	49.1	LOS D	2.0	14.3	0.98	0.74	0.98	28.0
Approach			51	2.1	51	2.1	0.337	38.4	LOS C	2.0	14.3	0.98	0.74	0.98	24.8
West: Frenchs Forest Road West															
10	L2	All MCs	9	0.0	9	0.0	0.431	6.8	LOS A	5.3	38.2	0.24	0.22	0.24	37.6
11	T1	All MCs	822	4.0	822	4.0	* 0.431	5.0	LOS A	5.8	41.7	0.25	0.22	0.25	37.9
12	R2	All MCs	73	2.9	73	2.9	0.319	56.0	LOS D	3.7	26.6	0.89	0.77	0.89	13.0
Approach			904	3.8	904	3.8	0.431	9.1	LOS A	5.8	41.7	0.30	0.27	0.30	32.8
All Vehicles			1800	3.6	1800	3.6	0.431	12.4	LOS A	5.8	41.7	0.36	0.38	0.36	29.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist m]			sec	m	m/sec
South: Hospital Access												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

East: Frenchs Forest Road West												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: Gladys Avenue												
P3	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Frenchs Forest Road West												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All		200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [PM Peak - Gladys Avenue | Frenchs Forest Road West | Hospital Access (Site Folder: Post Development Traffic)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

4:30pm-5:30pm

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				km/h
			veh/h	%	veh/h	%	v/c	sec			m				
South: Hospital Access															
1	L2	All MCs	81	0.0	81	0.0	0.134	31.2	LOS C	3.4	23.8	0.70	0.71	0.70	34.5
2	T1	All MCs	7	0.0	7	0.0	0.134	30.2	LOS C	3.4	23.8	0.70	0.71	0.70	35.1
3	R2	All MCs	185	0.0	185	0.0	* 0.333	39.6	LOS C	8.4	58.9	0.82	0.77	0.82	32.0
Approach			274	0.0	274	0.0	0.333	36.8	LOS C	8.4	58.9	0.78	0.75	0.78	32.8
East: Frenchs Forest Road West															
4	L2	All MCs	65	0.0	65	0.0	0.129	9.5	LOS A	1.0	9.1	0.24	0.70	0.24	16.1
5	T1	All MCs	589	5.2	589	5.2	0.318	9.6	LOS A	5.3	37.1	0.34	0.32	0.34	44.2
6	R2	All MCs	14	0.0	14	0.0	0.177	66.7	LOS E	0.8	5.7	0.97	0.68	0.97	25.8
Approach			668	4.6	668	4.6	0.318	10.8	LOS A	5.3	37.1	0.35	0.37	0.35	37.3
North: Gladys Avenue															
7	L2	All MCs	18	0.0	18	0.0	0.224	25.6	LOS B	1.1	7.6	0.97	0.72	0.97	32.9
8	T1	All MCs	2	0.0	2	0.0	* 0.224	55.1	LOS D	1.1	7.6	0.97	0.72	0.97	14.4
9	R2	All MCs	12	0.0	12	0.0	0.224	49.4	LOS D	1.1	7.6	0.97	0.72	0.97	32.9
Approach			32	0.0	32	0.0	0.224	36.3	LOS C	1.1	7.6	0.97	0.72	0.97	30.3
West: Frenchs Forest Road West															
10	L2	All MCs	13	0.0	13	0.0	0.343	11.7	LOS A	5.4	39.1	0.34	0.31	0.34	43.5
11	T1	All MCs	571	4.6	571	4.6	* 0.343	9.3	LOS A	5.7	41.3	0.35	0.31	0.35	44.3
12	R2	All MCs	26	0.0	26	0.0	* 0.340	72.4	LOS F	1.6	11.1	0.98	0.71	0.98	12.7
Approach			609	4.3	609	4.3	0.343	12.1	LOS A	5.7	41.3	0.38	0.33	0.38	40.0
All Vehicles			1583	3.6	1583	3.6	0.343	16.3	LOS B	8.4	58.9	0.45	0.42	0.45	37.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Hospital Access												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

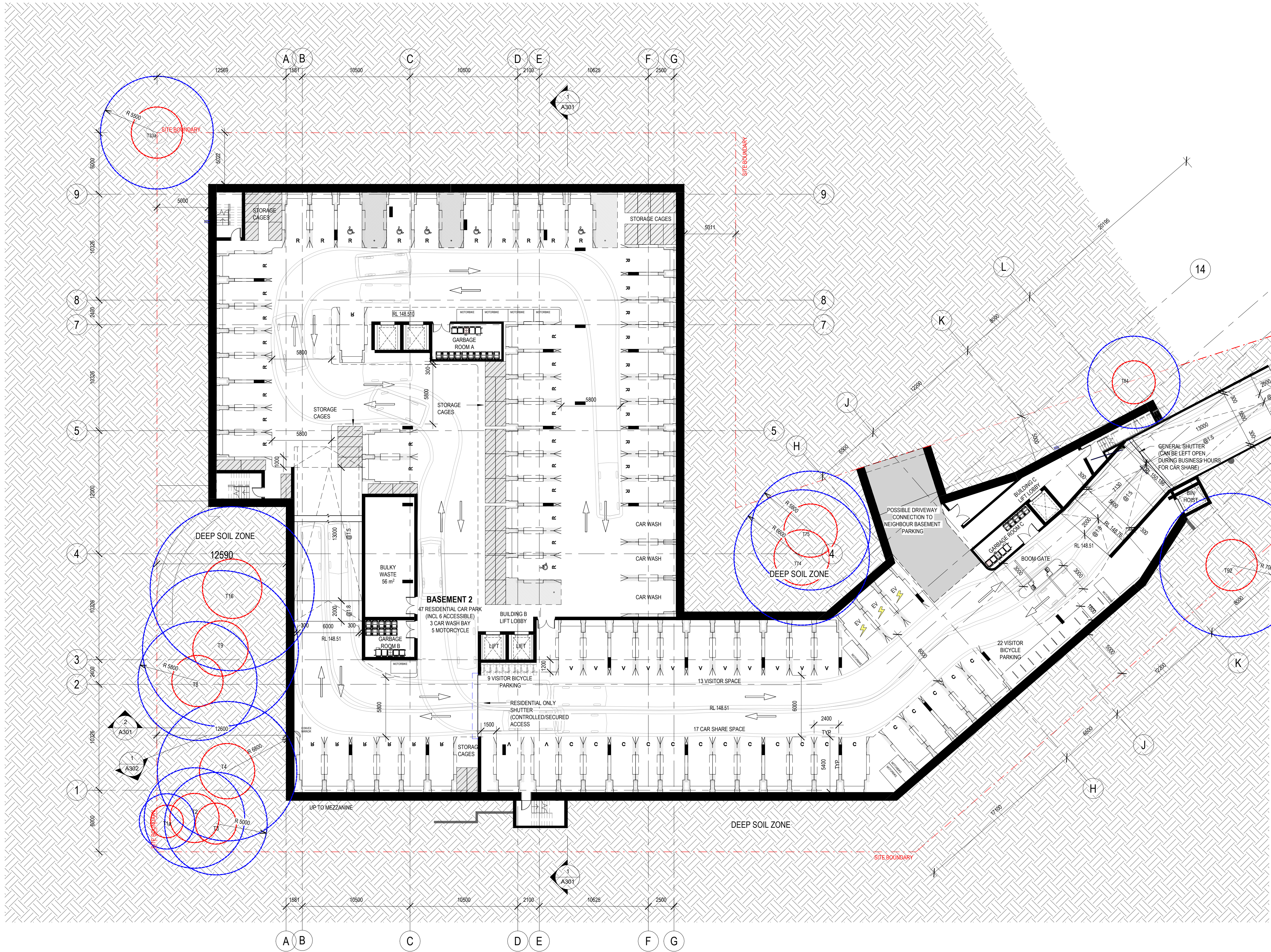
East: Frenchs Forest Road West												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: Gladys Avenue												
P3	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Frenchs Forest Road West												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All		200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.



Attachment 3

Architectural Plans



CAR PARK LEGEND

- ELECTRIC VEHICLE
- V VISITOR
- C CAR SHARE
- R RESIDENTS
- ACCESSIBLE

LEGEND

- PERMIABLE PAVERS
- C.O.S

EXISTING TREE TO BE RETAINED

LEGEND

- DESCRIPTION:
- SRZ
- TPZ

NOTE: TREES TO BE REMOVED, REFER TO DEMOLITION PLAN AND ARBORIST REPORT.

PARKING REQUIREMENTS

	Rate (per unit)	Units	Required	Proposed
Residential				
	Maximum Rate			
1 Bed	0.6	9	5.4	6
2 Bed	1	77	77	77
3 Bed	1.5	38	57	57
		total	139.4	140
Accessible	10% of all dwellings	124	12.4	13
Visitor	0.1 spaces per dwelling	124	12.4	13
Car Wash Space	1 car wash bay per 50 units	124	2.4	3
Minimum Rate				
Car share space	2 spaces per 15 units	124	16.5	17
Electric Vehicle Charging Space	2% of dwellings or 2 per development (whichever is greater)	124	2.5	3
Motorcycle Parking	0.5 spaces per dwelling	124	62	64
Bicycle Parking				
Residential Bicycle	2 spaces per dwelling	124	248	248
Visitor Bicycle	0.25 spaces per dwelling	124	31	31

1 GA - BASEMENT 2
SCALE 1 : 200 MM

BMHP

Architecture
Interiors
Urban Design
Project Management
ABN 46676126882
601/66 Hunter Street,
Sydney NSW 2000
Australia

+612 9060 0260
bmhpgroup.com.au

Rev

Issue Date Description
A 11.11.2024 DA LOGEMENT

Consultants

Client

Young Assets
Holding Pty Ltd

Project

116-120 Frenchs Forest Rd
West & 11 Gladys Ave
Frenchs Forest

Drawing

BASEMENT 2

North

Scale

As
indicated@A1

Date

2024

Job No.

23_6514

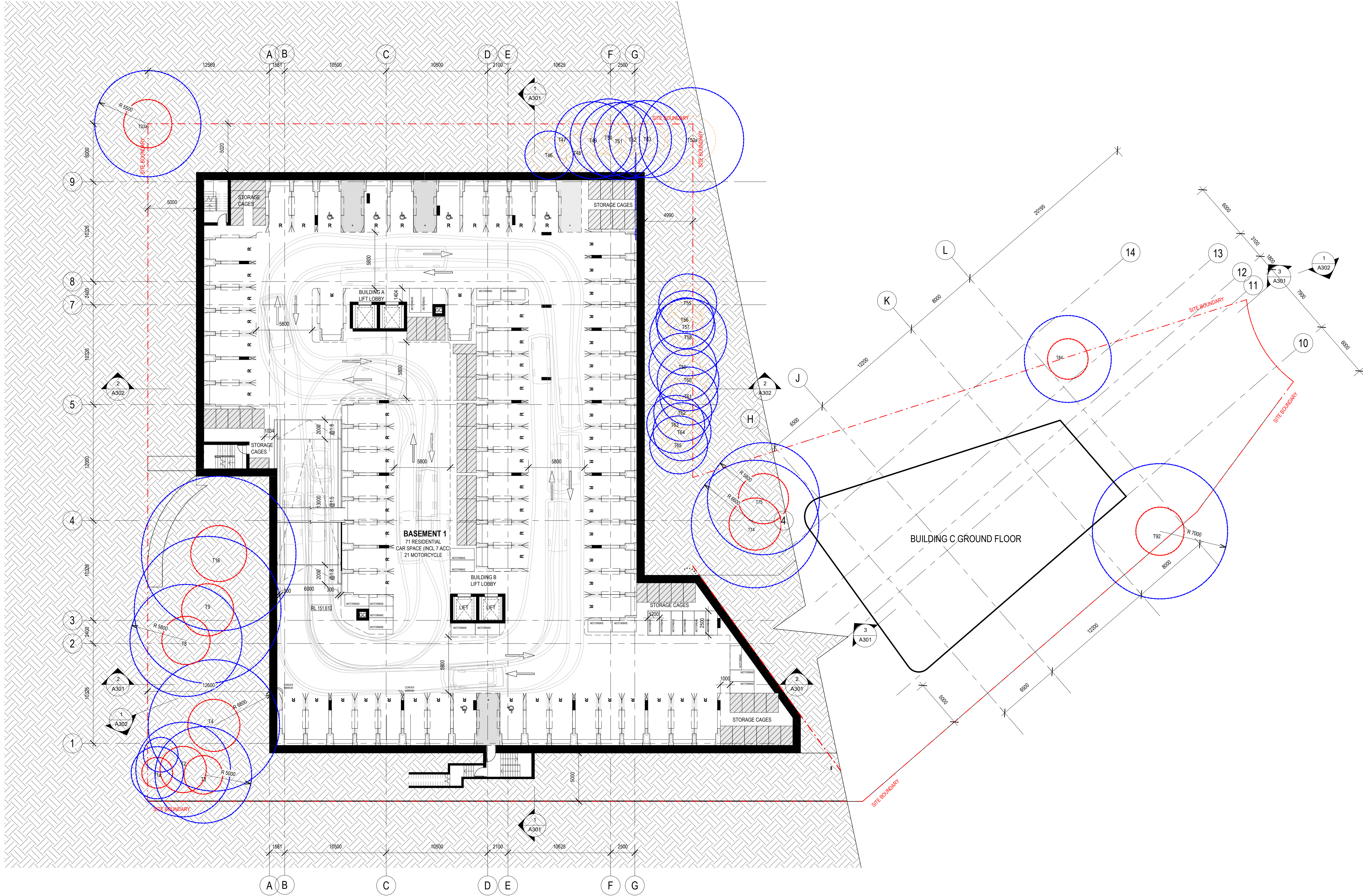
Drawing No.

A101 / A

Issued for

FOR DA

Verify all dimensions before commencing work. Use figured dimensions.
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CAR PARK LEGEND

- ELECTRIC VEHICLE
- V VISITOR
- C CAR SHARE
- R RESIDENTS
- ACCESSIBLE

LEGEND

- PERMIBLE PAVERS
- C.O.S

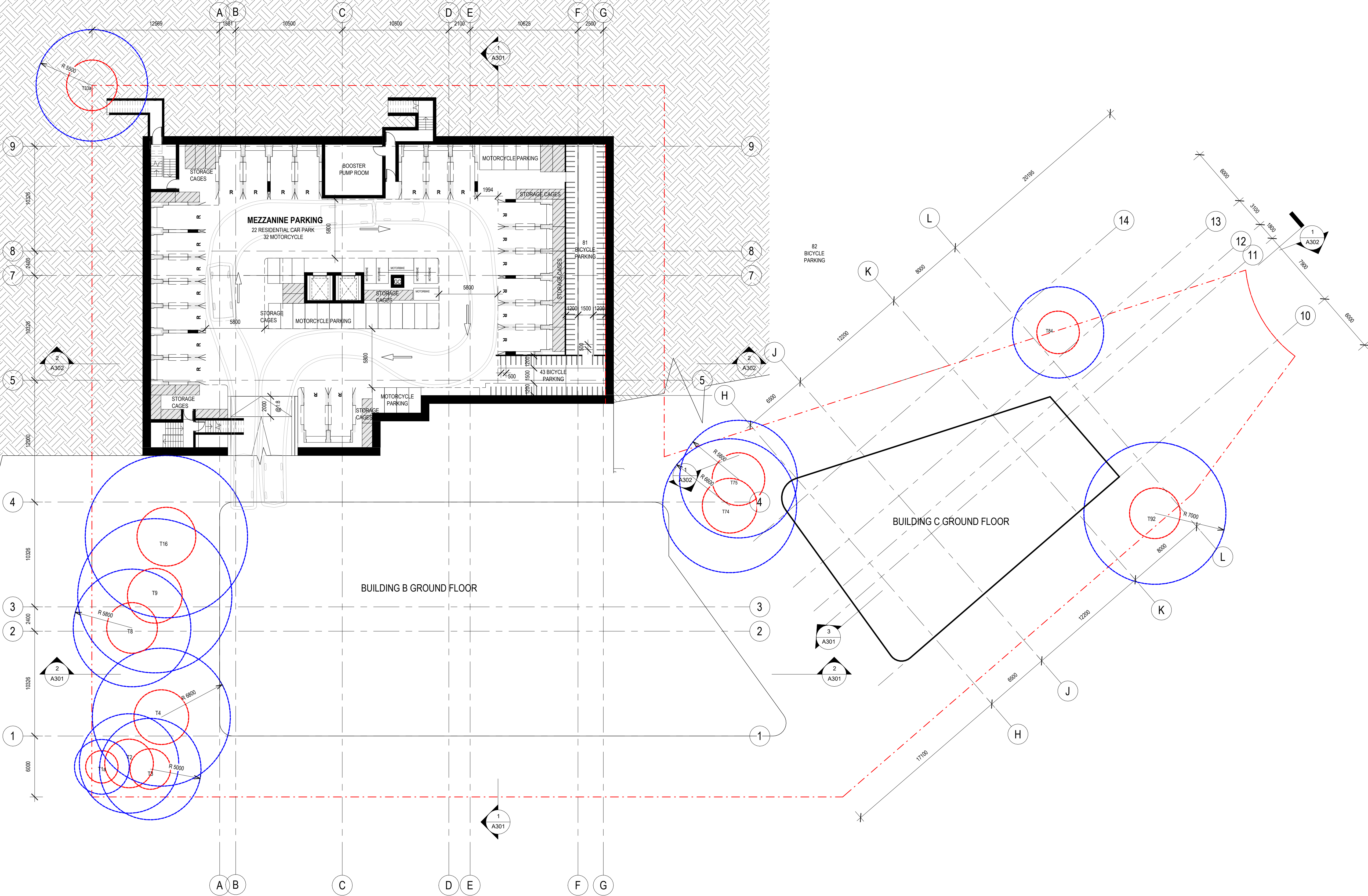
EXISTING TREE TO BE RETAINED

LEGEND

- DESCRIPTION:
- SRZ
- TPZ

NOTE: TREES TO BE REMOVED, REFER TO DEMOLITION PLAN AND ARBORIST REPORT.

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8/11/2024 1:37:49 PM



CAR PARK LEGEND

- ELECTRIC VEHICLE
- V VISITOR
- C CAR SHARE
- R RESIDENTS
- ACCESSIBLE

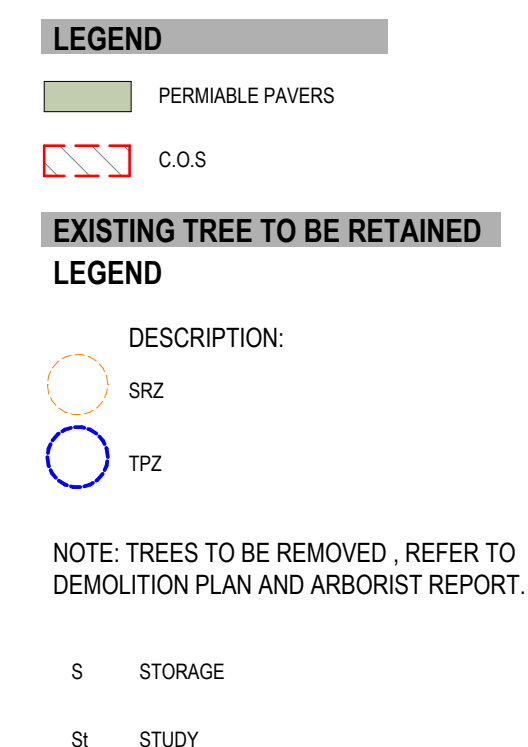
LEGEND

- PERMIABLE PAVERS
- C.O.S

EXISTING TREE TO BE RETAINED
LEGEND

- DESCRIPTION:
- SRZ
 - TPZ

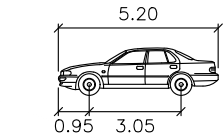
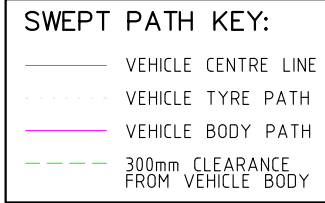
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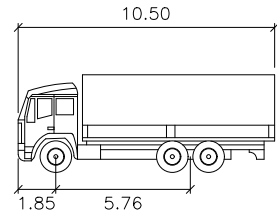
Attachment 4

Turning Path Assessment



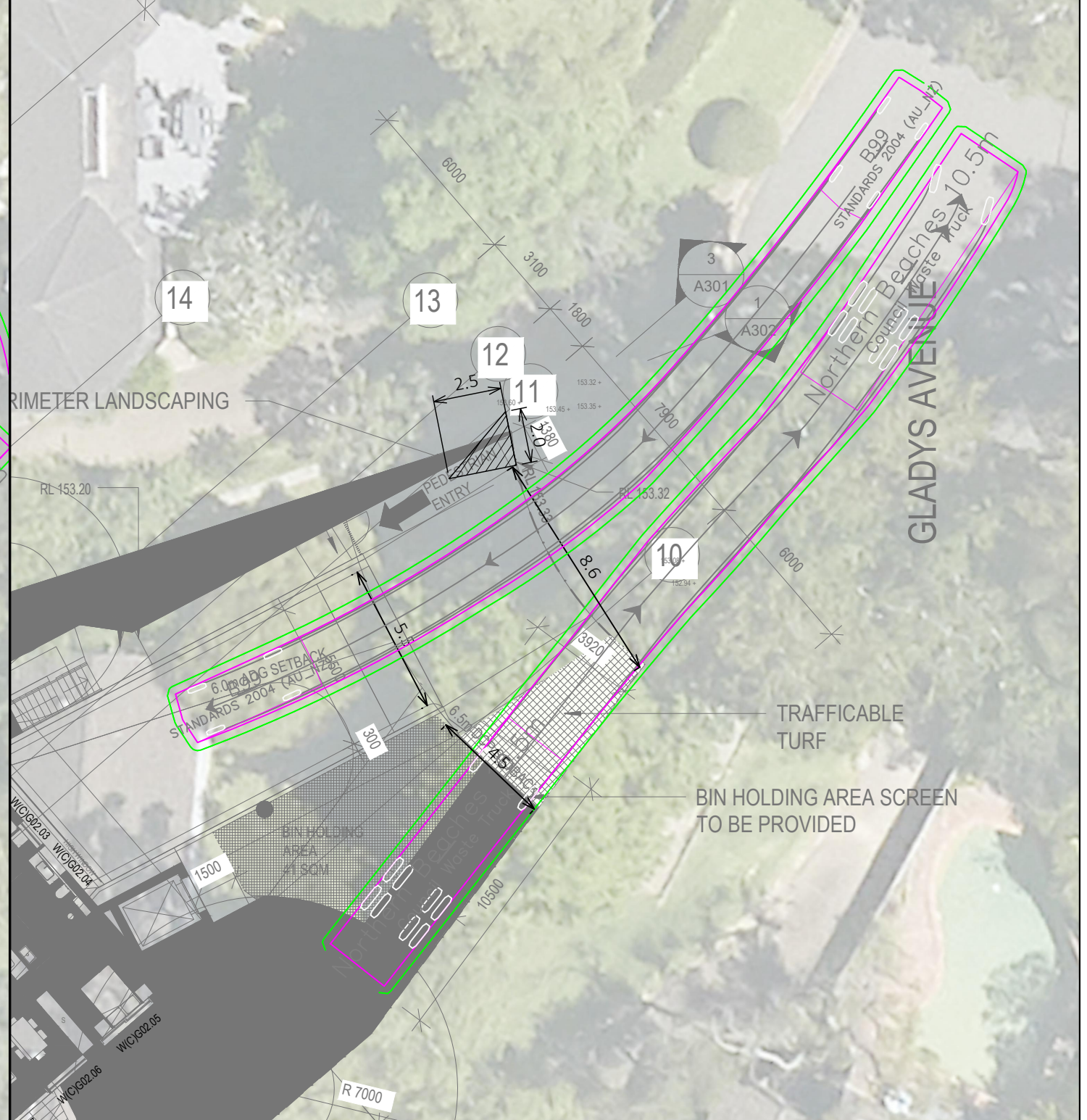
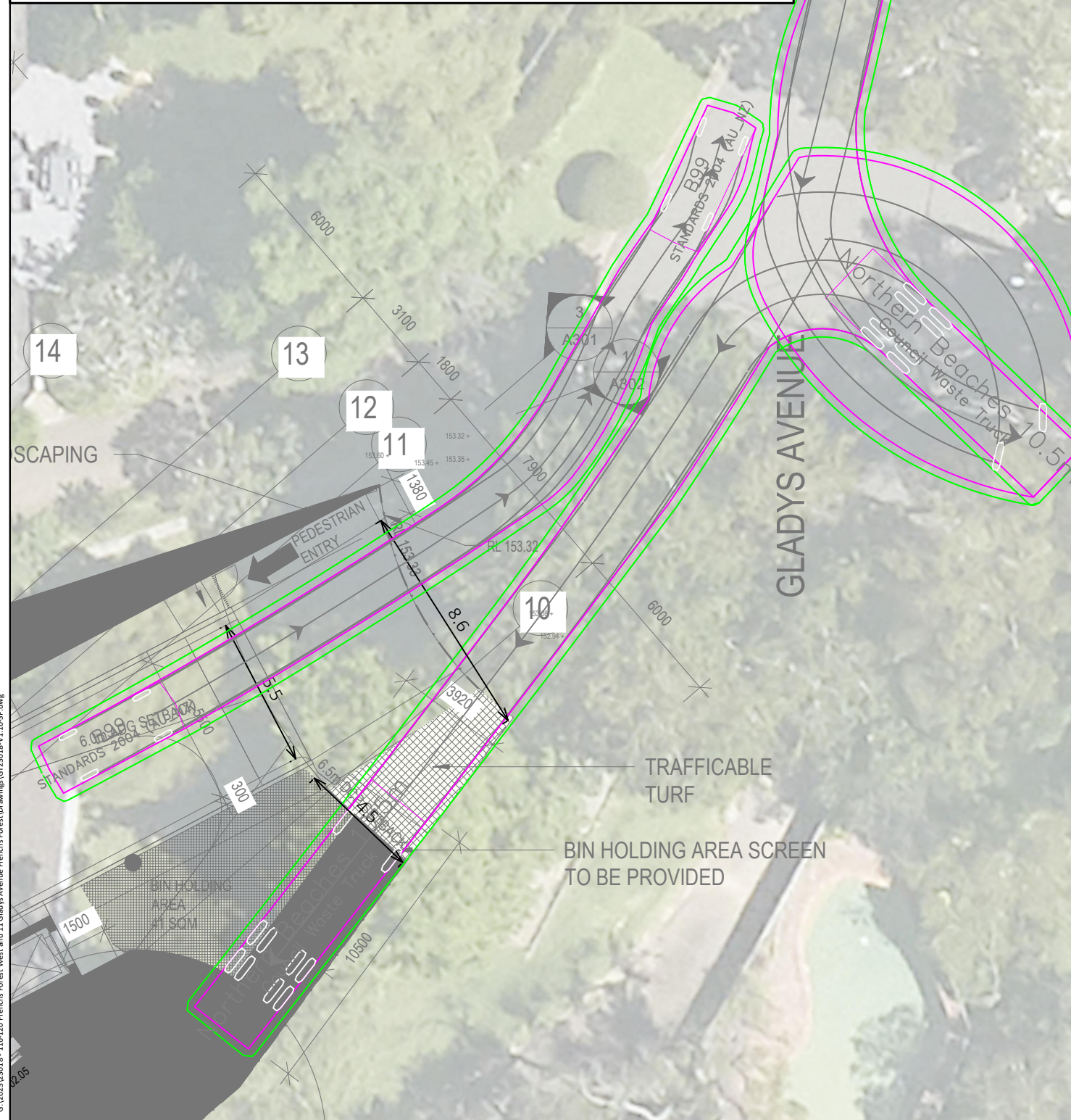
B99

Width : 1.94 meters
Track : 1.84
Lock to Lock Time : 6.0
Steering Angle : 33.9



Northern Beaches 10.5m

Width : 2.50 meters
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 52.4



116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
PROPOSED RESIDENTIAL DEVELOPMENT - GROUND FLOOR
SWEPT PATH ASSESSMENT - COUNCIL WASTE TRUCK AND B99 PASSING

DRAWING REF NO. GT23018-V1.10-SP

SHEET NO. 02 OF 09

DESIGNED BY
L.NG / N.BORJA / A.XIA

REVIEWED BY
B.LO

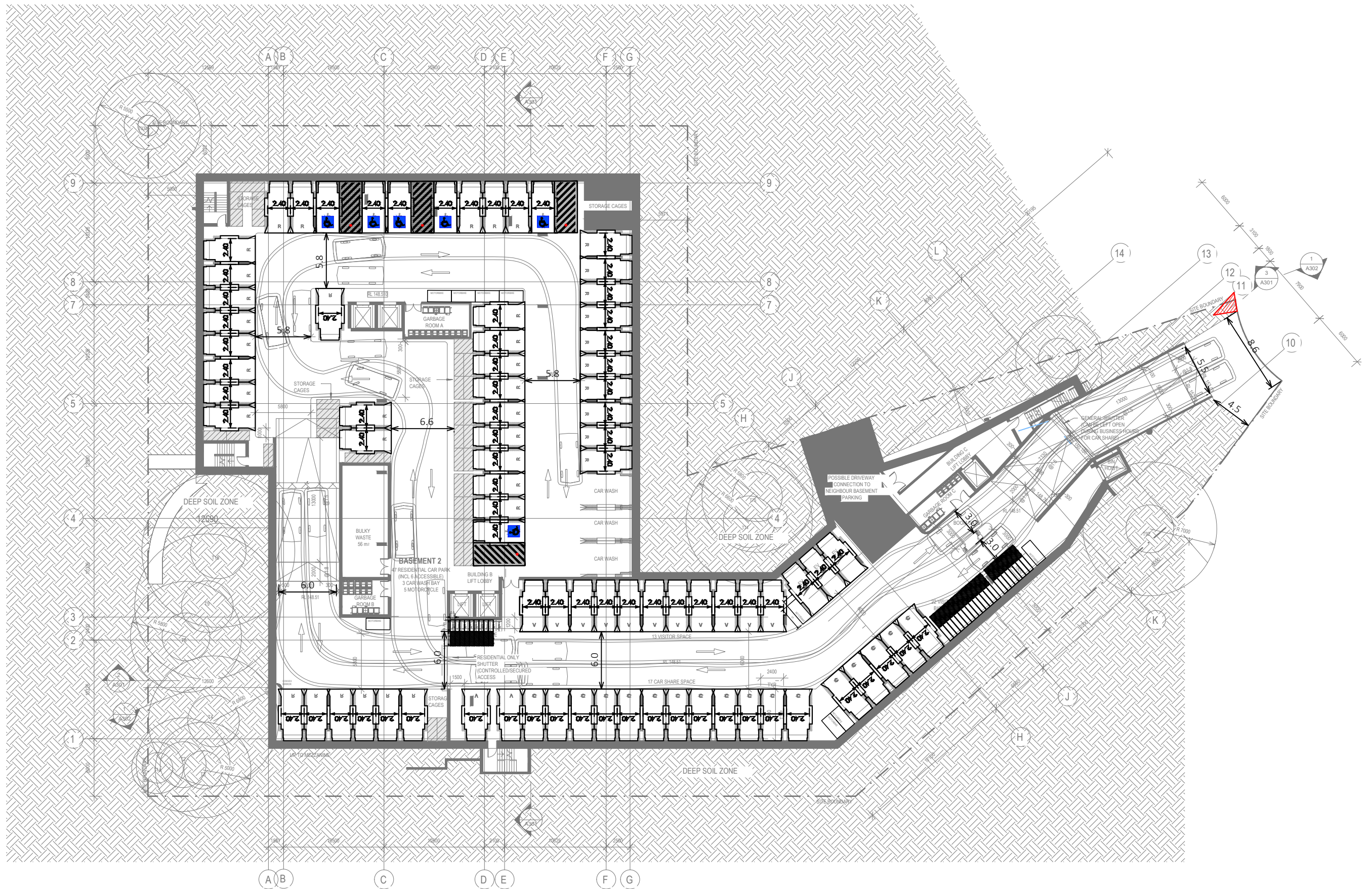
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WEST AND 11 GLADYS AVENUE FRENCHS
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GenesisTraffic

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Plotted by Avery Xia



116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
BASEMENT 2
COMPLIANCE CHECK

DRAWING REF NO. GT23018-V1.10-SP

SHEET NO. 03 OF 09

ISSUE DATE 8 November 2024

DESIGNED BY
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REVIEWED BY
B.LO

SCALE
A3

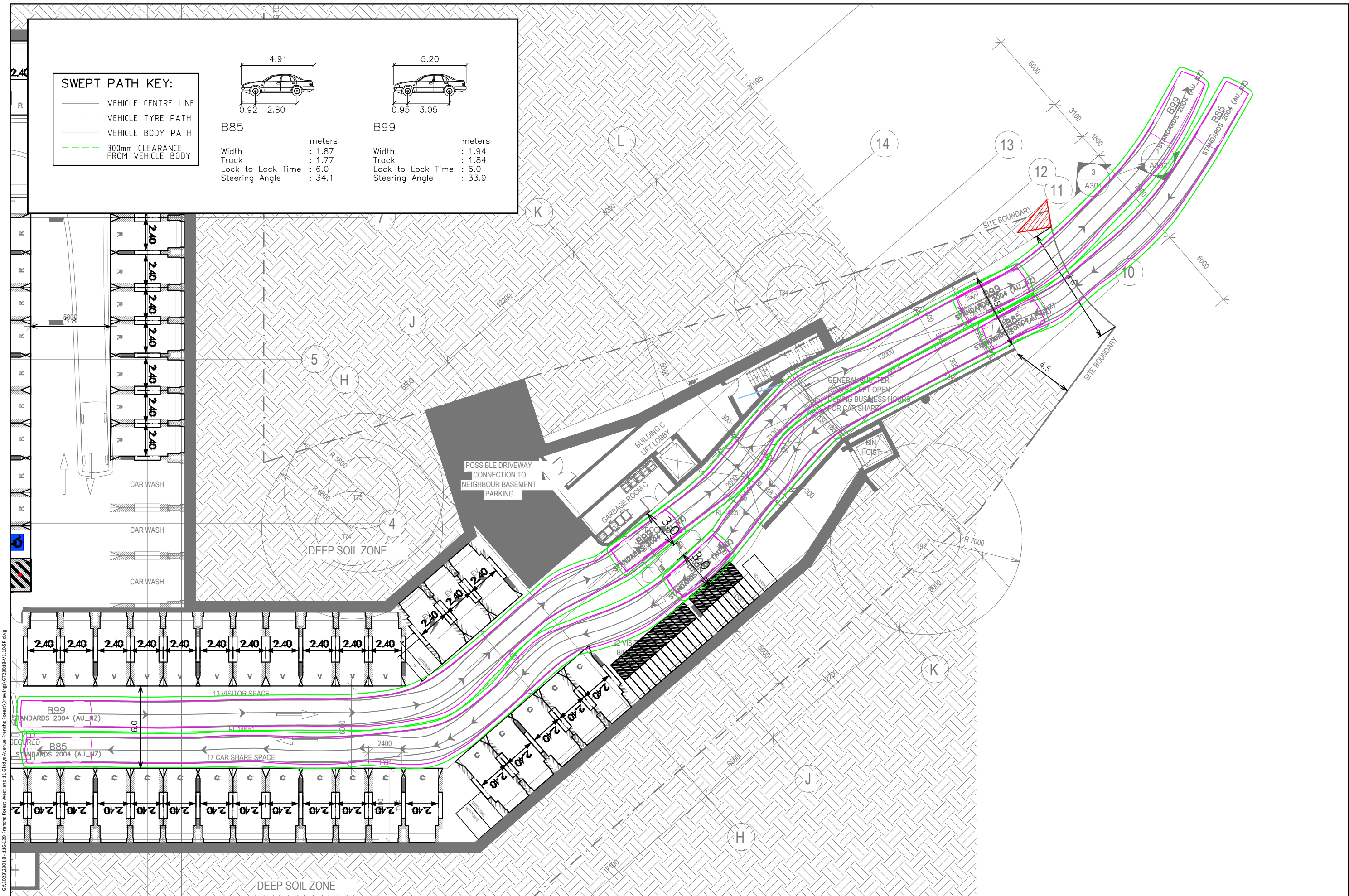


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Plotted by Avery Xia

116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
BASEMENT 2
SWEPT PATH ASSESSMENT-B85 AND B99 PASSING

DRAWING REF NO. GT23018-V1.10-SP

SHEET NO. 04 OF 09

ISSUE DATE 8 November 2024

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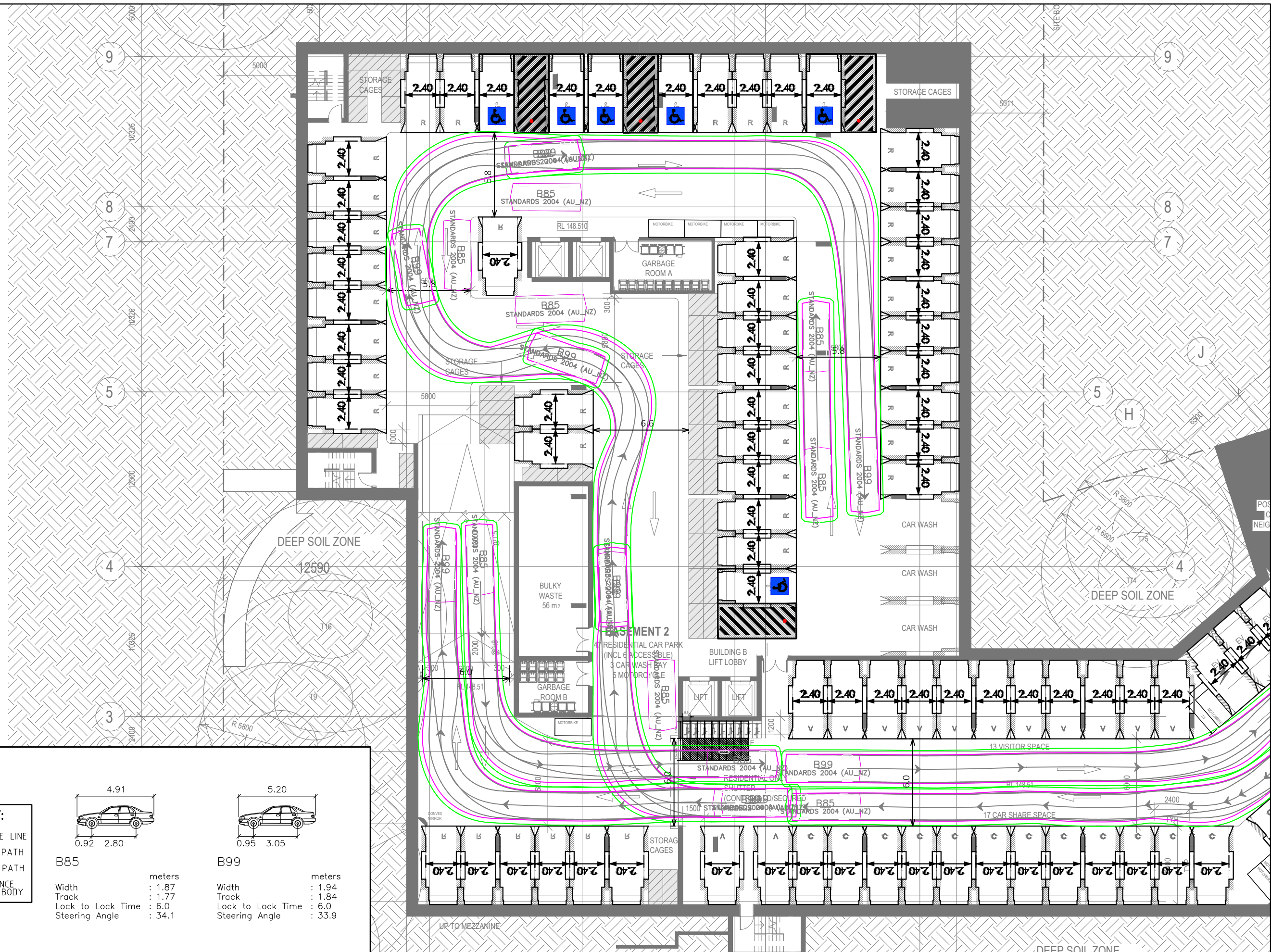
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Plotted by Avery Xia



116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
BASEMENT 2
SWEEP PATH ASSESSMENT-B85 AND B99 PASSING
DRAWING REF NO. GT23018-V1.10-SP SHEET NO. 05 OF 09 ISSUE DATE 8 November 2024

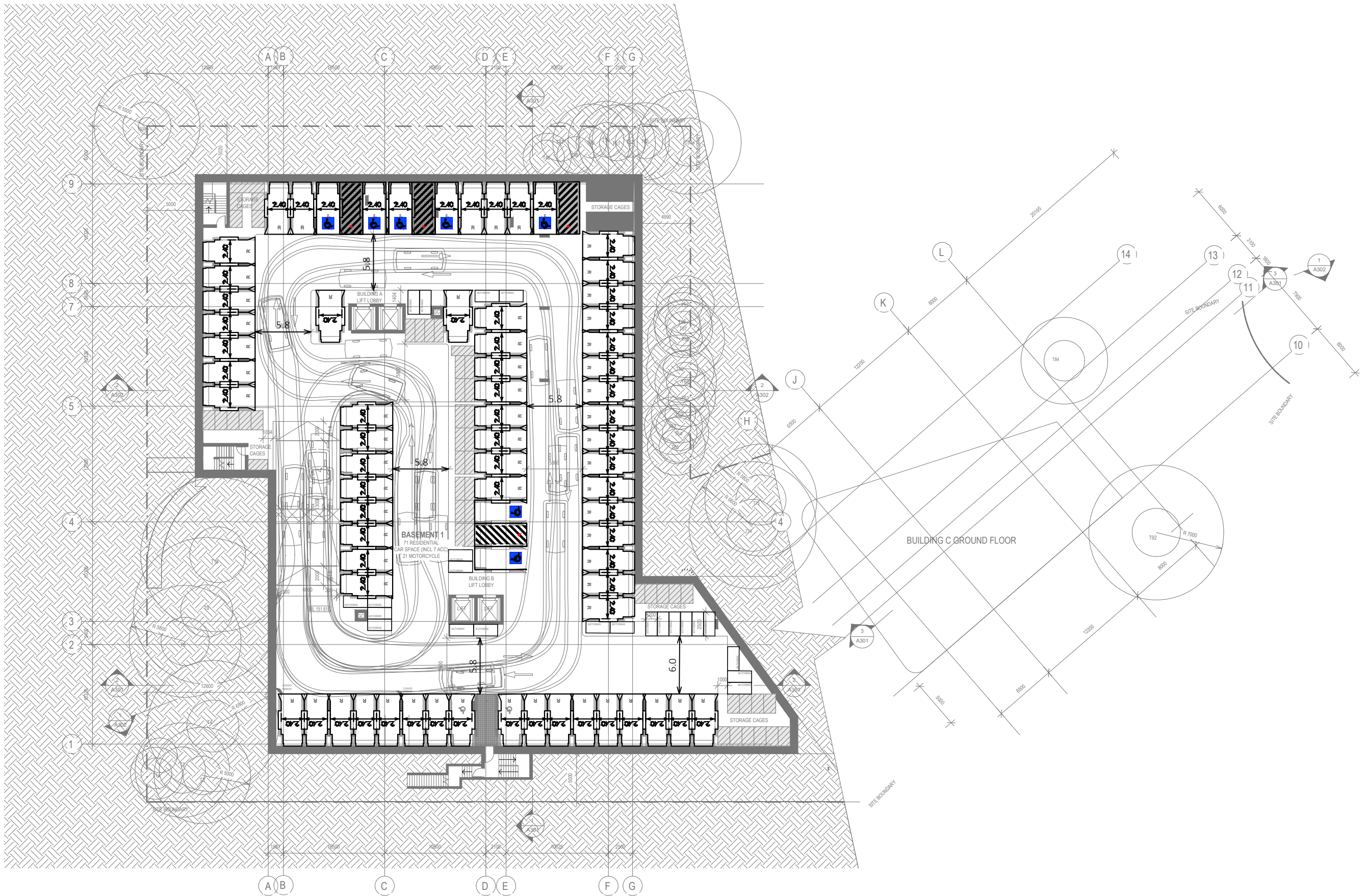
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L.NG / N.BORJA / A.XIA
REVIEWED BY
B.LO
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WEST AND 11 GLADYS AVENUE FRENCHS
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116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST

BASEMENT 1
COMPLIANCE CHECK

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SHEET NO. 06 OF 09

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SCALE
A3

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WEST AND 11 GLADYS AVENUE FRENCHS
FOREST\DRAWINGS\20241108

GenesisTraffic

PERMIABLE PAVERS
C.O.S

LEGEND

DESCRIPTION:

SRZ
TPZ

NOTE: TREES TO BE REMOVED, REFER TO DEMOLITION PLAN AND ARBORIST REPORT.

SWEPT PATH KEY:

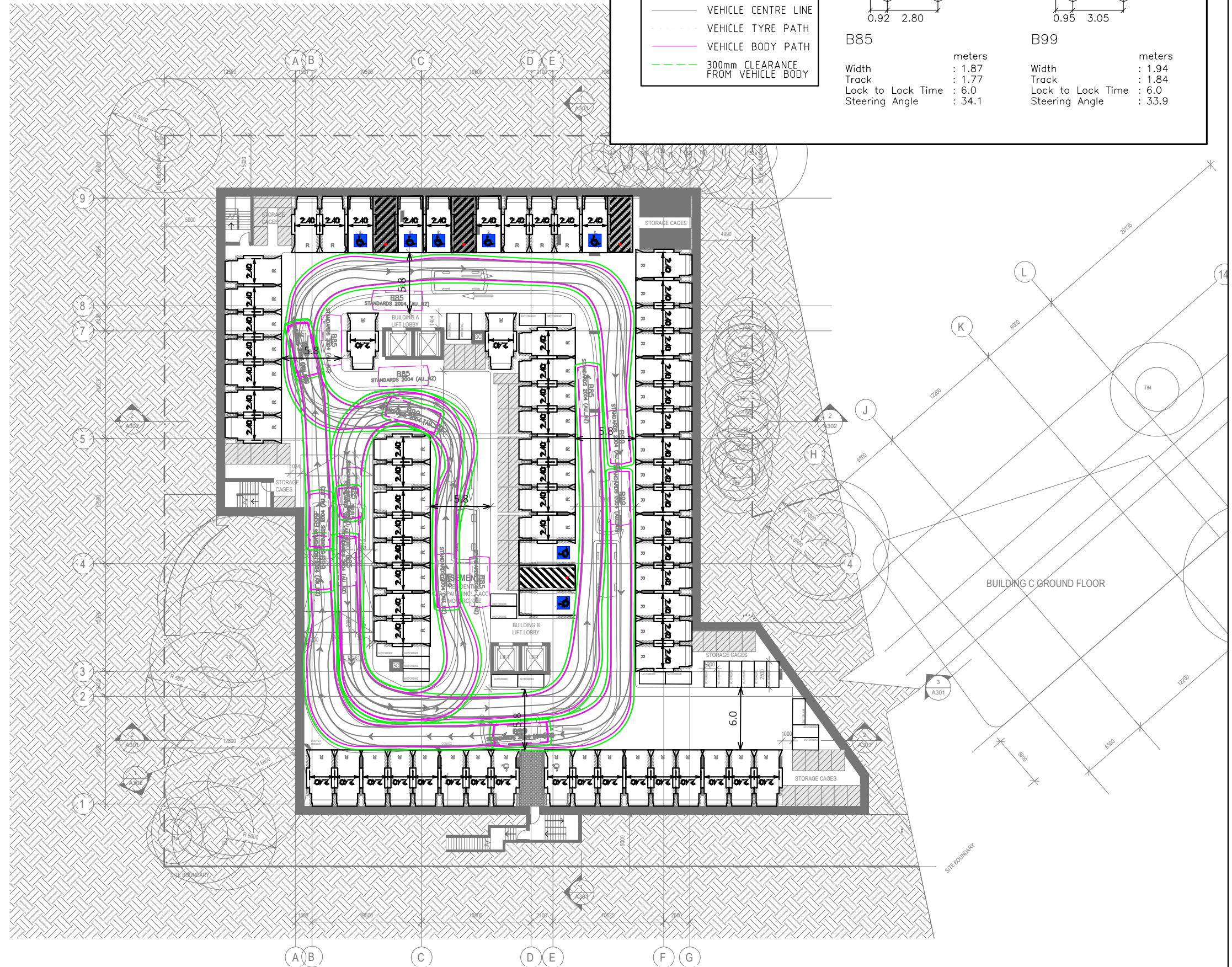
VEHICLE CENTRE LINE
VEHICLE TYRE PATH
VEHICLE BODY PATH
300mm CLEARANCE FROM VEHICLE BODY

B85

Width : 1.87 meters
Track : 1.77 meters
Lock to Lock Time : 6.0
Steering Angle : 34.1

B99

Width : 1.94 meters
Track : 1.84 meters
Lock to Lock Time : 6.0
Steering Angle : 33.9



116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
BASEMENT 1
SWEPT PATH ASSESSMENT-B85 AND B99 PASSING
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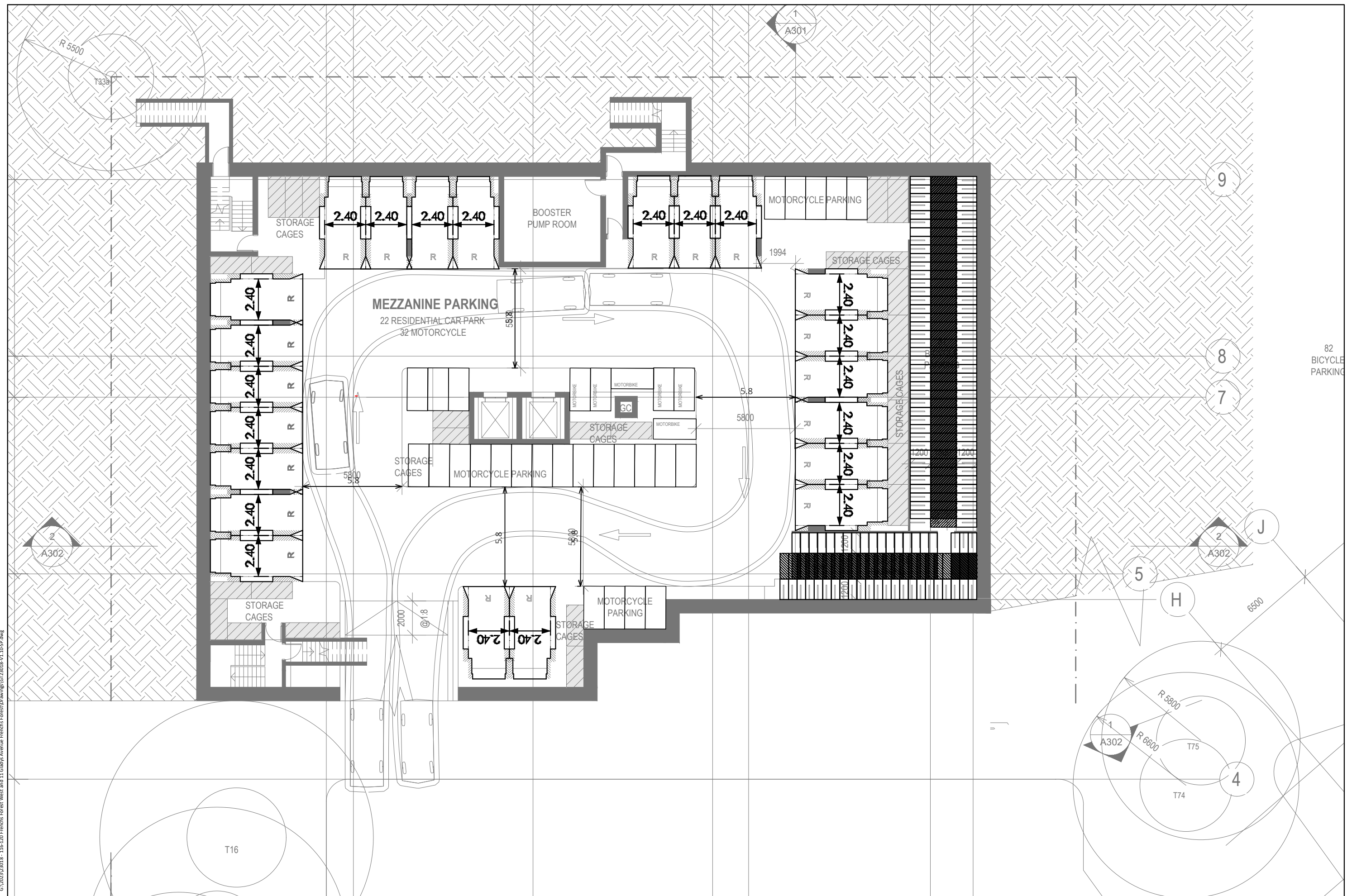
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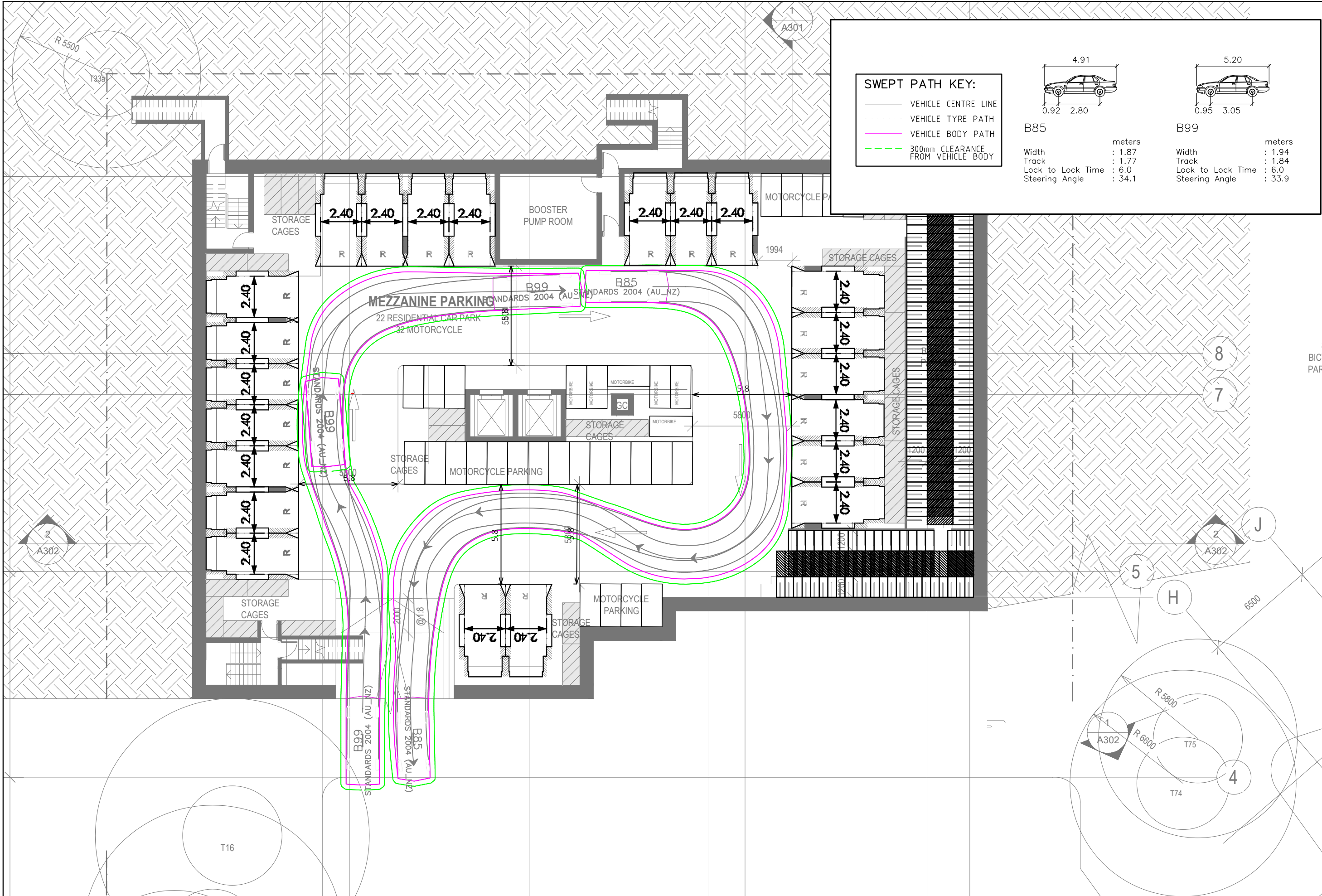
116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
MEZZANINE FLOOR
COMPLIANCE CHECK

SHEET NO. 08 OF 09

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116-120 FRENCHS FOREST WEST AND 11 GLADYS AVENUE FRENCHS FOREST
MEZZANINE FLOOR
SWEEP PATH ASSESSMENT-B85 AND B99 PASSING

DRAWING REF NO. GT23018-V1.10-SP

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SCALE
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Better Developments with
Genesis Traffic