BUILDING INNOVATIONS AUSTRALIA

TRAFFIC AND PARKING ASSESSMENT

10-16 Pacific Drive,

Port Macquarie, NSW

Prepared for:	**Laurus Projects Pty Ltd**
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Document History

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14/06/2022	v0.1	Draft Report v0.1	Viktor Zlovic
12/05/2022	v0.2	Draft Report v0.2	Viktor Zlovic
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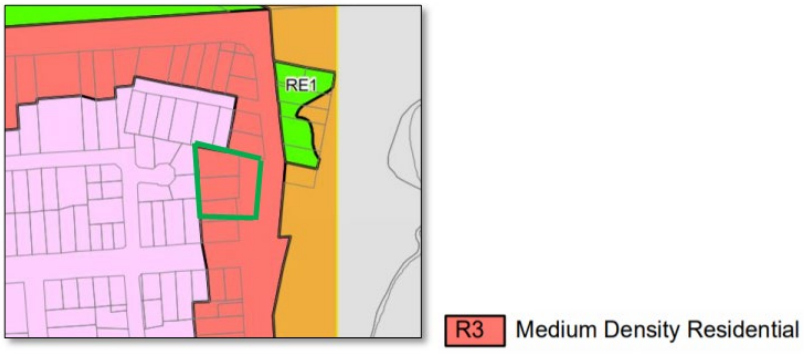
1.0. INTRODUCTION

Laurus Projects Pty Ltd has engaged Building Innovations Australia for the purposes of a Traffic and Parking Assessment to accompany a Development Application to Port Macquarie – Hastings Council. Carparking is proposed to be provided with dedicated off-street spaces accessible via Pacific Drive.

The area surrounding the proposed development predominately includes commercial/retail businesses and residential dwellings.

The local planning policies as per Port Macquarie Hastings Local Environmental Plan 2011 indicates the current site is zoned as R3 – Medium density Residential under Port Macquarie Hastings LEP 2011.



Furthermore, the site is located within the Windmill Hill Precinct which will work to evolve as a medium density residential precinct. The implications of this precinct on future traffic and parking demand will be discussed further in the report.

Windmill Hill

The Windmill Hill Precinct will continue to evolve as a medium density residential precinct with a diverse range of housing types. Building forms along the northern and eastern edges of the precinct will reflect the higher landform in this area and form a distinct edge to the open space, stepping down in height towards the west.

The eastern end of Burrawan Street and northern end of Pacific Drive will be developed with sensitive building design that reduces their visual impacts on views from the public domain and on open space.
Home Street will link the neighbourhood to the Town Centre and the landscape view corridors to the west will be further enhanced through tree planting and soft landscaping.

Owen Street will be strengthened as the main north-south link through the precinct with tree planting and soft landscaping.

Burrawan Street will have higher densities between Owen Street and Pacific Drive creating a consistent edge to the school and Oxley Park, and could become a green focal point for community activity through the planting of edible streetscaping.

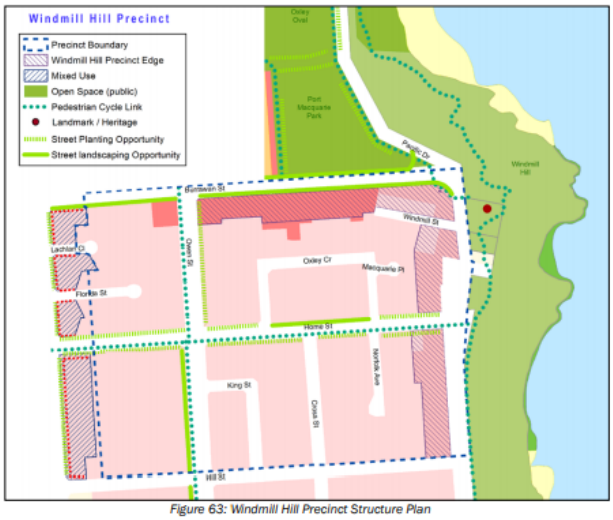


Figure 63: Windmill Hill Precinct Structure Plan

The proposal includes demolition of an existing motel on site and construction of a residential flat building comprising of 44 residential units. Lower Ground and Basement Floor parking is proposed for residents / visitors with access via Pacific Drive.

The proposed unit schedule is as follows:

Table 1: Development Schedule

Use	Type	No./ Size
Residential	1 bedroom	6
	2 bedroom	26
	3 bedroom	12
	4 bedroom	0
Total Units		44

1.1. Report Purpose

The purpose of this report is to present considerations in relations to Traffic and Parking matters of the site, the established conditions surrounding the site, traffic activity associated with the development, proposed parking provisions and carpark configuration

1.2. Basis of Report

This report is based upon and limited to:

- An assessment of design documentation referenced in Appendix B of this report.
- AS 2890.1-2004 - Off-street car parking
- AS2890.2-2002 – Off-street commercial vehicle facilities
- AS 2890.3-2015 – Bicycle parking
- AS 2890.6-2009 - Off-street parking for people with disabilities
- Guide to Traffic Generating Developments (TDT 2013)
- Guide to Traffic Generating Developments (2002)

1.3. Referenced Documents

The following documentation was relied upon when preparing this report:

- Assessment of design documentation referenced in Appendix B of this report.
- The relevant Council Development Control Plan (DCP)
- *Port Macquarie – Hastings Local Government Area Traffic Study* published October 2019

1.4. Terminology

- Access driveway - A roadway extending from the edge of the frontage roadway to the property boundary to connect with the first ramp, circulation roadway, parking aisle or domestic driveway encountered, and carrying one- or two-way traffic.
- Accessible entrance - An entrance to a facility or establishment served by the car park, suitable for pedestrian or wheelchair use by people with disabilities.
- Accessible travel path - An uninterrupted path of travel to or within a building providing pedestrian or wheelchair access for people with disabilities from a parking space to all required facilities.
- Base dimension - The value of a particular design dimension before any operating clearances have been added.
- Blind aisle - A parking aisle closed at one end.
- *Building Code of Australia* - Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in NSW under the provisions of the Environmental Planning & Assessment Act & Regulation.
- B85 vehicle - The design motor car whose physical dimensions represent the 85th percentile class of all cars and light vans on the road (see Appendix B, Paragraph B2).
- B99 vehicle - The design motor car whose physical dimensions represent the 99.8th percentile class of all cars and light vans on the road (see Appendix B, Paragraph B2) .
- Circulation clearance - The clearance required in addition to manoeuvring clearances, when a vehicle is moving at speeds greater than those applicable to manoeuvring.
- Circulation roadway - A roadway within an off-street car park which is used solely for circulation and to gain access to parking aisles, and on which there is no parking
- Collector road - A non-arterial road which collects and distributes traffic m an area, as well as serving abutting properties.
- Control point - A point at or near the entrance to or exit from a car park at which the flow of traffic is retarded by the existence of a boom barrier, with or without ticket or cashier operation, or the location of the first of any spaces on a parking aisle at which parking or unparking may cause traffic flow to be retarded.
- Domestic driveway - A vehicular path within a domestic property.
- Front overhang - The distance between the centre-line of the front axle of a vehicle and the front extremity of the bodywork.
- Local road - A road or street used primarily for access to abutting properties.
- Parking aisle - A roadway or an area of pavement used by vehicles to gain access to, and to manoeuvre into and out of parking spaces.
- Parking module - A parking aisle together with a single row of parking spaces on one or both sides but excluding any ramps or circulation roadways which take off within the module.
- Parking space - The area of pavement required to park one vehicle.

  Performance Requirements of the BCA - A Building Solution will comply with the BCA if it satisfies the Performance Requirements. A Performance requirement states the level of performance that a Building Solution must achieve. Compliance with the Performance Requirements can only be achieved by-

  (a) complying with the Deemed-to-Satisfy Provisions; or

  (b) formulating a Performance Solution which-

(i) complies with the Performance Requirements; or

(ii) is shown to be at least equivalent to the Deemed-to-Satisfy Provisions; or

(c) a combination of (a) and (b).

- Private car park - A car park (e.g. at a residential development or place of employment) which is not open to or intended to be used by the public or casual users.
- Queuing area - The area of a circulation roadway between the property boundary and the vehicle control point, available for the queuing of vehicles.
- Ramp - A circulation roadway which connects an access driveway to an off-street car park on a substantially different level, or which connects two levels in a multi-level car park.
- Rear overhang - The distance between the centre-line of the rear axle of a vehicle and the rear extremity of the bodywork.
- Residential property - A property having more than three domestic units.
- Road - The entire width of a right-of-way between property boundaries, and including footpaths.
- Roadway - Any one part of the width of a public road or a vehicular traffic path in an off-street car park devoted particularly to the use of vehicles, inclusive of shoulders and auxiliary lanes, but exclusive of parking spaces.
- Shall - Indicates that a statement is mandatory.
- *Sole occupancy unit* - means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier.
- Should - Indicates a recommendation.

2.0. EXISTING CONDITIONS

2.1. Cycling and Pedestrian Infrastructure

It shall be noted that accessibility in accordance with the NSW Guidelines to Walking & Cycling (2004) suggest that 400m-800m is a comfortable walking distance.

Facilities for pedestrians are mainly focussed on the Port Macquarie CBD. An established pedestrian pathway is provided along Pacific Drive / coastline and an on-road bicycle lane is provided on Pacific Drive with reasonable proximity to town centre infrastructure such as shopping, healthcare, Hastings Secondary School, convenience and take away stores and entertainment likely leading to higher rates of walking and cycling due to relatively convenient distances. Furthermore, it shall be noted that many of the local streets do not currently have footpaths provided particularly within the windmill precinct.

It shall also be mentioned that Flynns Beach is located 750m away from the proposed development and therefore high levels of active transport can be assumed.

2.2. Public Transport

Buses

Bus services are provided with the nearest bus stop 750m away located on the corner of Lord Street and Home Street as well as on Lord Street between Home and Hill Street. Buses appear to mainly operate at a frequency of one bus every 30-45 minutes during weekday peak periods and 60-90 minutes in off peak weekday periods. Long distance coach services are also provided between Sydney and Brisbane via the Pacific Highway with schedueled stops at Port Macquarie.

2.3. Road Network

NSW Administrative road hierarchy comprises the follow road classifications:

State Roads: Freeways and primary arterials (RMS managed)
Regional Roads: Secondary or sub arterials (Council managed)
Local Roads: Collector and local access roads (Council managed)

Pacific Drive

Pacific Drive is classified as a sub-arterial road with one traffic lane and one bicycle lane in each direction in the immediate vicinity.
Kerbside parking is not permitted in the immediate vicinity due to the bicycle lane installment.
Speed limit: 50km/h

Home street

Home street is classified as a local road with one traffic lane and one parking lane in each direction in the immediate vicinity.
Kerbside parking is permitted and no time constraints are provided in the immediate vicinity.
Speed limit: 50km/h

3.0. PROPOSED DEVELOPMENT

3.1. Road Network

The potential traffic generation associated with the building has been established with reference to RMS Guide to Traffic Generating Developments (2002) and where applicable the RMS Technical Direction 2013/04 (up to date RMS survey data for high density developments).

3.2. Existing Traffic Generation

The existing site use is currently used as a motel and therefore traffic generation can be classified as follows:

Table 2: Existing Use (Motel)

Source	Land Use	Period	Generation Rate	Vehicle Trip rate
RMS Guide to Traffic Generating Developments (2002)	Motel (10 units)	Peak	0.4 per dwelling	4 trips
		Daily	3 per dwelling	30 trips
Total Peak				4 trips
Total Daily				30 trips

3.3. Proposed Traffic Generation

The RMS Guide to Traffic Generating Developments (2002) and the RMS Technical Direction (Update to Guide to Traffic Generating Developments) 2013/04 documents have been used for traffic generation data based on the classification of high density residential flat buildings.

Table 3: Development Schedule

Source	Land Use	Period	Generation Rate	Vehicle Trip rate
RMS Technical Direction (2013/04)	Residential (44 Units) (94 bedrooms)	Peak	0.26 per bedroom	24 trips
		Daily	1.93 per bedroom	181 trips
Total Peak Trips (85% parking demand)				20 trips
Total Daily Trips (85% parking demand)				154 trips
Total Peak Vehicle Change (85% in brackets)				+20 trips (17 trips)
Total Daily Vehicle Volume Change (85% in brackets)				+151 trips (128 trips)

Note 1: RMS Guide to Traffic Generating Developments (2002) identifies high density residential development as twenty or more dwellings

Based on the above data the additional general traffic generation from the proposed development gives rates of just approximately 1 vehicle per 3 minutes in peak hour (assumed to be predominately unidirectional in nature) and 1 vehicle per 12 minutes (1 per 14 minutes for 85% demand) for daily trips outside of peak morning and evening hours.

When considering the existing traffic flows provided by *Port Macquarie – Hastings Local Government Area Traffic Study* published October 2019 for Pacific Drive which is identified as a high traffic road with an AADT (Annual Average Daily Traffic) of 7000 trips, the proposed development is not anticipated to generate any adverse impacts on the existing traffic conditions (2.16% increase in daily trips).

The proposal provides forward entry and exit to Pacific Drive for passenger and service truck vehicles improving the safety and traffic flow of the surround streets by site consolidation to provide one entrance for the combined lots. Site consolidation allows for reduced fragmented roadside activity and combined with the 50km/h speed limit provided to Pacific Drive will allow for sufficient vehicle gaps to enter the road.

4.0. PARKING PROVISIONS

Requirements have been assessed in accordance with reference to Port Macquarie Hastings Council Development Control Plan (DCP) 2013.

4.1. Car Parking Requirements

Application of the relevant parking rates to the proposed development schedule results in the parking requirements presented in Table 4.

Table 4: Carparking requirements

Use	Car Parking Requirements	No. of Units	Car spaces required	Car spaces provided
Residential Flat Building	1 per 1-2 bedrooms	32	32	75
	1.5 per 3-4 bedrooms	12	18	
Visitor	1 per 4 units (44 Units)		11	
Total			61	

4.2. Bicycle Parking Requirements

The relevant DCP does not nominate any minimum requirements for Bicycle parking spaces. 19 bicycle parking spaces are proposed to be provided in accordance with AS 2890.3-2015 to provide facilities to generate active transport movement and therefore reduce passenger vehicle traffic generation from the site. It shall also be noted that designated residential storage cages greater than 700mm x 1900mm can be utilised for bicycle storage for residential purposes.

The additional spaces shall be considered as merit and are in line with local planning guidelines.

4.3. Motorcycle Parking Requirements

The relevant DCP does not nominate any minimum requirements for Motorcycle parking spaces. 2 motorcycle parking spaces are proposed to be provided in accordance with AS 2890.1-2004 to provide facilities to generate motorcycle vehicle trips and therefore reduce passenger vehicle traffic generation.

The additional spaces shall be considered as merit and are in line with local planning guidelines.

4.4. Service Vehicle Requirements

A service loading bay is proposed to be provided within the property boundary adjacent the bin holding area on the Ground Floor. The service bay shall be capable of accommodating a Small Rigid Vehicle with a size of 6.4m length x 3.5m height x 2.3m width as confirmed with the waste consultant (JR Richards and Sons). The service bay layout including access to and from shall be designed in accordance with the intent of AS 2890.2-2002 for the nominated vehicle size above. Gradients required for access and egress from the bay include a main grade of 15.4% and a maximum grade change of 8.3% for a minimum of 4m in travel In order for compliant ground clearance to occur and shall be provided by the designer. It shall also be noted that the maximum grade of the service bay shall be not greater than 4% measured in any direction from the bay centreline.

Number of trips required to service the property to be confirmed by the waste management consultant.

In addition to the above, a convex mirror and strobe light is proposed to be provided adjacent to the loading bay to identify a service vehicle within the service bay to provide awareness to passenger vehicles utilising the basement ramp for access or egress. Service vehicles usually access sites at off peak times and therefore conflicts between passenger vehicles and service vehicles are considered to be of low probability.

5.0. CAR PARKING LAYOUT REVIEW

The following section entails a car parking layout review with reference to AS 2890.1-2004, AS 2890.2-2002, AS 2890.3-2015 & AS 2890.6-2009. This section is the result of a review of the architectural plans referenced in Appendix B of this report and the swept path analysis nominated in Appendix A conducted by Building Innovations Australia.

Overall, the site access arrangements and car park have been designed in accordance with the relevant guidance in regard to aisle widths, ramps, height clearances and internal queuing.

The carpark has been assessed against the requirements of AS 2890.1-2004 with reference to Class 1A (residential) facilities. Thus, meaning car spaces shall be provided as 2.4m x 5.4m with an aisle width of 5.8m. An additional 300mm has been provided when high obstructions of greater than 150mm occur for aisles and parking spaces. A minimum blind aisle of 1m has been provided throughout the carpark where required. Headroom compliance is achieved via a minimum 2.2m clearance requirement throughout the carpark in accordance with AS 2890.1-2004. Convex mirrors are provided throughout the site where deemed appropriate to provide a compressed view of intersections in order to increase sight arrangements of drivers within the facility and swept path clearances due to spatial constraints and the overall parking module configuration.

All visitors' spaces are proposed to be provided at the Lower Ground Floor with residential spaces provided to the remainder of the Lower Ground and Basement Floor. Access to and within the carpark is via a two-way ramp designed in accordance with AS 2890.1-2004 with maximum main grades of 1:4 (25%) and transition grades of 1:8 (12.5%) for a minimum of two meters at ends of the main grade.

Sufficient queuing areas (access facility category 2) are provided within the property to allow for free influx of traffic which will not adversely affect traffic or pedestrian flows in the frontage street due to the location of the control point at the ground level carpark entrance.

Accessible spaces and adjacent shared zones are provided which are provided as per the requirements and intent of AS 2890.6-2009.

Bicycle spaces are provided in accordance with the requirements of AS 2890.3-2015 for Vertical parking including required aisle widths and height clearances. Please note that storage cages with dimension of 700mm x 1900mm at a minimum can also provide storage of bicycles further increasing the active transport parking facilities of the site.

A service loading bay is proposed to be provided within the property boundary adjacent to the bin holding area on the ground floor. The service bay is capable of accommodating a service vehicle size of 6.4m length x 3.5m height x 2.3m width as confirmed with JJ RICHARDS Waste vehicle consultant. The service bay layout including access to and from has been designed in accordance with the intent of AS 2890.2-2002 for the vehicle size nominated above. Gradients required for access and egress from the bay include a main grade of 15.4% and a maximum grade change of 8.3% for a minimum of 4m in travel in order for compliant ground clearance to occur and shall be provided by the designer. It shall also be noted that the maximum grade of the service bay shall be not greater than 4% measured in any direction from the bay centreline.

A convex mirror and strobe light is proposed to be provided adjacent to the loading bay and carpark access ramp to identify a service vehicle within the service bay to give recognition to passenger vehicles utilising the ramp for access or egress. Service vehicles usually access sites at off peak times and therefore conflicts between passenger vehicles and service vehicles are considered to be of low probability.

6.0. CONCLUSION

A medium density residential flat building is proposed on the land located at 10-16 Pacific Drive, Port Macquarie. The proposal includes the construction of 44 residential units with parking provided at the Lower Ground Floor and Basement Floor for 75 passenger vehicles which comply with the minimum requirements of the relevant DCP. In addition, 2 motorcycle spaces and 19 bicycle spaces are provided above the requirements of the DCP and should be considered as merit.

With reference to the survey data by *Port Macquarie – Hastings Local Government Area Traffic Study* published October 2019 for Pacific Drive (identified as a high traffic road) the proposed development will have a minimal traffic related impact on the existing conditions (2.16% increase in daily trips).

Whilst it is noted that an additional 20 vehicle trips will be generated in the peak hour periods, this aligns with the planning guidelines provided to the Windmill Precinct evolving as a medium density residential precinct which once fully matured will increase active transport and public transport utilisation due to the Home Street link to local infrastructure such as groceries, healthcare, takeaway, restaurants and outdoor leisure facilities which will be provided nearby to service the precinct.

Thus, it is expected that as housing density increases and proximity to local infrastructure decreases, active transport will become a predominant mode of transport therefore decreasing the daily passenger vehicle trips generated by the medium density residential development. This is in line with statistical data of high-density developments in close proximity to local infrastructure facilities.

It shall also be noted that Council / RMS should consider the implications on the local network (pedestrian and vehicle) for the evolving precinct and therefore public transport, sub-arterial / local road and active transport upgrades should be considered given the local planning guidelines for higher density housing in the Windmill Precinct.

A review of the facility was undertaken with reference to the Australian Standards for Off Street Parking (AS 2890.1-2004, AS 2890.2-2002, AS 2890.3-2015 and AS 2890.6-2009) and found to be in compliance with the relevant standards and DCP requirements.

In light of the above, the proposed development has been endorsed in the context of parking and traffic.

Yours Sincerely

Viktor Zlovic
Traffic Consultant
Building Innovations Australia Pty Ltd
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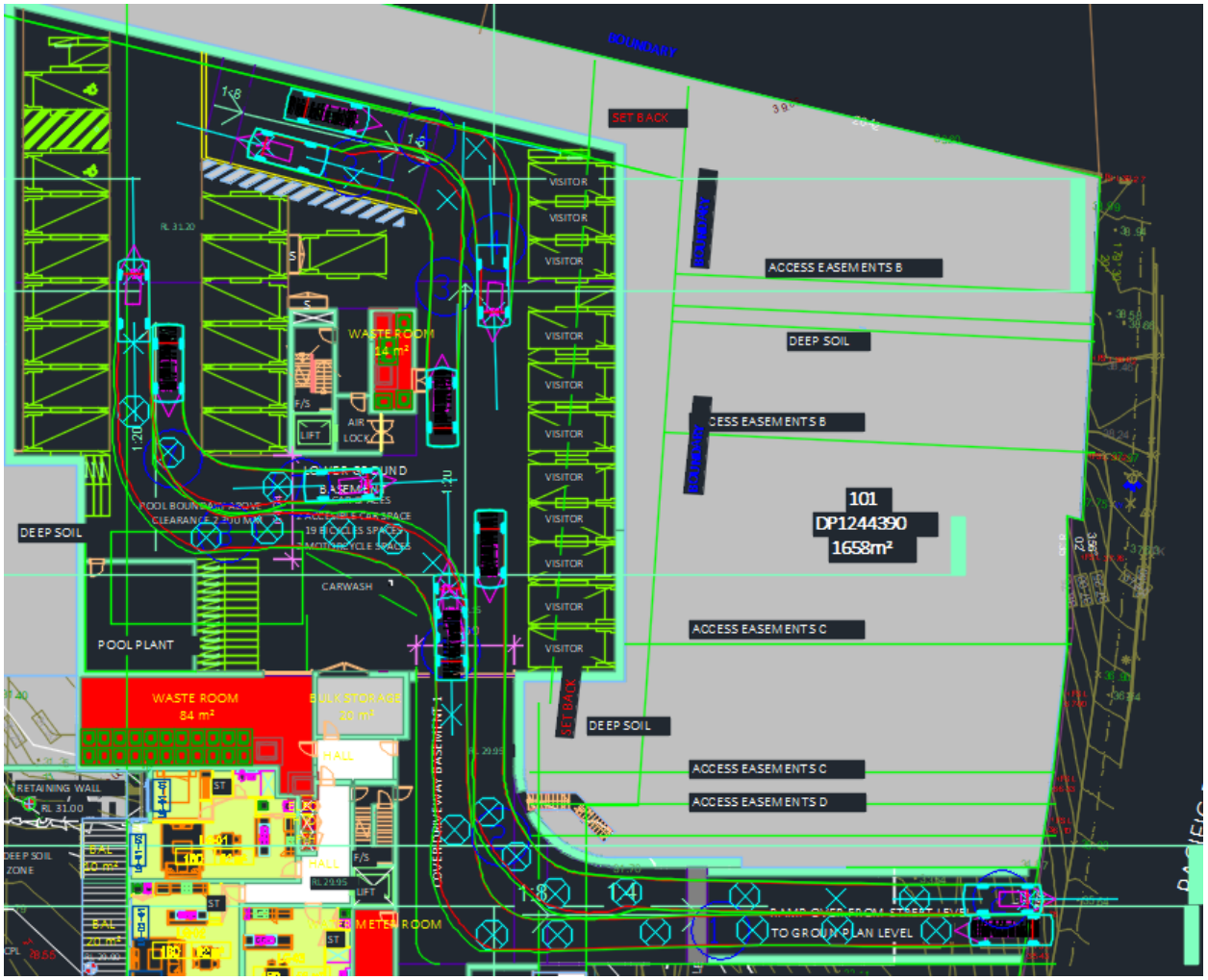
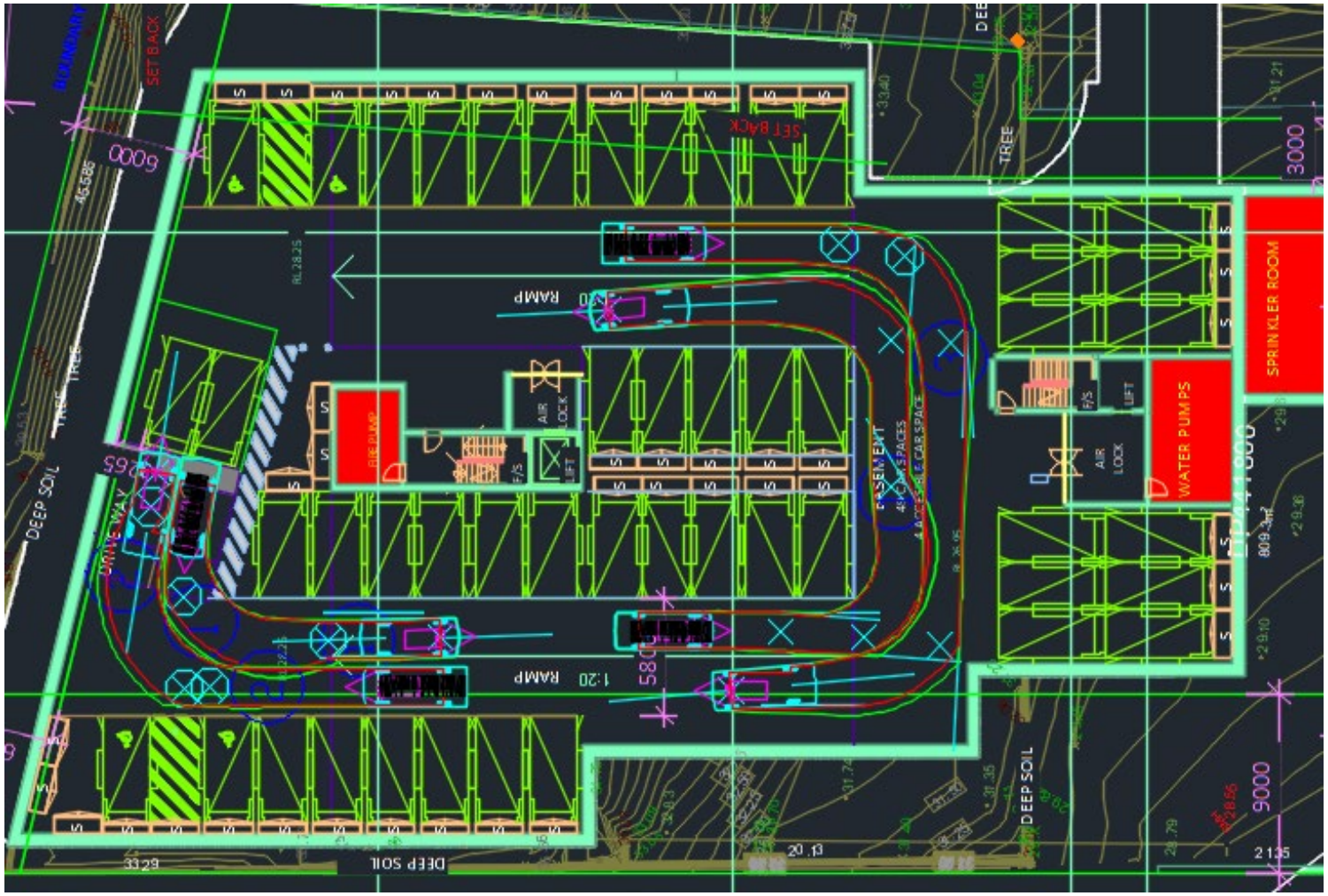
APPENDIX A – SWEPT PATH ANALYSIS.

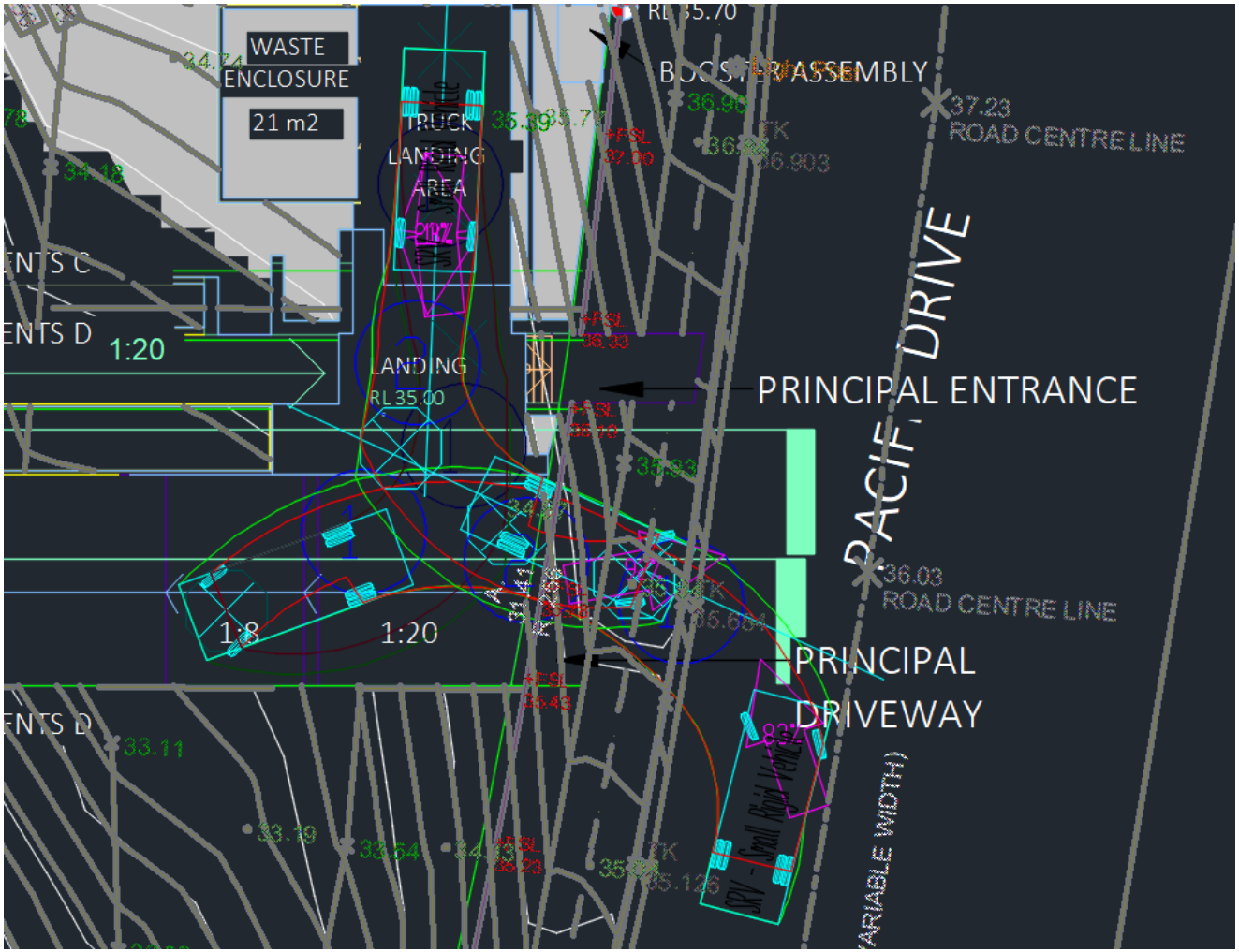
Lower Ground Floor Entrance / Exit (B99 & B85)



Basement Floor Entrance / Exit (B99 & B85)



Ground Floor SRV Access / Egress (SRV)



APPENDIX B – REFERENCED DOCUMENTATION

The following documentation was used in the preparation of this report:

Drawing No.	Title	Rev.	Project No.	Drawn By
DA 0-212	Ground Floor	E	22-020	Dickson Rothschild
DA 0-211	Lower Ground Floor	E	22-020	Dickson Rothschild
DA 0-210	Basement Plan	E	22-020	Dickson Rothschild