FABCOT PTY LIMITED

TRANSPORT AND ACCESSIBILITY IMPACT ASSESSMENT FOR PROPOSED EXTENSION TO WOOLWORTHS WAREHOUSE AND DISTRIBUTION CENTRE, 11 WARREN ROAD, WARNERVALE

MARCH 2022

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1 INTRODUCTION

1.1 Colston Budd Rogers and Kafes Pty Ltd has been commissioned by Fabcot Pty Limited to prepare a traffic and accessibility impact assessment for the state significant development application (SSDA) for the proposed extension to the Woolworths warehouse and distribution centre at 11 Warren Road, Warnervale. The site is in the Warnervale Industrial Estate, south of Sparks Road, as shown on Figure 1.

1.2 The existing warehouse and distribution centre provides some 53,600m^2. The proposed extension would provide some 27,757m^2, including extensions to the temperature controlled and ambient parts of the distribution centre, and a new returns transfer facility (RTF). Improved truck facilities including maintenance, refuelling and wash areas are proposed. Inbound Woolworths delivery trucks are also proposed to access the site from Woolworths Way.

1.3 The Planning Secretary's Environmental Assessment Requirements for warehouses and distribution centres include traffic, transport and accessibility matters. Table 1.1 includes the SEARs and the relevant sections of the report in which they are addressed.

Table 1.1: SEARs

SEARs requirement	Section of report
Traffic, transport and accessibility • *Provide a transport and accessibility impact assessment, which includes:* ○ *details of all traffic types and volumes likely to be generated during construction and operation, including a description of key access and haul routes.*	Chapters 6, 7

○ *an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections (using industry standard modelling).*	Chapters 6, 7
○ *plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network.*	Chapter 5, Appendix A
○ *details and plans of any proposed internal road network, loading dock provision and servicing, on-site parking provisions, and sufficient pedestrian and cyclist facilities, in accordance with the relevant Australian Standards.*	Chapters 4 and 5
○ *swept path analysis for the largest vehicle requiring access to the development.*	Appendix A
○ *details of road upgrades, infrastructure works, or new roads or access points required for the development if necessary.*	Chapter 6
• *Provide a Construction Traffic Management Plan detailed predicted construction vehicle movements, routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.*	Chapter 7

1.4 This report assesses the traffic and transport implications of the proposed development, including addressing the SEARs, through the following chapters:

- Chapter 2 - proposed development;
- Chapter 3 - public and active transport;

- Chapter 4 - parking;
- Chapter 5 - access, servicing and internal layout;
- Chapter 6 - traffic effects;
- Chapter 7 - construction traffic management plan; and
- Chapter 8 - consultation.

2 PROPOSED DEVELOPMENT

2.1 The existing warehouse and distribution centre provides some 53,600m^2. The proposed extension would provide some 27,757m^2, including extensions to the temperature controlled and ambient parts of the distribution centre, and a new returns transfer facility (RTF). Improved truck facilities including maintenance, refuelling and wash areas are proposed. Inbound Woolworths delivery trucks are also proposed to access the site from Woolworths Way.

2.2 No changes to truck sizes at the facility are proposed, which will continue to be made by rigid trucks up to 12.5 metres long, semi-trailers up to 20 metres long and b-doubles up to 26 metres long. 24 hour, seven day per week operation will continue. A relatively small number of additional employees will work at the facility, some 30.

3 PUBLIC AND ACTIVE TRANSPORT

Public Transport Services

3.1 Local bus services are provided by Coastal Liner. Services operate along Sparks Road, north of the site, and include:

- route 10: Wyee to Tuggerah and Warnervale, via Hue Hue Road and Wyong;
- route 11: Lake Haven and Warnervale to Tuggerah, via Hue Hue Road and Wyong; and
- route 13: Dooralong to Tuggerah and Warnervale, via Hue Hue Road and Wyong.

3.2 The majority of employees travel to and from the site by car, because the facility operates 24 hours per day, seven days per week. However, some employees, including day shift employees, will be able to use existing bus services.

3.3 Sparks Road is designated as a cycle route in both directions, connecting to Woongarrah in the east and Jilliby in the west. The development includes bicycle parking and end of trip facilities.

3.4 The proposed development is therefore consistent with government objectives and the planning principles of:

(a) improving accessibility to employment and services by public transport;

(b) improving the choice of transport and reducing dependence solely on cars for travel purposes;

(c) moderating growth in the demand for travel and the distances travelled, especially by car; and

(d) support the efficient and viable operation of public transport services.

Work Place Travel Plan

3.5 A work place travel plan will be prepared prior to occupation, which will include the following:

- identify existing bus routes which stop on Sparks Road, including the location of bus stops and pedestrian crossings at signalised intersections;
- work with bus operators to improve services;
- encourage public transport by employees and visitors through the provision of information, maps and timetables in a site travel plan;
- raise awareness of health benefits of walking and cycling (including maps showing walking and cycling routes, including adjacent to and near the site);
- encourage cycling by providing safe and secure bicycle parking, including the provision of bicycle parking for employees, plus showers and lockers.

4 PARKING

Car Parking

4.1 Chapter 2.11 of the Wyong Development Control Plan 2013 (Parking and Access) includes a parking requirement for warehouses of one space per 300m^2 GFA. The DCP does not include a parking requirement for distribution centres.

4.2 For uses not listed, the DCP notes that parking requirements should be assessed on their merits. The objective of the DCP is to ensure that adequate off street parking is provided.

4.3 The existing warehouse and distribution centre provides some 485 parking spaces. In order to gauge parking conditions, counts were undertaken of the number of vehicles parked in the car park on a Friday, which is a busy day for the facility The counts included the shift change period between 12:00 pm and 2:00 pm. The results of the survey are shown in Table 4.1.

4.4 The highest number of vehicles parked on the survey day was some 330, at 10:00 am. Parking for existing operations is therefore readily available, with more than 100 parking spaces available over the day.

4.5 A relatively small number of additional employees will work at the facility, some 30, as the facility ramps up to full operation over time. These 30 additional employees will be spread over the various shifts. Parking for these employees will be readily accommodated on site in the existing spare capacity of more than 100 spaces and no additional spaces are therefore required or proposed.

Table 4.1: Number of parked vehicles – Friday, 19 November 2021	
Time	**Number of parked cars**
7:00 am	263
8:00	308
9:00	322
10:00	330
11:00	321
12:00 pm	308
1:00	325
2:00	276
3:00	253
4:00	258
5:00	251
6:00	253
Supply	**485**

4.6 The Woolworths statement of operations estimates a maximum requirement for 471 cars in 2033. This is also satisfied by the existing provision of 485 spaces.

Bicycle Parking

4.7 The facility currently provides bicycle parking, showers and lockers. Six bicycle parking spaces, 470 lockers and nine showers are provided. The existing bicycle parking is generally not used.

4.8 No additional bicycle parking or showers are proposed, as the existing provision will readily cater for the small number of additional employees. 357 additional lockers are proposed.

5 ACCESS, SERVICING AND INTERNAL LAYOUT

5.1 Vehicular access to the site will continue to be provided from Warren Road, the same as today. No changes are proposed in this regard. Inbound trucks enter from Warren Road and use the on site truck waiting area, prior to being allocated a dock.

5.2 Minor modifications are proposed in this area to extend and upgrade the truck waiting area and provide new maintenance, refuelling and wash facilities.

5.3 Outbound trucks (trucks delivering produce to supermarkets) are proposed to enter the site from Woolworths Way. These vehicles bring waste from the supermarkets back to the distribution centre. Entering the site from Woolworths Way will enable these vehicles to use the proposed new returns transfer facility on the western side of the building. All vehicles will continue to exit the site to Warren Road, the same as today.

5.4 Driveway widths will be provided in accordance with the Australian Standard for Parking Facilities (Part 1: Off-street car parking and Part 2: Off-street commercial vehicle facilities), AS2890.1:2004 and AS2890.2:2018, to cater for the swept paths of cars, service vehicles and emergency vehicles.

5.5 New loading docks will be provided for the temperature-controlled extension, on the eastern side of the building. New docks and waste collection bays are also proposed for the RTF, on the northern side of the extended building. A b-double drive-through dock is proposed on the southern side of existing ambient building.

5.6 All docks will cater for 20 metre semi-trailers, in accordance with the Australian Standard for Parking Facilities (Part 2: Off-street commercial vehicle facilities), AS 2890.2:2018. B-doubles will use the new drive-through dock on the southern side of the development.

5.7 All trucks will enter and exit the site in a forward direction, as currently occurs. Truck swept paths are shown in Appendix A.

6 TRAFFIC EFFECTS

Road Network

6.1 The site is at 11 Warren Road, at the southern end of the road, in the Warnervale Industrial Estate. It also has frontage to Woolworths Way to the west. The site location is shown in Figure 1.

6.2 The industrial estate is south of Sparks Road, and is accessed from Sparks Road via Burnet Road. Burnet Road connects to Sparks Road at an unsignalised intersection. There are right and left turn lanes on Sparks Road for turns into Burnet Road, and a protected area for vehicles turning right from Burnet Street. Sparks Road generally provides for one traffic lane in each direction, with a 60 kilometre per hour speed limit in the vicinity of the estate. It connects to the Pacific Motorway and Hue Hue Road to the west, and Woongarrah and Lake Haven to the east. Sparks Road is a designated bicycle route in both directions.

6.3 Burnet Road provides the main road servicing the industrial estate. Warren Road runs east from Burnet Road at an unsignalized t-intersection. Warren Road bends south and provides access to industrial properties, including the subject site at its southern end. Both Burnet Road and Warren Road provide for one traffic lane in each direction, with parking permitted clear of intersections.

6.4 At its southern end, Burnet Road intersects with Woolworths Way at an unsignalized t-intersection. Woolworths Way provides access to a small number of industrial properties, including the subject site. This access is not currently heavily used.

6.5 All roads to and within the estate, including Sparks Road, Burnet Street, Warren Road and Woolworths Way, are classified for use by b-doubles.

Traffic Flows

6.6 Traffic generated by the proposed development will have its greatest effects during weekday morning and afternoon peak periods, when it combines with other traffic on the surrounding road network. In order to gauge traffic conditions, turning movement counts have been undertaken at these times (19 November 2021) at the following intersections:

- Sparks Road/Burnet Street;
- Burnet Street/Warren Road; and
- Burnet Street/Woolworths Way.

6.7 The results of the surveys are shown in Figures 2 and 3, and summarized in Table 6.1. Sparks Road carried some 1,250 to 1,750 vehicles per hour two-way during the morning and afternoon peak hours. Burnet Road, Woolworths Way and Warren Road carried lower flows of some 30 to 225 vehicles per hour two-way.

6.8 Observations made during the survey periods indicated that the site generated some 85 and 100 vehicles per hour two-way (sum of arrivals plus departures) during the morning and afternoon peak hours respectively. These generations comprised some 45 cars and 40 trucks in the morning and 60 cars and 40 trucks in the afternoon. The number of trucks is similar to that estimated by Woolworths in its statement of operations, of 40 to 43 trucks in the busiest hour in the morning and 30 to 44 trucks in the busiest hour in the afternoon/evening.

Table 6.1: Existing two-way (sum of both directions) peak hour traffic flows			
Road	**Location**	**AM peak hour (8:00 - 9:00 am)**	**PM peak hour (3:15 - 4:15 pm)**
Sparks Road	East of Burnet Road	1,230	1,670
	West of Burnet Road	1,315	1,755
Burnet Road	South of Sparks Road	175	225
	South of Warren Road	100	105
	North of Woolworths Way	30	30
Warren Road	East of Burnet Street	115	155
Woolworths Way	East of Burnet Street	30	30

6.9 With regards to the number of existing trucks, we rely on our survey data, rather than the statement of operations, for the number of existing trucks generated by the facility. However, our surveyed number of 40 trucks counted in 2021 for both the morning and afternoon is similar to the statement of operations for 2022, which includes 40 to 43 trucks per hour in the morning and 30 to 44 trucks per hour in the afternoon/evening.

Intersection Operations

6.10 The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The surveyed intersections have been analysed using the SIDRA computer program for the traffic flows shown in Figures 2 and 3.

6.11 SIDRA simulates the operations of intersections to provide a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle.

6.12 Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):

- For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70	=	"F"	Unsatisfactory and requires additional capacity

- For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Acceptable delays and spare capacity
29 to 42	=	"C"	Satisfactory but accident study required
43 to 56	=	"D"	Near capacity and accident study required
57 to 70	=	"E"	At capacity and requires other control mode
>70	=	"F"	Unsatisfactory and requires other control mode

6.13 It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

6.14 Copies of the SIDRA files are provided under separate cover. Vehicle classes were counted separately (light vehicles, rigid trucks and articulated trucks), and are coded separately in the SIDRA analysis, using SIDRA default values. Exit flow effect for the right turn from Burnet Street into Sparkes Road was changed to zero as there is a separate left turn lane in Sparks Road. Gap acceptances are SIDRA default values, with the exception of the right turn from Burnet Street (changed to 5s/3s) as this movement occurs in two stages and right turning vehicles only give way to one direction of Sparks Road traffic at a time. There are no traffic signals at the surveyed intersections for which modifications to signal settings or cycle times are required.

6.15 The analysis found that the unsignalized intersection of Sparks Road with Burnet Road operates with average delays for all movements of less than 28 seconds per vehicle during peak periods. This represents level of service B, a satisfactory level of service.

6.16 The intersections of Burnet Road with Warren Road and Woolworths Way operate with average delays for all movements of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.

Traffic Generation of Distribution Centre Extension

6.17 Morning and afternoon traffic generation of the existing distribution centre is some 40 trucks per hour two-way. The floor area of the centre will increase by some 50 to 60 per cent. Woolworths expects minimal increase in truck numbers, as the facility will carry a greater range of products and will operate more efficiently, with fewer trucks having spare capacity, compared to today. The Woolworths statement of operations indicates truck increases of zero to five trucks during the busiest hours. However, to be conservative, we have assessed a pro rata increase of some 20 to 25 trucks per hour two-way.

6.18 The facility currently employs some 710 staff across a number of shifts. Employee traffic increases will be relatively minor at peak times, because the proposed increase in the number of employees is small at some 30.

6.19 We have therefore assessed an additional traffic generation of 30 vehicles per hour two-way during the morning and afternoon peak periods, with the majority of these being trucks.

Traffic Effects

6.20 The additional traffic has been assigned to the surrounding road network. Most trucks would travel to and from the Pacific Motorway. A small number would use Sparks Road to and from the east, delivering to local areas. Existing peak hour traffic flows plus the additional development traffic are shown in Figures 2 and 3, and summarised on Table 6.2. Traffic increases on Warren Road, Woolworths Way, Burnet Road and Sparks would be some 10 to 30 vehicles per hour two-way at peak times.

Table 6.1: Existing two-way peak hour traffic flows plus development traffic					
Road	**Location**	**AM peak hour**		**PM peak hour**	
		Existing	Plus development	Existing	Plus development
Sparks Road	East of Burnet Road	1,230	+10	1,670	+10
	West of Burnet Road	1,315	+20	1,755	+20
Burnet Road	South of Sparks Road	175	+30	225	+30
	South of Warren Road	100	+15	105	+15
	North of Woolworths Way	30	+15	30	+15
Warren Road	East of Burnet Street	115	+15	155	+15
Woolworths Way	East of Burnet Street	30	+15	30	+15

6.21 The intersections previously analysed have been reanalysed with SIDRA for the additional development traffic flows shown on Figures 2 and 3. The analysis found that the intersection of Sparks Road with Burnet Road would continue to operate with average delays for all movements of less than 28 seconds per vehicle during peak periods. This represents level of service B, a satisfactory level of service.

6.22 The intersections of Burnet Road with Warren Road and Woolworths Way would continue to operate with average delays for all movements of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.

6.23 Therefore, the road network will be able to cater for the traffic from the proposed distribution centre extension.

7 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

7.1 The construction methodology, process and staging will be finalised when a builder has been appointed. The CTMP will be finalised prior to the commencement of work, taking into account relevant consent conditions.

Overall Principles for Traffic Management

7.2 The overall principles for traffic management during construction of the development are:

- provide a convenient and appropriate environment for pedestrians;
- minimise effects on pedestrian movements and amenity;
- manage and control vehicular movements to and from the site;
- maintain traffic capacity at intersections and mid-block around the site;
- maintain access to other properties adjacent to the site;
- restrict vehicle activity to designated truck routes through the area;
- maintain safety for workers;
- provide appropriate access to the site for construction traffic; and
- manage and control vehicle activity in the vicinity of the site.

7.3 At this stage, it is not anticipated that on-street works zones will be required. However, if works zones are required, separate applications will be made to Central Coast Council.

Hours of Work

7.4 Subject to conditions of consent, work associated with construction activities will generally be carried out between the following hours:

- Monday to Friday: 7:00 am to 6:00 pm;
- Saturday: 7:00 am to 4:00 pm; and
- Sunday/public holidays: no work.

7.5 Some components of the work will occur outside these times during internal works and for safety reasons. All work including demolition, excavation and construction work during these hours will be carried out in accordance with the conditions of consent and the Australian Standard AS 2436.10 Guide to Noise Control and Construction, Maintenance and Demolition Sites. The site contractor will be responsible to instruct and control all workers and sub-contractors regarding the hours of work. Any work outside these times would be subject to a separate application to Central Coast Council. The control of hours of operation avoids truck movements during the early hours of the morning, before 7:00 am and in the evening, after 6:00 pm.

Truck Routes

7.6 During construction, trucks removing transporting material to the site will be accommodated on the site. Vehicular access to and from the site will be provided from Warren Road and Woolworths Way, via the existing access points.

7.7 General traffic movements on surrounding roads and continued access to adjacent properties will be maintained during construction. Truck movements will be restricted to designated truck routes and will be confined to the main road network through the area. Trucks at no time during demolition, excavation and construction will be permitted to park on-street in the vicinity of the site.

7.8 Trucks would travel to and from the site along the following designated routes, as shown in Figure 4:

- approach routes:
  - Sparks Road, Burnet Road, Warren Road;
  - Sparks Road, Burnet Road, Woolworths Way;

- departure routes:
  - Woolworths Way, Burnet Road, Sparks Road; and
  - Warren Road, Burnet Road, Sparks Road.

7.9 The designated truck routes to and from the site are proposed to restrict truck traffic to the main road network through the area. Truck drivers will be inducted and advised of the designated truck routes to and from the site. The approach and departure route of demolition, excavation and construction vehicles are considered appropriate.

Construction Site Operation

7.10 During construction, all construction vehicles and materials handling, including delivery of construction material, will be accommodated within an on-site construction compound/ materials handling area. Construction hoarding and

containment fencing will be erected around the perimeter of the site compound, with scaffolding and overhead protection provided where required.

7.11 Trucks will enter and exit the site in a forward direction. The construction access driveways will provide appropriate sight lines for construction vehicle access, with regards to the number, type and size of construction vehicles. Warning signs will be erected adjacent to the driveways and on pedestrian paths adjacent to the construction activity, in accordance with SafeWork NSW requirements.

Traffic and Parking Effects

7.12 As noted above, a builder has not yet been appointed. The construction traffic management plan will be refined once a builder has been appointed and the detailed construction methodology and staging are confirmed. However, based on other projects of this scale, the number of vehicles generated during the various stages of construction is likely to be up to some 60 to 80 construction vehicles per day two-way at peak times. Construction vehicles would include rigid trucks and articulated vehicles.

7.13 This is low traffic generation, equivalent to an average of five to 10 trucks per hour over a nine – 11 hour working day. This is less than that assessed for the operation of the facility (with the proposed extension) of 20 to 25 additional trucks per hour. The effects of construction vehicle activity on the surrounding road network will therefore be less than the operational effects. Vehicles will access the site from Warren Road or Woolworths Way, via the existing driveways. All construction vehicles will enter and exit the site in a forward direction.

7.14 Construction worker numbers will vary over the construction period, but would be generally be some 50 to 100 workers. Construction employees will be readily able to park in the existing car park, which has more than 100 available parking spaces. However, employees will also park in various locations across the site, at the location they are working.

7.15 Construction workers would generally travel to and from the facility outside the on-road peak hours (starting earlier and with finish times staggered over the day, depending on the work being undertaken). Their effects during the busiest times for the surrounding road network would therefore be not be significant.

Construction Traffic Management Plan

7.16 The traffic management plan for construction of the proposed development is presented below. It includes the principles of traffic management and is subject to SafeWork NSW requirements, as well as survey and final design.

7.17 The builder/contractor, once appointed, will be responsible for preparation of a detailed construction traffic management plan, to incorporate these principles and refine the construction methodology, staging and timing.

7.18 Site operations, signage, construction fencing/hoarding, overhead protection, safety barriers and line marking detail will be provided in accordance with Australian Standards and the TfNSW Manual for Traffic Control at Work Sites. A copy of the traffic management plan will be kept on-site at all times. Signage details, traffic management, the control of pedestrians in the vicinity of the site, and the control of trucks to and from the site will be the responsibility of the site contractor.

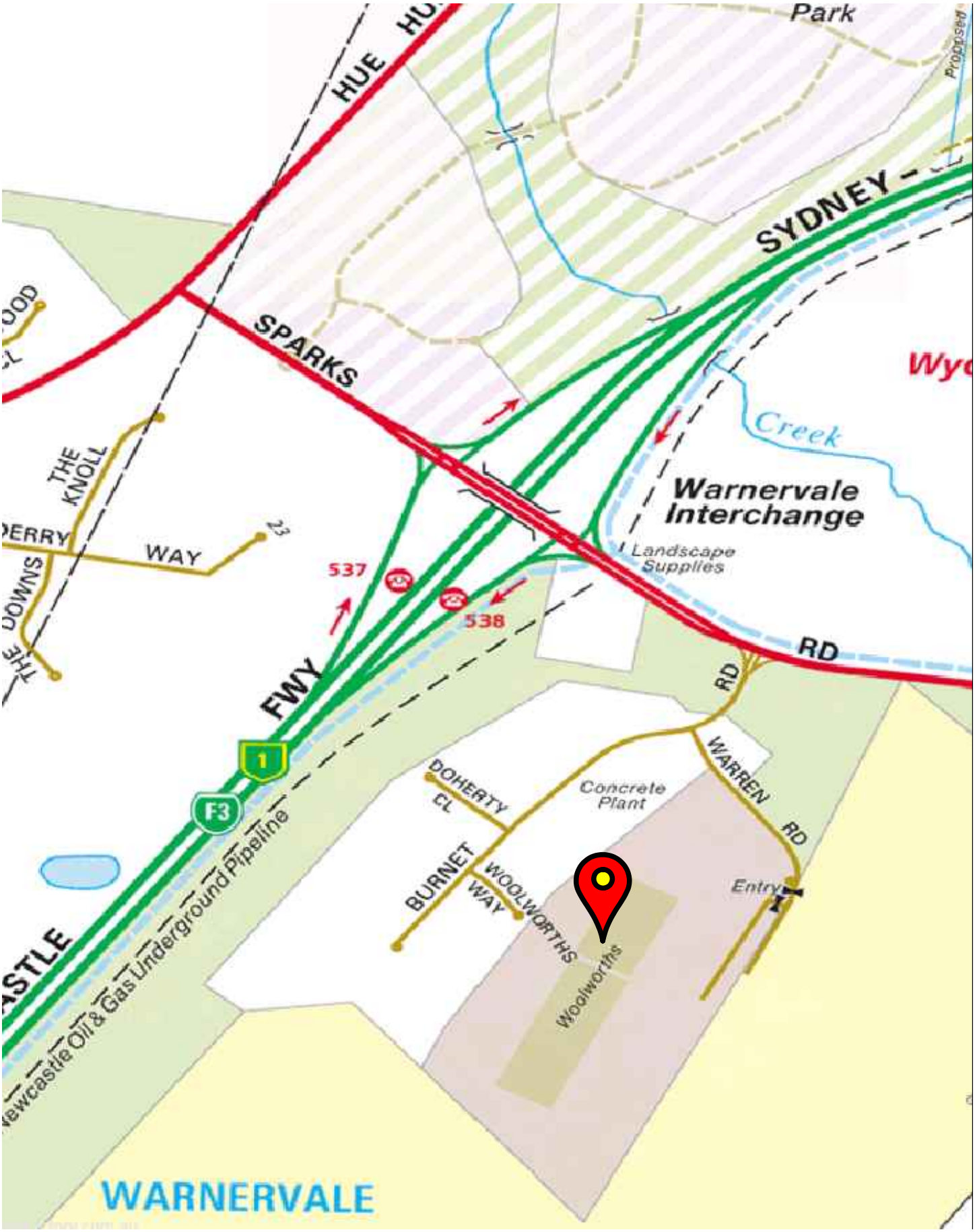
7.19 The construction traffic management plan is shown in Figure 5 and includes the following:

- all construction activity to be provided for on-site or within on-street work zones;
- the construction activity to be coordinated with the construction of other developments in the vicinity of the site where required;
- construction vehicle access to be provided from Warren Road and Woolworths Way, via the existing site driveways;
- construction hoarding/fencing and scaffolding to be erected around the construction site, with overhead protection provided where required;
- construction work to be restricted to the approved hours of construction. Any work outside the approved hours would be subject to prior approval from Central Coast Council;
- the movement of trucks on and off the site to be managed and controlled in accordance with a safe work method statement and appropriate traffic control plans;
- construction vehicles will include rigid trucks, concrete trucks and semi-trailers/truck and dogs;
- truck movements to and from the site to be restricted to the designated truck routes;

- trucks to enter and exit the site in a forward direction;
- maintain access to other adjacent properties in the vicinity of the site at all times during construction;
- construction access driveways to be managed and controlled by qualified traffic controllers where required;
- the management of the site works will be the responsibility of the site contractor/builder;
- pedestrian activity across the site access driveways will be managed and controlled by traffic controllers where required;
- warning signs to be utilised in the vicinity of the site;
- pedestrian arrangements, construction activity and erection of safety fencing will be provided in accordance with SafeWork NSW requirements;
- the construction site manager/builder to be responsible for the management of the site, the movement of trucks on and off the site, signage detail, traffic management and the control of pedestrians/cyclists; and
- construction signage to be provided in accordance with Australian Standards and the TfNSW Manual for Traffic Control at Work Sites.

8 CONSULTATION

8.1 Email correspondence with Transport for NSW is included as Appendix C. TfNSW did not raised any further matters for consideration than those in the SEARs.

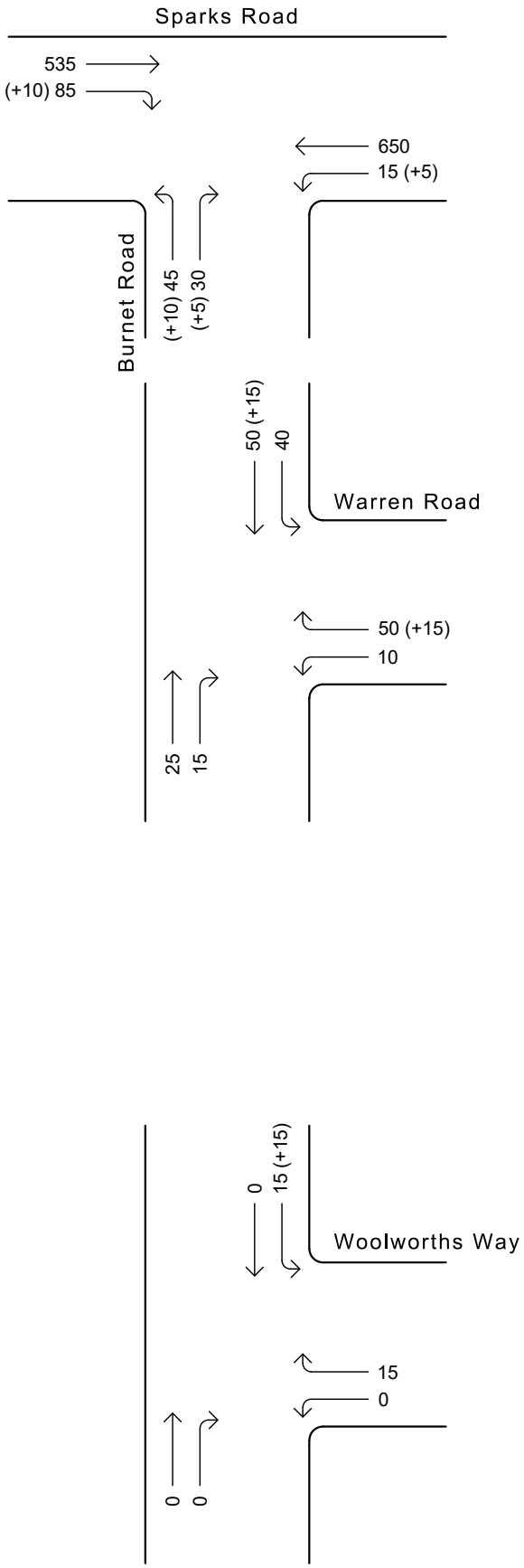


Location Plan

Colston Budd Rogers & Kafes Pty Ltd

Drawn By: CBRK Pty Ltd_hs Ref: 11691 22.11.2021

Figure 1



LEGEND

100 - Existing Peak Hour Traffic Flows
(+10) - Additional Development Traffic

Existing weekday morning peak hour traffic flows plus development traffic

Figure 2

Colston Budd Rogers & Kafes Pty Ltd

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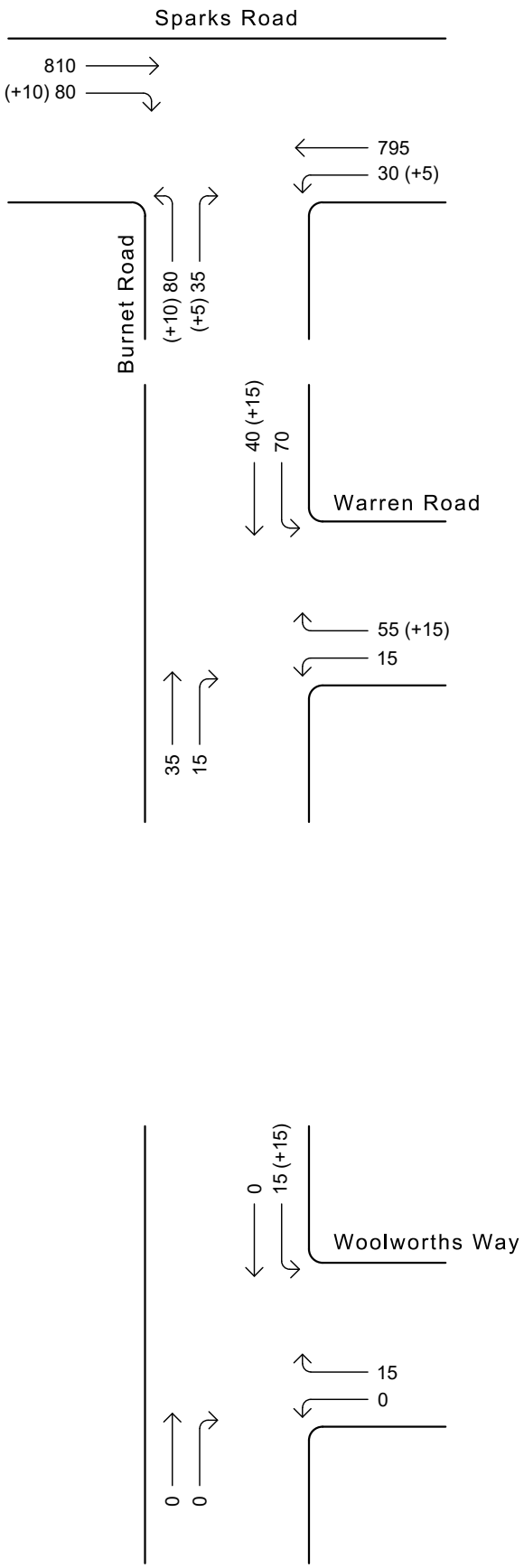

LEGEND

100 - Existing Peak Hour Traffic Flows
(+10) - Additional Development Traffic

Existing weekday afternoon peak hour traffic flows plus development traffic

Figure 3

Colston Budd Rogers & Kafes Pty Ltd

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Truck routes

Colston Budd Rogers & Kafes Pty Ltd

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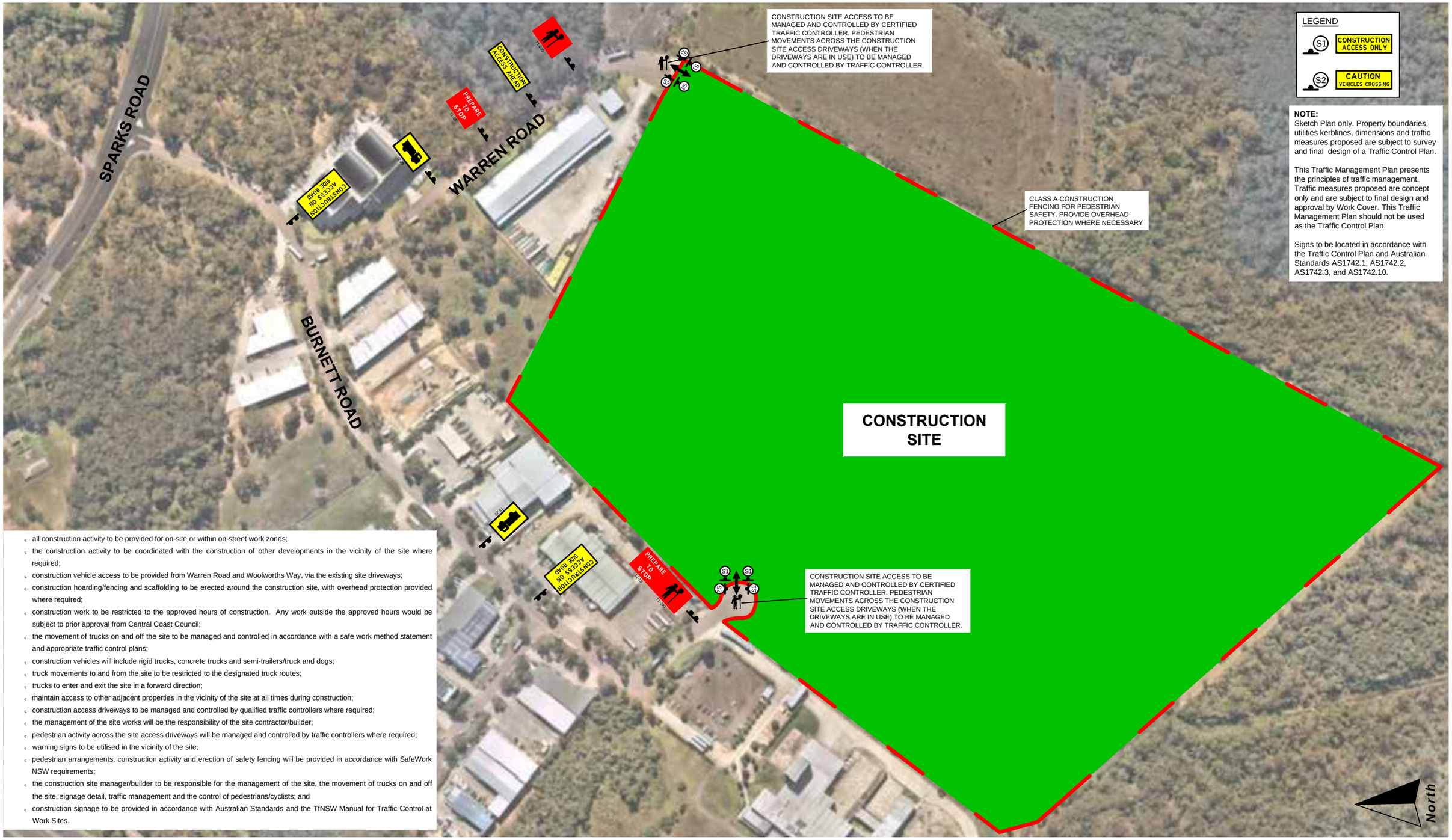
Figure 4



- all construction activity to be provided for on-site or within on-street work zones;
- the construction activity to be coordinated with the construction of other developments in the vicinity of the site where required;
- construction vehicle access to be provided from Warren Road and Woolworths Way, via the existing site driveways;
- construction hoarding/fencing and scaffolding to be erected around the construction site, with overhead protection provided where required;
- construction work to be restricted to the approved hours of construction. Any work outside the approved hours would be subject to prior approval from Central Coast Council;
- the movement of trucks on and off the site to be managed and controlled in accordance with a safe work method statement and appropriate traffic control plans;
- construction vehicles will include rigid trucks, concrete trucks and semi-trailers/truck and dogs;
- truck movements to and from the site to be restricted to the designated truck routes;
- trucks to enter and exit the site in a forward direction;
- maintain access to other adjacent properties in the vicinity of the site at all times during construction;
- construction access driveways to be managed and controlled by qualified traffic controllers where required;
- the management of the site works will be the responsibility of the site contractor/builder;
- pedestrian activity across the site access driveways will be managed and controlled by traffic controllers where required;
- warning signs to be utilised in the vicinity of the site;
- pedestrian arrangements, construction activity and erection of safety fencing will be provided in accordance with SafeWork NSW requirements;
- the construction site manager/builder to be responsible for the management of the site, the movement of trucks on and off the site, signage detail, traffic management and the control of pedestrians/cyclists; and
- construction signage to be provided in accordance with Australian Standards and the TfNSW Manual for Traffic Control at Work Sites.

Construction Traffic Management Plan

Colston Budd Rogers & Kafes Pty Ltd

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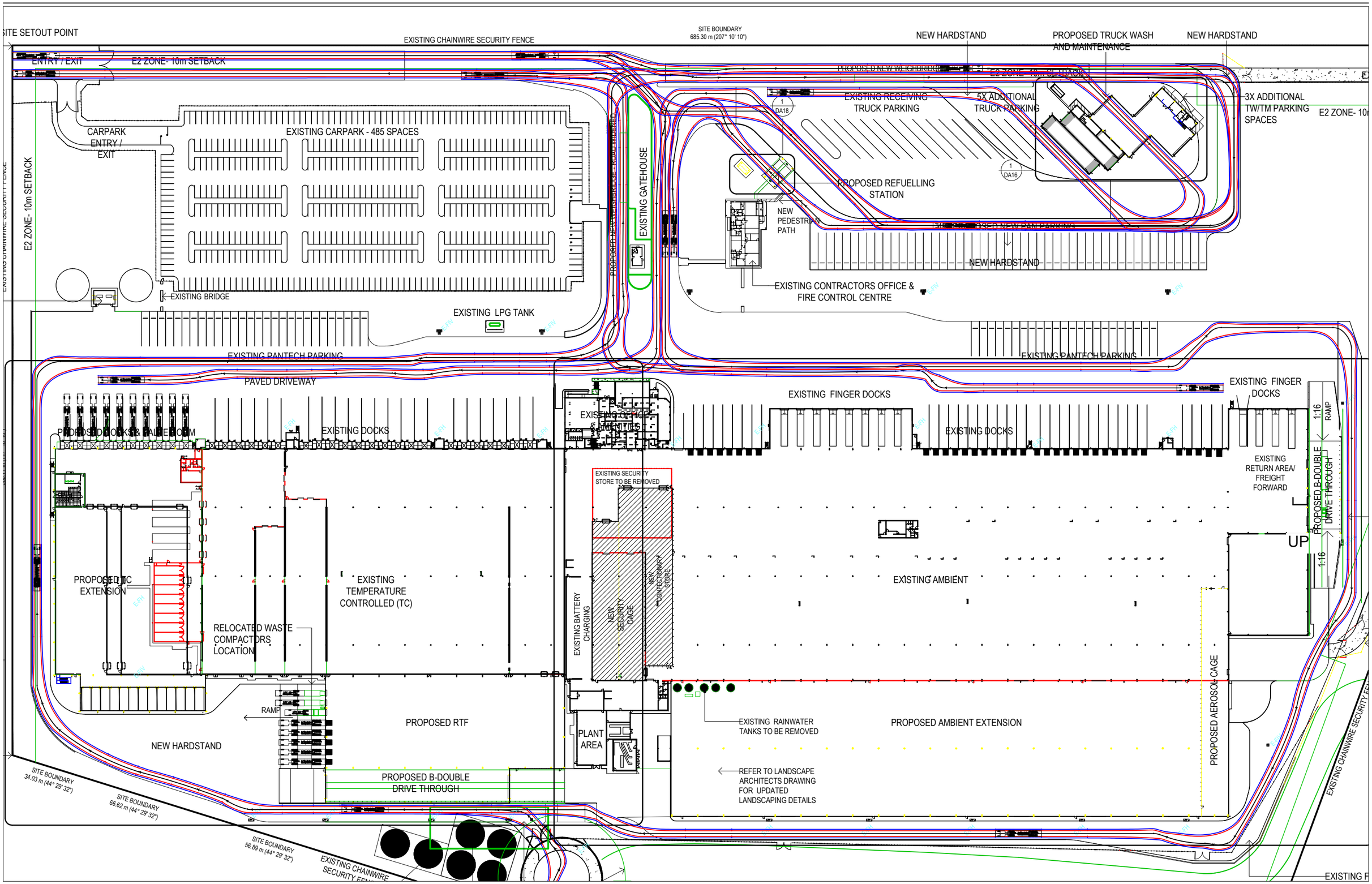
Figure 5

APPENDIX A

VEHICLE SWEPT PATHS



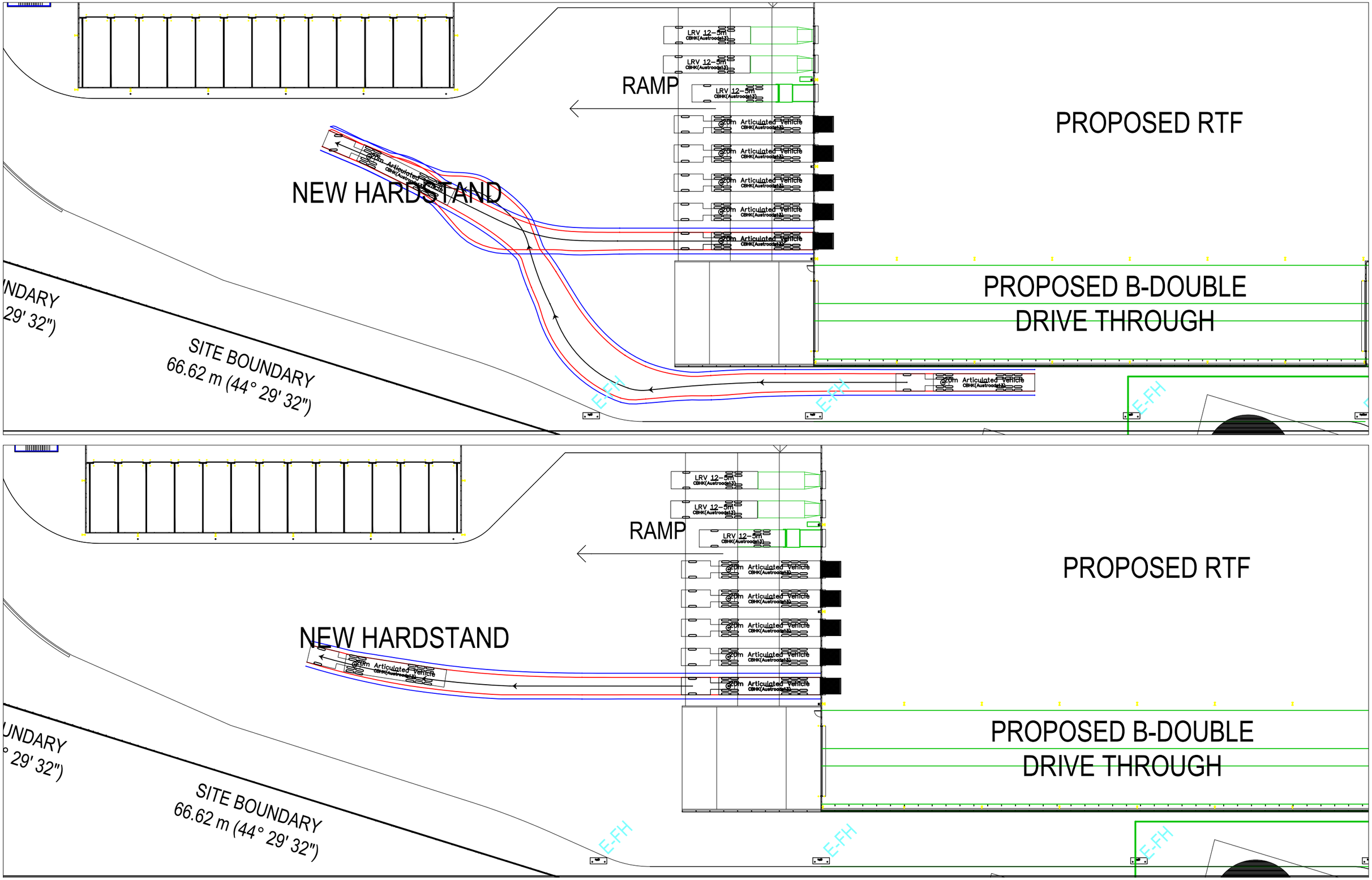
NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

20.0m ARTICULATED VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A1



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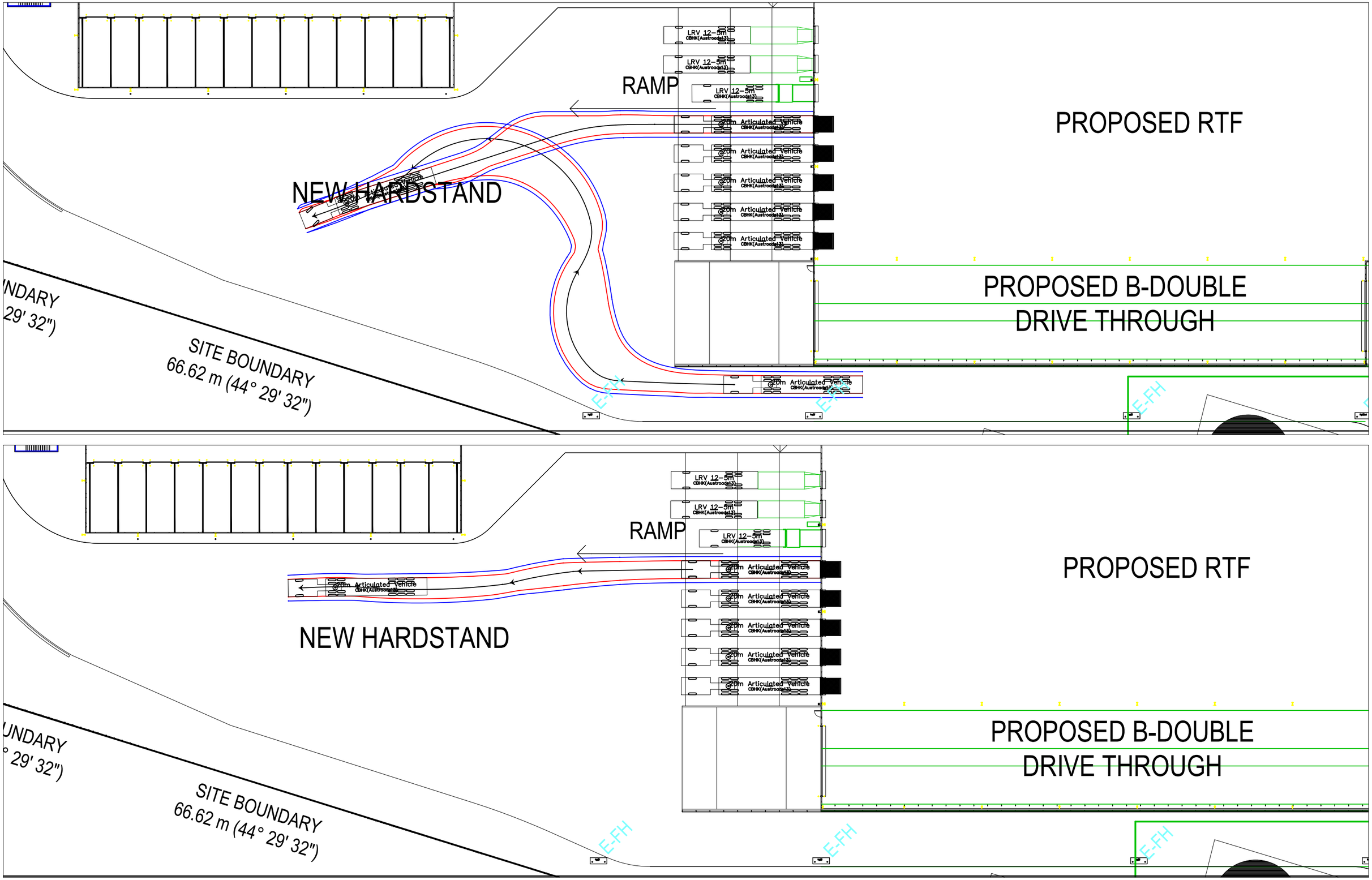
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

20.0m ARTICULATED VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A2



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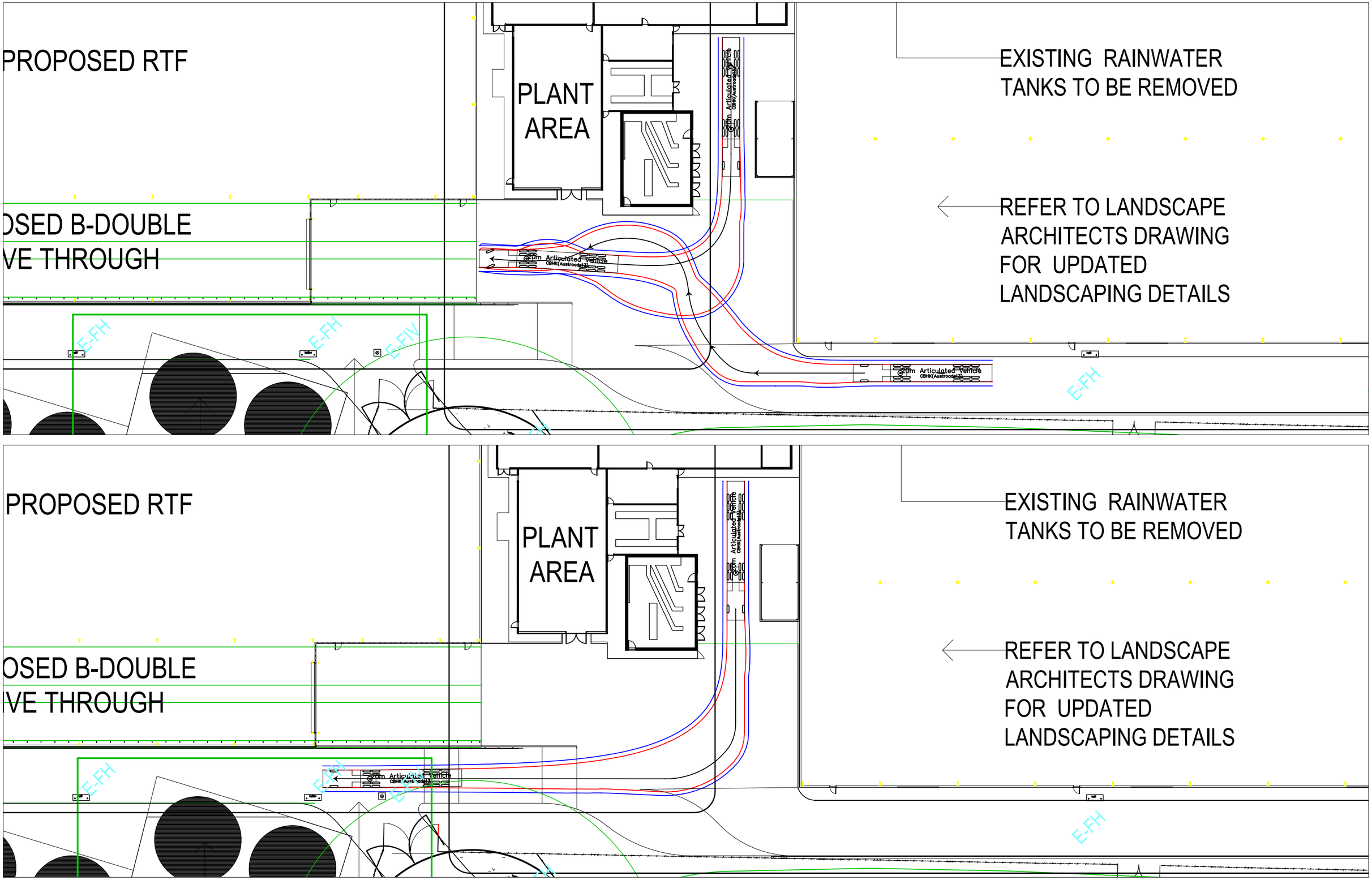
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

20.0m ARTICULATED VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A3



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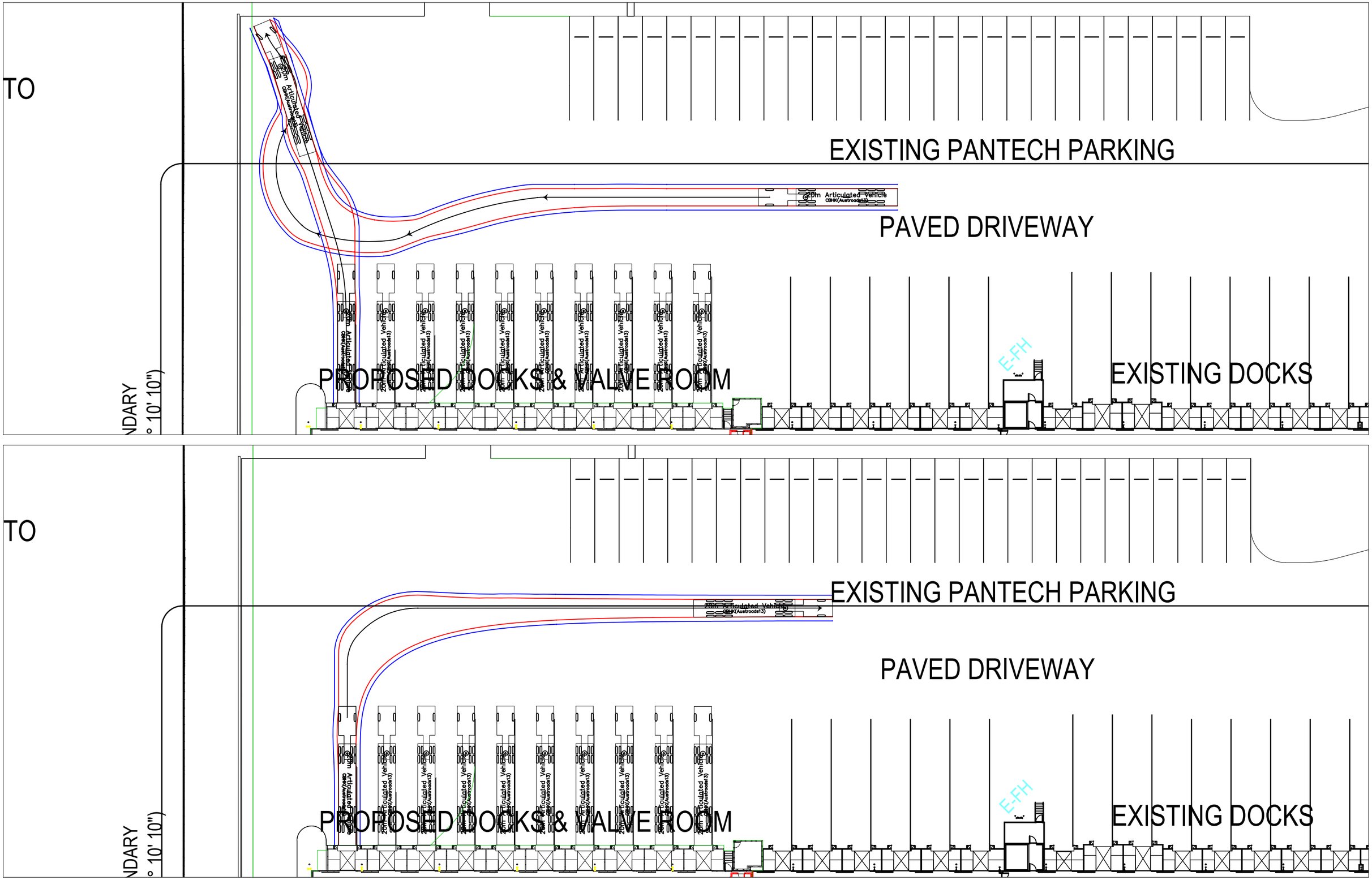
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

20.0m ARTICULATED VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A4



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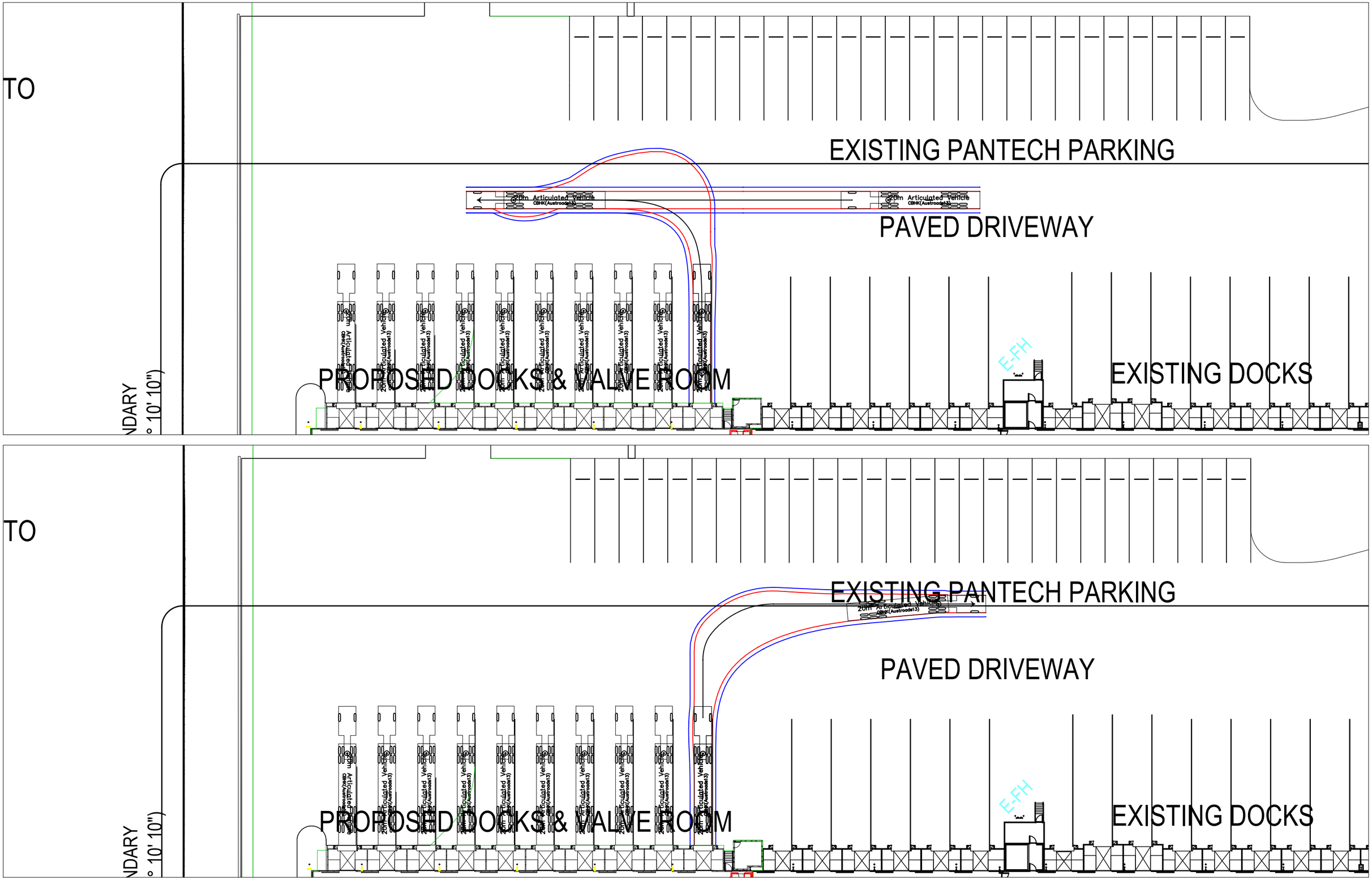
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

20.0m ARTICULATED VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A5



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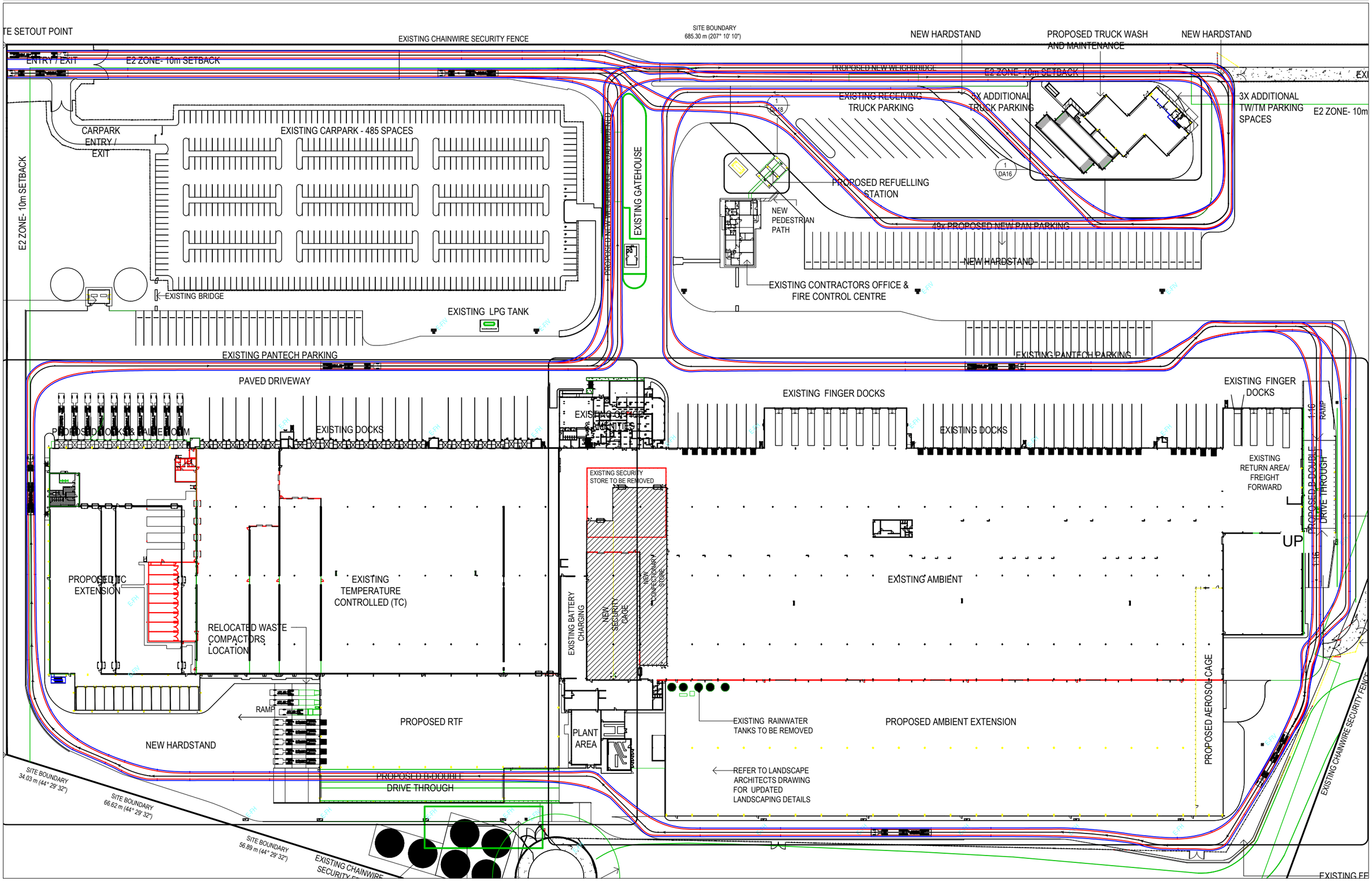
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

20.0m ARTICULATED VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A6



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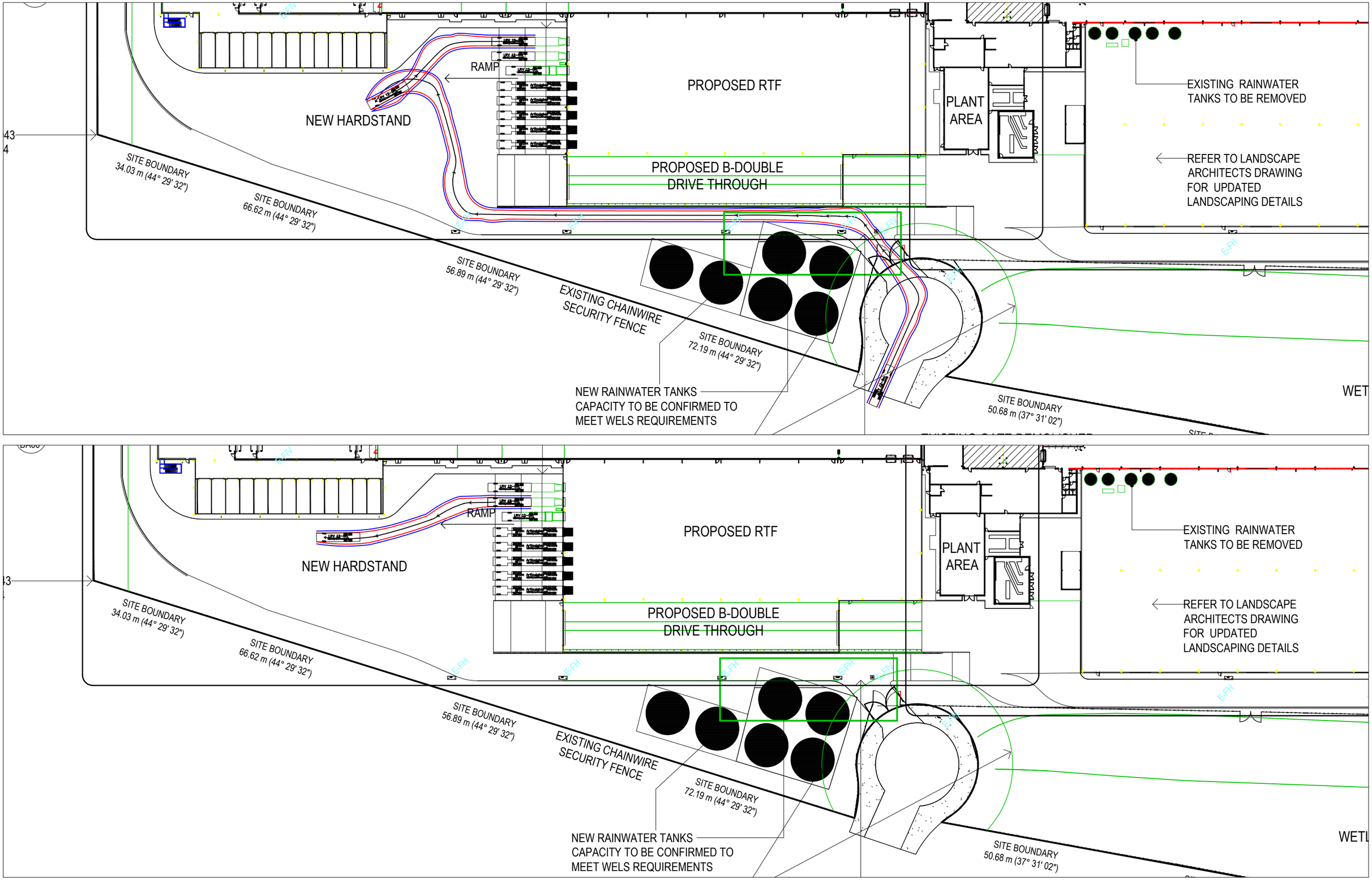
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

26.0m B-DOUBLE VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A7



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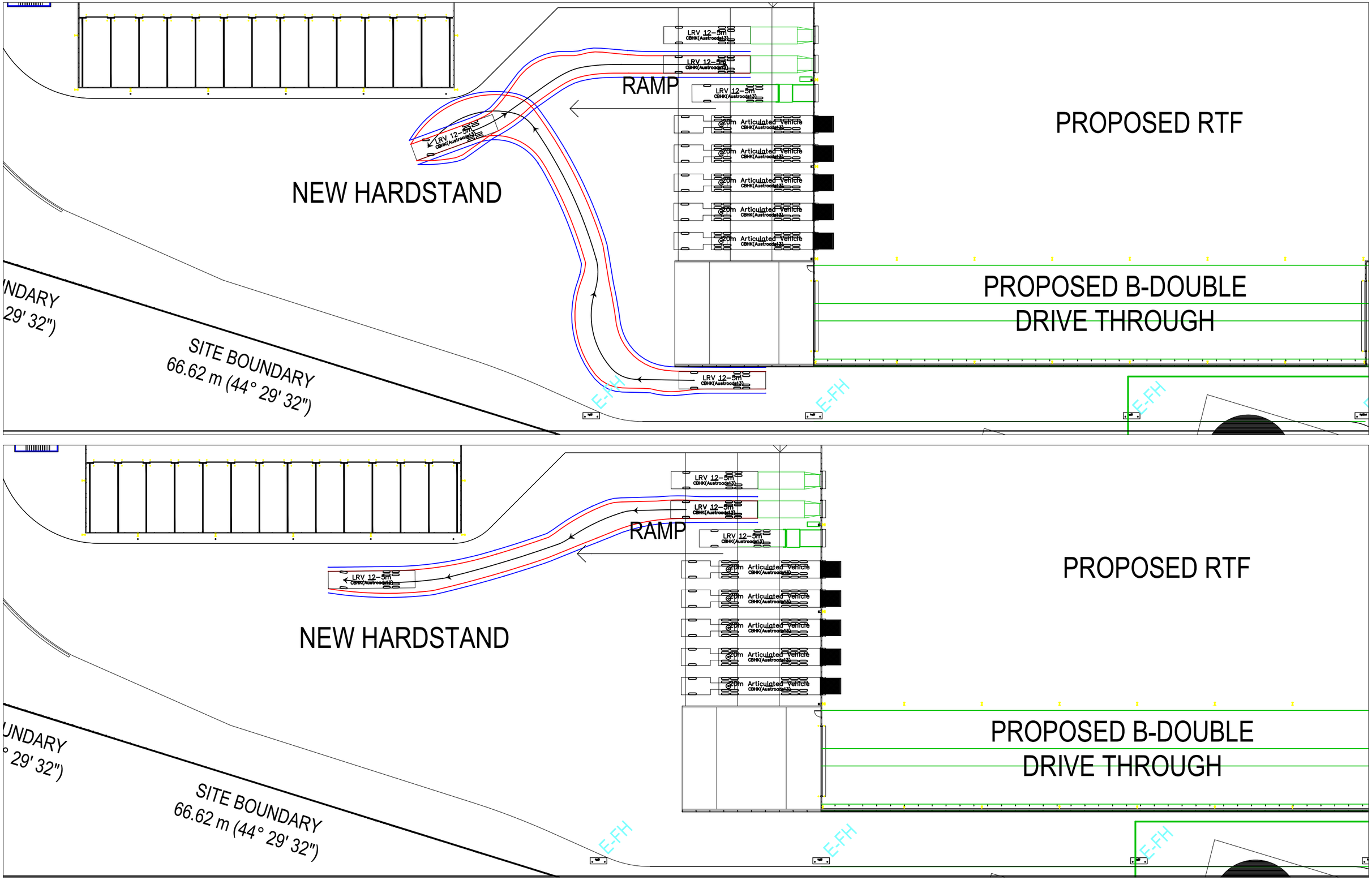
Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

12.5m LARGE RIGID VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A8



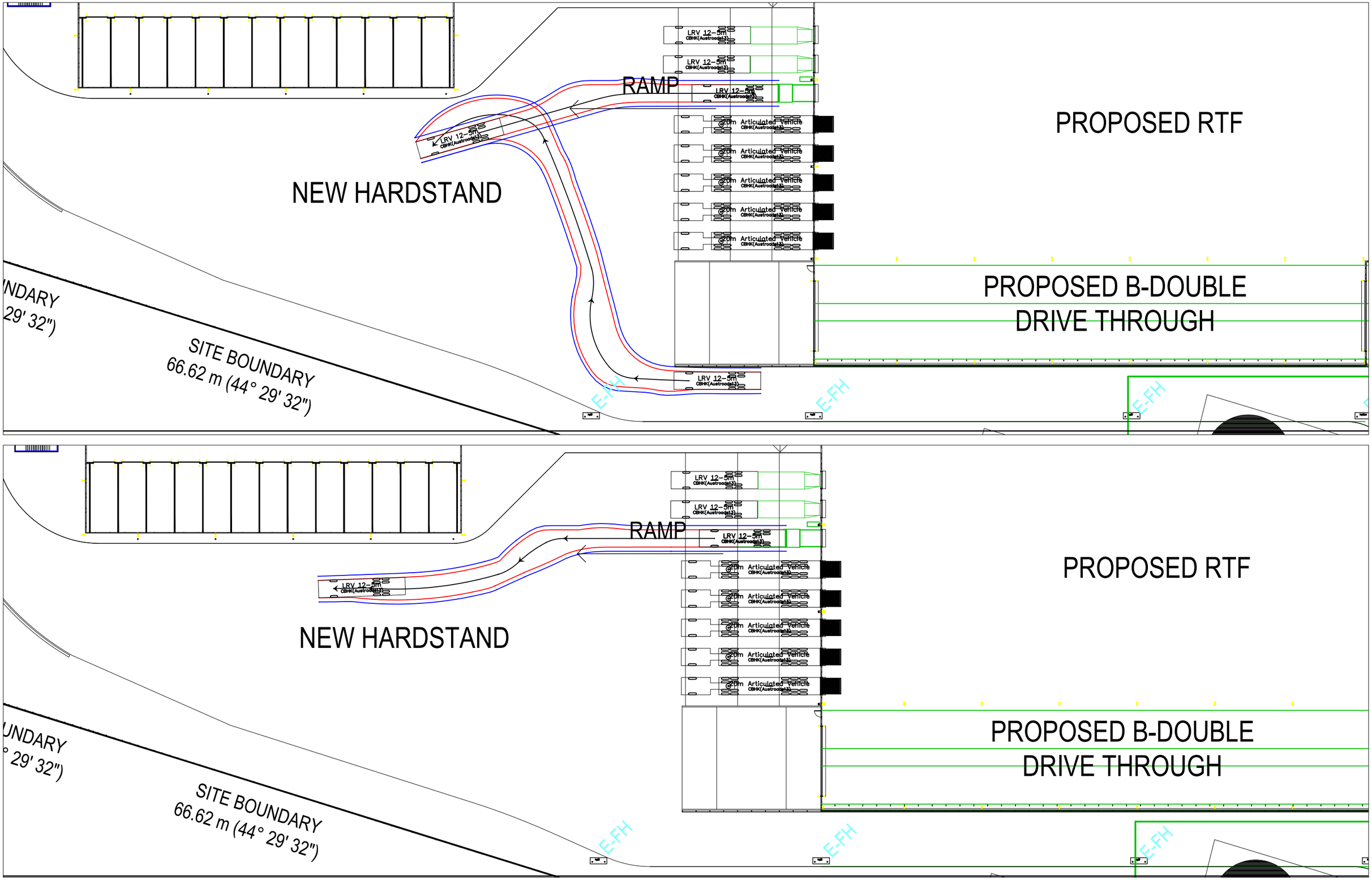
NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

12.5m LARGE RIGID VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A9



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SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

12.5m LARGE RIGID VEHICLE SWEPT PATHS

DRAWN BY CBRK Pty Ltd_mc Ref: 11691 23 MARCH 2022

A10

APPENDIX B

SIDRA MOVEMENT SUMMARIES

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 11691 Warnervale DC

Template: Movement Summaries

Site: 1 [AM EX - Sparks Road - Burnet Road (Site Folder: AM Existing)]

Network: 1 [AM Existing (Network Folder: Existing)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road (RT Stage 1)														
3	R2	32	50.0	32	50.0	0.132	24.6	LOS B	0.4	5.1	0.78	1.07	0.78	20.0
Approach		32	50.0	32	50.0	0.132	24.6	LOS B	0.4	5.1	0.78	1.07	0.78	20.0
East: Sparks Road														
4	L2	16	33.3	16	33.3	0.014	6.5	LOS A	0.1	0.5	0.23	0.51	0.23	49.5
5	T1	684	5.6	684	5.6	0.368	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		700	6.2	700	6.2	0.368	0.3	LOS A	0.1	0.5	0.01	0.01	0.01	59.6
West: Sparks Road														
11	T1	563	6.5	563	6.5	0.308	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
12	R2	89	47.0	89	47.0	0.232	15.1	LOS B	0.9	11.1	0.72	0.91	0.78	40.8
Approach		653	12.1	653	12.1	0.308	2.2	NA	0.9	11.1	0.10	0.12	0.11	57.8
SouthWest: Burnet Road (RT Stage 2)														
30b	L3	45	55.0	45	55.0	0.045	6.9	LOS A	0.0	0.0	0.00	0.52	0.00	48.6
32a	R1	30	49.7	30	49.7	0.036	3.4	LOS A	0.1	1.2	0.45	0.38	0.45	37.0
Approach		75	52.9	75	52.9	0.045	5.5	LOS A	0.1	1.2	0.18	0.47	0.18	43.0
All Vehicles		1459	12.2	1459	12.2	0.368	1.9	NA	0.9	11.1	0.07	0.11	0.08	57.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [AM EX - Burnet Road - Warren Road (Site Folder: AM Existing)]

Network: 1 [AM Existing (Network Folder: Existing)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road														
2	T1	26	60.0	26	60.0	0.040	1.1	LOS A	0.2	2.2	0.25	0.24	0.25	47.8
3	R2	16	66.0	16	66.0	0.040	6.8	LOS A	0.2	2.2	0.25	0.24	0.25	46.8
Approach		42	62.3	42	62.3	0.040	3.2	NA	0.2	2.2	0.25	0.24	0.25	47.2
East: Warren Road														
4	L2	11	50.0	11	50.0	0.092	6.4	LOS A	0.3	4.5	0.28	0.59	0.28	45.1
6	R2	53	50.0	53	50.0	0.092	7.0	LOS A	0.3	4.5	0.28	0.59	0.28	45.1
Approach		63	50.0	63	50.0	0.092	6.9	LOS A	0.3	4.5	0.28	0.59	0.28	45.1
North: Burnet Road														
7	L2	42	62.5	42	62.5	0.077	5.5	LOS A	0.0	0.0	0.00	0.25	0.00	46.8
8	T1	53	40.0	53	40.0	0.077	0.1	LOS A	0.0	0.0	0.00	0.25	0.00	45.5
Approach		95	50.0	95	50.0	0.077	2.5	NA	0.0	0.0	0.00	0.25	0.00	46.5
All Vehicles		200	52.6	200	52.6	0.092	4.1	NA	0.3	4.5	0.14	0.35	0.14	46.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [AM EX - Burnet Road - Woolworths Way (Site Folder: AM Existing)]

Network: 1 [AM Existing (Network Folder: Existing)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Woolworths Way														
6	R2	16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
Approach		16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
North: Burnet Road														
7	L2	16	67.0	16	67.0	0.018	6.2	LOS A	0.0	0.0	0.00	0.55	0.00	47.6
Approach		16	67.0	16	67.0	0.018	6.2	NA	0.0	0.0	0.00	0.55	0.00	47.6
All Vehicles		32	67.0	32	67.0	0.018	5.6	NA	0.0	0.0	0.00	0.55	0.00	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 11691 Warnervale DC

Template: Movement Summaries

Site: 1 [PM EX - Sparks Road - Burnet Road (Site Folder: PM Existing)]

Network: 2 [PM Existing (Network Folder: Existing)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road (RT Stage 1)														
3	R2	37	28.0	37	28.0	0.157	25.3	LOS B	0.5	5.1	0.81	1.04	0.81	19.8
Approach		37	28.0	37	28.0	0.157	25.3	LOS B	0.5	5.1	0.81	1.04	0.81	19.8
East: Sparks Road														
4	L2	32	67.0	32	67.0	0.033	7.1	LOS A	0.1	1.7	0.24	0.51	0.24	49.4
5	T1	795	5.0	795	5.0	0.424	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		826	7.4	826	7.4	0.424	0.4	LOS A	0.1	1.7	0.01	0.02	0.01	59.4
West: Sparks Road														
11	T1	853	4.0	853	4.0	0.455	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
12	R2	84	44.0	84	44.0	0.275	18.7	LOS B	1.0	13.1	0.80	0.96	0.92	37.8
Approach		937	7.6	937	7.6	0.455	1.8	NA	1.0	13.1	0.07	0.09	0.08	58.1
SouthWest: Burnet Road (RT Stage 2)														
30b	L3	80	25.0	80	25.0	0.062	6.9	LOS A	0.0	0.0	0.00	0.55	0.00	50.4
32a	R1	35	28.0	35	28.0	0.051	5.9	LOS A	0.1	1.4	0.58	0.57	0.58	37.0
Approach		115	25.9	115	25.9	0.062	6.6	LOS A	0.1	1.4	0.18	0.56	0.18	45.2
All Vehicles		1915	9.0	1915	9.0	0.455	2.0	NA	1.0	13.1	0.07	0.10	0.07	57.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX - Burnet Road - Warren Road (Site Folder: PM Existing)]

Network: 2 [PM Existing (Network Folder: Existing)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road														
2	T1	37	28.0	37	28.0	0.046	1.6	LOS A	0.2	2.2	0.25	0.24	0.25	48.4
3	R2	16	66.0	16	66.0	0.046	7.2	LOS A	0.2	2.2	0.25	0.24	0.25	46.9
Approach		53	39.4	53	39.4	0.046	3.3	NA	0.2	2.2	0.25	0.24	0.25	47.7
East: Warren Road														
4	L2	16	66.0	16	66.0	0.100	6.2	LOS A	0.4	4.6	0.25	0.59	0.25	44.9
6	R2	58	36.0	58	36.0	0.100	6.8	LOS A	0.4	4.6	0.25	0.59	0.25	44.9
Approach		74	42.4	74	42.4	0.100	6.7	LOS A	0.4	4.6	0.25	0.59	0.25	44.9
North: Burnet Road														
7	L2	74	50.0	74	50.0	0.095	5.3	LOS A	0.0	0.0	0.00	0.35	0.00	46.1
8	T1	42	50.0	42	50.0	0.095	0.1	LOS A	0.0	0.0	0.00	0.35	0.00	41.5
Approach		116	50.0	116	50.0	0.095	3.4	NA	0.0	0.0	0.00	0.35	0.00	45.4
All Vehicles		242	45.4	242	45.4	0.100	4.4	NA	0.4	4.6	0.13	0.40	0.13	45.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX - Burnet Road - Woolworths Way (Site Folder: PM Existing)]

Network: 2 [PM Existing (Network Folder: Existing)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Woolworths Way														
6	R2	16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
Approach		16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
North: Burnet Road														
7	L2	16	67.0	16	67.0	0.018	6.2	LOS A	0.0	0.0	0.00	0.55	0.00	47.6
Approach		16	67.0	16	67.0	0.018	6.2	NA	0.0	0.0	0.00	0.55	0.00	47.6
All Vehicles		32	67.0	32	67.0	0.018	5.6	NA	0.0	0.0	0.00	0.55	0.00	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 11691 Warnervale DC

Template: Movement Summaries

Site: 1 [AM EX + Dev - Sparks Road - Burnet Road (Site Folder: AM Existing + Development)]

Network: 3 [AM Existing + Development (Network Folder: Existing + Development)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road (RT Stage 1)														
3	R2	37	42.9	37	42.9	0.148	23.7	LOS B	0.5	5.4	0.78	1.06	0.78	20.2
Approach		37	42.9	37	42.9	0.148	23.7	LOS B	0.5	5.4	0.78	1.06	0.78	20.2
East: Sparks Road														
4	L2	16	33.3	16	33.3	0.015	6.6	LOS A	0.1	0.5	0.25	0.51	0.25	49.4
5	T1	684	5.6	684	5.6	0.368	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		700	6.2	700	6.2	0.368	0.3	LOS A	0.1	0.5	0.01	0.01	0.01	59.6
West: Sparks Road														
11	T1	563	6.5	563	6.5	0.308	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
12	R2	100	52.5	100	52.5	0.272	16.3	LOS B	1.1	15.0	0.74	0.93	0.85	39.9
Approach		663	13.4	663	13.4	0.308	2.5	NA	1.1	15.0	0.11	0.14	0.13	57.4
SouthWest: Burnet Road (RT Stage 2)														
30b	L3	55	63.0	55	63.0	0.061	7.0	LOS A	0.0	0.0	0.00	0.51	0.00	48.1
32a	R1	35	42.9	35	42.9	0.040	3.4	LOS A	0.1	1.3	0.45	0.38	0.45	37.3
Approach		90	55.2	90	55.2	0.061	5.6	LOS A	0.1	1.3	0.17	0.46	0.17	43.0
All Vehicles		1490	13.3	1490	13.3	0.368	2.2	NA	1.1	15.0	0.08	0.12	0.09	56.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [AM EX + Dev - Burnet Road - Warren Road (Site Folder: AM Existing + Development)]

Network: 3 [AM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road														
2	T1	26	60.0	26	60.0	0.041	1.3	LOS A	0.2	2.3	0.28	0.24	0.28	47.5
3	R2	16	66.0	16	66.0	0.041	7.2	LOS A	0.2	2.3	0.28	0.24	0.28	46.7
Approach		42	62.3	42	62.3	0.041	3.5	NA	0.2	2.3	0.28	0.24	0.28	47.0
East: Warren Road														
4	L2	11	50.0	11	50.0	0.130	6.7	LOS A	0.5	6.8	0.34	0.63	0.34	44.8
6	R2	68	53.0	68	53.0	0.130	7.9	LOS A	0.5	6.8	0.34	0.63	0.34	44.8
Approach		79	52.6	79	52.6	0.130	7.7	LOS A	0.5	6.8	0.34	0.63	0.34	44.8
North: Burnet Road														
7	L2	42	62.5	42	62.5	0.093	5.6	LOS A	0.0	0.0	0.00	0.22	0.00	47.1
8	T1	68	46.0	68	46.0	0.093	0.2	LOS A	0.0	0.0	0.00	0.22	0.00	46.2
Approach		111	52.3	111	52.3	0.093	2.2	NA	0.0	0.0	0.00	0.22	0.00	46.9
All Vehicles		232	54.2	232	54.2	0.130	4.3	NA	0.5	6.8	0.17	0.36	0.17	46.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [AM EX + Dev - Burnet Road - Woolworths Way (Site Folder: AM Existing + Development)]

Network: 3 [AM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Woolworths Way														
6	R2	16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
Approach		16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
North: Burnet Road														
7	L2	32	67.0	32	67.0	0.035	6.2	LOS A	0.0	0.0	0.00	0.55	0.00	47.6
Approach		32	67.0	32	67.0	0.035	6.2	NA	0.0	0.0	0.00	0.55	0.00	47.6
All Vehicles		47	67.0	47	67.0	0.035	5.8	NA	0.0	0.0	0.00	0.55	0.00	46.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 11691 Warnervale DC

Template: Movement Summaries

Site: 1 [PM EX + Dev - Sparks Road - Burnet Road (Site Folder: PM Existing + Development)]

Network: 4 [PM Existing + Development (Network Folder: Existing + Development)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road (RT Stage 1)														
3	R2	42	25.0	42	25.0	0.174	24.9	LOS B	0.6	5.6	0.80	1.05	0.82	19.9
Approach		42	25.0	42	25.0	0.174	24.9	LOS B	0.6	5.6	0.80	1.05	0.82	19.9
East: Sparks Road														
4	L2	37	57.3	37	57.3	0.037	6.9	LOS A	0.1	1.8	0.24	0.51	0.24	49.4
5	T1	795	5.0	795	5.0	0.424	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		832	7.3	832	7.3	0.424	0.5	LOS A	0.1	1.8	0.01	0.02	0.01	59.4
West: Sparks Road														
11	T1	853	4.0	853	4.0	0.456	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
12	R2	84	50.0	84	50.0	0.292	20.0	LOS B	1.1	15.6	0.81	0.97	0.95	36.9
Approach		937	8.1	937	8.1	0.456	2.0	NA	1.1	15.6	0.07	0.09	0.09	58.0
SouthWest: Burnet Road (RT Stage 2)														
30b	L3	90	33.0	90	33.0	0.078	6.9	LOS A	0.0	0.0	0.00	0.54	0.00	49.9
32a	R1	40	25.0	40	25.0	0.057	5.8	LOS A	0.2	1.5	0.58	0.58	0.58	37.2
Approach		130	30.5	130	30.5	0.078	6.6	LOS A	0.2	1.5	0.18	0.55	0.18	44.9
All Vehicles		1941	9.7	1941	9.7	0.456	2.1	NA	1.1	15.6	0.07	0.11	0.08	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX + Dev - Burnet Road - Warren Road (Site Folder: PM Existing + Development)]

Network: 4 [PM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burnet Road														
2	T1	37	28.0	37	28.0	0.047	1.8	LOS A	0.2	2.3	0.28	0.24	0.28	48.0
3	R2	16	66.0	16	66.0	0.047	7.5	LOS A	0.2	2.3	0.28	0.24	0.28	46.8
Approach		53	39.4	53	39.4	0.047	3.5	NA	0.2	2.3	0.28	0.24	0.28	47.4
East: Warren Road														
4	L2	16	66.0	16	66.0	0.140	6.5	LOS A	0.5	7.1	0.33	0.63	0.33	44.6
6	R2	74	43.0	74	43.0	0.140	7.8	LOS A	0.5	7.1	0.33	0.63	0.33	44.6
Approach		89	47.1	89	47.1	0.140	7.5	LOS A	0.5	7.1	0.33	0.63	0.33	44.6
North: Burnet Road														
7	L2	74	50.0	74	50.0	0.111	5.4	LOS A	0.0	0.0	0.00	0.31	0.00	46.4
8	T1	58	54.0	58	54.0	0.111	0.1	LOS A	0.0	0.0	0.00	0.31	0.00	42.4
Approach		132	51.8	132	51.8	0.111	3.1	NA	0.0	0.0	0.00	0.31	0.00	45.7
All Vehicles		274	47.8	274	47.8	0.140	4.6	NA	0.5	7.1	0.16	0.40	0.16	45.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX + Dev - Burnet Road - Woolworths Way (Site Folder: PM Existing + Development)]

Network: 4 [PM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Woolworths Way														
6	R2	16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
Approach		16	67.0	16	67.0	0.018	5.1	LOS A	0.0	0.0	0.00	0.55	0.00	42.2
North: Burnet Road														
7	L2	32	67.0	32	67.0	0.035	6.2	LOS A	0.0	0.0	0.00	0.55	0.00	47.6
Approach		32	67.0	32	67.0	0.035	6.2	NA	0.0	0.0	0.00	0.55	0.00	47.6
All Vehicles		47	67.0	47	67.0	0.035	5.8	NA	0.0	0.0	0.00	0.55	0.00	46.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX C

CORRESPONDENCE WITH TfNSW

Michael Corban

From: Timothy Chapman <Timothy.CHAPMAN@transport.nsw.gov.au>
Sent: Monday, 21 February 2022 2:53 PM
To: Joshua Hollis
Subject: FW: Proposed Woolworths warehouse extension, Warnervale
Attachments: fig 1.pdf; Industry-Specific-SEARs---Warehouses-and-Distribution-Centres.pdf

Hi Josh

Liz Smith has advised that you are preparing the TIA for the Warnervale Woolworths warehouse extension in accordance with the industry-specific SEARs. TfNSW concurs with this. I have checked with our regional Planning team and they will be preparing a microsimulation model for this area, however, the base model is three to four months away at this stage. TfNSW is happy to be involved with early engagement on modelling inputs and assumptions if required.

Regards

Tim Chapman
Development Services Case Officer
Development Services
Regional and Outer Metropolitan
Transport for NSW

M 0412274356 **E** timothy.chapman@transport.nsw.com.au

transport.nsw.gov.au

6 Stewart Avenue, Newcastle West 2302

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

Transport for NSW

I recognise and acknowledge that modern New South Wales is an overlay on Aboriginal land and that many of the transport routes of today follow songlines Aboriginal people have followed for tens of thousands of years. I pay my respects to the Aboriginal people of NSW and Elders past and present.

Please consider the environment before printing this email.

From: Joshua Hollis <joshua.hollis@cbrk.com.au>
Sent: Monday, 31 January 2022 12:29 PM
To: Liz Smith <Liz.Smith@transport.nsw.gov.au>
Cc: Andrew Hollander <ahollander@woolworths.com.au>
Subject: Proposed Woolworths warehouse extension, Warnervale

Hi Liz,

I called today and left a message, and understand you return from leave later this week.

Further to my voice mail, Woolworths is proposing to extend its existing warehouse and distribution centre at Warnervale, on Warren Road, south of Sparks Road.

A map showing the location of the site is attached.

The existing warehouse and DC provides some 53,600m^2, and the proposed extension would add some 29,200m^2.

Access arrangements would be largely unchanged, with most vehicles accessing the site via Warren Road, as currently occurs. There is also an existing driveway from Woolworths Way which would be used by inbound Woolworths delivery trucks. Employee numbers would marginally increase by some 30, compared to some 710 existing.

Traffic increases as a result of the proposed extension would be relatively modest, at some 30 vehicles per hour two-way (sum of both directions) at peak times. Most of these vehicles would be trucks. Our assessment will include traffic counts and analysis at key surrounding intersections, including at Sparks Road/Burnet Street, and local intersections in the industrial estate.

As you may be aware, the DPIE has recently prepared industry-specific SEARs to streamline application and approval processes for a range of development types, including for warehouses and distribution centres. A copy of those SEARs is attached.

The SEARs include a requirement to consult with 'any relevant agencies'. We would therefore appreciate an opportunity to meet with you to discuss the proposal and obtain any feedback you consider is relevant at this stage.

Could you please let us know a time which would be suitable to meet with yourselves? Alternatively, if you consider that the SEARs appropriately capture the relevant requirements, or that additional TfNSW input is not required at this stage, we would be pleased to receive your confirmation by email.

We appreciate your assistance. In the meantime, please contact us if you have any queries.

Regards,

Joshua Hollis
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Colston Budd Rogers & Kafes Pty Ltd
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Chatswood NSW 2067
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