

APPENDIX G

CHINDERAH BP SERVICE CENTRE EXPANSION (TRAFFIC IMPACT ASSESSMENT)

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JUNE 2010**

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Chinderah, BP Service Centre Expansion

Prepared for BP Australia

June 2010

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Document Control					
Chinderah, BP Service Centre Expansion					
Version	Date	Author		Reviewer	
		Name	Initials	Name	Initials
Draft	25 June 2010	Kirsty Bilton	Original Signed	Brett McClurg	Original Signed
Final	29 June 2010	Kirsty Bilton	KB	Brett McClurg	Bu

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1.0 INTRODUCTION

Cardno Eppell Olsen has been commissioned by BP Australia to provide site layout advice for the proposed expansion of the existing BP service centre located between the Pacific Highway and Ozone Street at Chinderah, NSW.

The proposed expansion will occur over the adjacent property located immediately east of the existing service centre site and will utilise the existing access driveways to the external road network. The expansion will include the addition of two new diesel refuelling points, the addition of a new truck parking area on the site to the east and reconfiguration of the parking area at the existing service centre. A copy of the proposed site layout plan is included at Appendix A.

The purpose of this report is to document the traffic and transport elements of the proposed expansion for lodgement to the Tweed Shire Council as part of the Development Application.

2.0 EXISTING SITUATION

2.1 Subject Site

The subject site is bounded by the Pacific Motorway to the north, Ozone Street to the south, the existing BP service centre to the west and vacant land to the east. The site is currently vacant and its location is shown on Figure 2.1.

Figure 2.1

Site Location and Surrounds



Source: Google Maps

2.2 Existing BP Service Centre

The site is immediately east of the existing BP service centre with separate truck and car fuel bowsters. The existing site also includes a McDonalds restaurant with drive-through facility. Access to the existing service centre occurs via separate entry and exit driveways on the southbound Pacific Highway Off-Ramp and also via driveways on Ozone Street.

The existing service centre has approval for the following parking facilities:

- 75 spaces for cars/light vehicles;
- 8 spaces for B-Double trucks;
- 3 spaces for Articulated Vehicles (AV trucks);
- 1 space for a Medium Rigid Truck;
- 4 spaces for caravans/cars with trailers;
- 2 spaces for buses/coaches.

Changes to the parking layout and provision within the existing service centre are proposed as part of the expansion. These are discussed in detail in Section 3.0.

3.0 PROPOSED DEVELOPMENT

The proposed expansion will include the addition of two (2) diesel refuelling points, an extension to the truck refuelling canopy and 24 additional truck parking spaces. The expansion results in a total of five (5) diesel refuelling points and 36 truck parking spaces for the service centre. Six of the truck parking spaces will be dedicated for use by 19m Articulated Vehicles (AVs), with the remainder designed to accommodate B-Doubles. As part of the expansion, the existing truck parking area will be replaced by an additional 33 car parking spaces and a dedicated bus drop-off area. These changes are detailed on the site layout plans included at Appendix A.

4.0 SITE LAYOUT REVIEW

A review of the proposed site layout was conducted to ensure that it will operate acceptably and is compliant with relevant Council and Australian Standards. The proposed plan represents a general improvement to the existing site in that there is clear separation of heavy and light vehicle movements and parking.

A number of open areas that are currently unmarked will be improved through the installation of line marking to clearly define travel paths and priority, where appropriate. As shown on the site layout plan, new line marking will be provided adjacent to the Ozone Street egress driveway, near the exit from the McDonalds drive-through. This also results in improved available sight distance to the east for drivers leaving the drive-through.

4.1 Site Access

The proposed expansion does not result in any significant changes to the existing access points or available queue distance within the site. The only exception to this is on Ozone Street, where the existing site ingress is proposed to be relocated approximately 25m east to accommodate the new diesel pumps. This results in good geometry at the internal intersection between the Ozone Street entry road and the access to the truck parking area that could not be realised if the access was retained in its current location. At this new internal intersection, there is sufficient space for three cars to queue within the site, should the entering vehicles need to give way to trucks entering or exiting the truck parking area. The relocation of this access is not expected to result in any increase in traffic to the site.

A number of improvements are proposed to optimise vehicular circulation and minimise conflicts within the site. These include:

- the western site egress has been reconfigured to reduce the potential conflict between cars exiting to the Tweed Coast Road and trucks exiting to the Highway. Through new line marking and signage, priority will be given to heavy vehicles exiting from the rear of the site over the light vehicles travelling from the main car parking. This is expected to reduce driver confusion and conflicts with other vehicles;
- clear way-finding signage and line markings are proposed at the access points to help direct traffic and reduce possible conflicts at the ingress and egress of the site.

4.2 Parking

The addition of two new diesel refuelling points is not expected to increase the demand for parking on the site, however will result in shorter queues at the diesel refuelling area, better separation of heavy and light vehicles and improved circulation through the site. The expansion proposes to convert the current truck parking area to more than 30 new car parking spaces with a new bus drop-off area. The new truck parking area proposes 36 truck parking spaces. Due to possible turning restrictions the northern three parking bays on each side of the centre aisle have been allocated for vehicles which are 19m or less in length. The remainder of the truck parking bays are 30m in length and can accommodate 26m B-Doubles.

In addition to the existing bus parking facilities west of the diesel refuelling area, a new bus drop zone has been proposed for the south-west corner of the site. Access will be via the heavy vehicle circulation routes around the edge of the site meaning that buses do not need to travel through the service centre forecourt and main car parking areas to access the drop-off zone. There is provision for two 12.5m buses to stop in the bus drop-off zone.

Four dedicated caravan parking spaces have been provided at the western end of the site, which is consistent with (one more than) what is currently provided at the service centre. A slip lane has been provided at the northern end of the spaces to allow vehicles to exit the area in a forward direction should all the spaces be full.

Circulation within the car parking area is appropriate with the design complying with Council and Australian Standards for User Class 3. The following dimensions generally apply to the design:

- parking aisle width (minimum): 6.2m;
- parking space length: 5.4m;
- customer car parking space width: 2.6m.

4.3 Vehicle Circulation

Internal circulation within the site has been designed in accordance with the geometric design standards outlined within AS2890.1 *Parking Facilities Part 1: Off-Street Car Parking* (2004), AS2890.2 *Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities* (2002) and the Tweed Shire Planning Scheme. There are two distinct circulation routes within the site, one generally for heavy vehicles and the other for light vehicles. The heavy vehicle circulation route has been designed to ensure that heavy vehicles do not traverse the service station forecourt area where there are likely to be high numbers of pedestrian movements. The circulation route for heavy vehicles passes to the rear of the site reducing potential conflicts with cars manoeuvring into and out of car parking areas and to and from the drive-through facility. This route also provides a relatively direct connection between the truck parking area to the east of the site and the exit at the west of the site.

The straight section along the rear of the site is longer than the preferred length for a straight circulation aisle (typically 100m or less), which could result in vehicles travelling at higher than desired speeds. Traffic calming measures or speed restricting devices are often installed in these circumstances to limit excessive speeds. However, as this route will be predominantly used by heavy vehicles, speed bumps or chicanes are not recommended. It is believed that the low speed environment of the service centre, coupled with the T-junction at the site exit to the Pacific Highway off-ramp will act as speed calming measure without the need to install these devices. If it is noticed that excessive speeding is occurring, measures such as concrete rumble bars or speed signs could be implemented to help deter speeding.

Access to the main car parking area, the caravan parking area and the McDonald's drive-through is expected to occur via the service station forecourt area. Vehicles can pass around the rear of the refuelling area to access the western end of the site. This will reduce the potential conflicts with pedestrians in this area. From the car refuelling area and the main car parking areas, vehicles will travel west to the site egress. This is consistent with the existing site arrangements/operation.

4.4 Heavy Vehicle Movements

Analysis of the development site has been conducted to determine whether the proposed provisions are appropriate to accommodate the necessary manoeuvring associated with heavy vehicles within the site.

A swept path assessment for a 26m B-Double for refuelling, parking areas and access points has been undertaken, with the swept paths provided at Appendix B. These swept paths show that a B-Double can access and be accommodated within the dedicated parking bays and that there is sufficient provision to allow these vehicles to move through the site. Swept path analysis has also been undertaken at the bus parking area, bus drop-off zone and caravan parking bays to ensure adequate provision for manoeuvring. A copy of these swept paths is also included at Appendix B.

4.5 Pedestrian Facilities

The existing emphasis on safe and direct pedestrian access within the site has been continued with direct pedestrian connectivity to all parking areas and the bus drop-off zone. A raised pedestrian crossing along the entry lane from Ozone Street is also proposed for pedestrian access to and from the truck parking area. This has two functions: firstly to provide a raised platform to improve pedestrian visibility and define right of way; and secondly to act as a speed limiting device for vehicles entering from Ozone Street on the straight access road. Appropriate lighting should be supplied at this location.

5.0 EXTERNAL IMPACTS

There are no significant changes to the existing access arrangements proposed as part of this expansion. Further, the addition of the two refuelling points and additional car and truck parking is not expected to generate additional traffic to the site. Instead these changes are expected to improve internal circulation and vehicle separation within the service centre. Therefore, no assessment of the traffic impacts upon the external road network has been undertaken as part of this assessment.

6.0 CONCLUSIONS

Cardno Eppell Olsen has been commissioned by BP Australia to provide site layout advice for the proposed expansion of the existing BP service centre located between the Pacific Highway and Ozone Street at Chinderah, NSW.

The proposed expansion will occur over the adjacent property located immediately east of the existing service centre site and will utilise the existing access driveways to the external road network. The expansion will include the addition of two new diesel refuelling points, the addition of a new truck parking area (24 additional truck spaces) on the site to the east and reconfiguration of the parking area (approximately 30 additional car parking spaces) at the existing service centre. A copy of the proposed site layout plan is included at Appendix A.

A review of the proposed site layout was conducted to ensure that it will operate acceptably and is compliant with relevant Council and Australian Standards. This plan represents a general improvement to the existing site in that there is clear separation of heavy and light vehicle movements and parking as well as improved circulation for these vehicles.

The proposed expansion does not result in any significant changes to the existing access points or available queue distance within the site. The only exception to this is on Ozone Street, where the existing site ingress is proposed to be relocated approximately 25m east to accommodate the new diesel pumps. This is considered to be an improved arrangement at this location.

Improvements are proposed within the site at the western site egress to the Pacific Highway Off-Ramps to reduce the potential conflict between cars exiting to the Tweed Coast Road and trucks exiting to the Highway. Through new line marking and signage, priority will be given to heavy vehicles exiting from the rear of the site over the light vehicles travelling from the main car parking area and this is expected to reduce driver confusion and conflicts with other vehicles.

The expansion proposes to convert the current truck parking area to more than 30 new car parking spaces with a new bus drop-off area. The new truck parking area proposes 36 truck parking spaces, six of which will be allocated for vehicles which are 19m or less in length. The remainder of the truck parking bays are 30m in length and can accommodate 26m B-Doubles. Improvements to the caravan parking and bus drop-off areas are also proposed as part of the expansion.

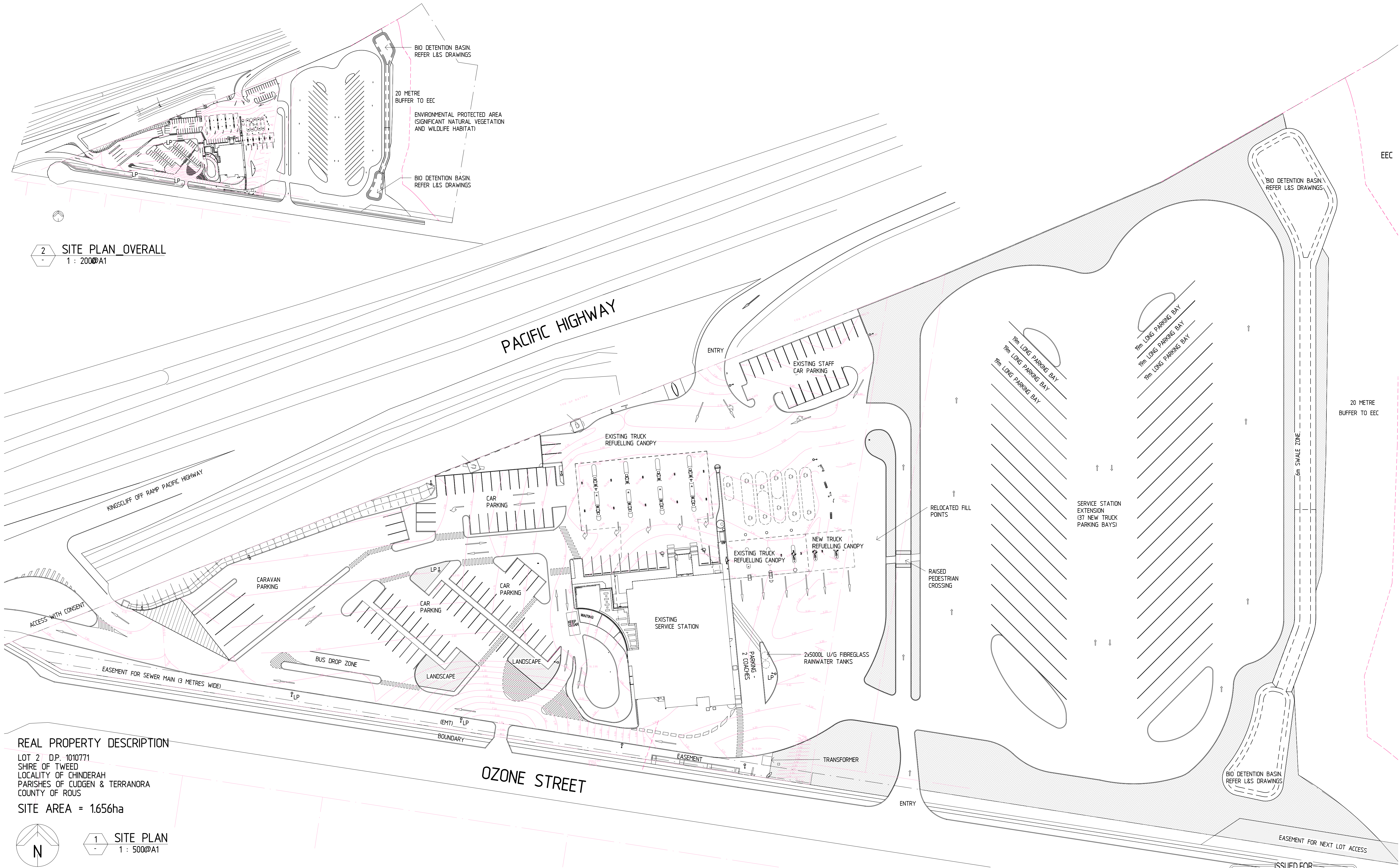
The existing emphasis on safe and direct pedestrian access within the site has been continued with direct pedestrian connectivity to all parking areas and the bus drop-off zone.

No assessment of the traffic impacts upon the external road network has been undertaken as part of this assessment as the proposed expansion is not expected to result in any increase in traffic travelling to or from the site. Instead these changes are expected to improve internal circulation and reduce queues within the service centre.

There do not appear to be any traffic or transport related issues that would preclude approval of this expansion.

Appendix A

Proposed Site Layout Plan



2 SITE PLAN_OVERALL
1 : 200@A1

REAL PROPERTY DESCRIPTION
LOT 2 DP: 1010771
SHIRE OF TWEED
LOCALITY OF CHINDERAH
PARISHES OF CUDGEN & TERRANORA
COUNTY OF ROUS
SITE AREA = 1.656ha

1 SITE PLAN
1 : 500@A1

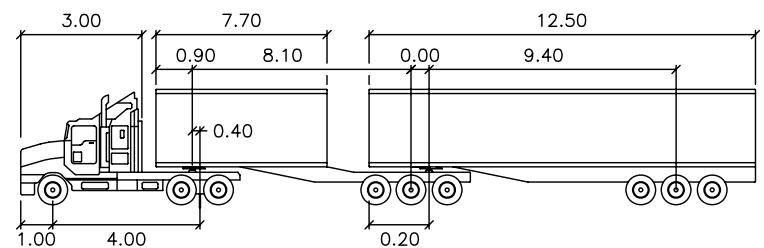
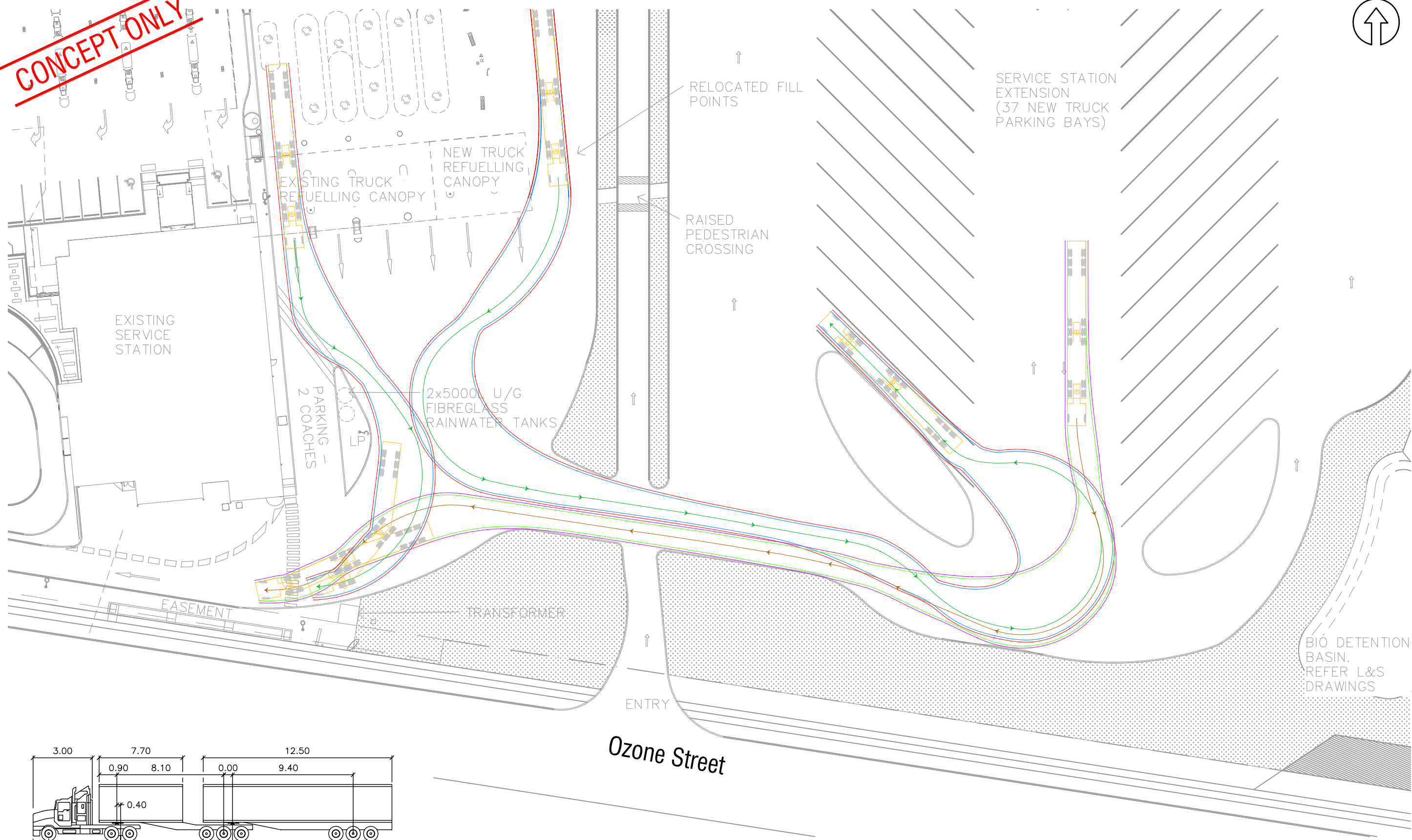
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1 ISS 11/06/10 DATE PRELIMINARY ISSUE AMENDMENT		CLP CKD 11/06/2010 5:23:51 PM acn: 106 382 227 abn: 72 106 382 227							
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Appendix B

Swept Path Assessment

CONCEPT ONLY



B-DOUBLE 25M meters			
Tractor Width	: 2.50	Lock to Lock Time	: 6.00
Trailer Width	: 2.50	Steering Angle	: 20.6
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

- LEGEND
- VEHICLE BODY
 - VEHICLE PATH
 - VEHICLE CLEARANCE (300mm)
 - VEHICLE

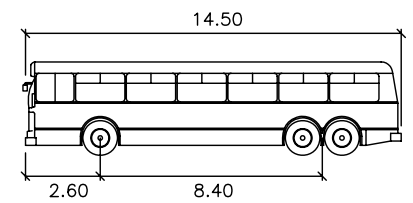
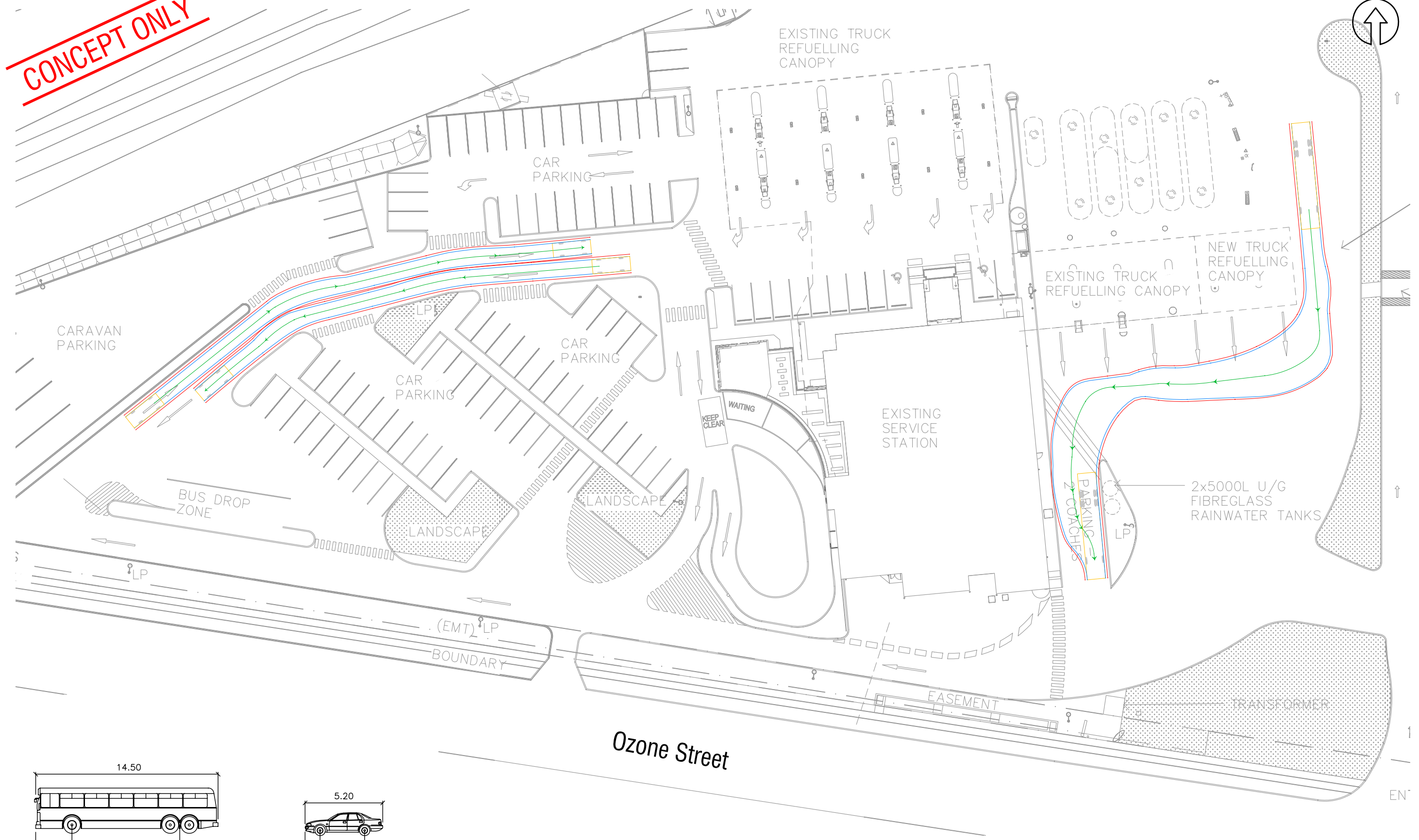
Chinderah Service Centre Expansion
Proposed Truck Parking Access Arrangement



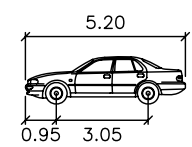
SK04 | Project No: CEB06061 | Date: 18/06/2010

Scale 1:500 @ A3

CONCEPT ONLY



LONG RIGID BUS
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.00
Steering Angle : 46.3



CAR
Width : 1.94
Track : 1.84
Lock to Lock Time : 6.00
Steering Angle : 33.5

- LEGEND
- VEHICLE BODY
 - VEHICLE PATH
 - VEHICLE CLEARANCE (300mm)
 - VEHICLE

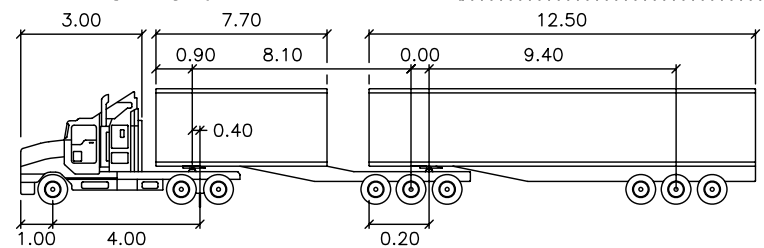
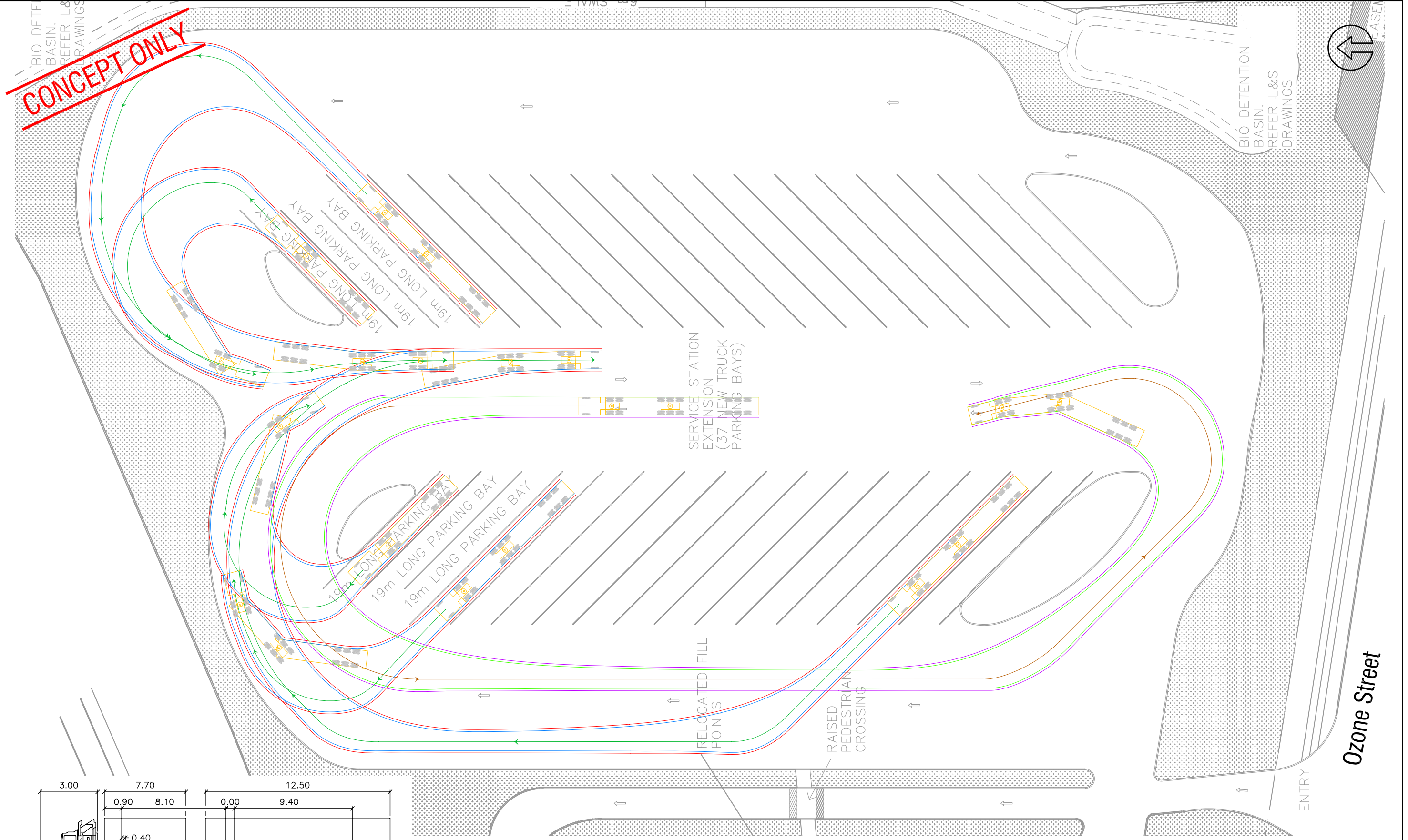
Ozone Street

Scale 1:500 @ A3

Chinderah Service Centre Expansion
Proposed Truck Parking Access Arrangement



SK05 | Project No: CEB06061 | Date: 18/06/2010



B-DOUBLE 25M meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.00
Trailer Width	: 2.50	Steering Angle	: 20.6
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

- LEGEND**
- VEHICLE BODY
 - VEHICLE PATH
 - VEHICLE CLEARANCE (300mm)
 - VEHICLE

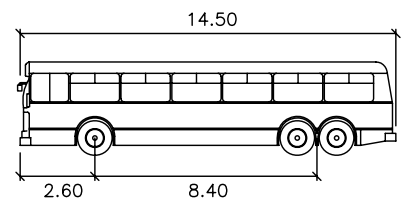
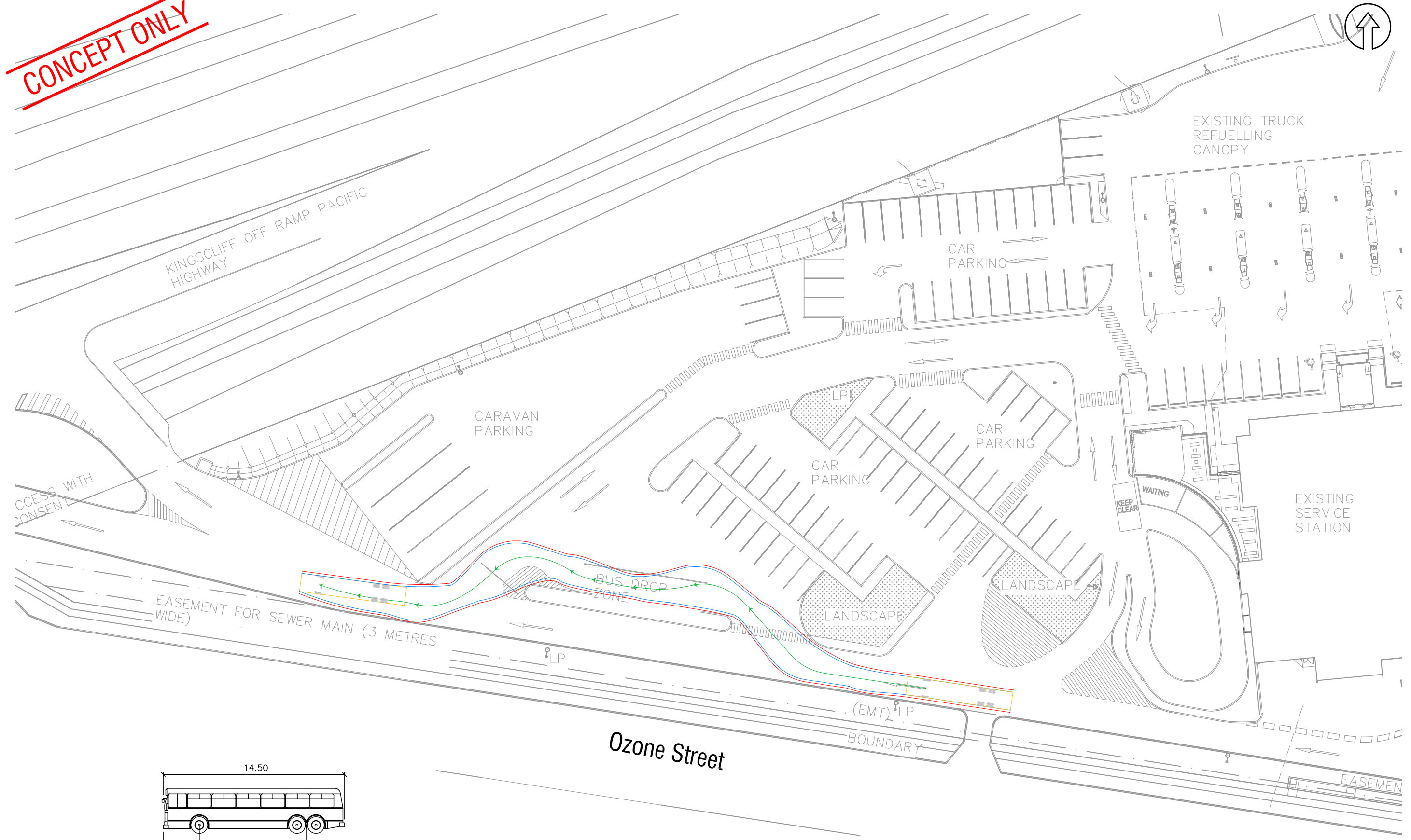
Chinderah Service Centre Expansion
Proposed Truck Parking Access Arrangement

SK06 | Project No: CEB06061 | Date: 18/06/2010



Scale 1:500 @ A3

CONCEPT ONLY



LONG RIGID BUS
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.00
Steering Angle : 46.3

LEGEND

- VEHICLE BODY
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE

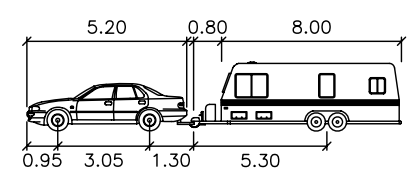
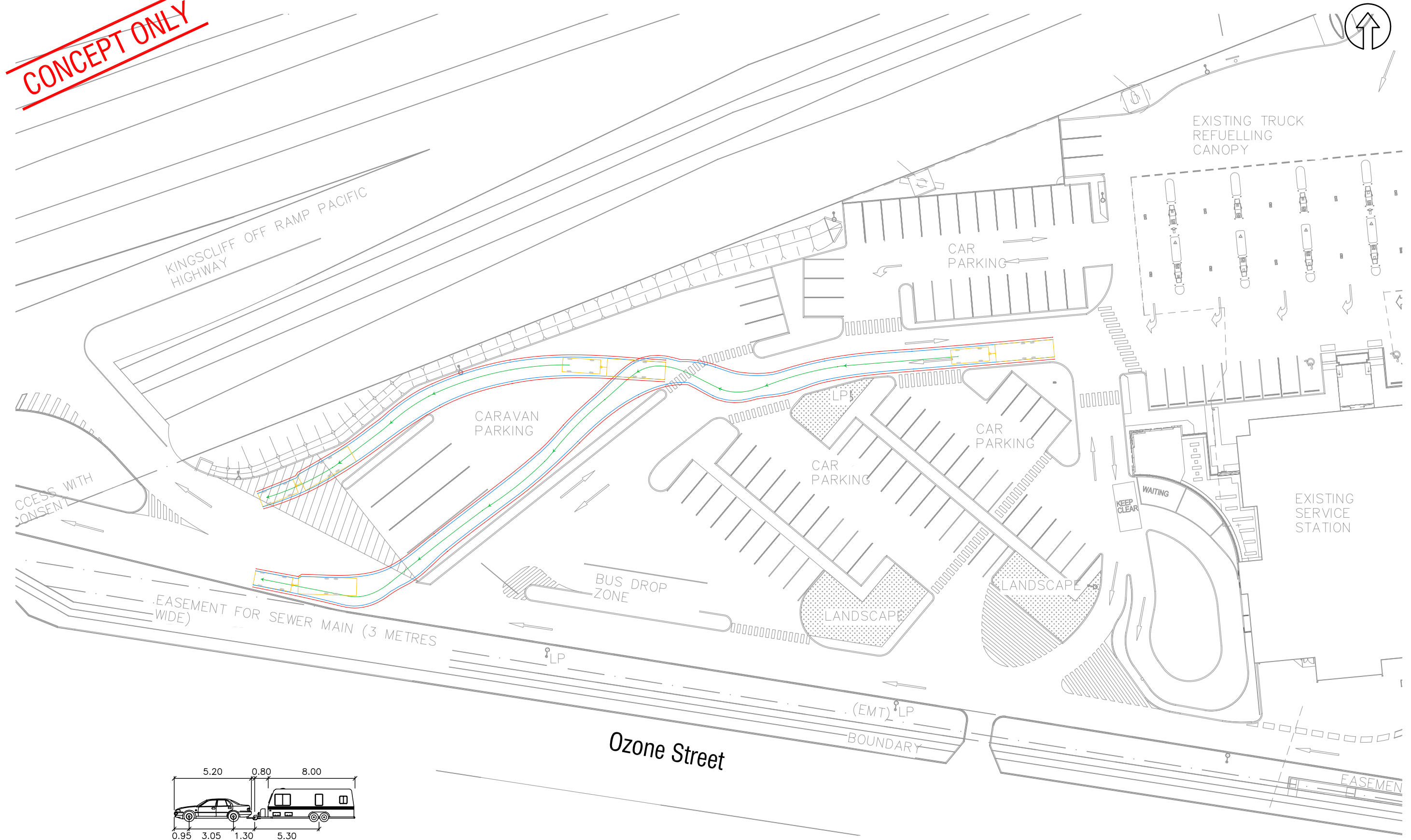
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Chinderah Service Centre Expansion
Proposed Truck Parking Access Arrangement



SK07 | Project No: CEB06061 | Date: 24/06/2010

CONCEPT ONLY



CARAVAN		LP
	meters	
Car Width	: 1.94	
Trailer Width	: 2.40	
Car Track	: 1.84	
Trailer Track	: 2.20	
Lock to Lock Time	: 6.00	
Steering Angle	: 33.5	
Articulating Angle	: 70.0	

- LEGEND**
- VEHICLE BODY
 - VEHICLE PATH
 - VEHICLE CLEARANCE (300mm)
 - VEHICLE

Scale 1:500 @ A3

Chinderah Service Centre Expansion
Proposed Truck Parking Access Arrangement



SK08 | Project No: CEB06061 | Date: 24/06/2010