



Ref: 0404r02v05

9/09/2021

The Trustee for Caerleon Mudgee Trust
c/o Premise
Suite 301, Level 3 Oran Park Podium, 351 Oran Park Drive
Oran Park NSW 2570

Attention: Gannon Cuneo

**RE: CASTLEREAGH HIGHWAY / HILL END ROAD, CAERLEON
LETTER OF RESPONSE TO TfNSW AND COUNCIL**

Dear Gannon,

We refer to the abovementioned intersection and recent discussions regarding Condition 35 of the Development Application (DA) Conditions of Consent (the Consent) for DA 0428 / 2013. PDC Consultants was engaged to prepare a Traffic Analysis Statement (Traffic Analysis) (ref: 0404r01v02) to demonstrate reasons why the intersection upgrade trigger identified in Condition 35 should be re-set to a higher number of permitted residential lots.

Following submission of this Traffic Analysis, Transport for NSW (TfNSW) returned a response (TfNSW Response) (SF2013/043508 | WST13/0047/06) with four key comments, outlining reasons TfNSW did not at that time support the application to modify Condition 35, on the basis it had not been adequately demonstrated that the intersection can operate safely with additional traffic as proposed through the delaying of the upgrade.

A meeting was held 17/08/2021 between the Applicant's project team, Mid-Western Regional Council (Council) and TfNSW to discuss the matter and subsequent liaison has occurred between the Applicant and Council to further discuss and agree upon a proposed amendment to Condition 35 which satisfies the Applicant, Council and TfNSW.

This letter of response (Letter) has been prepared to summarise these discussions and the proposed approach moving forward.

TFNSW RESPONSE

TfNSW comments have been taken into consideration, with responses provided herein. For clarity, TfNSW comments have reproduced below (*highlighted*), with responses provided underneath each.

Whilst the existing intersection may incorporate a rural AUL treatment, TfNSW doesn't support the removal of this requirement from Condition No. 35. The reason for this position is the redesign of the intersection may impact on the existing AUL treatment and thus it needs to be ensured that the end design includes an AUL treatment.

The Applicant is willing to retain this requirement as part of Condition 35 to ensure an AUL treatment is retained as part of any redesign of the intersection.

PDC Consultants

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The Traffic Analysis Statement suggests that the existing right turn treatment, whilst being marked as a BAR treatment, meets the minimum requirements of a CHR(S). Whilst the right turn treatment may achieve the geometric requirements, it is not line marked as a CHR(S) type intersection and therefore does not function as a CHR(S) type intersection. Consequentially the current right turn treatment cannot be considered to provide the same level of functioning or safety that a CHR(S) treatment provides. Further there is no certainty that the pavement beneath the existing BAR treatment is adequate and suitable to carry all south bound through traffic that will occur when the CHR(s) is constructed and the southbound through lane is shifted east.

The Applicant retains that the existing arrangement does offer a level of safety and operation commensurate with a line marked CHR(S) treatment, with Austroads Guide to Road Design Part 4 (AGRD04-17) noting “The good safety performance of the CHR(S) occurs by removing potentially stationary turning vehicles from the through traffic stream”, as is the case under the current arrangement.

However, the Applicant is willing to immediately commence proceedings to line mark the intersection to a CHR(S) treatment to formalise this existing provision in the interim, until such a time more comprehensive upgrades are required. In this regard, Premise has prepared a Concept Plan (SKC03/1) illustrating the proposed arrangement, which is provided as **Attachment 1**. Premise will ensure this layout has been designed in accordance with all relevant Austroads requirements.

The assessment of the warrants provided for the existing operations of the intersection (Figure 3) demonstrate that the intersection needs to be upgraded to provide a CHR(S) treatment. The assessment is based on counts incorporating only 68 of the total 157 dwellings potentially able to be constructed. This means traffic will further increase beyond the counts provided once all the existing vacant registered lots are developed. The existing BAR treatment does not constitute a CHR(S) treatment and as such the intersection requires upgrading in accordance with the Austroads intersection warrants. Adding further traffic through the additional lots (i.e. changing the condition from 135 lots to 248 lots) will further increase this non-compliance and cause the intersection to operate at a poor Level of Service (LoS).

The Applicant agrees with the acknowledgement that there is a time lag between residential lot registration and occupancy, and that a registered lot will not immediately begin generating traffic onto the local road network until approximately 12 months later.

Currently there are 94 residential lots registered, with only 44 homes built and 43 occupied.

The Traffic Analysis undertook SIDRA Intersection assessment of the existing intersection arrangement with trip generation from 247 residential lots and 65 seniors’ independent living units (ILU) and confirmed that **AM and PM peaks would both operate at LoS B under this level of occupation** (which, it is reiterated, is not the same as registration of this number of lots and ILU, given the occupation time lag).

As performance of the Hill End Road approach is satisfactory, SIDRA Intersection’s gap acceptance model has demonstrated there will be satisfactory gaps, both in quantity and duration, for right turning vehicles from Hill End Road to make the turn in a safe and efficient manner.

This traffic modelling included increased heavy vehicle traffic to and from Hill End Road, as a reflection of ongoing construction traffic activity in the area.



The 12.5% discounting applied in the previous Traffix Report (2012) to development generated traffic was based on use of the prior Guide to Traffic Generating Developments (2002) document and not the more recent Guide to Traffic Generating Development: Updated Traffic Surveys (2013). This latter document recognises the lower traffic generation rates experienced in regional areas and as such further discounting of these rates is not appropriate.

This discount reflects the nature of trips which are internal to a subdivision, such as local shopping and local social visits. This discount applies irrespective of the location of the subdivision as being in metropolitan or regional areas.

Nevertheless, a sensitivity analysis has been undertaken in which this deduction has been deleted, with findings indicating the number of trips generated by the proposed development and making the Castlereagh Highway (north) right turn to Hill End Road would increase from 14 vehicles to 16 vehicles in the critical PM peak hour. This increase of two (2) vehicles per hour is considered negligible and would not materially impact the level of intersection treatment required, or the findings of the Traffic Analysis.

PROPOSED APPROACH

Interim Arrangement

Following receipt of the TfNSW Response and subsequent liaison with Council and TfNSW, the Applicant proposes to line mark the existing intersection to formalise the CHR(S) and AUL turn treatments along Castlereagh Highway.

The process to undertake these works is proposed as commencing immediately, with a view to having works complete before the end of 2021, subject to receiving all necessary approvals and access to the road to undertake the works in a timely manner.

This arrangement, once line marked, will comprise the 'interim arrangement', and is illustrated by the Concept Plan provided as **Attachment 1**. This arrangement has been designed to accommodate the Design Vehicle, which is defined in AGRD04-17 as "the largest vehicle likely to regularly perform a movement at an intersection".

In the absence of complete intersection turn count data, Table 5.1 of AGRD04-17 recommends using a 19-metre articulated vehicle (AV) as the design vehicle for intersection type "arterial / arterial", which the subject intersection is. Swept path analysis is provided within **Attachment 1**, demonstrating the AV can satisfactorily perform the required turns.

The B-double is considered a Checking Vehicle, with Section 5.3 of AGRD04 noting "The design vehicle for a particular case is not necessarily the largest of the vehicles that may operate at that location but is intended to represent the majority of the vehicles allowed to operate there. A larger vehicle may not be precluded from the road, but may need to operate with reduced clearances or encroach into adjacent lanes (where legal within a jurisdiction). While this may inconvenience some road users, the low frequency of the occurrence of these vehicles makes this acceptable."

Swept path analysis of both the design (AV) and checking (B-double) vehicles are provided within **Attachment 1**.

Ultimate Arrangement

Prior to the agreed development threshold being met, the intersection will be further upgraded as follows:

- Castlereagh Highway (north) approach upgraded from CHR(S) to CHR.
- Hill End Road (west) approach upgraded to be upgraded to provide two lanes, one left and one right turn lane, at the intersection approach, as requested by Council.



This arrangement will comprise the ‘ultimate arrangement’.

At the meeting held 17/08/2021, Council and TfNSW noted a reluctance for the intersection upgrade trigger to be re-set at the 248th residential lot, and instead suggested it be set at the 200th residential lot, despite what was advised and recommended by the Traffic Analysis.

Whilst the Applicant stands by the approach and findings of the Traffic Analysis, it is willing to accept a proposed modification of Condition 35 to re-set the trigger to the 200th residential lot as a conciliated outcome, and to provide Council and TfNSW a level of comfort that the intersection will perform safely and efficiently as the Caerleon development progresses.

Intersection Upgrade Timing

The proposed intersection upgrade treatments and associated timing of each are summarised by **Table 1**.

Table 1: Summary of Proposed Intersection Upgrades

INTERSECTION ARRANGEMENT	SUMMARY OF REQUIRED WORKS	ESTIMATED COMPLETION	COMPELETE BEFORE
Interim	<ul style="list-style-type: none"> • Castlereagh Hwy (S) – Line mark existing AUL treatment • Castlereagh Hwy (N) – Line mark existing CHR(S) treatment • Hill End Road (W) – No works • No pavement works 	12/2021	200 th lot
Ultimate	<ul style="list-style-type: none"> • Castlereagh Hwy (S) – Retain line marked AUL treatment • Castlereagh Hwy (N) – Proposed CHR treatment (pavement works and line marking) • Hill End Road (W) – Two lanes 	03/2023	248 th lot

The Applicant is willing to commit to undertaking the interim and ultimate intersection arrangement works and to aim for completion by the respective dates identified in **Table 1**.

The process to undertake line marking proposed to achieve the interim arrangement will commence immediately, with the process to undertake pavement and line marking works to achieve the ultimate arrangement set to commence before registration of the 200th residential lot.

The current wording of Condition 35 is such that intersection upgrades are provided *prior to the issue of the subdivision certificate* for the respective lot. The Applicant proposes in the short term that subdivision registration continue to the 200th residential lot, in recognition of the fact that the interim arrangement works are to commence imminently and formal AUL and CHR(S) turn treatments will be provided along Castlereagh Highway, with a conditional target date of the end of 2021.

In the longer term, the Applicant proposes that subdivision registration continue beyond the 200th residential lot during the 2022 calendar year. Despite completion of the ultimate arrangement work not being required until the subdivision registration of the 248th residential lot, subject to timely approvals, the works will be targeted to be completed by early 2023.

This approach is proposed in recognition of the fact that the process for upgrading the intersection to the ultimate arrangement will commence immediately upon completion of the interim works, and also of the fact that there is a recognised time lag between receipt of a subdivision certificate and occupation of said lot and the time at which it will be generating traffic onto the road network.

The ultimate intersection arrangements would therefore be in place by early 2023, which would occur before the likely occupation of the 200th residential lot; however not prohibit continued issue of subdivision certificates beyond the 200th residential lot in the meantime. To provide Council a level of control, the Applicant proposes no subdivision certificates are issued beyond the 248th residential lot until such a time the ultimate arrangement is complete.

The above timing assumes that the proposed ultimate arrangement works require a maximum delivery timeframe of 15 months, including all relevant approvals from Council and TfNSW and construction works. It is acknowledged that this process is dependent upon several variables and may be subject to change, and that a more detailed programme of works will be developed in due course and provided to Council for review.

PROPOSED CONDITION 35 MODIFICATION

This Letter concludes that Condition 35 of the DA Consent should be modified to delay the requirement for intersection upgrades at Castlereagh Highway / Hill End Road until beyond such a time that 200 residential lots have been completed and occupied, and be reworded as follows:

Amend Condition 35 As Follows:

Prior to the issue of the Subdivision Certificate for the 200th residential lot, the intersection of the Hill End Road and the Castlereagh Highway must be linemarked to provide the following:

- A Rural Channelised T-junction – Short (CHR-S) is to be provided in accordance with Figure 7.7 of Austroads Guide to Road Design 2010 – Part 4A: Guide to Unsignalled and Signalled Intersections and RMS Supplements;
- A Rural Auxiliary Left Turn Lane Treatment (AUL) on the major road is to be provided in accordance with Figure 8.4 of Austroads Guide to Road Design 2010 – Part 4A: Guide to Unsignalled and Signalled Intersections and RMS Supplements;
- A Road Occupancy License is required prior to any works commencing within 3m of the Castlereagh Highway.

Insert A New Condition 35A

Prior to the issue of the Subdivision Certificate for the 200th residential lot, the intersection of the Hill End Road and the Castlereagh Highway is to be designed to comprise;

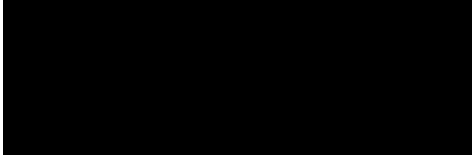
- A full length Rural Channelised T-junction – Full length (CHR) is to be provided in accordance with Figure 7.7 of Austroads Guide to Road Design 2010 – Part 4A: Guide to Unsignalled and Signalled Intersections and RMS Supplements;
- A Rural Auxiliary Left Turn Lane Treatment (AUL) on the major road is to be provided in accordance with Figure 8.4 of Austroads Guide to Road Design 2010 – Part 4A: Guide to Unsignalled and Signalled Intersections and RMS Supplements;
- The width of the Hill End Road at the approach and connection to the Castlereagh Highway shall be wide enough to accommodate left and right turning vehicles, side by side waiting to enter the Castlereagh Highway,
- All existing and proposed utility services shall be located clear of existing road pavements,
- The developer is required to enter into a formal agreement with the RMS in the form of a Works Authorisation Deed (WAD) prior to works commencing at the intersection,
- The developer is required to enter into a formal agreement with the RMS in the form of a Works Authorisation Deed (WAD) prior to works commencing at the intersection,
- A Road Occupancy License is required prior to any works commencing within 3m of the Castlereagh Highway.

The works required by this condition are to be complete prior to the issue of a Subdivision Certificate for the 248th residential lot.



We trust the above is of assistance. Please contact the undersigned should you have any queries or require anything further.

Yours sincerely,



Ben Midgley

Principal Traffic Engineer, PDC Consultants

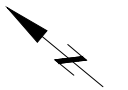
Email: bmidgley@pdconsultants.com.au

Attachments:

- 1) *Interim Concept Intersection Plan*



Attachment 1



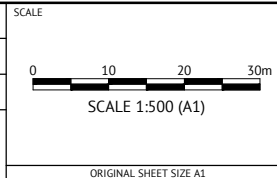
PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REVISIONS	RPB	MZ
19/08/21	1	PRELIMINARY - NOT FOR CONSTRUCTION			



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DESIGNED
R. BARGER
 CHECKED
 PROJECT MANAGER
M. ZESCHKE
 ENGINEERING CERTIFICATION



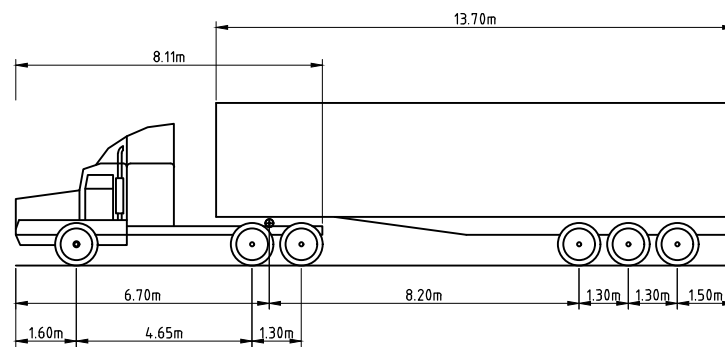
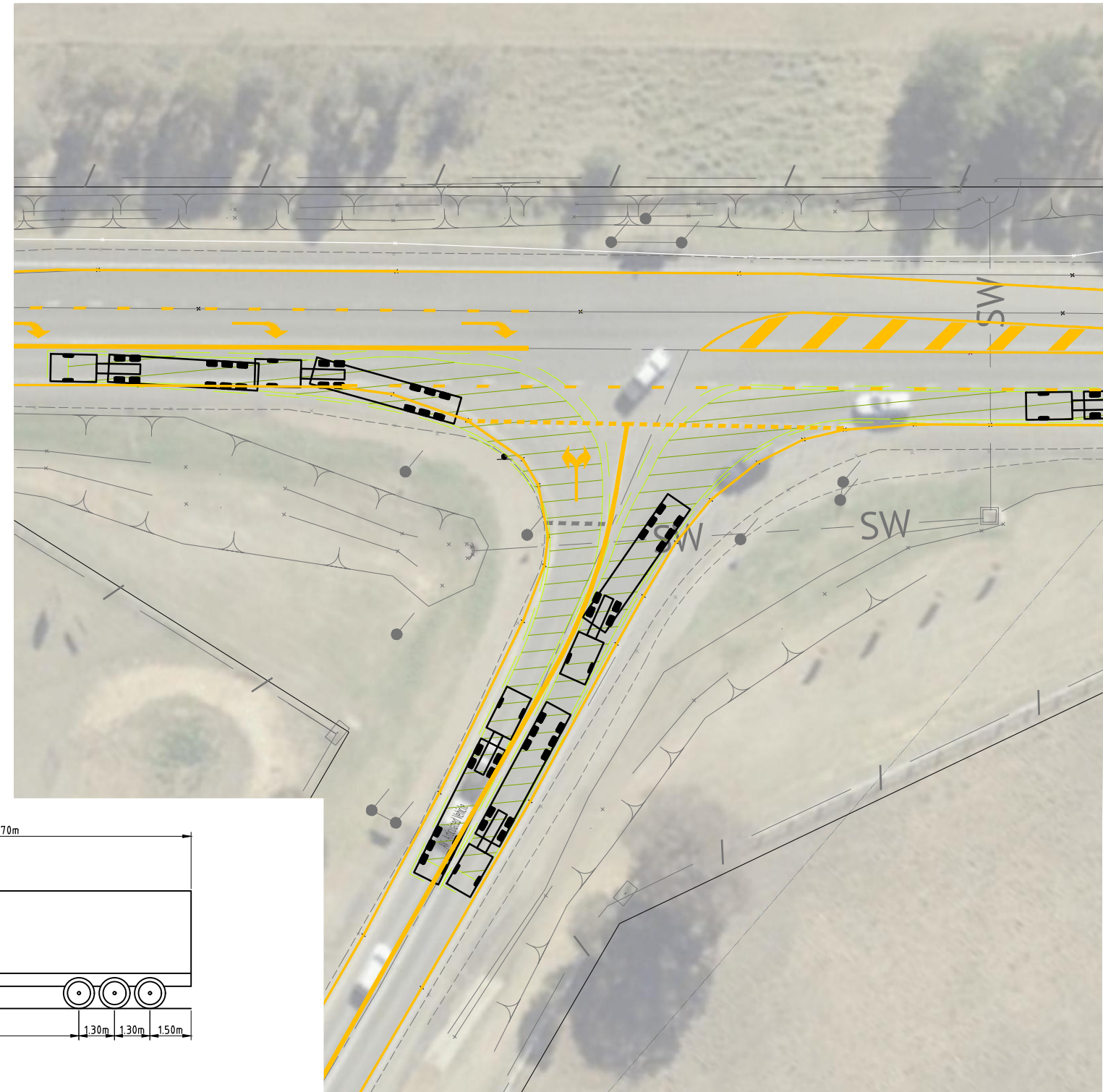
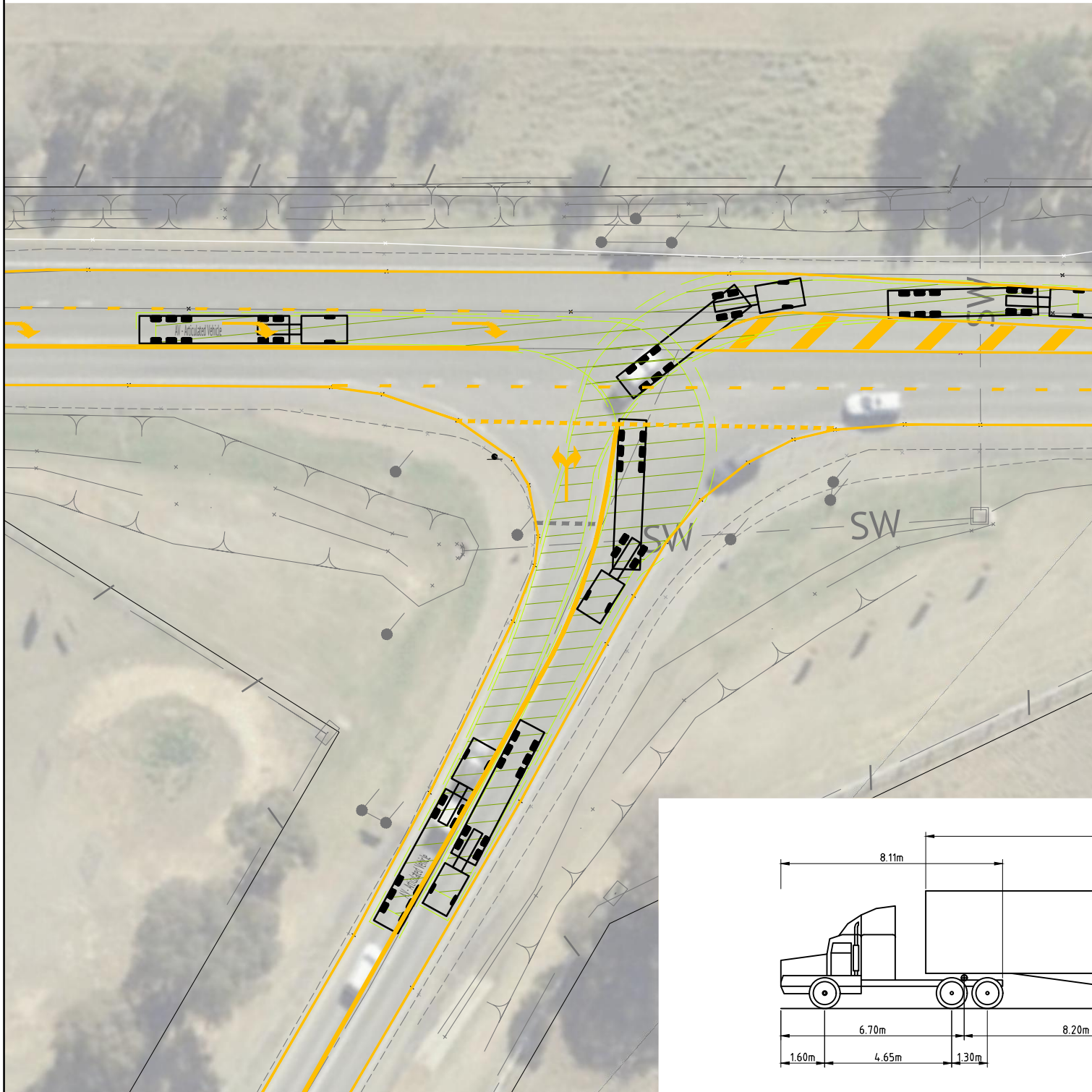
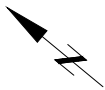
CLIENT
CAERLEON MUDGEE PTY LTD

PROJECT
CAERLEON ESTATE

LOCATION
HILL END ROAD, MUDGEE NSW 2850

SHEET TITLE
INTERIM CONCEPT INTERSECTION PLAN CHR(s)/AUL

JOB CODE		319171
SHEET NUMBER	REV	
SKC03	1	



AUSTROADS PRIME MOVER & SEMI TRAILER (19m)

OVERALL LENGTH	19.000m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN. BODY GROUND CLEARANCE	0.540m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
KERB-TO-KERB TURNING RADIUS	12.500m

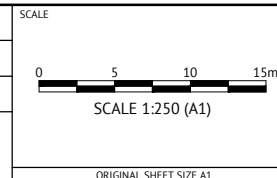
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DATE	REV	DESCRIPTION	RPB REC	MZ APP
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CAERLEON ESTATE

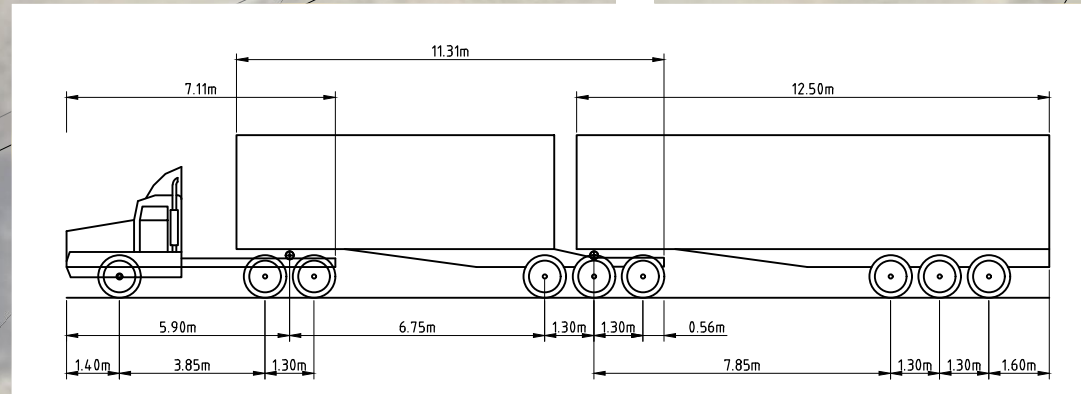
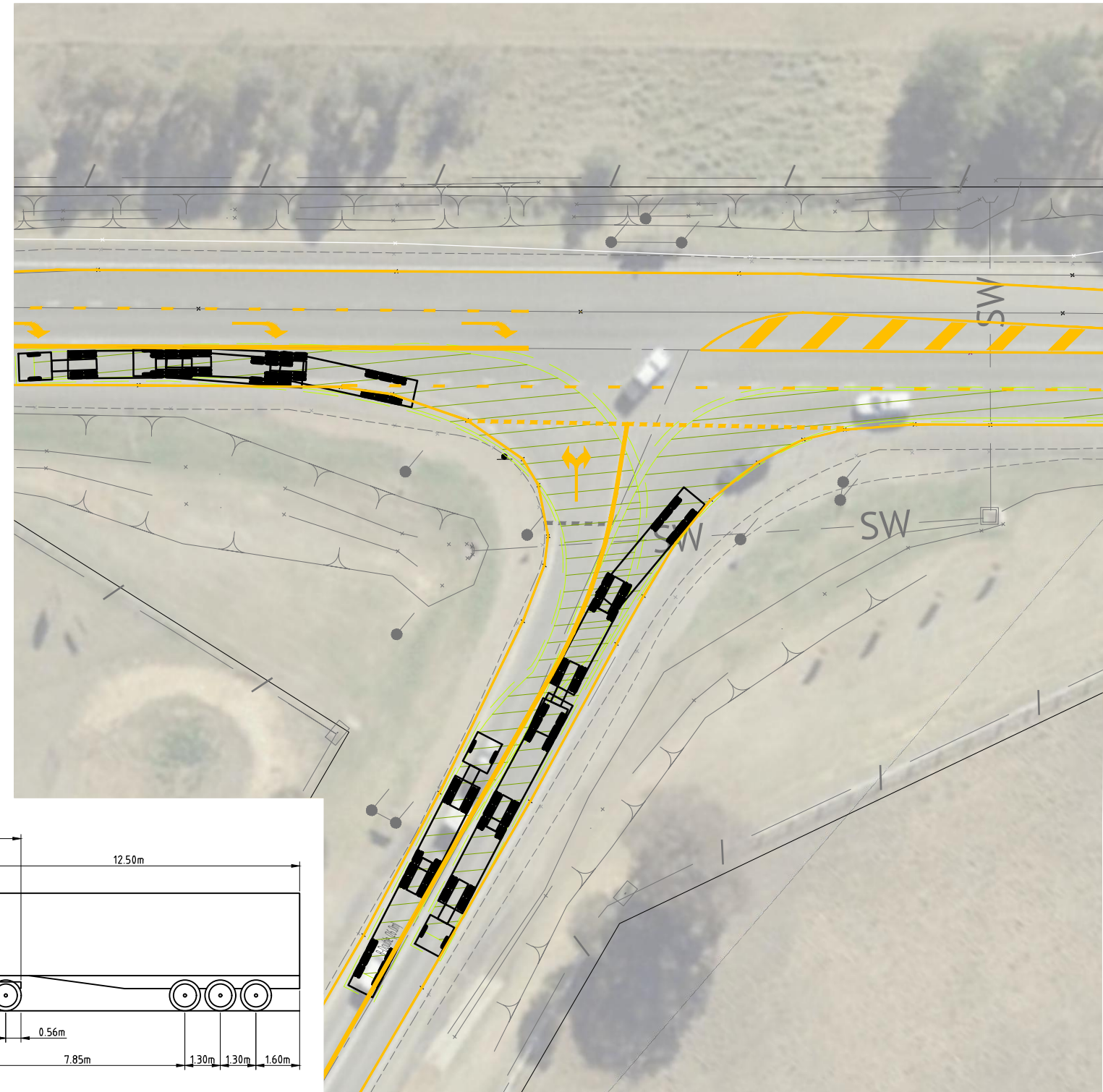
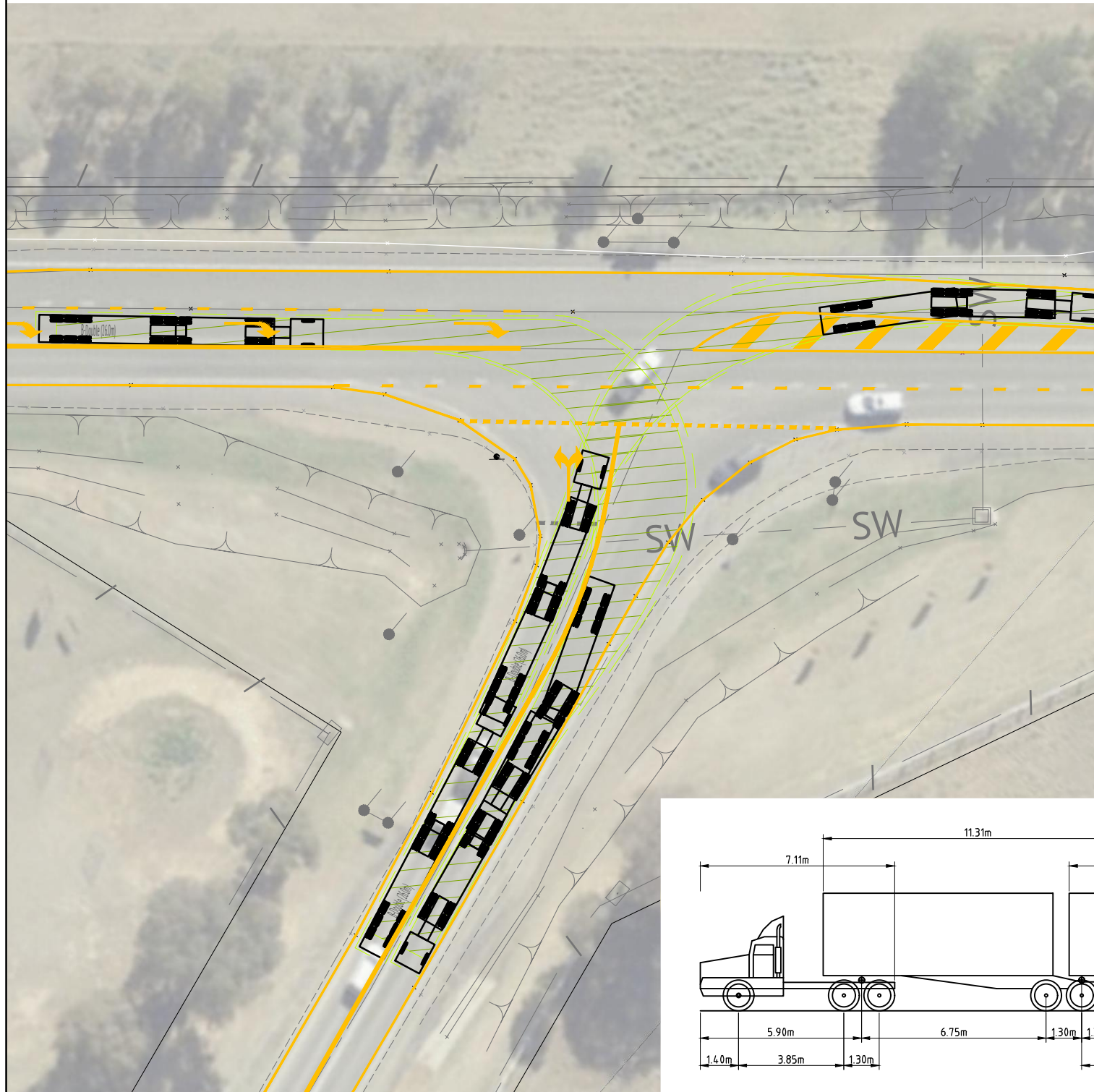
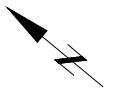
LOCATION
HILL END ROAD, MUDGEES NSW 2850

SHEET TITLE
SWEPT PATHS (AV 19.0m)

JOB CODE
319171

SHEET NUMBER
SKC04

REV
1



AUSTROADS B-DOUBLE (26m)
 OVERALL LENGTH 26.000m
 OVERALL WIDTH 2.500m
 OVERALL BODY HEIGHT 4.300m
 MIN. BODY GROUND CLEARANCE 0.540m
 TRACK WIDTH 2.500m
 LOCK-TO-LOCK TIME 6.00s
 KERB-TO-KERB TURNING RADIUS 15.000m

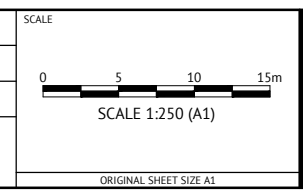
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CAERLEON MUDGEES PTY LTD

PROJECT
CAERLEON ESTATE

LOCATION
HILL END ROAD, MUDGEES NSW 2850

SHEET TITLE
SWEPT PATHS (B-DOUBLE 26.0m)

JOB CODE
319171

SHEET NUMBER
SKC05

REV
1