

Our Reference: PT24042

Mr Mick & Mrs Maryann Nocera, C/- Proficient Construction (Aust) Pty Ltd

3 May 2023

Attention: Mr Chad Ghassibe

Via email: chad@pc-aust.com.au

Proposed 9 Lot Subdivision – 80 Silverdale Road, The Oaks Traffic Assessment Report

As requested, we have undertaken a traffic impact assessment of the proposed residential subdivision to deliver nine (9) lots at the site known as No.80 Silverdale Road, The Oaks. A site inspection of the location including a measurement of the available sight distance from proposed vehicle access points was undertaken to inform this report. A copy of a photographic record of this site inspection is provided in **Appendix A** of this report.

Site Location

The development site is located with a frontage to Silverdale Road a short distance north of the small residential suburb of The Oaks. The site includes a greenfield site with an existing access gate / gravel road connection to Silverdale Road. The existing site is shown below in Figure 1.



Figure 1 – Site Location

© Google

The arrangements of the existing gravel road access to Silverdale Road which serves the site is shown below in **Photo 1**.



Photo 1 - Existing Gravel Road Access to Silverdale Road

Classification Criteria

It is usual to classify roads according to a road hierarchy in order to determine their functional role within the road network. Changes to traffic flows on the roads can then be assessed within the context of the road hierarchy. Roads are classified according to the role they fulfil and the volume of traffic they should appropriately carry. The RTA has set down the following guidelines for the functional classification of roads.

- Arterial Road typically a main road carrying over 15,000 vehicles per day and fulfilling a role as a major inter-regional link (over 1,500 vehicles per hour)
- Sub-arterial Road defined as secondary inter-regional links, typically carrying volumes between 5,000 and 20,000 vehicles per day (500 to 2,000 vehicles per hour)
- Collector Road provides a link between local roads and regional roads, typically carrying between 2,000 and 10,000 vehicles per day (250 to 1,000 vehicles per hour). At volumes greater than 5,000 vehicles per day, residential amenity begins to decline noticeably.
- Local Road provides access to individual allotments, carrying low volumes, typically less than 2,000 vehicles per day (250 vehicles per hour).

Existing Road Network

<u>Silverdale Road</u> – is a non-classified regional road (Road No. 7640) under the care and control of Council. Across the frontage of the site, the road includes a single travel lane in each direction and unformed shoulders. There is a change in speed zone from 50km/hr to 80km/hr and vice versa across the frontage of the site. The existing speed zone arrangements across the site frontage are shown below in Figure 2.

Figure 2 – Existing Site Access Driveway in Goulburn Road



[©] Google

<u>Browns Road</u> – is a local residential street linking Silverdale Road in the north with and forming a cul-de-sac at its southern end and serves a total of 22 residential dwellings. At its intersection with Silverdale Road, a carriageway width of 11.0m is available which narrows to 8.0m across the frontages of the homes served by the street. The intersection of Browns Road / Silverdale Road is a priority controlled Give Way intersection. The street includes a posted speed limit of 50km/hr.

Existing Site Traffic Generation

As stated above, the development site includes a greenfield site which for the purpose of this assessment has been assumed to not generate any peak hour traffic.

Public Transport

Silverdale Road and Browns Road do not currently include any route buses or bus stops within walking distance of the development site.

Proposal

The development proposal includes a small residential subdivision which would achieve a total of nine (9) large residential lots. All lots would be greater than 4,000m² in size.

A new local road connection to Browns Road would be provided which connects through the site to Silverdale Road in the location of the existing gravel road connection to Silverdale Road. The local road would include a 3.5m verge adjacent to the residential blocks along with an 8.0m wide carriageway.

The new intersection with Silverdale Road would include a BAR intersection arrangement through pavement widening.

Browns Road would form a T-intersection with the new local road.

A copy of the design plans is provided in **Appendix B** of this report.

Traffic Generation

With a total yield of only 9 lots, application of the Transport for NSW recommended peak hour traffic generation rates for single residential dwellings within a regional context would equate to some 6-7 additional peak hour trips on the surrounding network or 1 vehicle every 9-10 minutes during each peak hour.

The additional traffic generated by this small residential subdivision would have an immaterial impact on the functioning of Silverdale Road and the immediate surrounding network.

Access Assessment

Having regard to existing speed zones in Silverdale Road, the vehicle access to the residential subdivision would be within both a 50km/hr speed zone (Browns Road) and an 80km/hr speed zone (new connection with Silverdale Road).

The available sight distance for exiting traffic measured from drivers height (1.15m) was recorded during the site inspection for both proposed intersection connections to serve the subdivision.

The available sight distance is shown below.



Photo 2 - Existing Exiting Traffic View Distance – Browns Road Looking South

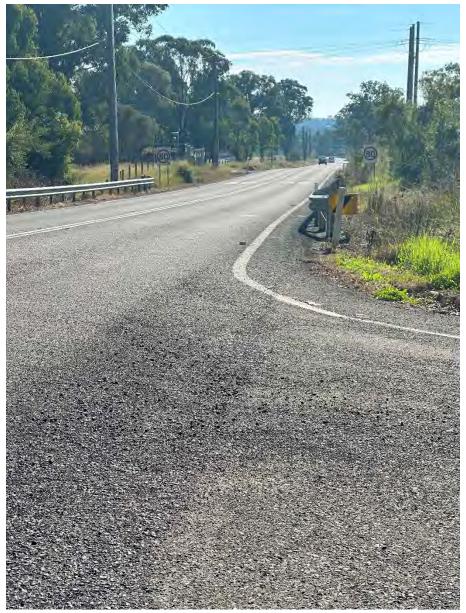


Photo 3 - Existing Exiting Traffic View Distance – Browns Road Looking North



Photo 4 - Existing Exiting Traffic View Distance - New Intersection with Silverdale Road Looking South



Photo 5 - Existing Exiting Traffic View Distance - New Intersection with Silverdale Road Looking North

The recorded available sight distance for exiting traffic at each location was:

270m
600m
450m
330m

The requirements of Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections for Minimum Gap Sight Distance (MGSD) (distances corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a crossing or turning manoeuvre at intersections) are provide below for 50km/hr and 80km/hr speed zones.

Movement	Diagram	Description	ta	tf
Left-hand turn		Not interfering with A Requiring A to slow	14-40 sec 5 sec	2-3 sec 2-3 sec
Crossing		Two lane/one way Three lane/one way	4 sec 6 sec	2 sec 3 sec
		Four lane/one way	8 sec	4 sec
	< ······	Two lane/two way	5 sec	3 sec
	E	Four lane/two way	8 sec	5 sec
		Six lane/two way	8 sec	5 sec
Right-hand turn from	Gap	Across one lane	4sec	2 sec
major road		Across two lanes	5sec	3 sec
	<	Across three lanes	6sec	4 sec
Right-hand turn from	A Gap	Not interfering with A	14-40 sec	3 sec
minor road		- One way	3 sec	3 sec
		Two lane/two way	5 sec	3 sec
	< IIIi IIII <	Four lane/two way	8 sec	5 sec
	Ē ^	Six lane/two way	8 sec	5 sec
Merge	Gap	Acceleration lane	3 sec	2 sec
werge		Acceleration lane	3 sec	

Table 3.4: Critical acceptance gaps and follow-up headways

Note: t_a = critical acceptance gap and t_f = follow up headway. Source: Austroads (2005).

Table 3.5: T	able of minimum gap	sight distances ('I	D' metres)	for various speeds
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Critical gap			85th p	ercentil	e speed	of appro	oaching	vehicle	(km/h)		
acceptance time (ta) (secs)	10	20	30	40	50	60	70	80	90	100	110
4	11	22	33	44	55	67	78	89	100	111	122
5	14	28	42	55	69	83	97	111	125	139	153
6	17	33	50	67	83	100	117	133	150	167	183
7	19	39	58	78	97	117	136	155	175	194	214
8	22	44	67	89	111	133	155	178	200	222	244
9	25	50	75	100	125	150	175	200	225	250	275
10	28	56	83	111	139	167	194	222	250	278	305

Source: Austroads (2005).

As confirmed above, the available sight distance for traffic exiting the subdivision via either access connection to Silverdale Road would well exceed the minimum requirements of Austroads for exit movements.

Overall, the positioning of the vehicle access connections with Silverdale Road would be in a safe location.

Overall, the potential traffic impacts of the proposed residential subdivision are considered acceptable.

We trust the additional information assists you in your planning for the subdivision. Should you require any further information please do not hesitate to contact myself on 0414 462247.

Yours sincerely

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DEAN BRODIE Managing Director B.Eng (Civil) MIEAust NER RMS Accredited Level 3 (Lead) Road Safety Auditor RPEQ 27423 Expert Traffic Engineering & Road Safety Witness at NSW Land & Environment & NSW Supreme Court



Appendix A – Site Inspection Photographs

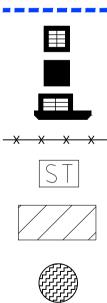




Appendix B – Design Plans

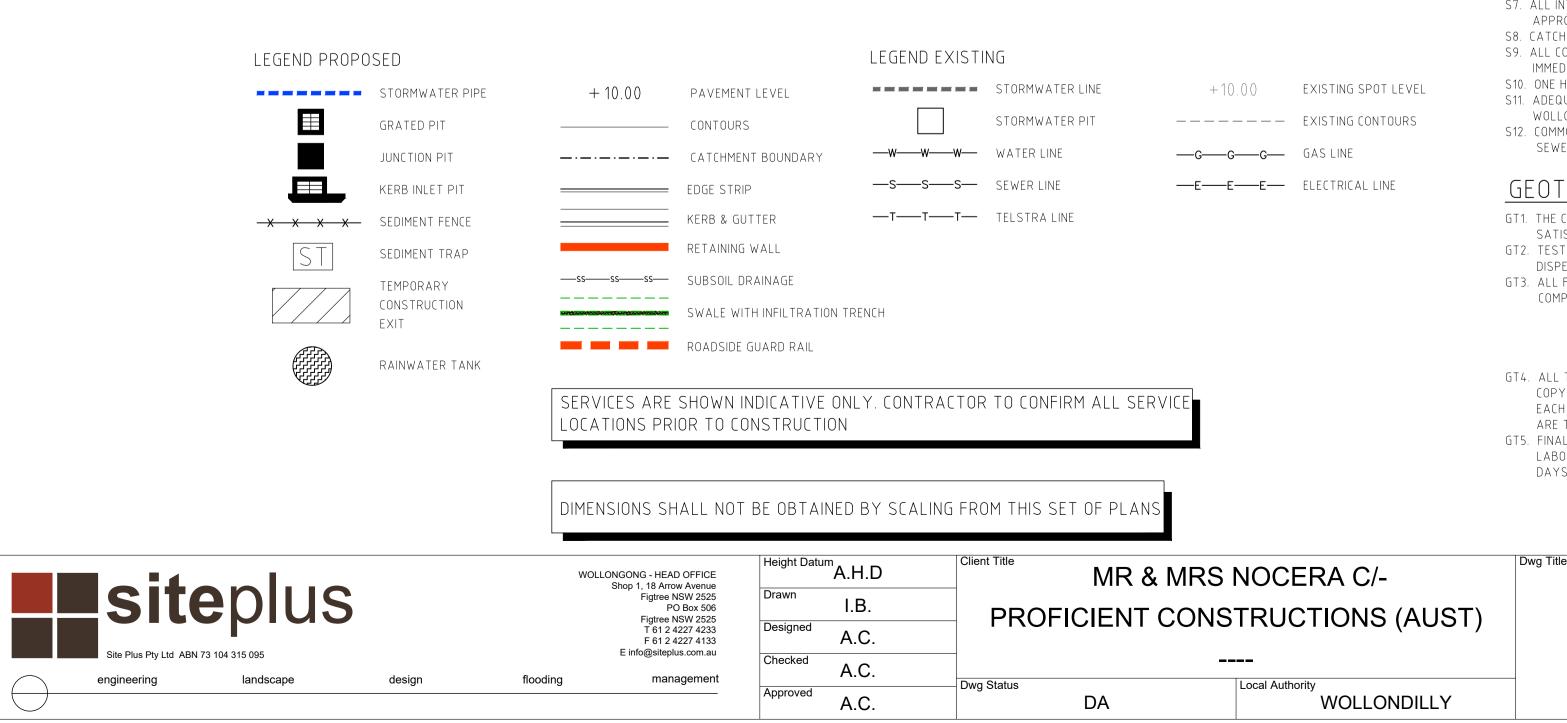
PROPOSED RESIDENTIAL SUBDIVISION LOT 3 DP 1201486, 80 SILVERDALE ROAD, THE OAKS **DEVELOPMENT APPLICATION CIVIL PLANS** MR & MRS NOCERA C/-PROFICIENT CONSTRUCTIONS (AUST) PTY LTD

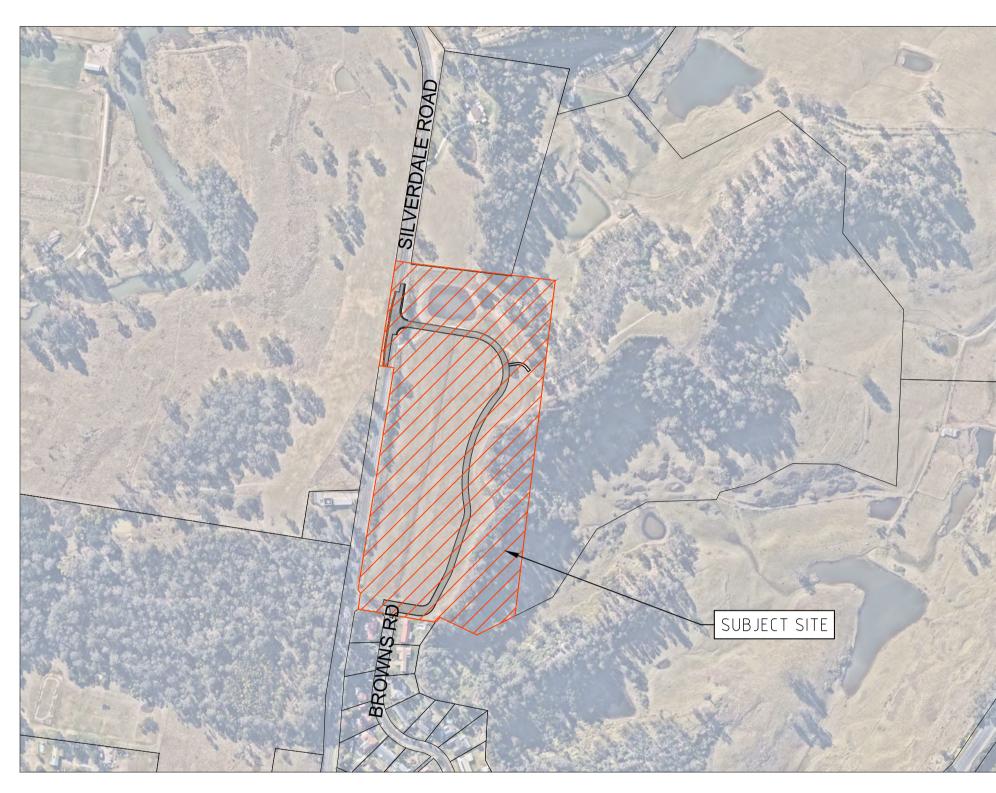
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Sheet Number	Sheet Title					
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11	INTERSECTION SIGHT DISTANCE					
12	INTERSECTION SWEPT PATHS					
13	SOIL & WATER MANAGEMENT PLAN					
14	SOIL & WATER MANAGEMENT DETAILS					



No.	DESCRIPTION
Α	PRELIMINARY CLIENT ISSUE
В	REVISED EARTHWORKS
С	REVISED TO COMMENTS

RN	APP	DATE
B.	A.C.	14.03.2
B.	A.C.	05.04.2
B.	A.C.	23.04.2





LOCALITY SKETCH 1:2500 @ A1

- CONSTRUCTION WORKS WORKS

EARTHWORKS NOTES

SYDNEY WATER. SURFACE.

DEEP.

GENERAL NOTES

G1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH WOLLONDILLY SHIRE COUNCIL DEVELOPMENT CODE AND TO THE REQUIREMENTS OF COUNCIL'S AUTHORISED OFFICER.

G2. INSPECTIONS BY THE AUTHORISED OFFICER SHALL BE CARRIED OUT AT THE FOLLOWING STAGES:

(a) PRIOR TO INSTALLATION OF EROSION AND SEDIMENT CONTROL STRUCTURES

(b) PRIOR TO BACKFILLING PIPELINES, SUBSOIL DRAINS, TRENCH BEDDING AND DAMS (c) PRIOR TO CASTING OF PITS AND OTHER CONCRETE STRUCTURES, INCLUDING KERB AND GUTTER

(d) PROOF ROLLER TEST OF SUBGRADE AND SUB-BASE

(e) ROLLER TEST OF COMPLETED PAVEMENT PRIOR TO PLACEMENT OF WEARING COURSE (f) FORMWORKS PRIOR TO POURING CONCRETE IN PARKING AREA FOR FOOTPATH CROSSING AND OTHER ASSOCIATED WORK (g) PRIOR TO BACKFILLING PUBLIC UTILITY CROSSINGS IN ROAD RESERVES

(h) PRIOR TO PLACEMENT OF ASPHALTIC CONCRETE (i) FINAL INSPECTION AFTER ALL WORKS ARE COMPLETED AND 'WORKS AS EXECUTED' PLANS HAVE BEEN SUBMITTED TO COUNCIL

G3. NO TREES TO BE REMOVED UNLESS APPROVAL IS GRANTED BY COUNCIL

G4. MAKE SMOOTH JUNCTIONS WITH EXISTING WORKS. G5. NO WORK TO BE CARRIED OUT ON COUNCIL PROPERTY OR ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER.

G6. VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY

G7. ALL RUBBISH, BUILDINGS, SHEDS AND FENCES TO BE REMOVED TO SATISFACTION OF COUNCIL'S ENGINEER AT COMPLETION OF

G8. A TRAFFIC CONTROL PLAN IS TO BE SUBMITTED TO COUNCIL WITH A SECTION 138 APPLICATION PRIOR TO COMMENCEMENT OF

G9. ALL FILL AREAS ARE TO BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO STRIPPING AND ANY RECOMMENDATIONS REGARDING TREATMENT OF SALINE AFFECTATION ARE TO BE IMPLEMENTED. G10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF THE LOCATION OF ANY EXISTING SERVICES AFFECTING THE WORKS AREA, ANY DAMAGED SERVICES SHALL BE REPAIRED AT THE CONTRACTORS COST.

E1. EARTHWORKS TO BE CARRIED OUT TO THE SATISFACTION OF THE PCA AND GEOTECHNICAL ENGINEER. UNSOUND MATERIALS ARE TO BE REMOVED FROM ROADS AND LOTS PRIOR TO FILLING. THE CONTRACTOR IS TO ARRANGE AND MAKE AVAILABLE COMPACTION CERTIFICATES WHERE REQUIRED.

E2. WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS ONE IN FOUR (1:4), BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF HE PLACED FILL MATERIAL AS REQUIRED BY THE PCA AND GEOTECHNICAL ENGINEER E3. ALL BATTERS ARE TO BE SCARIFIED TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE

E4. PROVIDE MINIMUM 150mm AND MAXIMUM 300mm TOPSOIL WITH GRASS SEEDING ON FOOTPATHS, FILLED AREAS AND ALL OTHER AREAS DISTURBED DURING CONSTRUCTION

E5. THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AUSTRALIAN STANDARD 3798 – 2007. WHERE IT IS PROPOSED TO USE TEST METHOD AS1289 E8.1 OR AS1289 E8.2 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS AS DIRECTED BY COUNCIL THE GEOTECHNICAL TESTING AUTHORITY SHALL HAVE A LEVEL 1 RESPONSIBILITY FOR ALL FILLING AS DEFINED IN APPENDIX B AS 3798-2007, AND AT THE END OF THE WORKS SHALL CONFIRM THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION AND DRAWINGS.

E6. THE CONTRACTOR SHALL CONTROL SEDIMENTATION, EROSION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH MANAGING URBAN STORWATER: SOILS AND CONSTRUCTION VOLUME 1 (LANDCOM 2004) AND MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION VOLUME 2 (DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE 2007).

ROADWORKS NOTES

R1. SUBGRADE, SUB-BASE, AND BASE TO BE COMPACTED IN ACCORDANCE WI

R3. 150 X 50 H.D. GALVANISED STEEL KERB OUTLETS TO BE PLACED IN LAYBACK KERB AND 90mm DIA. GALVANISED STEEL PIPE SECTION TO BE PLACED IN UPRIGHT KERB ON LOW SIDE OF LOTS. PROVIDE SUITABLE ADAPTOR TO ALLOW CONNECTION OF 90mm DIA STORM WATER PIPE R4. PERAMBULATOR CROSSINGS TO BE PROVIDED IN ALL KERB RETURNS OR WHERE REQUIRED BY COUNCIL

R5. SERVICE CONDUITS TO BE PLACED AS DIRECTED BY ENDEAVOUR ENERGY, TELECOMMUNICATIONS AND AS REQUIRED BY THE

R6. PROPOSED SERVICES CROSSING EXISTING ROADS SHALL BE THRUST BORED UNDER THE ROAD SO AS NOT TO DAMAGE EXISTING

R7. SIGNPOSTING AND LINEMARKING TO CONFORM WITH AS1742.2 RAISED RETRO- REFLECTIVE PAVEMENT MARKERS TO CONFORM WITH AS1906.

R8. STREET SIGNS TO COMPLY WITH COUNCIL'S SPECIFICATION FOR STREET NAME SIGNS AND MUST BE INSTALLED BY THE DEVELOPER.

R9. ALL LEVELS ARE TO BE SET OUT FROM ESTABLISHED STATE SURVEY MARKS.

STORMWATER NOTES

S1. ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED. ALL PIPES IN ROAD RESERVES (OTHER THAN ROOF WATER AND SUBSOIL) ARE TO BE STEEL REINFORCED CONCRETE PIPES.

S2. ALL LONGITUDINAL PIPELINES IN ROADS MUST BE LOCATED UNDER KERB AND GUTTER AND BE BACKFILLED WITH 7mm AGGREGATE WHERE 10-15% OF FINES IS ALLOWABLE UNLESS OTHERWISE INDICATED ON PLANS AND APPROVED BY COUNCIL. S3. DRAINAGE LINES MUST BE BACKFILLED AS PER WOLLONDILLY SHIRE COUNCILS DEVELOPMENT CODE. THREE

(3) METRES OF AGLINE WRAPPED IN GEOTECH STOCKING MUST BE PROVIDED TO ALL DOWNSTREAM PITS. S4. ALL GULLY PITS TO COUNCIL'S STANDARD AND LINTELS CENTRALLY PLACED AT SAG PITS.

S5. ALL PITS MUST BE BENCHED AND STREAMLINED. PROVIDE SL72 REINFORCEMENT AND STEP IRONS IN ALL PITS OVER 1.2M

S6. CONCRETE TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 25 MPA AT 28 DAYS UNLESS SPECIFIED OTHERWISE BY COUNCIL

ENGINEER. S7. ALL INTER ALLOTMENT DRAINAGE MUST HAVE A MINIMUM COVER OF 300mm TO THE TOP OF PIPE UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S8. CATCH DRAINS MUST BE CONSTRUCTED AS PER SWMP.

S9. ALL COMMON DRAINAGE LINES MUST BE LAID CENTRALLY WITHIN 1.2m-3.0m EASEMENTS. CLEANING EYES MUST BE PROVIDED IMMEDIATELY DOWNSTREAM OF ALL SLOPE JUNCTIONS.

S10. ONE HUNDRED (100) YEAR OVERLAND FLOW PATHS MUST BE FORMED AND SHOWN ON WORK AS EXECUTED DRAWINGS. S11. ADEQUATE PROVISION TO BE MADE FOR SCOURING AND SEDIMENTATION TO ALL DRAINAGE WORKS IN ACCORDANCE WITH WOLLONDILLY SHIRE COUNCILS DEVELOPMENT CODE.

S12. COMMON DRAINAGE LINES MUST BE INSTALLED AFTER SEWERAGE LINES HAVE BEEN INSTALLED WHERE SEWER IS PROPOSED ADJACENT TO INTER ALLOTMENT

GEOTECHNICAL NOTES

GT1. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY, AND TO THE SATISFACTION OF COUNCIL PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND DURING CONSTRUCTION SEE SWMP.

GT2. TESTS SHALL BE UNDERTAKEN ON ANY PROPOSED FILL MATERIALS TO ENSURE THAT THEY DO NOT HAVE A HIGH

DISPERSION POTENTIAL AS DEFINED BY EMERSON CRUMB/DISPERSION TESTS (AS1289 C8-1980)

GT3. ALL FILLING AND PAVEMENT CONSTRUCTION MUST BE UNDERTAKEN TO THE REQUIREMENTS OF AS3798-2007 THE FOLLOWING COMPACTION LEVELS ARE RECOMMENDED:

LOT FILLING	98%	STANDARD
ROAD SUB-GRADE	100%	STANDARD
DOAD CUD DACE	050/	MODIFIED

ROAD SUB-BASE	95%	MODIFIED	
RNAN BASE	98%	MODIFIED	

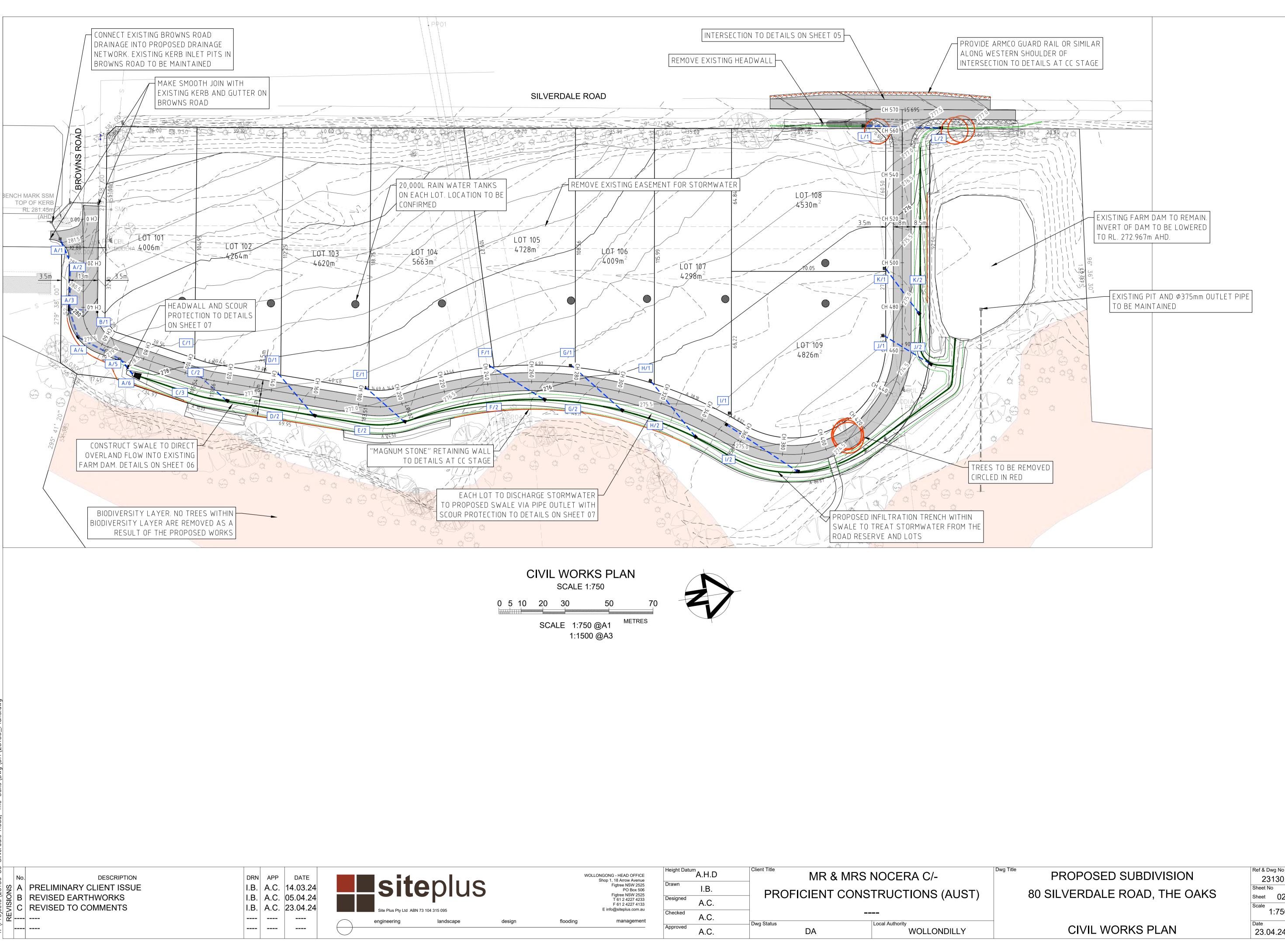
GT4. ALL TESTING WORKS SHALL BE CONTROLLED AND CERTIFIED BY A N.A.T.A REGISTERED LABORATORY. A COLLATED COPY OF ALL TEST CERTIFICATES, ACCOMPANIED BY AN OVERALL SITE PLAN, CLEARLY INDICATING THE LOCATION OF EACH TEST AND FILL AREAS ETC, AND THE LABORATORY CERTIFICATE COVERING THE WHOLE OF THE AREA TESTED ARE TO BE FORWARDED TO COUNCIL UPON COMPLETION.

GT5. FINAL PAVEMENT THICKNESS TO BE DETERMINED AFTER BOXING OUT BY JOINT INSPECTION BY N.A.T.A REGISTERED LABORATORY AND COUNCIL'S ENGINEER. PAVEMENT REPORT TO BE AVAILABLE TO COUNCIL A MINIMUM OF TWO CLEAR DAYS PRIOR TO INSPECTION.

PROPOSED SUBDIVISION 80 SILVERDALE ROAD, THE OAKS

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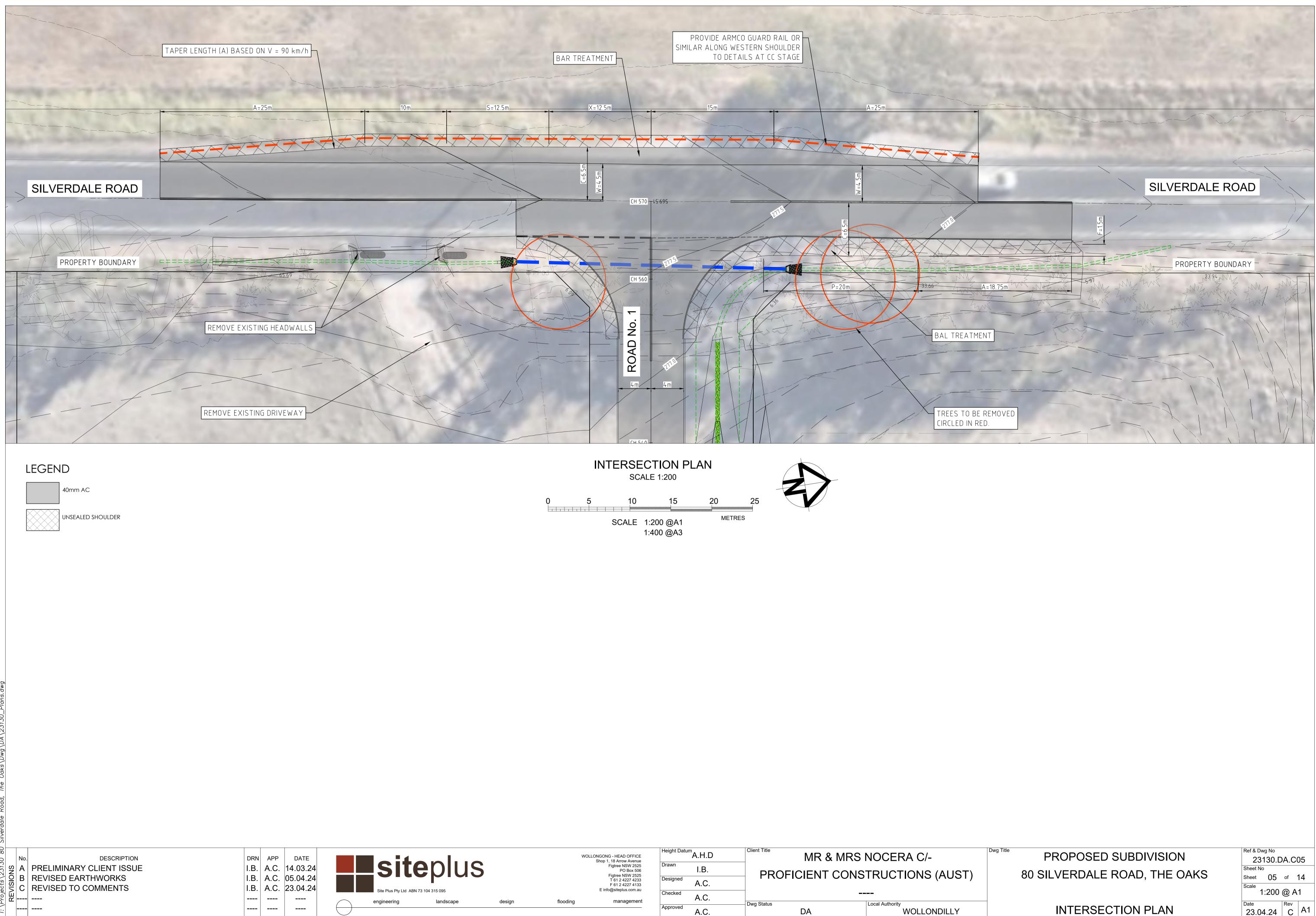
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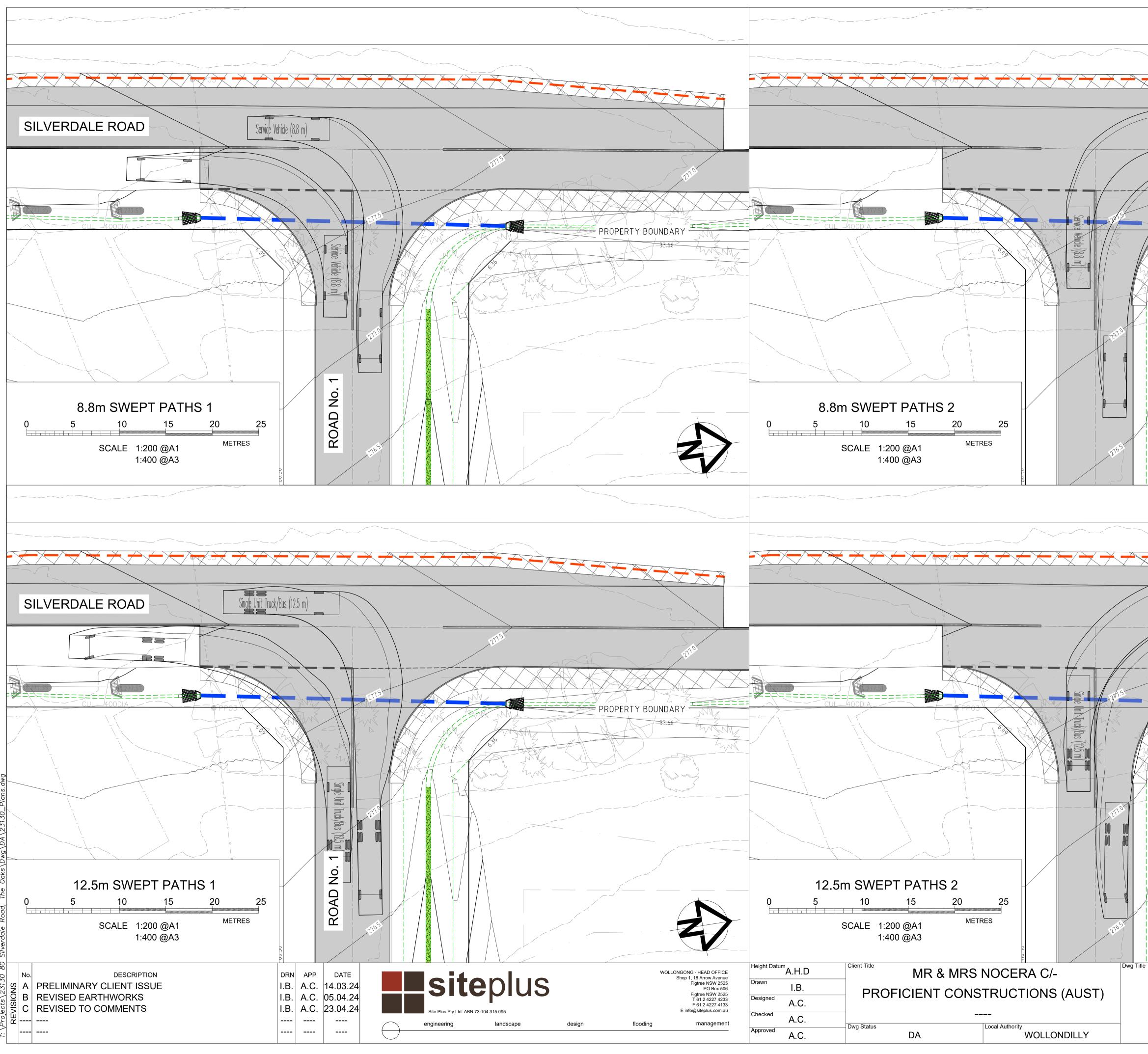


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PROPOSED SUBDIVISION
80 SILVERDALE ROAD, THE OAK

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INTERSECTION PLAN



Service Vehicle (8.8 m) BB ^{TT} Single Unit Truck/Bus (12.5 m) \searrow \sim Ref & Dwg No 23130.DA.C12 PROPOSED SUBDIVISION Sheet No 80 SILVERDALE ROAD, THE OAKS Sheet 12 of 14 ້ 1:200 @ A1 Date Rev A1 INTERSECTION SWEPT PATHS