



TOMINGLEY
GOLD OPERATIONS PTY LTD
(A wholly owned subsidiary of Alkane Resources Ltd)

Tomingley Gold Operations

Traffic Management Plan



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TABLE OF REVISIONS

Revision Number	Revision Date	Prepared By	Approved by	Comments
Revision 1	August 2012	Geolyse	Colleen Measday	Submitted for Approval
Revision 2	October 2012	Colleen Measday	Michael Sutherland	Updated following consultation with RMS and NSC
Revision 3	February 2015	Mark Williams	Sean Buxton	Annual Review
Revision 3	February 2015	Mark Williams	Sean Buxton	Annual Review
Revision 4	September 2016	Mark Williams	Sean Buxton	Review following Mod 3

TABLE OF CONTENTS

1.	INTRODUCTION AND SCOPE	1
1.1	BACKGROUND	1
1.2	PROJECT APPROVAL.....	1
1.3	PURPOSE OF REPORT	2
1.4	LEGISLATION	2
1.5	CONSULTATION.....	2
	1.5.1 Roads and Maritime Safety and Narromine Shire Council.....	2
	1.5.2 NSC Traffic Committee.....	2
2.	EXTERNAL ROAD NETWORK.....	2
2.1	NEWELL HIGHWAY UNDERPASS	3
3.	TRAFFIC DETAILS	3
3.1	VEHICLE TRAFFIC TYPES.....	3
3.2	TRAFFIC VOLUMES	4
3.3	TRAFFIC THROUGH TOMINGLEY VILLAGE	5
4.	MANAGEMENT MEASURES.....	5
4.1	INTERSECTION OF THE NEWELL HIGHWAY AND THE NARROMINE-TOMINGLEY ROAD.....	5
4.2	INTERSECTION OF TOMINGLEY WEST ROAD AND THE NARROMINE-TOMINGLEY ROAD	5
4.3	UPGRADING OF TOMINGLEY WEST ROAD	6
4.4	INTERSECTION OF TOMINGLEY WEST ROAD AND THE MAIN SITE ACCESS ROAD.....	6
4.5	COMMUNITY INFORMATION.....	6
4.6	TRAFFIC INCIDENT MANAGEMENT	6
4.7	EMERGENCY ACCESS ROADS	7
4.8	RESTRICTED ACCESS VEHICLES	7
5.	TRAFFIC MANAGEMENT PLAN OPERATION	8
5.1	ROLES AND RESPONSIBILITIES	8
5.2	TRAFFIC MANAGEMENT PLAN AUDIT.....	8
5.3	TRAFFIC MANAGEMENT PLAN REVIEW	8
6.	COMPETENCE TRAINING AND AWARENESS.....	8
7.	REFERENCES.....	8

1. INTRODUCTION AND SCOPE

1.1 BACKGROUND

The Traffic Management Plan has been prepared as a tool to manage traffic related issues during the construction and operation of the Tomingley Gold Operations (TGO). It will be used by TGO personnel as the first point of reference for traffic management related issues.

The Traffic Management Plan sits under the overarching Environmental Management Strategy for the project. The other Environmental Management Plans include:

- Air Quality and Greenhouse Gas Management Plan;
- Blast Management Plan;
- Biodiversity Management Plan;
- Cultural Heritage Management Plan;
- Rehabilitation Management Plan;
- Hazardous Materials Management Plan; and
- Water Management Plan.

1.2 PROJECT APPROVAL

The Tomingley Gold Project was granted Project Approval by the NSW Department of Planning and Infrastructure on 24th July 2012 (Approval Reference 09_0155). Tomingley Gold Operations Pty Ltd has developed the Tomingley Gold Mine at Tomingley in Central West NSW.

Schedule 3, Condition No. 44 of the Project Approval states:

“Traffic Management Plan

The Proponent shall prepare and implement a Traffic Management Plan to the satisfaction of the Secretary. The plan shall:

(a) focus on traffic management along Tomingley West Road and through the village of Tomingley to minimise the potential for conflicts between project-related traffic and other road users;

(b) describe the measures to be implemented to ensure the effective operation of the intersections between the project site and the Newell Highway, including the site access road and Tomingley West Road intersection and the Tomingley-Narromine Road and Newell Highway intersection; and

(c) be developed in consultation with Council and RMS, and must be submitted for the approval of the Secretary prior to the commencement of construction.”

It should be noted that whilst Condition No. 44 (b) requires traffic measures to be implemented at specific intersections, Tomingley West Road does not intersect the Newell Highway directly. The Tomingley West Road intersects the Tomingley-Narromine Road which then intersects with the Newell Highway.

1.3 PURPOSE OF REPORT

This Traffic Management Plan has been prepared to document the off-site traffic management measures that are to be implemented during the operational of the TGO in order to minimise traffic associated risks for traffic accessing the mine facility and general traffic interacting with mine generated traffic.

It will also ensure that traffic generated as a result of the TGO will move in a safe manner with least impact to Tomingley Village.

The implementation of the Traffic Management Plan will minimise the traffic related risks for the TGO employees, contractors, the general public and other vehicle operators on the wider road network surrounding the TGO.

1.4 LEGISLATION

In NSW the *Road Transport (Safety and Traffic Management) Act 1999*, governs the safe management of road transport and will be complied with and referred to during the operation of TGO.

In addition to this act, the following Standards and Guidelines will also guide traffic management for the project.

- Austroads Guide to Road Design
- RMS Supplements to Austroads Guide to Road Design
- Australian Standard AS1742- Manual of Uniform Traffic Control Devices

1.5 CONSULTATION

1.5.1 Roads and Maritime Safety and Narromine Shire Council

This plan has been developed in consultation with NSW Transport, Roads and Maritime Services (RMS) and Narromine Shire Council (NSC).

Revision 1 of the TMP was presented to both parties and Revision 2 was prepared following feedback from both agencies.

Revision 1 was presented to NSC on 15/08/2012 at a meeting held in their offices. They had very few comments and deemed the plan to be adequate. A copy of the minutes from this meeting is included in Appendix A

Revision 1 of the TMP was presented to RMS on 17/08/2012 at a meeting held in their office. RMS distributed the plan to parties within the agency and formal comments were issued to TGO via email on 18/09/2012. These minutes and comments are included in Appendix A of this plan.

1.5.2 NSC Traffic Committee

Proposed details of the Traffic Management signage to be installed as part of this plan will be forwarded to the NSC Traffic Committee for discussion.

2. EXTERNAL ROAD NETWORK

The Main Site Access Road to the TGO has been constructed off Tomingley West Road. Vehicle traffic access TGO via three (3) main routes:

- i) To/from Dubbo via the Newell Highway, Tomingley-Narromine Road and Tomingley West Road;
- ii) To/from Peak Hill and Parkes via the Newell Highway, Tomingley-Narromine Road and Tomingley West Road; and

iii) To/from Narromine via Tomingley-Narromine Road and Tomingley West Road.

A fourth route that may be used at some time is access from the Newell Highway via Bulgandramine Road, however very few vehicles will use this route. This route would only be used in the event of a traffic accident on the Newell Highway blocking traffic attempting to access the site from the south. This scenario would be very rare and in the event of its occurrence the existing route can adequately accommodate existing traffic and any mine generated traffic.

The Newell Highway (State Highway No. 17) under the control of RMS, the Tomingley-Narromine Road (Main Road No. 89) is a state road under the control of the NSC and the Tomingley West Road is a local road under the control of NSC.

Tomingley West Road is a two lane, two way undivided corridor. The current sealed pavement along the carriageway is approximately 3.5m to 4m wide. The road is not centreline or edge line marked and there are minimal guideposts along the road.

The initial section of Tomingley West Road, for approximately 260m west from its intersection with the Tomingley-Narromine Road is speed limited to 60km/h, whilst the remainder of Tomingley West Road is speed limited to 100km/h.

As part of the development of the TGO, the Tomingley West Road has been upgraded by widening and strengthening the road pavement to cater for the traffic loads generated by the proposed mine.

The Tomingley West Road and the Narromine-Tomingley Road intersection currently complies with an Auxiliary Right Turn (AUR) intersection in accordance with the RTA Road Design Guide.

The Narromine-Tomingley Road is a two lane two way bitumen sealed rural road with a sealed width of 6.5m with gravel shoulders varying from 1.0m to 2.0m wide. The Narromine-Tomingley Road is speed limited to 80km/h for approximately 460m from its intersection with the Newell Highway whilst the remainder of the Narromine-Tomingley Road is speed limited to 100km/h.

The Newell Highway and the Narromine-Tomingley Road intersection currently complies with an Auxiliary Right Turn (AUR) intersection combined with an Auxiliary Left Turn (AUL) lane in accordance with the RTA Road Design Guide.

The Newell Highway is a two lane two way State Highway with a sealed width of 11m comprising 2 x 3.5m wide travel lanes and 2 x 2m wide sealed shoulders. The Newell Highway is speed limited to 110km/h outside the village of Tomingley and 50km/h within Tomingley whilst at the intersection with the Narromine-Tomingley Road the Newell Highway is speed limited to 80km/h.

2.1 NEWELL HIGHWAY UNDERPASS

A heavy mine vehicle underpass has been excavated and constructed under the Newell Highway south of Tomingley Village. The Newell Highway underpass has been designed and constructed in accordance with the RMS design criteria and standards. Screens have been installed adjacent to, and either side of, the underpass to prevent driver distraction.

Design drawings of the underpass and Newell Highway diversion are attached in Appendix B

3. TRAFFIC DETAILS

3.1 VEHICLE TRAFFIC TYPES

The vehicle types accessing the TGO would include:

- Light vehicles such as passenger vehicles and light delivery trucks;
- Heavy vehicles such as large rigid trucks and semi-trailers;
- Oversize and overweight vehicles used for the infrequent delivery of plant components and mine operation vehicles throughout the life of the mine.

3.2 TRAFFIC VOLUMES

The generation of traffic from the development of the TGO was assessed for the preparation of the Traffic Impact Assessment included in the Environmental Assessment for the project and was prepared by FJF Group Pty Ltd.

The anticipated traffic generated by the TGO for the operational phases determined in the FJF Group Report is summarised in Table 3.1.

Table 3.1 – Anticipated Traffic Generation for the Tomingley Gold Operations

Route	Daily Traffic Light Vehicle Volume	Daily Traffic Heavy Vehicle Volume
Operations		
Newell Highway	102 veh/day	6 veh/day
Narromine-Tomingley Road	34 veh/day	2 veh/day
Tomingley West Road	136 veh/day	8 veh/day

Traffic counts were also conducted on behalf of the FJF Group to determine the existing traffic volumes on the road network surrounding the TGO site. The existing traffic volumes and the traffic generated by the TGO were assessed to determine the increase in traffic volumes due to the construction and operation of the mine.

The assessment of the increase in traffic volume on the surrounding road network as determined in the FJF Group Report is summarised in Table 3.2.

Table 3.2 – Increase in Traffic Volumes due to the Development of the Tomingley Gold Operations

Road	Current Traffic		Project Generated Traffic		% Increase		
	Light Vehicle	Heavy Vehicle	Light Vehicle	Heavy Vehicle	Light Vehicle	Heavy Vehicle	All Traffic
Operations							
Newell Highway	2250 v/d	1125 v/d	102 v/d	6 v/d	4.5%	0.5%	3.2%
Narromine-Tomingley Road	349 v/d	149 v/d	34 v/d	2 v/d	9.7%	1.3%	7.2%
Tomingley West Road	49 v/d	25 v/d	136 v/d	8 v/d	377.6%	32.0%	294.6%
NOTES: Project Operation assumes estimated current existing traffic project to the Year 2020.							

The FJF Group Report concluded that increases to traffic flow on the:

- Newell Highway would be minimal (<6%) and would have no impact on traffic flows, which is currently well below the capacity of this road.
- Tomingley-Narromine Road and Tomingley West Road would be 16.5%, and the overall traffic volumes on this road would still be minor.
- Tomingley West Road would be 333%; however, the road will be adequate with upgrade to ensure pavement width and strength meet the required RMS engineering standard.

Intersection assessments were carried out for the intersections of:

- Newell Highway and Narromine-Tomingley Road; and
- Narromine-Tomingley Road and Tomingley West Road.

These assessments determined that both the intersections would operate efficiently following the development of the TGO and that no additional mitigation measures were required to be constructed.

However, additional signs have been provided at each intersection to assist in the management of traffic using these intersections and the various other components of the external road network servicing the TGO.

3.3 TRAFFIC THROUGH TOMINGLEY VILLAGE

An assessment of traffic through Tomingley Village showed that the increase in traffic on the Newell Highway as a result of the project would be “negligible”. The assessment indicated increased movement along the Newell Highway would increase by 3.2% during operations. However the increase in traffic through Tomingley village will be dependent upon the direction from which the workforce and materials travel. The majority of the workforce and materials travelling to site will come from the north (Dubbo/Narromine) and increase in traffic through Tomingley Village will be less than 1.6%.

All on site movements between Wyoming and Caloma during operations are via the Newell Highway underpass and therefore will result in no increase in traffic through the Tomingley village.

4. MANAGEMENT MEASURES

Traffic management measures to be implemented to manage external traffic movements associated with the TGO are outlined in the following sections of this report.

As a requirement of Project Approval, TGO will ensure that heavy vehicle movements associated with mining operations do not exceed 8 per day (4 in and 4 out) when measured as a daily average over any calendar month.

4.1 INTERSECTION OF THE NEWELL HIGHWAY AND THE NARROMINE-TOMINGLEY ROAD

As the existing intersection layout caters for the mine increased volumes of light and heavy vehicle numbers using the Newell Highway and the initial section of the Narromine-Tomingley Road, it is not proposed to install any traffic mitigation measures at this intersection.

Advance intersection warning signs on the Narromine-Tomingley Road are installed on the approach to the intersection with the Newell Highway and a bi-directional chevron hazard marker is installed at the intersection.

Directional signage indicating the turn off from the Newell Highway to the TGO have been installed at the intersection in conjunction with the existing Narromine directional sign.

Details of the existing and proposed traffic management measures implemented for the Newell Highway and the Narromine-Tomingley intersection are indicated on Drawing 01G_E19 included in Appendix B.

4.2 INTERSECTION OF TOMINGLEY WEST ROAD AND THE NARROMINE-TOMINGLEY ROAD

The signage at the intersection of Tomingley West Road and the Narromine -Tomingley Road have been upgraded to include directional signage for the TGO, warning signs for turning truck movements and advance warning signs on the approach to the intersection.

The major box culvert on Tomingley West Road approximately 100m west of the intersection with the Narromine Tomingley Road has had a concrete lip installed on each side of the culvert.

Two new street lights were installed at the intersection of the Tomingley West Road and Narromine - Tomingley Road in accordance with the Planning Agreement between Narromine Shire Council and Tomingley Gold Operations.

Details of the existing and proposed traffic management measures implemented for the Tomingley West Road and the Narromine -Tomingley intersection are indicated on Drawing 01G_E19 included in Appendix B of this Report.

4.3 UPGRADING OF TOMINGLEY WEST ROAD

The eastern section of the Tomingley West Road (as far as TGO entrance road) has been upgraded and widened to a double lane, sealed road. The pavement has been strengthened so that it is capable of taking road trains. Detailed design drawings including signage and line marking are included in Appendix B of this report (Drawings 01G_E01 – 01G_E19).

4.4 INTERSECTION OF TOMINGLEY WEST ROAD AND THE MAIN SITE ACCESS ROAD

The intersection of the Tomingley West Road and the Main Site Access Road has been designed to accommodate the safe movement of vehicles on and off site. The design also includes directional signage for the Tomingley Gold Project, warning signs for turning truck movements and advance warning signs on all approaches to the intersection.

Details of the proposed traffic management measures implemented for the Tomingley West Road and the Main Site Access Road intersection along with detailed design for the intersection are included in Appendix B of this report on drawings 01C_E18 and 01C_E19.

4.5 COMMUNITY INFORMATION

The community of Tomingley and general road users are kept informed about traffic related issues via the following avenues:

- TGO information board within Tomingley Village;
- TGO information board at the truck rest station on the Newell Highway at Tomingley; and
- Information distributed through the Community Consultation Committee.
- Meetings with Narromine Shire Council during the project approval modification process where necessary.

The Information Notice Boards will indicate progress on the construction of the various components of the road infrastructure, expected completion dates and any delays that might be experienced due to such construction works being carried out.

A copy of the Traffic Management Plan is available on the Project Website www.alkane.com.au/tomingley

Other avenues for the local community and general road users to obtain information include;

- TGO Project Website,
- The 24-hour TGO Community Information Line Number : 02 6865 6116;
- The project email address is info@tomingleygold.com.au.

This phone number and email address allow the public to gain access to information, make an enquiry or a complaint at any time.

TGO will also operate an open door policy so that members of the public are welcome to come to the site office to get information, make an enquiry or a complaint if this method is preferable to the telephone or internet.

All complaints will be registered in a database and responded to verbally within 24 hours.

4.6 TRAFFIC INCIDENT MANAGEMENT

Traffic incidents for mine related traffic on the external road network will be managed in accordance with the TGO Incident Response Management System.

The management of traffic related incidents will also include liaison with emergency authorities (police, ambulance, fire brigade etc) to ensure that such authorities are aware of the main site access road and emergency access routes available to the mine site.

4.7 EMERGENCY ACCESS ROADS

Two emergency access roads connect directly from the mine site to the Newell Highway, one on either side of the highway. These will only be used in the event of an on-site emergency.

The emergency access road security gates are locked and signage has been installed indicating the access is for emergency use only. In the event of an emergency site personnel will meet the necessary emergency vehicles at the gates and escort them through the site to the emergency thus ensuring the safety of the emergency vehicle through the site.

4.8 RESTRICTED ACCESS VEHICLES

Restricted Access Vehicles (RAVs) will need to deliver mine site components and large mining equipment to site.

A specific Traffic Control Plan (TCP) is required to be developed by the contractor in accordance with RMS requirements developed for each type of RAV delivery. The TCP will address the following issues:

- The TCP shall be prepared in accordance with the Road and Traffic Authority's Traffic Control at Worksites Manual – Issue 1:2000 and by suitably qualified and accredited personnel in accordance with Section 2.4 of the Traffic Control at Worksites Manual.
- Appropriate permits being issued by Roads & Maritime Services and the NSW Police Force.
- Use of escort vehicles as required.
- Provision of traffic controllers as required.
- Restriction of RAV deliveries to daylight hours.

5. TRAFFIC MANAGEMENT PLAN OPERATION

5.1 ROLES AND RESPONSIBILITIES

The roles and responsibilities for the implementation of the Traffic Management Plan are indicated in Table 5.1.

Table 5.1 – Traffic Management Plan Implementation

Role	Responsibility
TGO Operations Manager	Implementation of the Traffic Management Plan during mining operations
All personnel	Follow all guidelines and Project rules with respect to traffic management

5.2 TRAFFIC MANAGEMENT PLAN AUDIT

The Traffic Management Plan will be audited in accordance with the internal audit processes incorporated into the Environmental Management Strategy.

5.3 TRAFFIC MANAGEMENT PLAN REVIEW

Reviews of the Traffic Management Plan will be undertaken annually, following operational or regulatory modification, or as per the TGO Environmental Management Strategy.

6. COMPETENCE TRAINING AND AWARENESS

All personnel working on the TGO will undergo a project induction. This induction includes information on the management of traffic related issues while travelling to and from site, including the following points:

- Consideration and courtesy are essential when driving on public roads;
- Speed limits must be strictly adhered to;
- Formal entries and exits from site must be used;
- Emergency exits are just for emergencies.

After completing the induction workers will sign a statement of attendance and records of this will be kept in the site office.

7. REFERENCES

AUSTROADS. Guide to Traffic Engineering Practice – Local Area Traffic Management

FJF Group Pty Ltd. Tomingley Gold Project Traffic Impact Assessment September 2011

Roads and Traffic Authority of NSW

- Traffic Control at Worksites Manual - Issue 1:2000
- Signs and Marking Manual
- Road Design Guide

Guide to Traffic Generating Developments

R.W. Corkery & Co. Pty Limited. Tomingley Gold Project Environmental Assessment Major Project Application No. PA 09_0155 May 2011,

APPENDIX A

Consultation with NSC and RMS

Alistair Whittle
Geolyse
PO Box 1963
154 Peisley St
ORANGE NSW 2800

Dear Alistair

PROPOSED TOMINGLEY WEST ROAD UPGRADE

Thank you for the detailed design plans for the above road improvement project, Drawing Sheets 01B_E01 to 01B_E20 Revision B and Pavement Investigation and Design Report from Geotech, Ref: 11/439.

Please be advised that the work shown on the plans is approved by Council subject to the requirements for signs, markings and traffic facilities mentioned below:

Please note that there is not sufficient detail on the plans for signage to be assessed and it is a matter for the applicant to ensure that all signage, road markings and traffic facilities installed as part of the works, meet the relevant Roads and Maritime Services design requirements or, in the absence of a Roads and Maritime Services requirement, the current Australian Standard 1742 for legend, symbols, colours, font, dimensions, location, etc.

If you require further information, please contact Council's Manager Technical Services, Mr Ross Bignell, on 02 6889 9940.

Yours faithfully



Les Simons
Director of Engineering Services

Please address all Correspondence to the General Manager, PO Box 115 Narromine NSW 2821
Telephone: (02) 6889 9999 Facsimile: (02) 6889 9998 Office Address: 124 Dandaloo Street
Email: mail@narromine.nsw.gov.au Web site: www.narromine.nsw.gov.au

RMS Comments for consideration, taken from RMS email on 18 September 2012 to Henry Kaye	TGO Response to comments
<p>Condition 44 of the Major Project Approval requires a TMP to be submitted, however the content of the TMP (as detailed in condition 44) only needs to address traffic issues at Tomingley West Road, traffic through Tomingley, traffic at the intersection of Newell Highway/Tomingley-Narromine Road (89), 89/Tomingley West Road and site access road/Tomingley West Road. Condition 44 does not include the diversion of the highway and does not include the proposed emergency access to the highway (although it would seem appropriate that the latter is included in the TMP).</p>	<p>Comment Noted</p>
<p>In Appendix 7 to the Major Project Approval (Statement of Commitments) the proponent is required to submit two TMPs. The first TMP to address the matters detailed in condition 44. The second TMP being a Construction Road Traffic Management Plan (CRTMP), essentially a separate plan which addresses the underpass construction and diversion construction/operation process.</p>	<p>Comment Noted, this TMP addresses the requirements of Condition 44 of Project Approval</p>
<p>Emergency access road from site to Newell Highway. The TMP proposes that this access will only be used during flood events where the Tomingley West Road is unpassable. The TMP also proposes to provide flag men to regulate the movement of mine vehicles onto the highway to ensure safe movements. Access would only be available during daylight hours.</p> <p>Advice received from Alkane has been that the access from the highway would</p>	<p>The TMP has been updated to reflect that the Emergency Access Roads will only be used in the event of an emergency and not during flooding.</p> <p>Feedback on the use of flagmen in a 110km/hr zone has been noted and the use of flagmen was removed from the management measures within the TMP.</p>

only be required in the event of an emergency on the mine site. The TMP is contrary to this advice. If the access is required for an on-site emergency only, no upgrading of the existing farm access is necessary. Should access to the highway be required for any event/use outside of this, a rural property access and BAR will be required. Flagmen/Traffic controllers may only operate in a 60km or less environment. The current speed zone in this locale is 110kmph. To provide traffic control on the highway would require the speed zone to be reduced to 60km during emergency events. This is not supported by RMS.	
TMP does not including sealing of Tomingley West Road (only refers to strengthening the road pavement). Major Project Approval requires sealing.	TMP has been updated to include details of the road upgrade including the sealing of the road.
Lighting of Tomingley West Rd/89 intersection - who pays for lighting operation costs?	Narromine Shire Council
Whilst traffic generation details have been provided in the TMP, no details of daily peak travel movements (eg shift changes). At the very least, it would appear that the 89/Tomingley West Rd intersection will require a BAR.	The TMP has been updated in section 3.2 Traffic Volume to provide further information. Please note that the 89/Tomingley West Road is currently a BAR intersection (as detailed within the Traffic Impact Assessment of the TGP EA).
TMP does not adequately address traffic through Tomingley	Comment is noted and further detail is provided in Section 2.1
TMP does not provide detail of how conflict between project related traffic and other road users will be minimised.	Comment is noted and further detail is provided in Section 2.1
TMP does not address movement of oversize vehicles to and from the site.	Section 4.9 has been updated.
Line marking at intersections needs to comply with RMS Delineation Guide.	Comment noted and design drawings amended accordingly
I wish to advise you that the formal acceptance of your Traffic Management Plan is undertaken at the "Construction Phase". The Project Management Plans as noted in the Checklist for Developers	Comment noted.

<p>Section 5 - Construction Project Management Plans, the developer at that point is required to submit all project management plans to RMS for review. These plans must include: 1) A Construction Program, 2) Quality Plan, 3) Inspection and Test Plans, 4) Construction Traffic Management Plan (CTMP) including a Vehicle Movement Plan, 5) Traffic Control Plans, 6) A Construction Environment Management Plan including an Erosion and Sediment Control Plan</p>	
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APPENDIX B

Design Drawings

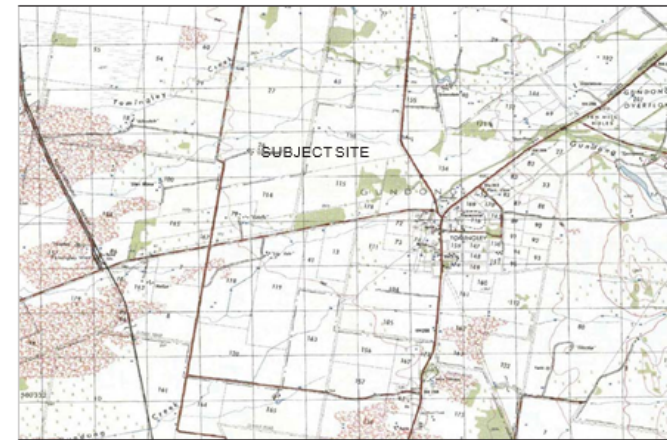
TOMINGLEY GOLD PROJECT

TOMINGLEY

TOMINGLEY GOLD OPERATIONS LTD.

PROPOSED TOMINGLEY WEST ROAD UPGRADE

SCHEDULE OF DRAWINGS			
SHEET	TITLE	REV.	DATE
01G_E01	TITLE SHEET, DRAWING LIST, AND SITE LOCALITY	G	24/05/2013
01G_E02	ROAD TYPICAL CROSS SECTION AND DETAILS	G	24/05/2013
01G_E03	TOMINGLEY WEST ROAD PLAN AND LONG SECTION SHEET 1 OF 5	G	24/05/2013
01G_E04	TOMINGLEY WEST ROAD PLAN AND LONG SECTION SHEET 2 OF 5	G	24/05/2013
01G_E05	TOMINGLEY WEST ROAD PLAN AND LONG SECTION SHEET 3 OF 5	G	24/05/2013
01G_E06	TOMINGLEY WEST ROAD PLAN AND LONG SECTION SHEET 4 OF 5	G	24/05/2013
01G_E07	TOMINGLEY WEST ROAD PLAN AND LONG SECTION SHEET 5 OF 5	G	24/05/2013
01G_E08	TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 1 OF 5	G	24/05/2013
01G_E09	TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 2 OF 5	G	24/05/2013
01G_E10	TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 3 OF 5	G	24/05/2013
01G_E11	TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 4 OF 5	G	24/05/2013
01G_E12	TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 5 OF 5	G	24/05/2013
01G_E13	TOMINGLEY WEST ROAD SETOUT TABLES	G	24/05/2013
01G_E14	GUNDONG CREEK CULVERT BARRIER KERB DETAILS	G	24/05/2013
01G_E15	TOMINGLEY WEST ROAD PIPE CULVERT EXTENSION DETAILS	G	24/05/2013
01G_E16	TOMINGLEY WEST ROAD AND MINE ACCESS ROAD INTERSECTION DETAIL	G	24/05/2013
01G_E17	TOMINGLEY WEST ROAD AND MINE ACCESS ROAD SIGNAGE PLAN	G	24/05/2013
01G_E18	NARROMINE - TOMINGLEY ROAD AND TOMINGLEY WEST ROAD SIGNAGE PLAN	G	24/05/2013
01G_E19	PRIVATE ACCESS REARRANGEMENTS	G	24/05/2013



SITE LOCALITY
1:1000 SCALE

REV	DATE	BY	CHKD	DETAILS
A	01/01/10	AM	AM	DRAFT ISSUE
B	01/01/10	AM	AM	ISSUED FOR APPROVAL
C	01/01/10	UP	AM	SIGNAGE PLANS APPROVED
D	01/01/10	UP	AM	ISSUED FOR CONSTRUCTION
E	01/01/10	UP	AM	ADJUSTED ROADWAY DETAILS
F	01/01/10	UP	AM	REVISION OF DESIGN CENTRELINE / ISSUE FOR APPROVAL
G	24/05/13	UP	AM	PRIVATE ACCESS REARRANGEMENTS AND MINE ACCESS WAY DETAILS APPROVED

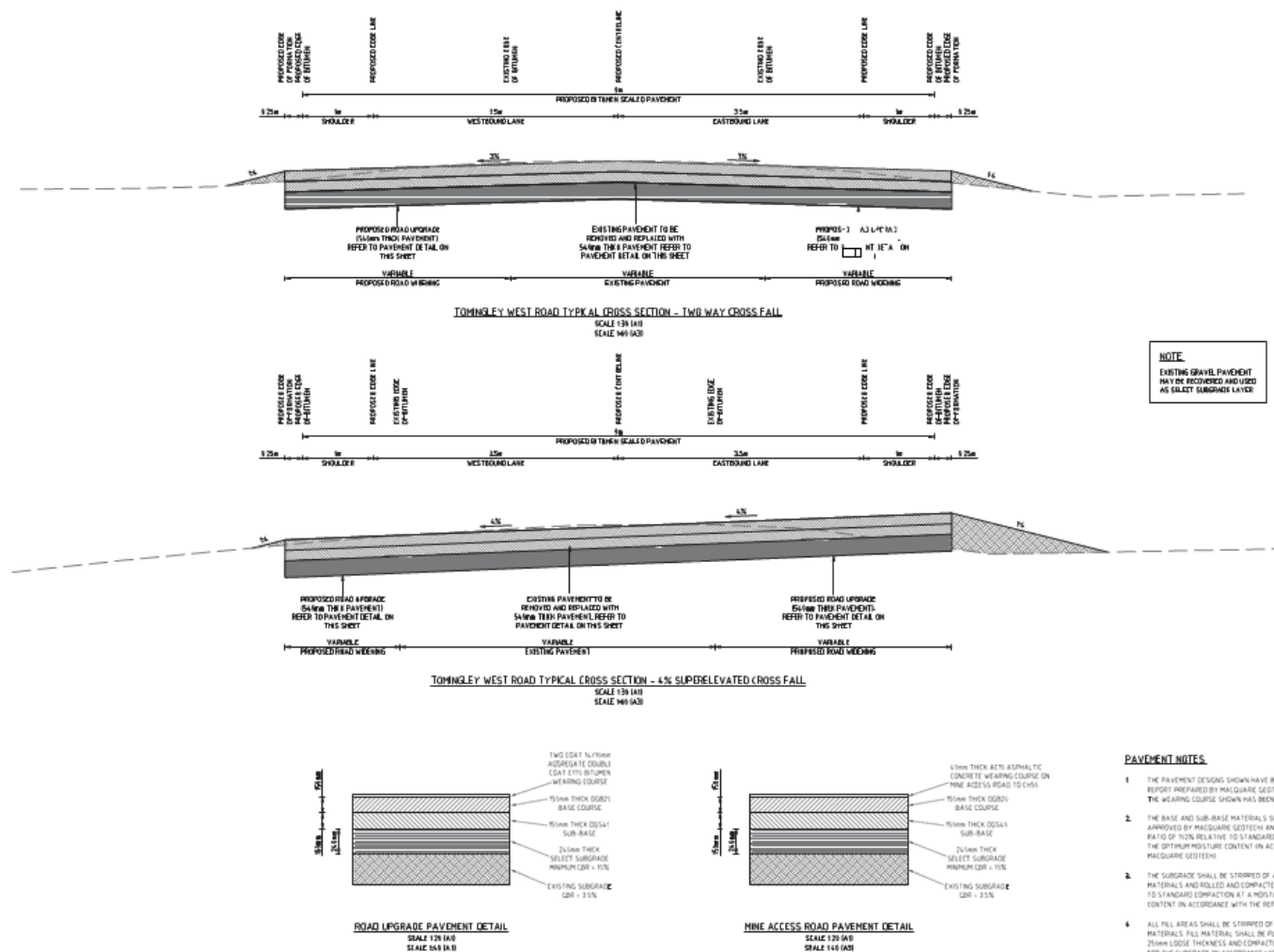
APPROVED	DATE
APPROVED	24/05/13
DRAWN	24/05/13
CHECKED	24/05/13
DESIGNED	24/05/13
PROJECT	24/05/13



CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



DRAWING			
TITLE SHEET, DRAWING LIST, AND SITE LOCALITY			
PROJECT NUMBER	88M 82334	REV	277.159
PROJECT NAME	111185	DRAWING NAME	01G_E01
PROJECT LOCATION	SHEET 001 OF 019		
PROJECT STATUS	FOR APPROVAL		



NO	DATE	REVIEW PERSON	DATE CHECK	DETAILS
A	15/01/10	AJD	A/N	DRAFT ISSUE
B	15/01/10	AJD	A/N	ISSUED FOR APPROVAL
C	04/02/10	LJP	A/N	SIGNALS PLANS APPROVED
D	04/02/10	LJP	A/N	ISSUED FOR CONSTRUCTION
E	03/02/10	LJP	A/N	ADDITIONAL OVERPOSTS APPROVED
F	12/06/10	HR	A/N	REVISION OF DESIGN CENTRE LINE / ISSUE FOR APPROVAL
G	12/06/10	LJP	SH	PRIVATE ADDRESS REARRANGEMENTS WITH ACCESS MAT DETAIL APPROVED

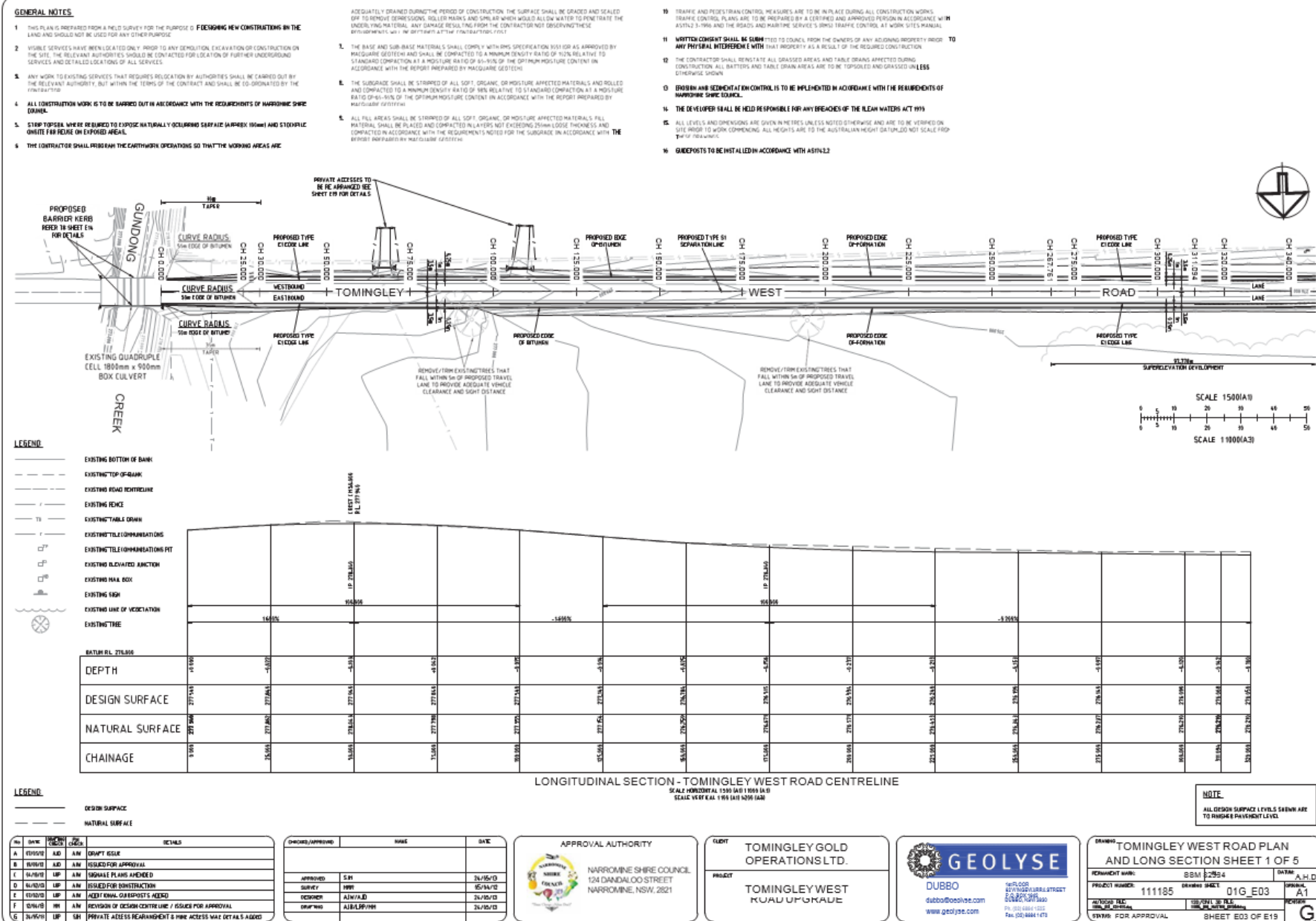
CHANGES/APPROVED	NAME	DATE
APPROVED	S.M	26/10/13
SUPPLY	MM	15/11/12
DESIGNER	AJN/AJD	26/10/13
DRAWING	AJN/APP/HH	26/10/13

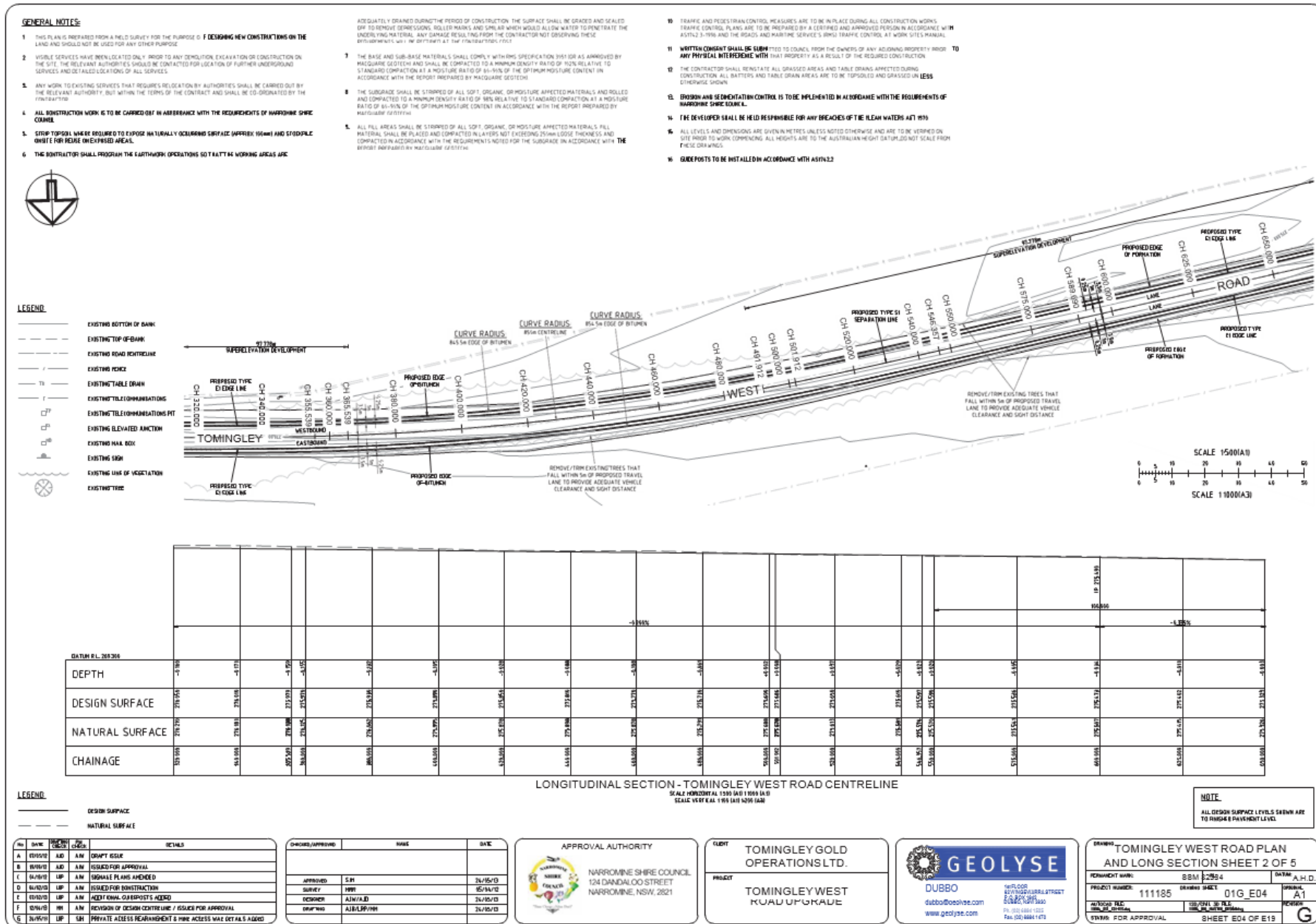


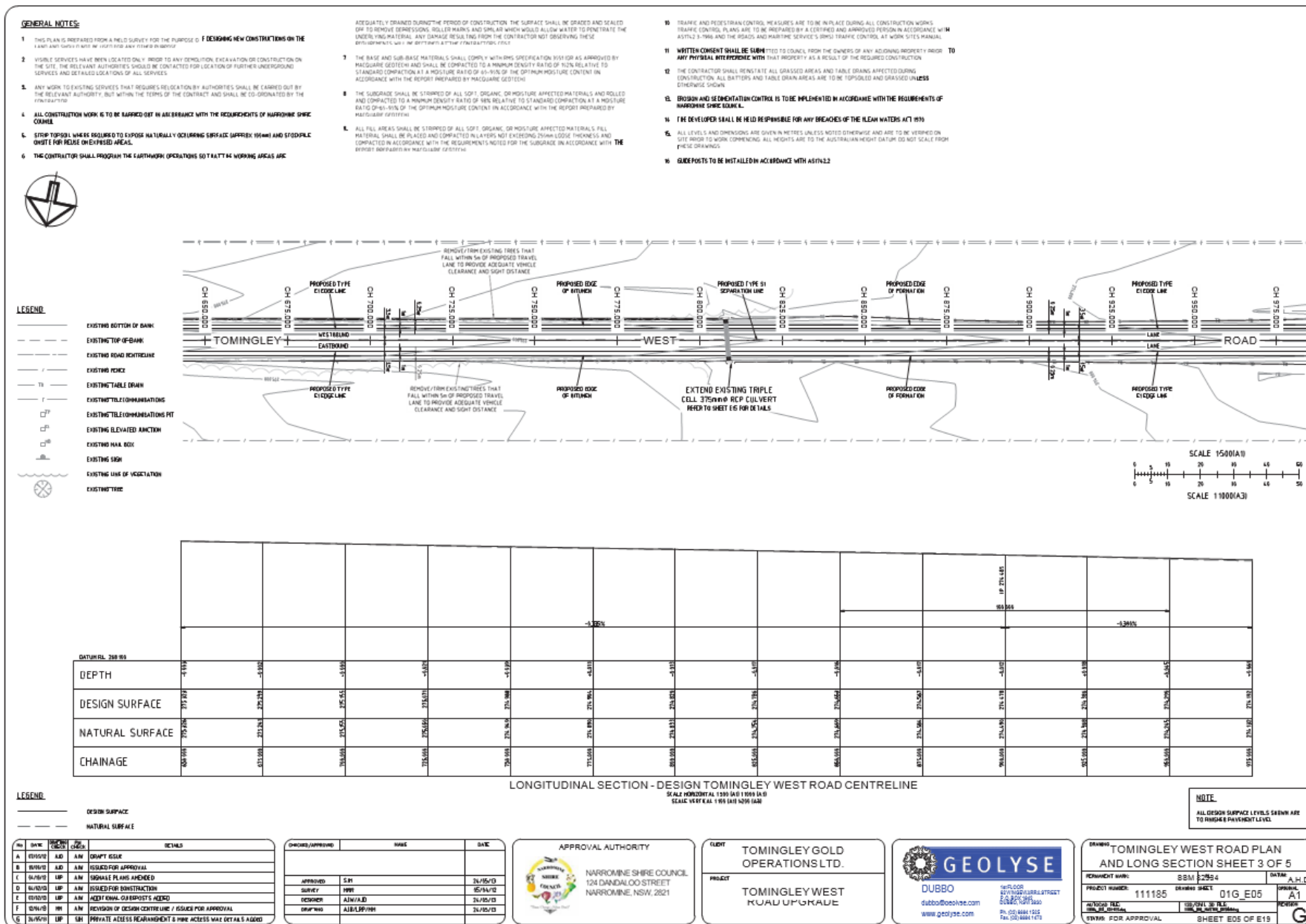
CURBIT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



DRAWING					
PROPOSED ROAD TYPICAL CROSS SECTIONS AND DETAILS					
PROJECT NAME:	SSM 82334	RL:	277.199	DATE:	A.P.
PROJECT NUMBER:	111185	DRAWING SHEET:	01G E02	DESIGNED BY:	A.T.
SCALE:	AS SHOWN	CHECKED BY:	R.L.	APPROVED BY:	P.E.
STATUS FOR APPROVAL					







GENERAL NOTES:

- THE LAND IS PREPARED FROM A FIELD SURVEY FOR THE PURPOSE OF **DESIGNING NEW CONSTRAINTS** ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
2. VISUAL SERVICES HAVE BEEN LOCATED ONLY IN ORDER TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION AT THE SITE. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR FURTHER INFORMATION ON VISUAL SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
3. ANY WORK TO EXISTING SERVICES THAT REQUIRES DELEGATION BY AUTHORITIES SHALL BE CARRIED OUT BY THE RELEVANT AUTHORITY, BUT WITHIN THE TERMS OF THE CONTRACT AND SHALL BE CO-ORDINATED BY THE CONTRACTOR.
4. ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE SHAWNEE COUNCIL.
5. STOP TOPSOIL WHEN DELIBERATE TO EXPOSE NATURALLY OCCURRING GRAVEL (APPROX 100MM) AND EXPOSED ON SITE FOR REUSE ON OTHER AREAS.
6. THE CONTRACTOR SHALL PROGRAM THE EARTHWORK OPERATIONS SO THAT THE WORKING SITES ARE

ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION, THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS WILL BE DEEMED AS THE CONTRACTOR'S RESPONSIBILITY.

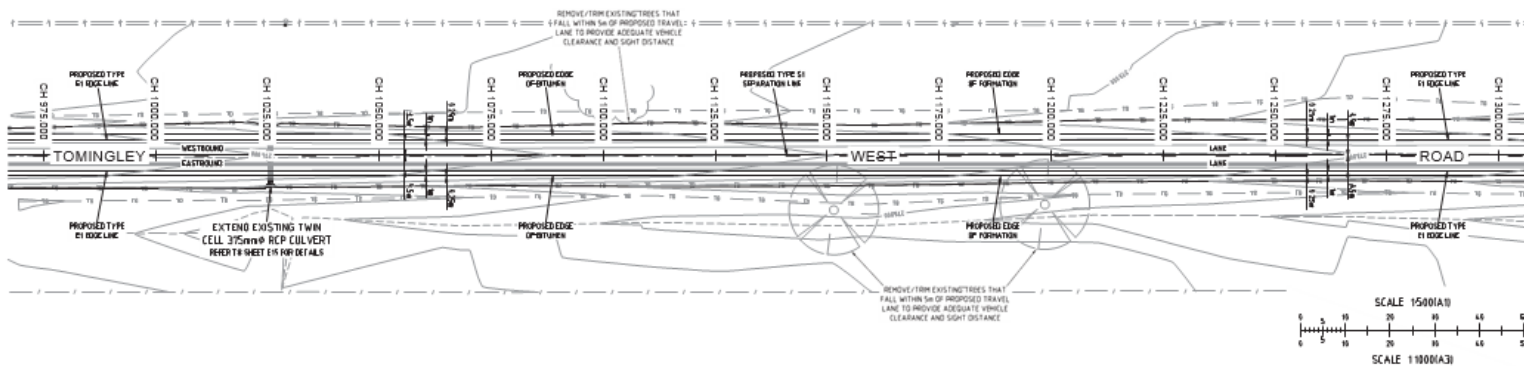
- THE BASE AND SUB-BASE MATERIALS SHALL COMPLY WITH THE SPECIFICATION 301.01 AS APPROVED BY MAQUIGNE GEOTECH AND SHALL BE COMPACTED TO A MINIMUM DENSITY OF 92% RELATIVE TO STANDARD COMPACTION AT A MOISTURE RATE OF 80-90% OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH THE REPORT PREPARED BY MAQUIGNE GEOTECH.
- THE SURGRADE SHALL BE STORPED OF ALL SOFT, ORGANIC OR MOISTURE AFFECTED MATERIALS AND ROLLEDED TO A MINIMUM DENSITY OF 92% RELATIVE TO STANDARD COMPACTION AT A MOISTURE RATE OF 80-90% OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH THE REPORT PREPARED BY MAQUIGNE GEOTECH.
- ALL FILL AREAS SHALL BE STORPED OF ALL SOFT, ORGANIC OR MOISTURE AFFECTED MATERIALS. FILL MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 250MM LOOSE THICKNESS AND COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS NOTED FOR THE SURGRADE IN ACCORDANCE WITH THE REPORT PREPARED BY MAQUIGNE GEOTECH.

- TRAFFIC AND PEDESTRIAN CONTROL, MEASURES ARE TO BE IN PLACE DURING ALL CONSTRUCTION WORKS TO CONTROL PLACES TO BE USED BY A CERTIFIED AND APPROVED PERSON ACCORDING TO THE RULES OF THE ROAD AND TRAFFIC AND PEDESTRIAN DESIGNS (TRAFFIC CONTROL AT WORK SITES MANUAL).
- WORTHY CONSENT SHALL BE OBTAINED TO DISCUSS FROM THE OWNERS OF ANY ADJACENT PROPERTY IN ORDER TO AVOID ANY PHYSICAL INTERFERENCE WITH THE PROPERTY AS A RESULT OF THE REQUIRED CONSTRUCTION.
- CONSTRUCTION SHALL INCLUDE ALL GRADED AREAS AND ALL TABLE DRAIN APERTURES DURING CONSTRUCTION. ALL TRENCHES AND TABLE DRAIN AREAS ARE TO BE TOPPED UP AND GRADED TO THE ORIGINAL SURFACE.
- DRAINAGE AND SEDIMENTATION CONTROL IS TO BE IMPLEMENTED IN ACCORDANCE WITH THE REQUIREMENTS OF NARRABOON SHIRE COUNCIL.
- THE DEVELOPER SHALL BE HELD RESPONSIBLE FOR ANY BREACHES OF THE CLEAN WATERS ACT 1912.
- ALL LEVELS AND DIMENSIONS ARE GIVEN IN METRES UNLESS NOTED OTHERWISE AND ARE TO BE VERIFIED ON SITE BY THE ENGINEER. ALL HEIGHTS ARE TO BE TO THE AUSTRALIAN HEIGHT DATUM 1984, NOT SCALE FROM THESE DRAWINGS.
- GLEBE POTS TO BE INSTALLED IN ACCORDANCE WITH AS/NZS4123.



LEGEND:

- | | |
|---|-------------------------------|
|  | EXISTING BOTTOM OF BANK |
|  | EXISTING TOP OF BANK |
|  | EXISTING ROAD CENTERLINE |
|  | EXISTING FENCE |
|  | EXISTING TABLE DRAIN |
|  | EXISTING TILE (COMMUNICATION) |
|  | EXISTING TILE (COMMUNICATION) |
|  | EXISTING ELEVATED JUNCTION |
|  | EXISTING MAIN ROAD |
|  | EXISTING SIGN |
|  | EXISTING USE OF VEGETATION |
|  | EXISTING TREE |



CHAINAGE	NATURAL SURFACE	DESIGN SURFACE	DEPTH
1075.00	171.50	171.50	0.00
1075.50	171.50	171.50	0.00
1076.00	171.50	171.50	0.00
1076.50	171.50	171.50	0.00
1077.00	171.50	171.50	0.00
1077.50	171.50	171.50	0.00
1078.00	171.50	171.50	0.00
1078.50	171.50	171.50	0.00
1079.00	171.50	171.50	0.00
1079.50	171.50	171.50	0.00
1080.00	171.50	171.50	0.00
1080.50	171.50	171.50	0.00
1081.00	171.50	171.50	0.00
1081.50	171.50	171.50	0.00
1082.00	171.50	171.50	0.00
1082.50	171.50	171.50	0.00
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1083.50	171.50	171.50	0.00
1084.00	171.50	171.50	0.00
1084.50	171.50	171.50	0.00
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1110.50	171.50	171.50	0.00
1111.00	171.50	171.50	0.00
1111.50	171.50	171.50	0.00
1112.00	171.50	171.50	

LONGITUDINAL SECTION - DESIGN TOMINGLEY WEST ROAD CENTRELINE

SCALE HORIZONTAL 1/500 (A1) 1/1000 (A3)
SCALE VERTICAL 1/500 (A1) 1/2000 (A3)

LEGEND:

- DESIGN SURFACE
- NATURAL SURFACE

No	DATE	ISSUED OFFICE	STATUS	DETAILS
A	03/10/16	AUD	A/M	DRAFT ISSUE
B	04/10/16	AUD	A/M	ISSUED FOR APPROVAL
C	04/10/16	UP	A/M	SIGNALS PLANS AMENDED
D	06/10/16	UP	A/M	ISSUED FOR CONSTRUCTION
E	06/10/16	UP	A/M	ADDITIONAL QUANTITIES ADDED
F	09/10/16	RM	A/M	REVISION OF DESIGN CENTRE LINE / ISSUE FOR APPROVAL
G	12/11/16	UP	SH	PRIVATE ACCESS REARRANGEMENT / MORE ACCESS WIDE DETAIL ADDED

CHANGES/APPROVED	NAME	DATE
APPROVED	S.H	24/10/13
SURVEY	M.H	16/11/12
DESIGN	A.J.N/A.D	24/10/13
DRAWING	A.J.B/L.P.P/H	24/10/13



CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



DRAWING: TOMINGLEY WEST ROAD PLAN		DATE: A-1	
AND LONG SECTION SHEET 4 OF 5		DATE: A-1	
PERMANENT MARK: BSM 2054	DATE: 01G_E08		DATE: A-1
PROJECT NUMBER: 111185	CROSS SHEET	01G_E08	DATE: A-1
APPROVED FOR: USE OF CITY	APPROVED FOR: USE OF CITY		DATE: A-1
STATUS: FOR APPROVAL		SHEET 006 OF E19	

NOTE

ALL DESIGN SURFACE LEVELS TO FINISH PAVEMENT LEVEL

GENERAL NOTES:

- THIS PLAN IS PREPARED FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
- VISIBILITY SERVICES HAVE BEEN LOCATED ONLY PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
- ANY WORK TO EXISTING SERVICES THAT REQUIRES RELOCATION BY AUTHORITY'S SHALL BE CARRIED OUT BY THE RELEVANT AUTHORITY, BUT WITHIN THE TERMS OF THE CONTRACT AND SHALL BE CO-ORDINATED BY THE PROJECT MANAGER.
- ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF NARRAMINE SHIRE COUNCIL.
- STUMP TOPS SHALL BE REMOVED TO EXPOSE NATURALLY OCCURRING SURFACE (APPROX 100mm) AND STREPPED ON SITE FOR REUSE ON EXPOSED AREAS.
- THE CONTRACTOR SHALL PROGRAMME THE EARTHWORK OPERATIONS SO THAT THE WORKING AREAS ARE

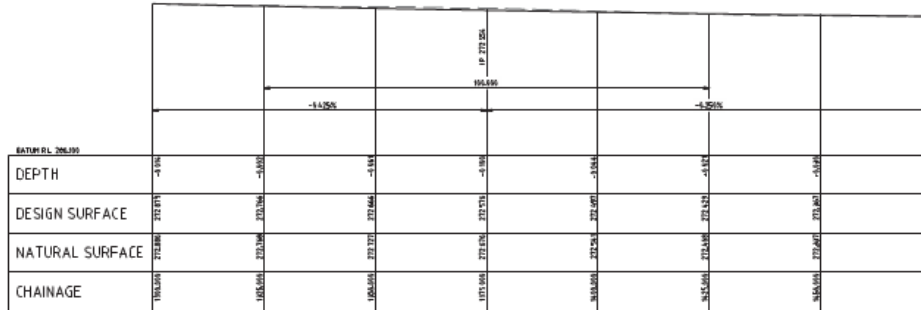
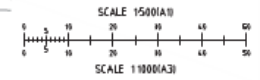
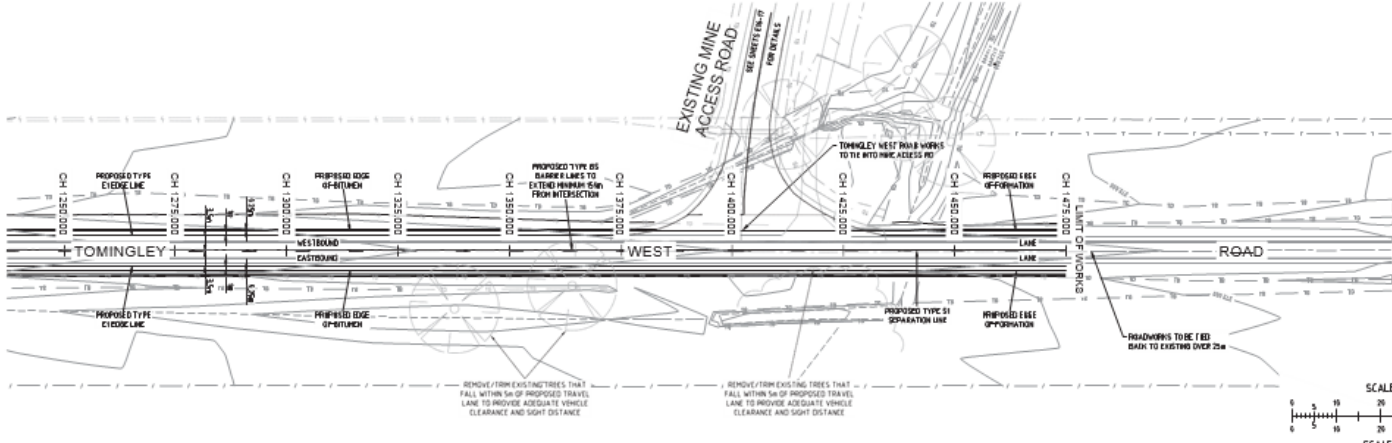
- ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRAZED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SPALLS WHICH WOULD ALLOW WATER TO PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS WILL BE AT THEIR RISK AND AT THE FINDER'S RISK.
- THE BASE AND SUB-BASE MATERIALS SHALL COMPLY WITH THE SPECIFICATION 8001 (B) AS APPROVED BY NARRAMINE SHIRE COUNCIL AND SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 102% RELATIVE TO STANDARD COMPACTION AT A MOISTURE RATIO OF 80-90% OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH THE REPORT PREPARED BY NARRAMINE SHIRE COUNCIL.
- THE SUBGRADE SHALL BE STORMED OF ALL TOP SOIL, ORGANIC OR MOISTURE AFFECTED MATERIALS AND ROLLED AND COMPACTED TO A MINIMUM DENSITY RATIO OF 98% RELATIVE TO STANDARD COMPACTION AT A MOISTURE RATIO OF 80-90% OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH THE REPORT PREPARED BY NARRAMINE SHIRE COUNCIL.
- ALL FILL AREAS SHALL BE STORMED OF ALL TOP SOIL, ORGANIC OR MOISTURE AFFECTED MATERIALS. FILL MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 250mm LOOSE THICKNESS AND COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS NOTED FOR THE SUBGRADE IN ACCORDANCE WITH THE REPORT PREPARED BY NARRAMINE SHIRE COUNCIL.

- TRAFFIC AND PEDESTRIAN CONTROL MEASURES ARE TO BE IN PLACE DURING ALL CONSTRUCTION WORKS. TRAFFIC CONTROL PLANS ARE TO BE PREPARED BY A CERTIFIED AND APPROVED PERSON IN ACCORDANCE WITH AUSTRALIAN STANDARDS 23-1999 AND THE ROAD AND MARINE SERVICE'S (RMS) TRAFFIC CONTROL AT WORK SITES MANUAL.
- ANY PHYSICAL INTERFERENCE WITH THAT PROPERTY AS A RESULT OF THE REQUIRED CONSTRUCTION.
- THE CONTRACTOR SHALL DEMONSTRATE ALL GRADED AREAS AND TAIL DRAINING AFFECTED DURING CONSTRUCTION. ALL BATTERS AND TAIL DRAIN AREAS ARE TO BE TOPSOILED AND GRAZED ON LESS OTHERWISE SHOWN.
- EROSION AND SEDIMENTATION CONTROL IS TO BE IMPLEMENTED IN ACCORDANCE WITH THE REQUIREMENTS OF NARRAMINE SHIRE COUNCIL.
- THE DEVELOPER SHALL BE HELD RESPONSIBLE FOR ANY BREACHES OF THE CLEAN WATERS ACT 1999.
- ALL LEVELS AND DIMENSIONS ARE GIVEN IN METRES UNLESS NOTED OTHERWISE AND ARE TO BE VERIFIED ON SITE PRIOR TO WORK COMMENCING. ALL HEIGHTS ARE TO THE AUSTRALIAN HEIGHT DATUM, DO NOT SCALE FROM THESE DRAWINGS.
- GUIDEPOSTS TO BE INSTALLED IN ACCORDANCE WITH AUSTRALIAN STANDARDS.



LEGEND

- EXISTING BOTTOM OF BANK
- EXISTING TOP OF BANK
- EXISTING ROAD CENTRELINE
- EXISTING FENCE
- EXISTING TAIL DRAIN
- EXISTING TELECOMMUNICATIONS
- EXISTING TELECOMMUNICATIONS PIT
- EXISTING ELEVATED JUNCTION
- EXISTING MAIL BOX
- EXISTING SIGN
- EXISTING LINE OF VEGETATION
- EXISTING TREE



LONGITUDINAL SECTION - DESIGN TOMINGLEY WEST ROAD CENTRELINE
SCALE HORIZONTAL 1:500 (A1) 1:1000 (A3)
SCALE VERTICAL 1:100 (A1) 1:200 (A3)

LEGEND

- DESIGN SURFACE
- NATURAL SURFACE

NOTE

ALL DESIGN SURFACE LEVELS SHOWN ARE TO FINISHED PAVEMENT LEVEL.

NO.	DATE	REVISION	BY	DETAILS
A	01/01/06	ADD	JAN	DRAFT ISSUE
B	01/01/06	ADD	JAN	ISSUED FOR APPROVAL
C	01/01/06	UP	JAN	SIGNAL PLANS AMENDED
D	01/01/06	UP	JAN	ISSUED FOR CONSTRUCTION
E	01/01/06	UP	JAN	ADJUSTED SIGNAL POSTS ADDED
F	01/01/06	UP	JAN	REVISION OF ROAD CENTRELINE / ISSUE FOR APPROVAL
G	01/01/06	UP	JAN	PRIVATE ACCESS REARRANGEMENT & FINE ACCESS WAY DETAILS ADDED

CHANGES/REVISIONS	NAME	DATE
APPROVED	S.H.	26/05/06
SURVEY	M.H.	05/04/06
DESIGNER	A.J.A./A.D.	26/05/06
DRAWING	A.J.A./A.D./M.H.	26/05/06



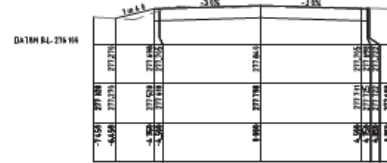
CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



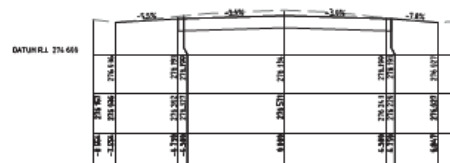
DRAWING: TOMINGLEY WEST ROAD PLAN AND LONG SECTION SHEET 5 OF 5			
PROJECT NUMBER	111185	DRAWING SHEET	01G-E07
REVISION	1	DATE	26/05/06
BY	JAN	CHECKED	A1
DATE	26/05/06	REVISION	G

NOTE:

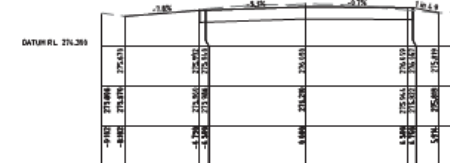
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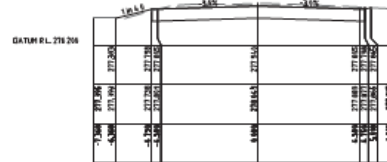
CH 75.000



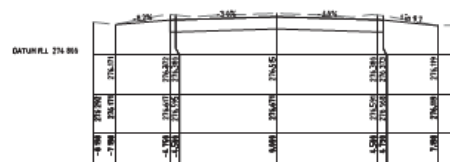
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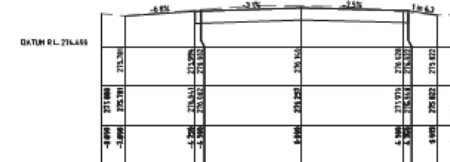
CH 300.000



CH 50.000



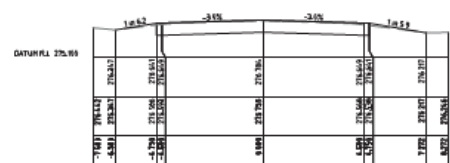
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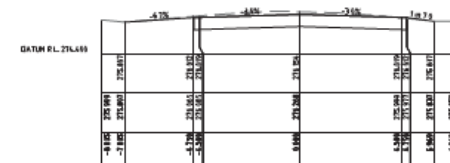
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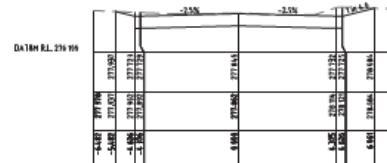
CH 30.000



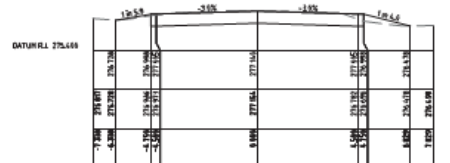
CH 150.000



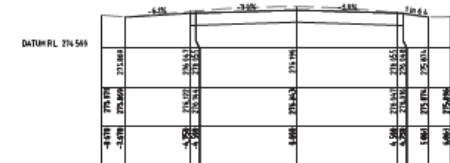
CH 267.761



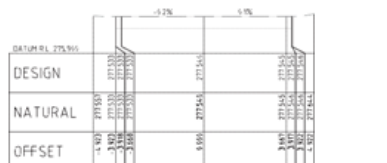
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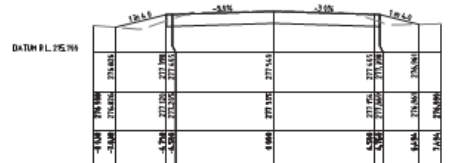
CH 125.000



CH 250.000



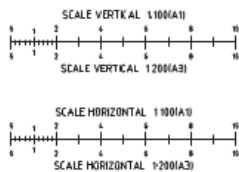
CH 0.000



CH 100.000



CH 225.000

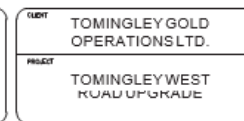


LEGEND

DESIGN SURFACE
NATURAL SURFACE

NO.	DATE	ISSUED BY	APPROVED BY	DETAILS
A	01/10/10	AM	AM	DRAFT ISSUE
B	01/10/10	AM	AM	ISSUED FOR APPROVAL
C	01/10/10	UP	AM	ISSUE PLANS APPROVED
D	01/10/10	UP	AM	ISSUED FOR CONSTRUCTION
E	01/10/10	UP	AM	ADDED ROAD OVERPASS AS REQUIRED
F	01/10/10	UP	AM	REVISION OF DESIGN CENTRELINE / ISSUE FOR APPROVAL
G	26/06/10	UP	UP	PRIVATE ACCESS REARRANGEMENT & PINE ACCESS WAY DETAILS ADDED

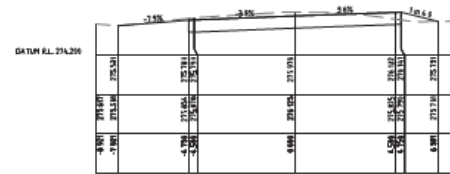
CHANGES/REVISIONS	NAME	DATE
APPROVED	SM	26/10/10
SURVEY	PPR	05/11/10
DESIGNED	AM/AM	26/10/10
DRAWN	AL/AL/PPR	26/10/10



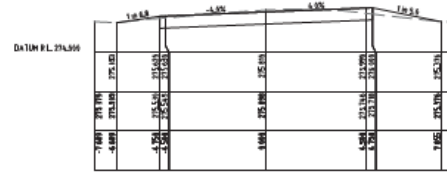
DRAWING TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 1 OF 5			
REVISION NO.	SSM 02334	RL	277.199
PROJECT NUMBER	111185	DRAWING SHEET	01G_E08
DATE OF ISSUE	26/10/10	ISSUED BY	AM
DATE OF REVIEW	26/10/10	REVIEWED BY	AM
FOR APPROVAL		SHEET 008 OF 019	G

NOTE:

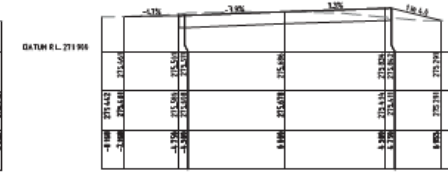
ALL DESIGN SURFACE LEVELS SHOWN ARE
TO FINISHED PAVEMENT LEVEL.



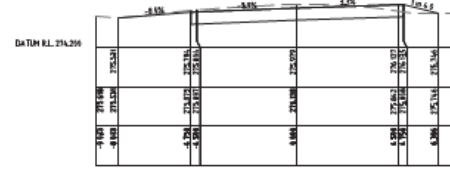
CH 360.000



CH 440.000



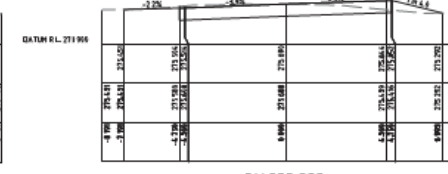
CH 501.912



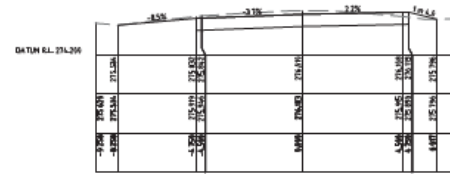
CH 355.539



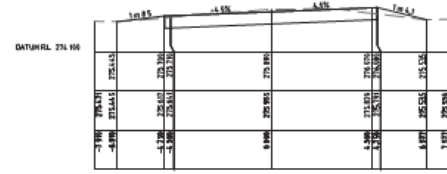
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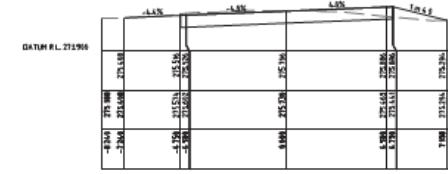
CH 500.000



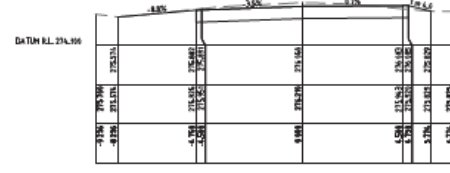
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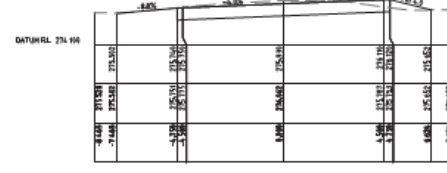
CH 400.000



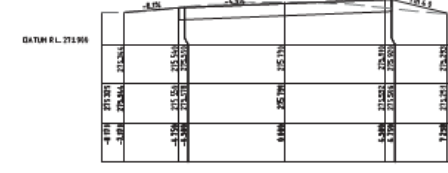
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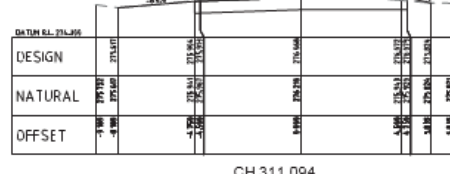
CH 320.000



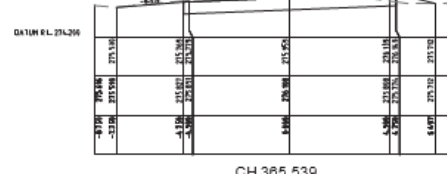
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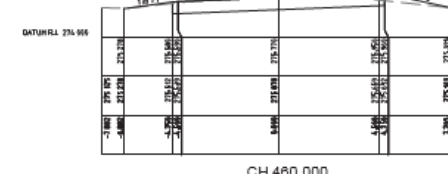
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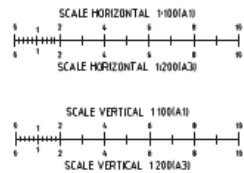
CH 311.094



CH 365.539



CH 400.000



LEGEND:

—— DESIGN SURFACE
--- NATURAL SURFACE

NO.	DATE	REVISION	BY	CHKD	DESCRIPTION
A	01/01/07	ADD	A.M.		DRAFT ISSUE
B	01/01/07	ADD	A.M.		ISSUED FOR APPROVAL
C	01/01/07	UPD	A.M.		SIGNAL PLAN AMENDED
D	01/01/07	UPD	A.M.		ISSUED FOR CONSTRUCTION
E	01/01/07	UPD	A.M.		ADDED ROAD OVERPASS AMENDED
F	01/01/07	UPD	A.M.		REVISION OF DESIGN CENTRELINE / ISSUED FOR APPROVAL
G	01/01/07	UPD	A.M.		PRIVATE ACCESS REAMENDMENT & PINE ACCESS WAY DETAILS ADDED

CHOKED/APPROVED	NAME	DATE
APPROVED	SM	26/05/07
SURVEY	1997	05/10/02
DESIGNER	ALW/ALD	26/05/07
DRAWING	ALW/ALP/1997	26/05/07

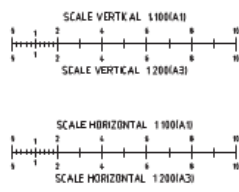
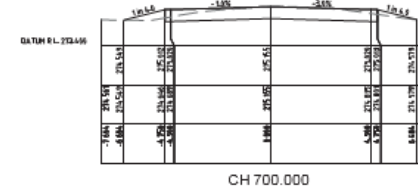
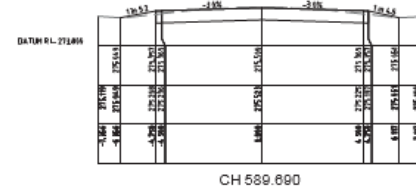
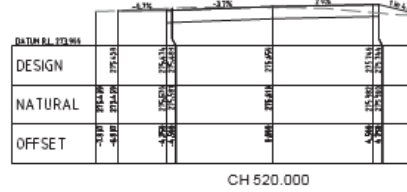
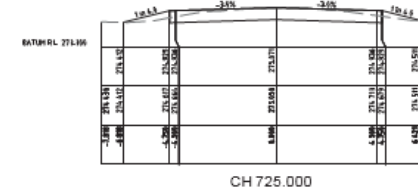
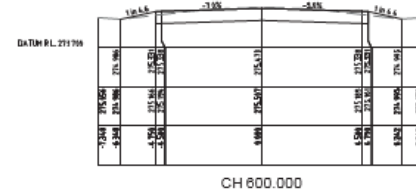
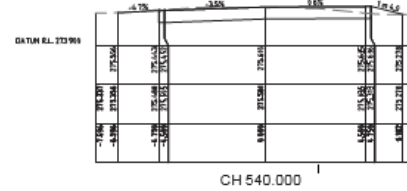
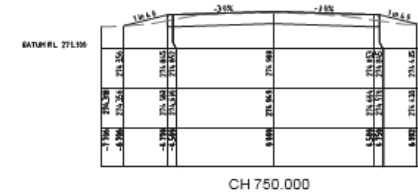
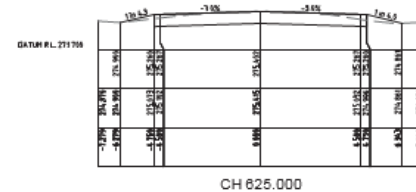
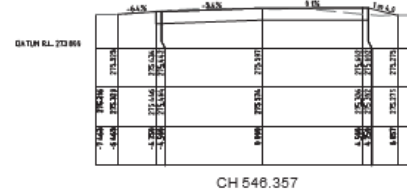
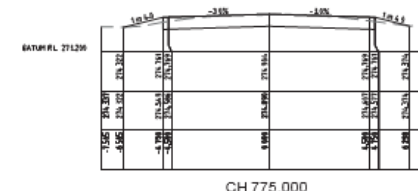
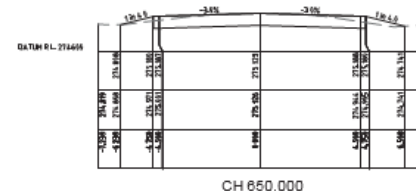
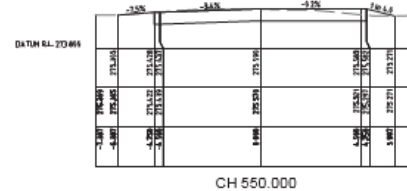
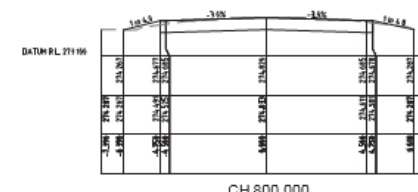
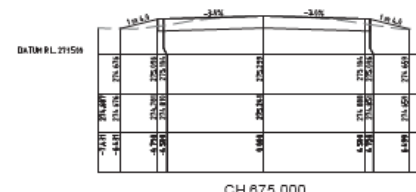
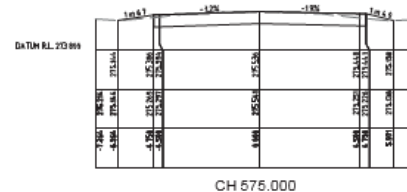


CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



DRAWING		TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 2 OF 5	
REVISION NO.	SBM 82334	AL	277.159
PROJECT NUMBER	111185	DRAWING SCALE	01G_E09
DESIGNED BY	ALW/ALD	CHECKED BY	ALW/ALD
DATE	26/05/07	DATE	26/05/07
FOR APPROVAL		SHEET E09 OF E19	G

NOTE:
ALL DESIGN SURFACE LEVELS SHOWN ARE
TO FINISHED PAVEMENT LEVEL.



LEGEND

— DESIGN SURFACE
--- NATURAL SURFACE

REV	DATE	BY	CHKD	DESCRIPTION
A	01/10/05	AM	AM	DRAFT ISSUE
B	01/10/05	AM	AM	ISSUED FOR APPROVAL
C	01/10/05	UP	AM	ISSUANCE PLANS AMENDED
D	01/10/05	UP	AM	ISSUED FOR CONSTRUCTION
E	01/10/05	UP	AM	ADJUST ROAD CENTRELINE / ISSUE FOR APPROVAL
F	01/10/05	UP	AM	REVISION OF DESIGN CENTRELINE / ISSUE FOR APPROVAL
G	24/10/05	UP	AM	PRIVATE ACCESS REARRANGEMENT & FIRE ACCESS WAY DETAILS ADDED

DATE	APPROVED	NAME	DATE
24/10/05	AM		
15/11/05	UP		
24/10/05	UP		
24/10/05	UP		



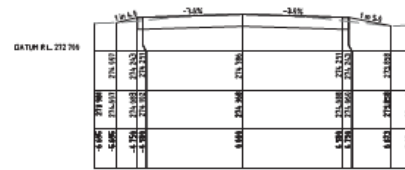
CLIENT
TOMINGLEY GOLD OPERATIONS LTD.
PROJECT
TOMINGLEY WEST ROAD UPGRADE



DRAWING			
TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 3 OF 5			
REVISION NUMBER: 88M 82334	RL: 277.155	DATUM: A.H.D.	
PROJECT NUMBER: 111185	DRAWING SCALE: 01G E10	OFFICIAL: A1	
DESIGNER: T.M.	CHECKED: T.M.	APPROVED: T.M.	
FOR APPROVAL SHEET E10 OF E19			

NOTE:

ALL DESIGN SURFACE LEVELS SHOWN ARE
TO FINISHED PAVEMENT LEVEL.



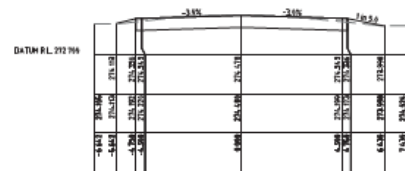
CH 925.000



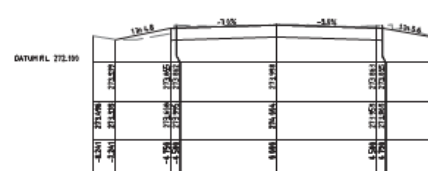
CH 1050.000



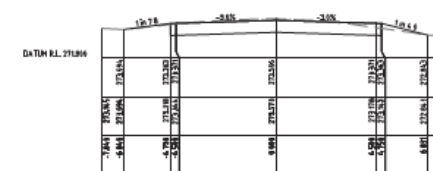
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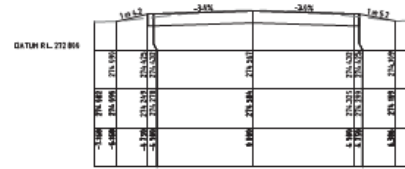
CH 900.000



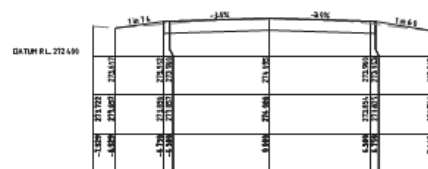
CH 1025.000



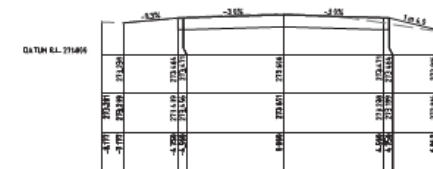
CH 1150.000



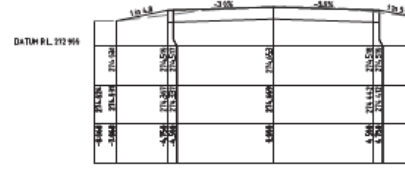
CH 875.000



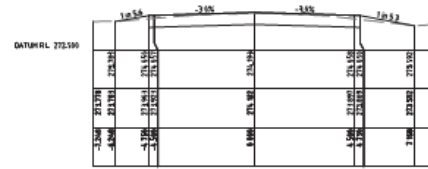
CH 1000.000



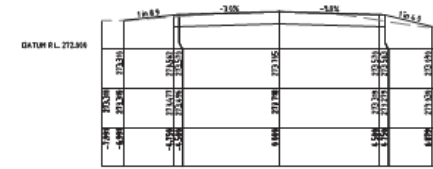
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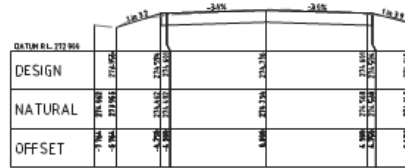
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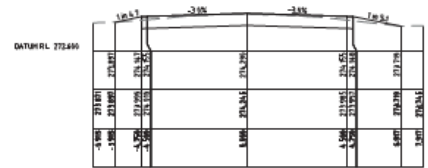
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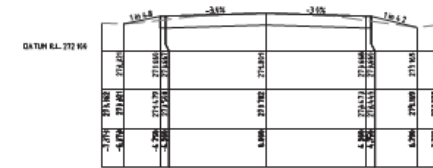
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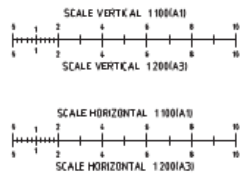
CH 825.000



CH 950.000



CH 1075.000



LEGEND

— DESIGN SURFACE
--- NATURAL SURFACE

REV	DATE	BY	CHKD	DETAILS
A	01/01/07	AM	AM	DRAFT ISSUE
B	01/01/07	AM	AM	ISSUED FOR APPROVAL
C	01/01/07	UP	AM	SIGNAGE PLANS AMENDED
D	01/01/07	UP	AM	ISSUED FOR CONSTRUCTION
E	01/01/07	UP	AM	ADJUSTED ROAD CLOSURES ADDED
F	01/01/07	UP	AM	REVISION OF DESIGN CONTINUED / ISSUES FOR APPROVAL
G	01/01/07	UP	AM	PRIVATE ACCESS REARRANGEMENT & PUBLIC ACCESS MARK DETAILS ADDED

CHKD	APPROVED	NAME	DATE
APPROVED	SM		24/05/07
SURVEY	WPM		05/01/07
DESIGN	ALM/AM		24/05/07
DRAWING	ALM/UP/PM		24/05/07



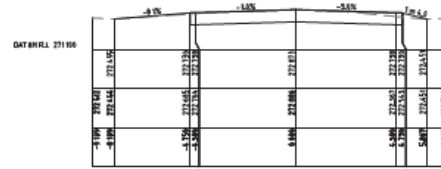
CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



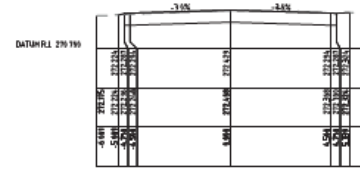
DRAWING		TOMINGLEY WEST ROAD	
CROSS SECTIONS SHEET 4 OF 5		DATE	
REVISION NO.	88M 82334	RL	277.199
PROJECT NUMBER	111185	DRAWING SHEET	01G_E11
APPROVED	ALM/AM	ISSUED	ALM/AM
STATUS	FOR APPROVAL	SHEET E11 OF E19	

NOTE:

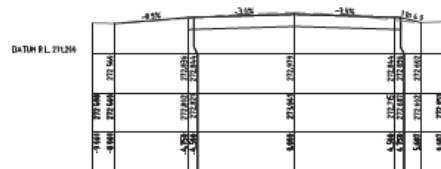
ALL DESIGN SURFACE LEVELS SHOWN ARE TO FINISHED PAVEMENT LEVEL.



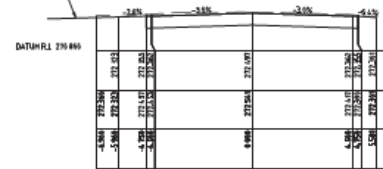
CH 1300.000



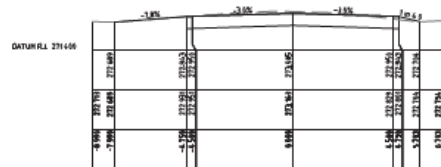
CH 1425.000



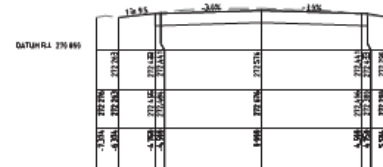
CH 1275.000



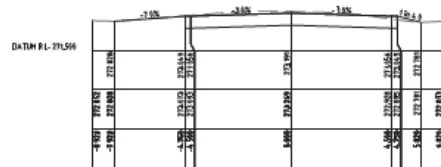
CH 1400.000



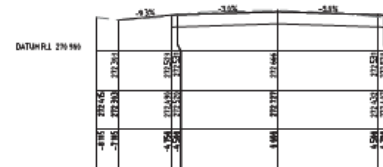
CH 1250.000



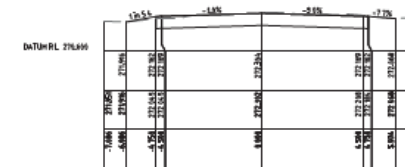
CH 1375.000



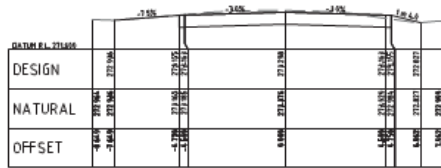
CH 1225.000



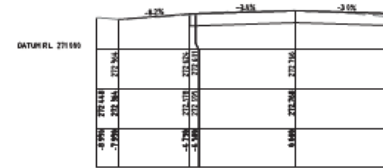
CH 1350.000



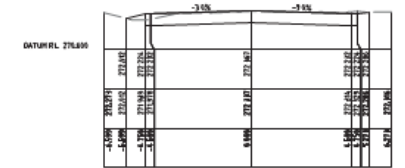
CH 1475.000



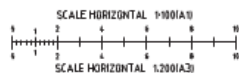
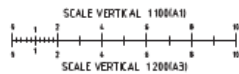
CH 1200.000



CH 1325.000



CH 1450.000



LEGEND

— DESIGN SURFACE
--- NATURAL SURFACE

NO.	DATE	REVISION	BY	CHKD	DETAILS
A	01/10/10	ADD	A.M.	A.M.	DRAFT ISSUE
B	01/10/10	ADD	A.M.	A.M.	ISSUED FOR APPROVAL
C	01/10/10	UP	A.M.	A.M.	SIGNAL PLANS AMENDED
D	01/10/10	UP	A.M.	A.M.	ISSUED FOR CONSTRUCTION
E	01/10/10	UP	A.M.	A.M.	ADJUST KINAL GRABPOSTS ADDED
F	01/10/10	UP	A.M.	A.M.	REVISION OF DESIGN CENTRE LINE / ISSUED FOR APPROVAL
G	01/10/10	UP	SH	SH	PRIVATE ACCESS REARRANGEMENT & PINE ACCESS WAY DETAILS ADDED

CHIEF/APPROVED	NAME	DATE
APPROVED	S.H.	24/10/10
SURVEY	HPH	05/10/10
DESIGNER	A.M./A.M.	24/10/10
DRAWING	A.M./A.M.	24/10/10



CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



DRAWING			
TOMINGLEY WEST ROAD CROSS SECTIONS SHEET 5 OF 5			
PROJECT NUMBER	88M 82334	RL	277.159
PROJECT NAME	111185	DESIGN SCALE	01G E12
DESIGNER	A.M.	CHECKED	A.M.
DATE	01/10/10	DATE	01/10/10
FOR APPROVAL	SHEET E12 OF E15		

SPECIALIST CONSULTANT STUDIES
Part 7: Traffic Impact Assessment

7 - 13

ALKANE RESOURCES LTD
Tomingley Gold Project
Report No. 616/06

NOTE:

ALL DESIGN CURVE LEVELS SHOWN ARE
TO FINISHED PAVEMENT LEVEL.

TABLE OF SURVEY MARKS

MARK	EASTING	NORTHING	R.L.
BBM 82334	814730.018	8366558.081	277.189
BBM 82335	819717.362	8366735.743	280.801
BM 30304	814669.811	8365967.024	279.763
STAKE POCKET 1	813660.983	8366633.458	278.697

**TOMINGLEY WEST ROAD
CENTRELINE SETOUT TABLE**

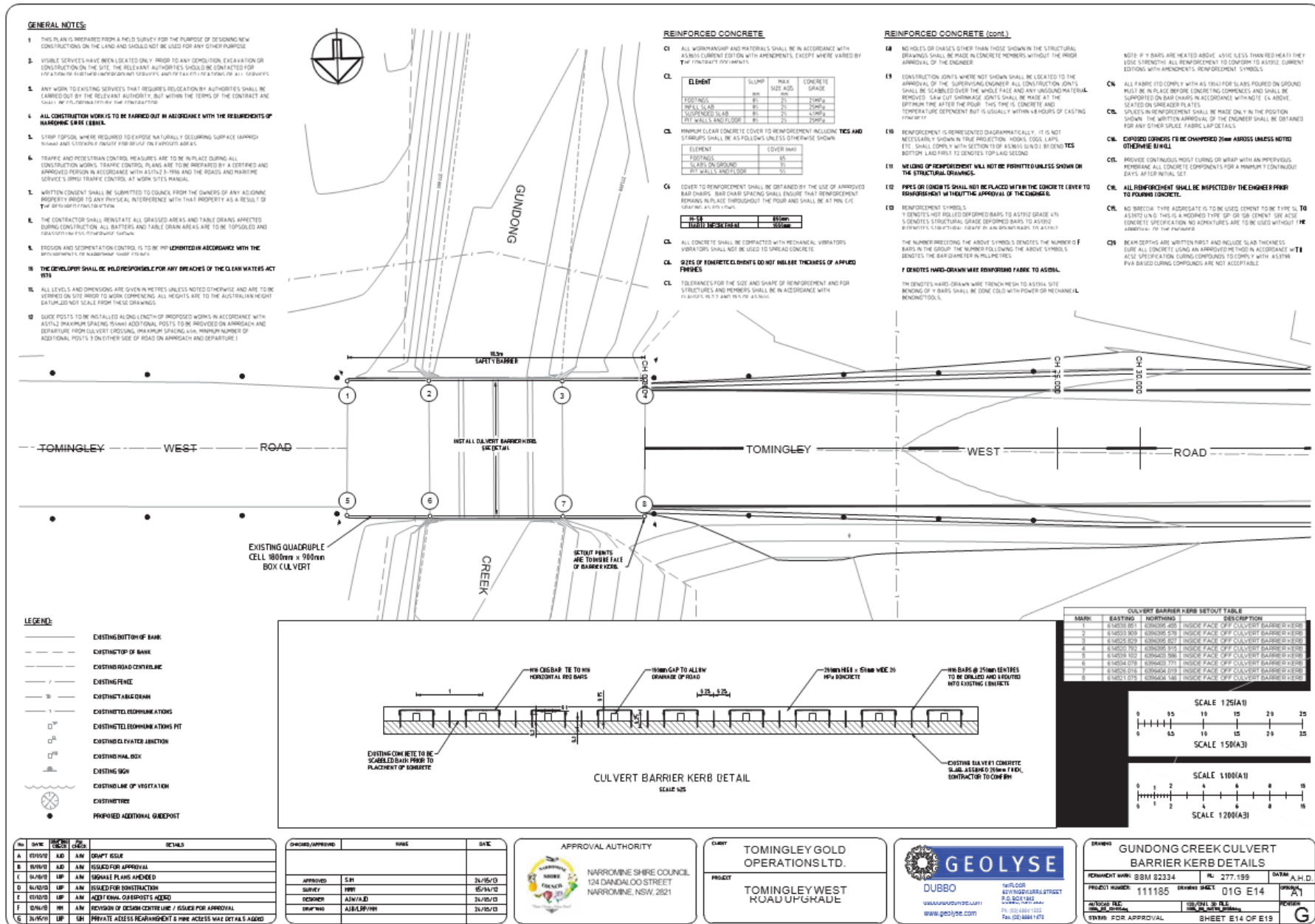
CHAINAGE	EASTING	NORTHING	R.L.	DESCRIPTION
0.000	814553.936	8366401.011	277.540	
25.000	814495.186	8366400.738	277.840	
30.000	814490.948	8366400.879	277.875	
50.000	814470.956	8366403.445	277.940	
75.000	814445.966	8366402.152	277.840	
100.000	814430.976	8366402.899	277.540	
125.000	814395.986	8366403.566	277.140	
150.000	814370.996	8366404.273	276.784	
175.000	814346.006	8366404.980	276.515	
200.000	814321.016	8366405.687	276.334	
225.000	814296.026	8366406.394	276.240	
250.000	814271.036	8366407.101	276.190	
267.761	814253.379	8366407.604	276.355	SUPERELEVATION START
275.000	814246.046	8366407.808	276.340	
300.000	814221.056	8366408.515	276.090	
311.094	814209.967	8366408.629	276.068	TANGENT SPIRAL POINT
330.000	814202.064	8366409.076	276.050	
340.000	814181.070	8366409.540	276.030	
355.539	814165.532	8366409.899	275.979	SPIRAL CURVE POINT
380.000	814141.071	8366409.987	275.970	
395.539	814125.532	8366409.682	275.959	FULL SUPERELEVATION
400.000	814141.071	8366409.600	275.930	
480.000	814121.089	8366408.632	275.890	
490.000	814101.127	8366407.994	275.850	
495.912	814093.720	8366409.074	275.706	FULL SUPERELEVATION
500.000	814021.739	8366407.761	275.690	
520.912	814018.855	8366407.489	275.680	CURVE SPIRAL POINT
530.000	814003.057	8366404.214	275.650	
540.000	813982.425	8366403.994	275.610	
546.357	813975.190	8366403.155	275.597	SPIRAL TANGENT POINT
550.000	813972.617	8366403.445	275.590	
575.000	813948.096	8366403.571	275.536	
589.690	813931.688	8366403.708	275.500	SUPERELEVATION END
600.000	813923.525	8366403.688	275.473	
625.000	813899.056	8366403.824	275.402	
650.000	813874.535	8366403.960	275.323	
675.000	813850.015	8366404.077	275.239	
700.000	813825.495	8366404.203	275.155	
725.000	813800.974	8366404.329	275.071	
750.000	813776.454	8366404.455	274.988	
775.000	813751.934	8366404.581	274.904	
800.000	813727.413	8366404.708	274.820	
825.000	813702.893	8366404.834	274.736	
850.000	813678.373	8366404.960	274.653	
875.000	813653.853	8366405.087	274.567	
900.000	813629.333	8366405.213	274.479	
925.000	813604.812	8366405.339	274.395	
950.000	813580.291	8366405.466	274.290	
975.000	813555.771	8366405.592	274.213	
1000.000	813531.251	8366405.718	274.095	
1025.000	813506.730	8366405.844	273.998	
1050.000	813482.210	8366405.971	273.900	
1075.000	813457.689	8366406.097	273.803	
1100.000	813433.169	8366406.223	273.705	
1125.000	813408.648	8366406.350	273.606	
1150.000	813384.129	8366406.476	273.506	
1175.000	813359.608	8366406.602	273.403	
1200.000	813335.088	8366406.728	273.298	
1225.000	813310.568	8366406.855	273.191	
1250.000	813286.047	8366406.981	273.085	
1275.000	813261.527	8366407.107	272.979	
1300.000	813237.007	8366407.233	272.873	
1325.000	813212.486	8366407.359	272.766	
1350.000	813187.966	8366407.485	272.666	
1375.000	813163.446	8366407.612	272.576	
1400.000	813138.925	8366407.738	272.487	
1425.000	813114.405	8366407.865	272.429	
1450.000	813089.885	8366407.991	272.367	
1475.000	813065.364	8366408.117	272.304	

**TOMINGLEY WEST ROAD SOUTHERN
EDGE OF BITUMEN SETOUT TABLE**

CHAINAGE	EASTING	NORTHING	R.L.	DESCRIPTION
0.000	814553.936	8366401.011	277.533	TAPER TANGENT POINT
25.000	814495.186	8366400.737	277.729	
30.000	814490.948	8366400.877	277.743	TAPER TANGENT POINT
50.000	814470.956	8366403.445	277.805	
75.000	814445.966	8366402.152	277.705	
100.000	814430.976	8366402.899	277.409	
125.000	814395.986	8366403.567	277.005	
150.000	814370.996	8366404.275	276.649	
175.000	814346.006	8366404.983	276.380	
200.000	814321.016	8366405.691	276.199	
225.000	814296.026	8366406.399	276.105	
250.000	814271.036	8366407.107	276.055	
267.761	814253.379	8366407.610	276.020	SUPERELEVATION START
275.000	814246.046	8366407.817	276.040	
300.000	814221.056	8366408.525	275.790	
311.094	814209.967	8366408.639	275.763	TANGENT SPIRAL POINT
330.000	814202.064	8366409.086	275.740	
340.000	814181.070	8366409.550	275.720	
355.539	814165.532	8366409.909	275.664	
380.000	814141.071	8366409.997	275.610	SPIRAL CURVE POINT
395.539	814125.532	8366409.684	275.599	
400.000	814141.071	8366409.602	275.570	FULL SUPERELEVATION
425.000	814101.127	8366408.634	275.510	
440.000	814081.662	8366408.634	275.500	
460.000	814061.662	8366408.634	275.500	
480.000	814041.662	8366408.634	275.500	
495.912	814033.720	8366409.074	275.500	FULL SUPERELEVATION
500.000	814021.739	8366409.074	275.500	
520.912	814018.855	8366407.489	275.500	CURVE SPIRAL POINT
530.000	814003.057	8366404.214	275.500	
540.000	813982.425	8366403.994	275.500	
546.357	813975.190	8366403.155	275.500	SPIRAL TANGENT POINT
550.000	813972.617	8366403.445	275.500	
575.000	813948.096	8366403.571	275.500	
589.690	813931.688	8366403.708	275.500	SUPERELEVATION END
600.000	813923.525	8366403.688	275.473	
625.000	813899.056	8366403.824	275.402	
650.000	813874.535	8366403.960	275.323	
675.000	813850.015	8366404.077	275.239	
700.000	813825.495	8366404.203	275.155	
725.000	813800.974	8366404.329	275.071	
750.000	813776.454	8366404.455	274.988	
775.000	813751.934	8366404.581	274.904	
800.000	813727.413	8366404.708	274.820	
825.000	813702.893	8366404.834	274.736	
850.000	813678.373	8366404.960	274.653	
875.000	813653.853	8366405.087	274.567	
900.000	813629.333	8366405.213	274.479	
925.000	813604.812	8366405.339	274.395	
950.000	813580.291	8366405.466	274.290	
975.000	813555.771	8366405.592	274.213	
1000.000	813531.251	8366405.718	274.095	
1025.000	813506.730	8366405.844	273.998	
1050.000	813482.210	8366405.971	273.900	
1075.000	813457.689	8366406.097	273.803	
1100.000	813433.169	8366406.223	273.705	
1125.000	813408.648	8366406.350	273.606	
1150.000	813384.129	8366406.476	273.506	
1175.000	813359.608	8366406.602	273.403	
1200.000	813335.088	8366406.728	273.298	
1225.000	813310.568	8366406.855	273.191	
1250.000	813286.047	8366406.981	273.085	
1275.000	813261.527	8366407.107	272.979	
1300.000	813237.007	8366407.233	272.873	
1325.000	813212.486	8366407.359	272.766	
1350.000	813187.966	8366407.485	272.666	
1375.000	813163.446	8366407.612	272.576	
1400.000	813138.925	8366407.738	272.487	
1425.000	813114.405	8366407.865	272.429	
1450.000	813089.885	8366407.991	272.367	
1475.000	813065.364	8366408.117	272.304	

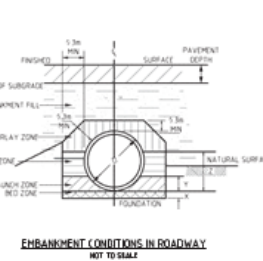
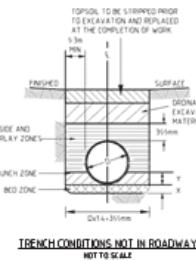
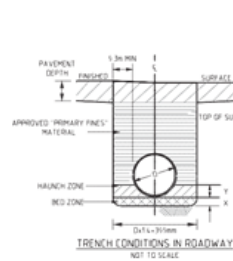
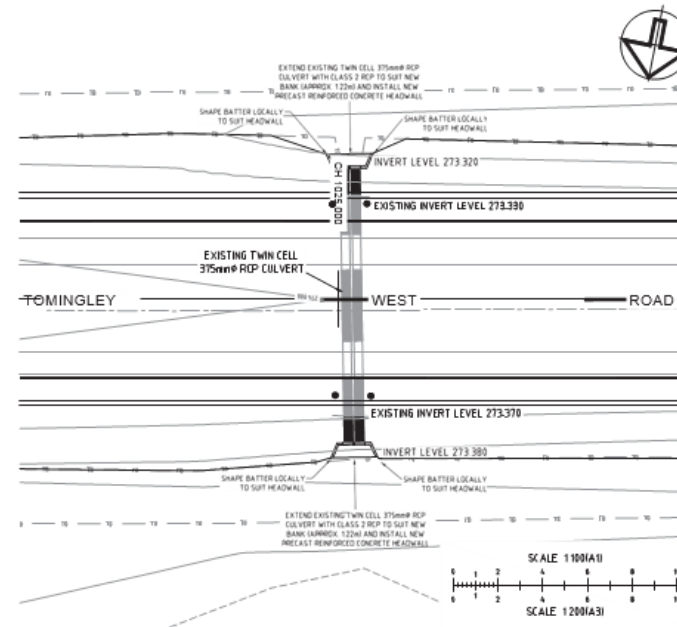
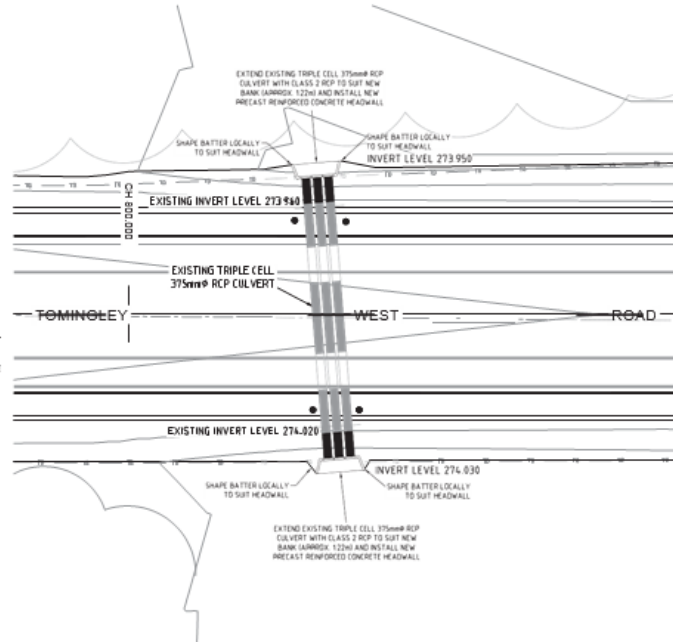
**TOMINGLEY WEST ROAD NORTHERN
EDGE OF BITUMEN SETOUT TABLE**

CHAINAGE	EASTING	NORTHING	R.L.	DESCRIPTION
0.000	814553.936	8366401.011	277.545	TAPER TANGENT POINT
25.000	814495.186	8366400.737	277.732	
30.000	814490.948	8366400.877	277.747	TAPER TANGENT POINT
50.000	814470.956	8366403.445	277.805	
75.000	814445.966	8366402.152	277.705	
100.000	814430.976	8366402.899	277.409	
125.000	814395.986	8366403.567	277.005	
150.000	814370.996	8366404.275	276.649	
175.000	814346.006	8366404.983	276.380	
200.000	814321.016	8366405.691	276.199	
225.000	814296.026	8366406.399	276.105	
250.000	814271.036	8366407.107	276.055	
267.761	814253.379	8366407.610	276.020	SUPERELEVATION
275.000	814246.046	8366407.817	276.040	
300.000	814221.056	8366408.525	275.790	
311.094	814209.967	8366408.639	275.763	TANGENT SPIRAL POINT
330.000	814202.064	8366409.086	275.740	
340.000	814181.070	8366409.550	275.720	
355.539	814165.532	8366409.909	275.664	SPIRAL CURVE POINT
380.000	814141.071	8366409.997	275.610	
395.539	814125.532	8366409.684	275.599	
400.000	814141.071	8366409.602	275.570	FULL SUPERELEVATION
425.000	814101.127	8366408.634	275.510	
440.000	814081.662	8366408.634	275.500	
460.000	814061.662	8366408.634	275.500	
480.000	814041.662	8366408.634	275.500	
495.912	814033.720	8366409.074	275.500	FULL SUPERELEVATION
500.000	814021.739	8366409.074	275.500	
520.912	814018.855	8366407.489	275.500	CURVE SPIRAL POINT
530.000	814003.057	8366404.214	275.500	
540.000	813982.425	8366403.994	275.500	
546.357	813975.190	8366403.155	275.500	SPIRAL TANGENT POINT
550.000	813972.617	8366403.445	275.500	
575.000	813948.096	8366403.571	275.500	
589.690	813931.688	8366403.571	275.500	SUPERELEVATION END
600.000	813924.000	8366403.571	275.500	
625.000	813898.521	8366403.283	275.250	
650.000	813873.042	8366402.995	275.000	
675.000	813847.563	8366402.707	274.750	
700.000	813822.084	8366402.419	274.500	
725.000	813796.605	8366402.131	274.250	
750.000	813771.126	8366401.843	274.000	
775.000	813745.647	8366401.555	273.750	
800.000	813720.168	8366401.267	273.500	
825.000	813694.689	8366400.979	273.250	
850.000	813669.210	8366400.691	273.000	
875.000	813643.731	8366400.403	272.750	
900.000	813618.252	8366400.115	272.500	
925.000	813592.773	8366398.827	272.250	
950.000	813567.294	836638.539	272.000	
975.000	813541.815	836638.251	271.750	
1000.000	813516.336	836637.963	271.500	
1025.000	813490.857	836637.675	271.250	
1050.000	813465.378	836637.387	271.000	
1075.000	813439.899	836637.099	270.750	
1100.000	813414.420	836636.811	270.500	
1125.000	813388.941	836636.523	270.250	
1150.000	813363.462	836636.235	270.000	
1175.000	813337.983	836635.947	269.750	
1200.000	813312.504	836635.659	269.500	
1225.000	813287.025	836635.371	269.250	
1250.000	813261.546	836635.083	269.000	
1275.000	813236.067	836634.795	268.750	
1300.000	813210.588	836634.507	268.500	
1325.000	813185.109	836634.219	268.250	
1350.000	813159.630	836633.931	268.000	
1375.000	813134.151	836633.643	267.750	
1400.000	813108.672	836633.355	267.500	
1425.000	813083.193	836633.067	267.250	
1450.000	813057.714	836632.779	267.000	
1475.000	813032.235	836632.491	266.750	
1500.000	813006.756	836632.203	266.500	



GENERAL NOTES

- THIS PLAN IS PREPARED FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
- VISIBLE SERVICES HAVE BEEN LOCATED ONLY. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
- ANY WORK TO EXISTING SERVICES THAT REQUIRES REGULATION BY AUTHORITIES SHALL BE CARRIED OUT BY THE RELEVANT AUTHORITY, BUT WITHIN THE TERMS OF THE CONTRACT AND UNDER THE SUPERVISION OF THE CONTRACTOR.
- ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF NARROMINE SHIRE COUNCIL.
- STOP TOPSOIL WHERE REQUIRED TO EXPOSE NATURALLY OCCURRING SURFACE LAYER (APPROX 150mm) AND EXPOSED SOIL MUST BE COVERED ON FURTHER ADVANCE.
- TRAFFIC AND PEDESTRIAN CONTROL MEASURES ARE TO BE IN PLACE DURING ALL CONSTRUCTION WORKS. TRAFFIC CONTROL PLANS ARE TO BE PREPARED BY A CERTIFIED AND APPROVED PERSON IN ACCORDANCE WITH AUST RD 3-1996 AND THE ROADS AND MARITIME SERVICE'S TRAFFIC CONTROL AT WORK SITES MANUAL.
- WRITTEN CONSENT SHALL BE SUBMITTED TO COUNCIL FROM THE OWNERS OF ANY ADJOINING PROPERTY PRIOR TO ANY PHYSICAL INTERFERENCE WITH THAT PROPERTY AS A RESULT OF THE PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL REINSTATE ALL GRASSED AREAS AND TABLE DRAIN AREAS AFFECTED DURING CONSTRUCTION. ALL BATTERS AND TABLE DRAIN AREAS ARE TO BE TOPSOILED AND REVEGETATED TO PREVIOUS CONDITION.
- EROSION AND SEDIMENTATION CONTROL IS TO BE IMPLEMENTED IN ACCORDANCE WITH THE REQUIREMENTS OF NARROMINE SHIRE COUNCIL.
- THE DEVELOPER SHALL BE HELD RESPONSIBLE FOR ANY BREACHES OF THE CLEAN WATERS ACT 1992.
- ALL LEVELS AND DIMENSIONS ARE GIVEN IN METRES UNLESS NOTED OTHERWISE AND ARE TO BE VERIFIED ON SITE PRIOR TO WORK COMMENCING. ALL HEIGHTS ARE TO THE AUSTRALIAN HEIGHT DATUM (AGD) OF 1984 UNLESS NOTED OTHERWISE.



WHERE:
Z = 970
Y = 630
X = 90 FOR D = 650
X = 95 FOR D = 850
D = INTERNAL DIAMETER OF PIPE

**TABLE 1
BEDDING MATERIAL GRADING LIMITS**

SEWE SIZE (mm)	WEIGHT PASSING/75
95	95
225	55-75
300	25-50
375	10-45
450	5-25
525	5-15

LEGEND

- EXISTING BOTTOM OF BANK
- EXISTING TOP OF BANK
- EXISTING ROAD CENTERLINE
- EXISTING FENCE
- EXISTING TABLE DRAIN
- EXISTING TELECOMMUNICATIONS
- EXISTING TELECOMMUNICATIONS PIT
- EXISTING ELEVATED JUNCTION
- EXISTING ROAD BOX
- EXISTING SIGN
- EXISTING LINE OF VEGETATION
- EXISTING TREE
- PROPOSED ADDITIONAL LANDFILL

NOTES

- PIPES SHALL BE LAID IN EITHER TRENCH OR EMBANKMENT CONDITIONS. PIPES LAID IN TRENCH CONDITIONS SHALL BE DEEMED TO BE EMBANKMENT CONDITIONS, UNLESS TRENCH CONDITIONS APPLY. WHEN FOR A SINGLE PIPE, THE WIDTH OF TRENCH, WHICH IS GREATER THAN OR EQUAL TO D + 1 METRE, WHERE D = PIPE DIAMETER IN METRES.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THIS DRAWING AND AS 1725 FOR TYPE A3 SUPPORT.
- FOR ALL TRENCH AND EMBANKMENT CONDITIONS:
 - THE BEDDING MATERIAL FOR BOTH THE BED AND HAUNCH ZONES SHALL CONSIST OF GRANULAR MATERIAL WITH P₁₀ ≤ 60 AND GRADING COMPLYING WITH TABLE 1. THE MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 150mm THICK TO ACHIEVE RELATIVE COMPACTION OF 95% PER TRENCH OR IF CHEAPER/LESS MATERIAL, A DENSITY RATIO OF 93% PER AS 1725.
 - FOR TRENCH CONDITIONS IN ROADWAY:
 - THE TRENCH-BACKFILL MATERIAL SHALL BE A GRANULAR MATERIAL, E.g. "PRIMARY FINE", (FINISHED ROAD MATERIAL OR EQUIVALENT) APPROVED BY THE SUPERINTENDENT.
 - THE MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 150mm OR AS APPROPRIATE TO THE SIZE AND TYPE OF MACHINERY USED.
 - FOR EMBANKMENT CONDITIONS ONLY IN ROADWAY:
 - SIDE AND OVERLAY ZONES SHALL CONSIST OF SELECT BACKFILL AND SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 150mm OR AS APPROPRIATE TO THE SIZE AND TYPE OF MACHINERY USED.
 - THE MOISTURE CONTENT OF THE MATERIAL SHALL BE NOT MORE THAN 2% ABOVE THE OPTIMUM MOISTURE CONTENT.

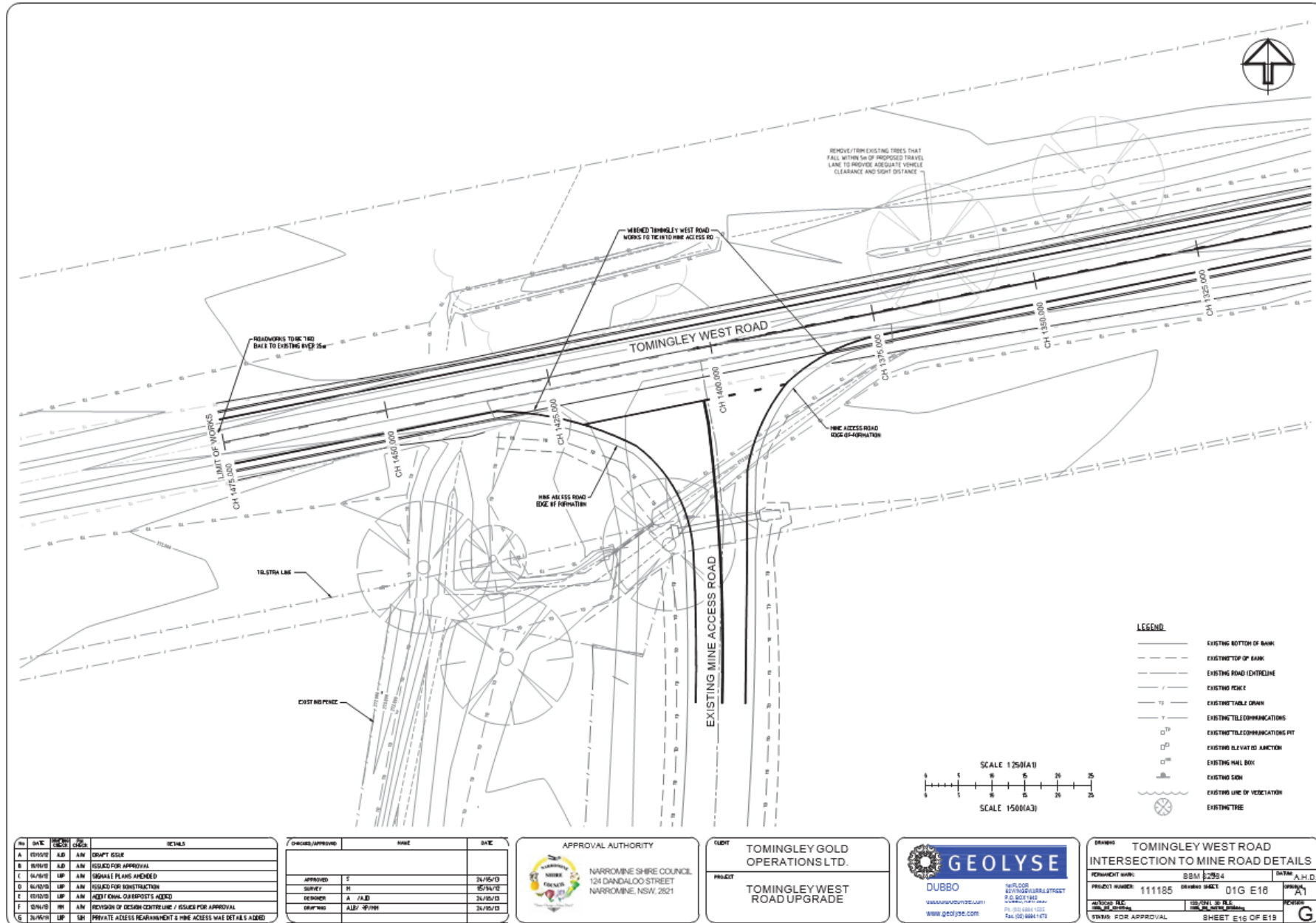
- FOR TRENCH CONDITIONS NOT IN ROADWAY:
 - SIDE AND OVERLAY ZONES SHALL CONSIST OF A GRANULAR MATERIAL, E.g. "PRIMARY FINE", (FINISHED ROAD MATERIAL OR EQUIVALENT) APPROVED BY THE SUPERINTENDENT.
 - THE MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 150mm OR AS APPROPRIATE TO THE SIZE AND TYPE OF MACHINERY USED.
 - ORDINARY EXCAVATED MATERIAL IS EXCAVATED TRENCH MATERIAL THAT IS FREE OF VEGETABLE MATTER, LARGE CLAY LUMPS AND ROCK. BORDERS THIS MATERIAL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 150mm OR AS APPROPRIATE TO THE SIZE AND TYPE OF MACHINERY USED.
 - THE MOISTURE CONTENT OF THE MATERIAL SHALL BE NOT MORE THAN 2% ABOVE THE OPTIMUM MOISTURE CONTENT.

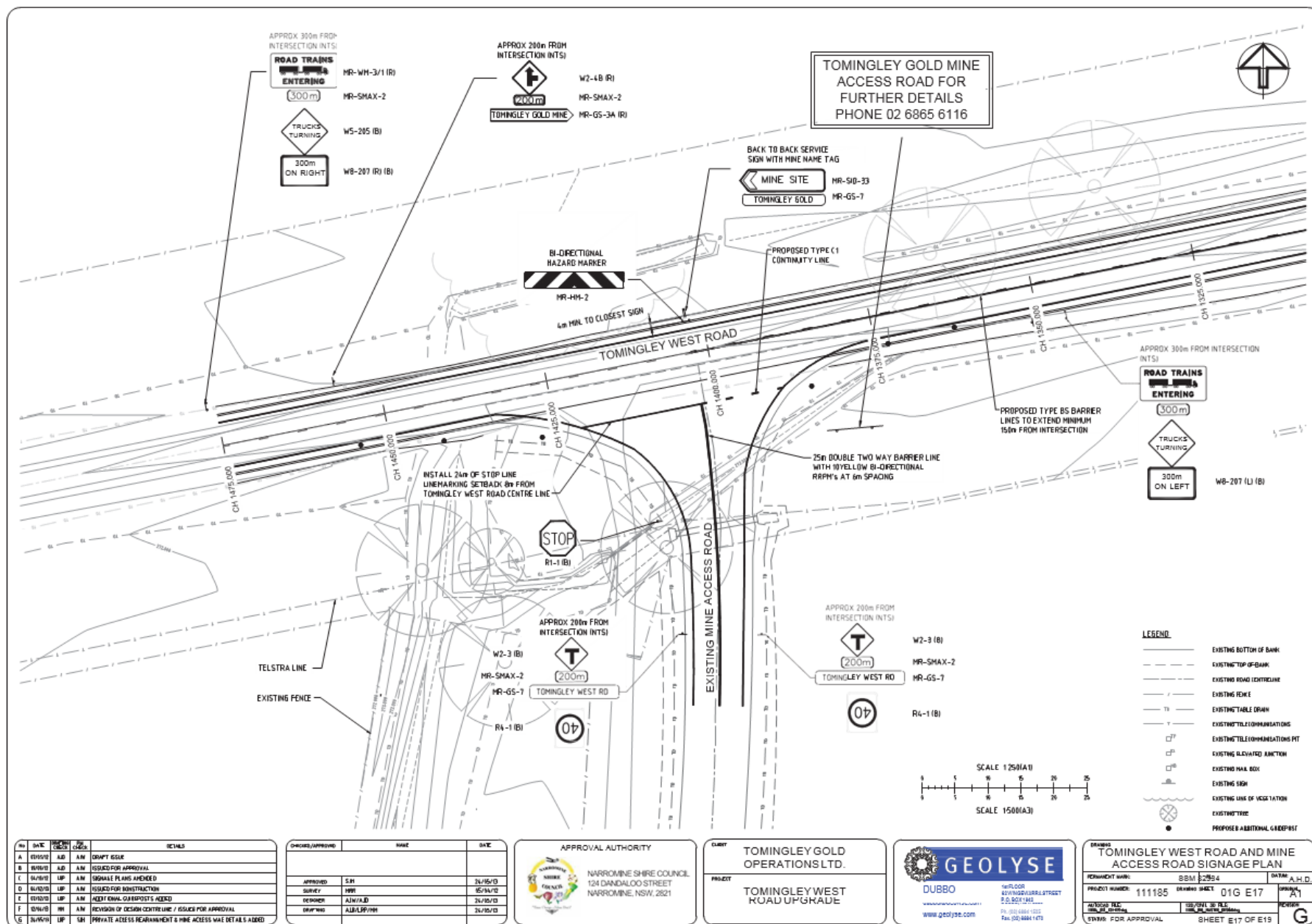
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B	01/01/06	AJD	AJM	ISSUED FOR APPROVAL
C	01/01/06	UP	AJM	DESIGN PLANS AMENDED
D	01/01/06	UP	AJM	ISSUED FOR CONSTRUCTION
E	01/01/06	UP	AJM	ASSET RISK SUBPOSTS AGED
F	01/01/06	UP	AJM	REVISION OF DESIGN CENTERLINE / ISSUED FOR APPROVAL
G	01/01/06	UP	AJM	PRIVATE ACCESS REINSTATEMENT & PINK ACCESS WAY DETAILS AGED

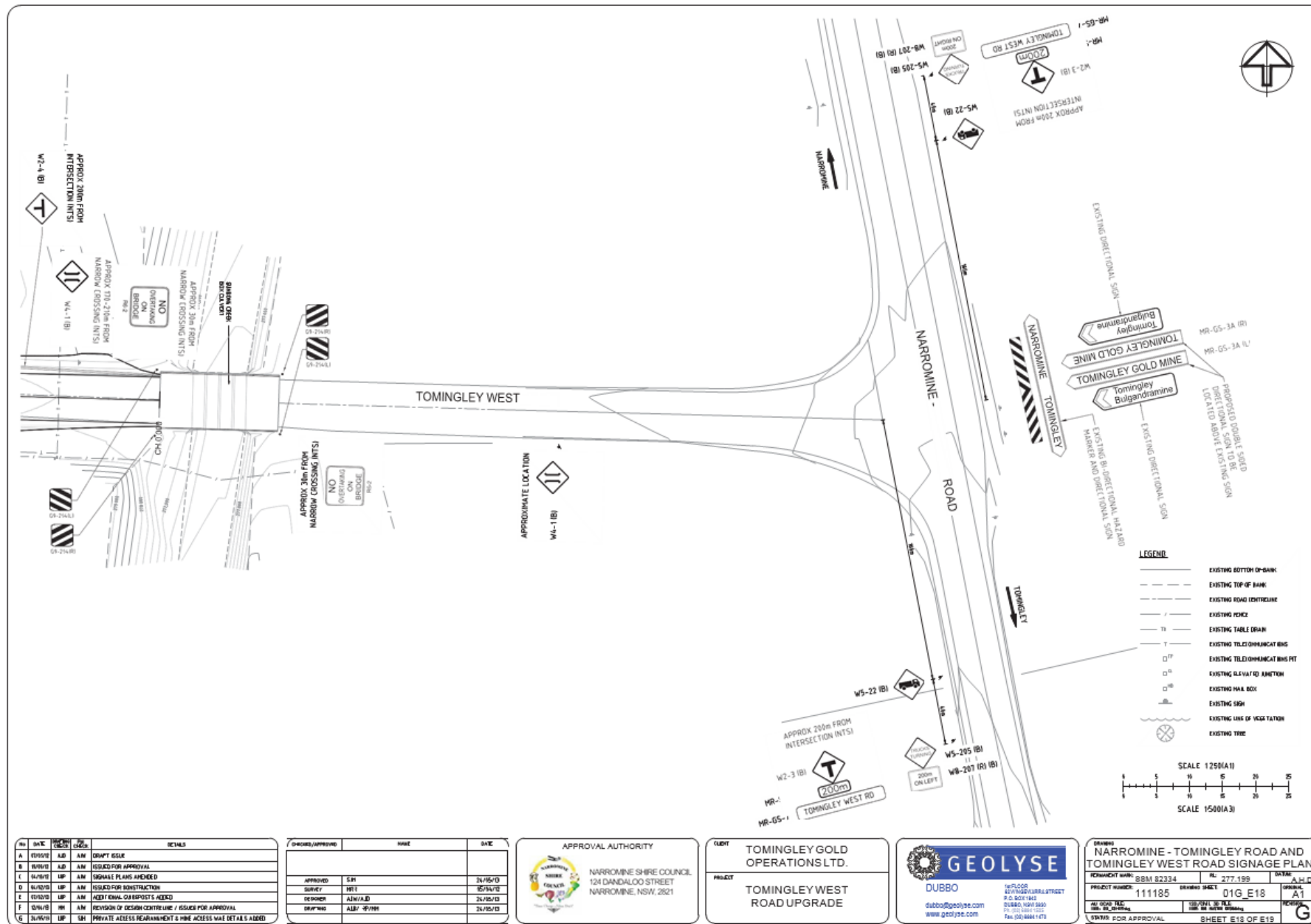
CHKD/APPV	NAME	DATE
APPROVED	SM	26/05/06
SURVEY	UPP	05/04/06
DESIGNER	ALM/AJD	26/05/06
DRAWN	ALM/UPP	26/05/06



DRAWN: TOMINGLEY WEST ROAD PIPE CULVERT EXTENSION DETAILS			
PERMITS/APP: SBM 82334	PL: 277.159	DATAN: A.H.D.	DATE: 01/01/06
PROJECT NUMBER: 111185	DRAWING SHEET: 01G E15	SCALE: 1:1	REVISION: 1
PROJECT FILE: 111185_01G E15	DATE: 01/01/06	FILE: 111185_01G E15	REVISION: 1
FOR APPROVAL	SHEET E15 OF E19		

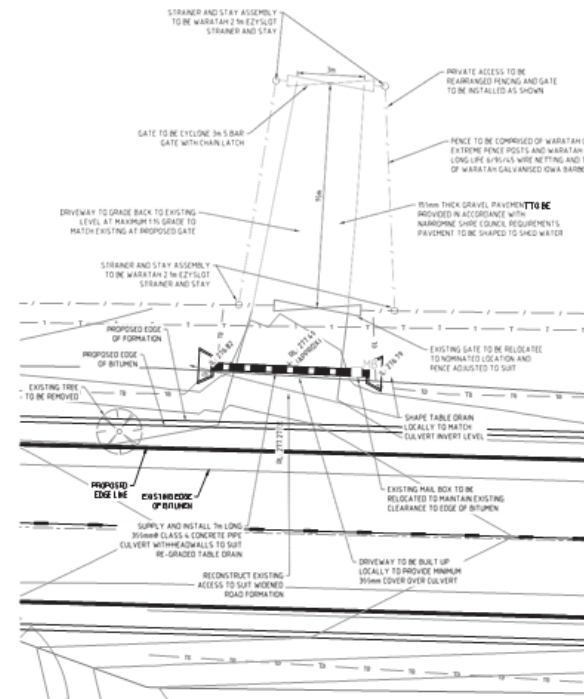
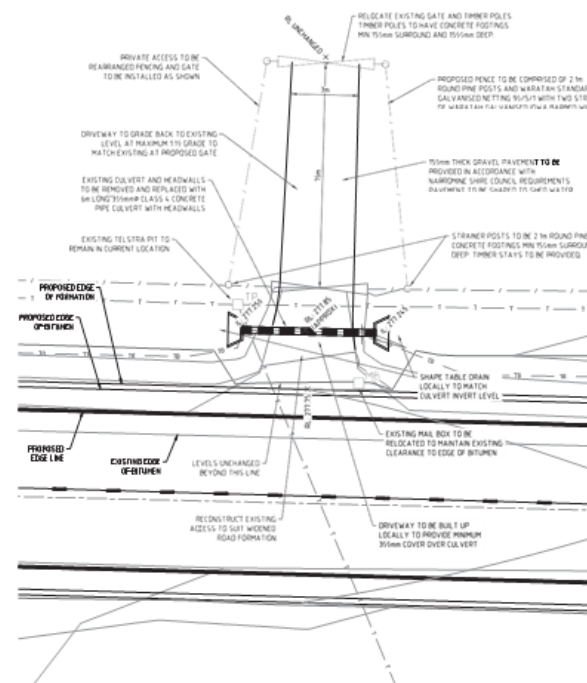


















GENERAL NOTES

- 2 THIS PLAN IS PREPARED FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
- 3 VISUAL SERVICES HAVE BEEN UNDERTAKEN ONLY FOR ROAD AND ONE DEMOLITION. EXCAVATION FOR THE REMOVAL OF THE SITE. THE AUTHORITIES SHOULD BE CONSULTED FOR THE LOCATION OF ANY OTHER UNDERGROUND SERVICES AND DETAILLED LOCATIONS OF ALL SERVICES.
- 4 ANY WORK TO EXISTING SERVICES THAT REQUIRES RELOCATION BY AUTHORITIES SHALL BE CARRIED OUT BY THE RELEVANT AUTHORITY BUT WITHIN THE TERMS OF THE CONTRACT AND IN ACCORDANCE WITH THE RELEVANT ACTS AND REGULATIONS.
- 5 **ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF NARRAGANEE DASH EXHIBIT A.**
- 6 STRIP TISSUE, WHICH SHOULD BE EXPOSED NATURALLY OCCURRING SURFACE APPARATUS TISSUE AND STRIP TISSUE SHOULD BE PROTECTED BY THE PERFORMER ABOVE.
- 7 TERRESTRIAL AND AQUATIC CONSTRUCTION MEASURES ARE TO BE IN PLACE DURING ALL CONSTRUCTION WORK. THE PERFORMER SHALL BE RESPONSIBLE FOR THE PREPARATION OF A CERTIFIED AND APPROVED PROGRAM IN ACCORDANCE WITH ACTUAL SITE PLANS, THE DROPS AND MARINE COASTAL ACTS AND REGULATIONS AND THE RELEVANT ACTS AND REGULATIONS.
- 8 WRITING CONSENT SHALL BE SUBMITTED TO COUNCIL FROM THE OWNERS OF ANY ADJACENT PROPERTY REGARDING ANY PHYSICAL INTERFERENCE WITH THEIR PROPERTY AS A RESULT OF THE PROPOSED CONSTRUCTION WORK.
- 9 THE CONTRACTOR SHALL REINSTATE ALL GRASSED AREAS AND FILLING GRABBS AFFECTED BY CONSTRUCTION, ALL BATTERS AND FILLING GRABBS ARE TO BE TOSPOURED AND REVEALED TO ITS ORIGINAL CONDITION.
- 10 EROSION AND SEDIMENTATION CONTROL IS TO BE **IMPLEMENTED IN ACCORDANCE WITH THE REQUIREMENTS OF NARRAGANEE DASH EXHIBIT A.**
- 11 **THE DEVELOPER SHALL BE HELD RESPONSIBLE FOR ANY ENHANCES OF THE CLEAN WATERS ACT TITLE.**
- 12 ALL LEVELS AND DIMENSIONS ARE GIVEN IN METRES UNLESS NOTED OTHERWISE AND ARE TO BE VERIFIED ON SITE PRIOR TO BEING OPENED. ALL HEIGHTS ARE TO THE AUSTRALIAN HIGHEST POINT.

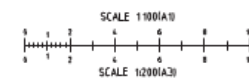


LEGEND

- | | |
|---|---------------------------------|
|  | EXISTING BOTTOM-OF-BANK |
|  | EXISTING TOP-OF-BANK |
|  | EXISTING ROAD CENTERLINE |
|  | EXISTING FENCE |
|  | EXISTING GATE |
|  | PROPOSED POINT |
|  | PROPOSED GATE LOCATION |
|  | EXISTING TABLE/CORNER |
|  | EXISTING TELECOMMUNICATIONS |
|  | EXISTING TELECOMMUNICATIONS FIT |
|  | EXISTING BOX BOX |
|  | EXISTING TREE |

PROPOSED AMENDMENTS TO
DRIVEWAY ACCESS OF 17L
TOMINGLEY WEST ROAD
SCALE 1:100 (A3)
SCALE 1:50 (A3)

PROPOSED AMENDMENTS TO
DRIVEWAY ACCESS OF 29L
TOMINGLEY WEST ROAD
SCALE 1:150 (A3)
SCALE 1:50 (A4)



Row	DATE	BY	CHK	DETAILS
A	01/01/10	AJD	A/N	DRAFT ISSUED
B	01/01/10	AJD	A/N	ISSUED FOR APPROVAL
C	01/01/10	LJP	A/N	SIGNATURE PLANS AMENDED
D	01/01/10	AJD	A/N	ISSUED FOR CONSTRUCTION
E	01/01/10	LJP	A/N	ADDT KINAL OVERPOSTS ADDED
F	01/01/10	HR	A/N	REVISION OF DESIGN CENTRELINE / ISSUED FOR APPROVAL
G	01/01/10	LJP	SBH	PRIVATE ACCESS REARRANGEMENT & MORE ACCESS WAS DETAIL & ADDED

CHECKED/APPROVED	NAME	DATE
APPROVED	S.H	24/10/0
SURVEY	MM	15/11/12
DESIGNER	AJN/RJD	24/10/0
DRAWING	AJB/LRP/HH	24/10/0



CLIENT	TOMINGLEY GOLD OPERATIONS LTD.
PROJECT	TOMINGLEY WEST ROAD UPGRADE



PRIVATE ACCESS REARRANGEMENTS		DATE: APR 1984	
FORMWORK NUMBER: 88M 2294	PROJECT NUMBER: 111185		DATE: 01G E19
APPROVED FOR: [Signature]		APPROVED FOR: [Signature]	
STATUS: FOR APPROVAL		SHEET E19 OF E19	

APPENDIX C

Intersection Sensitivity Analysis (reproduced from EA)



Movement Summary

SH17 and MR89

2017 Base+Sen PM - Parkes

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	21	28.6	0.014	9.3	LOS A	0	0.00	0.67	49.0
2	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		211	32.7	0.118	0.9	LOS A	0.00	0.07		58.7
SH17 - North										
8	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.012	11.3	LOS A	1	0.39	0.66	46.9
Approach		200	33.0	0.118	0.6	LOS A	1	0.02	0.03	59.2
MR89 - West										
10	L	11	30.0	0.500	26.7	LOS B	30	0.75	1.01	35.2
12	R	127	29.9	0.494	26.9	LOS B	30	0.75	1.05	35.0
Approach		137	29.9	0.495	26.9	LOS B	30	0.75	1.05	35.1
All Vehicles		548	32.1	0.500	7.3	Not Applicable	30	0.19	0.30	50.4

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



Site: 2017 Base+Sen PM - Parkes
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Movement Summary

SH17 and MR89

2017 Base+Sen AM - Parkes

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	127	29.9	0.083	9.3	LOS A	0	0.00	0.67	49.0
2	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		317	31.9	0.118	3.7	LOS A		0.00	0.27	55.0
SH17 - North										
8	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.014	12.4	LOS A	1	0.47	0.70	45.8
Approach		200	33.0	0.118	0.6	LOS A	1	0.02	0.03	59.1
MR89 - West										
10	L	11	30.0	0.105	19.4	LOS B	4	0.62	0.76	39.9
12	R	21	28.6	0.106	19.6	LOS B	4	0.62	0.86	39.8
Approach		31	29.0	0.106	19.5	LOS B	4	0.62	0.84	39.8
All Vehicles		548	32.1	0.118	3.5	Not Applicable	4	0.04	0.22	55.2

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Movement Summary

SH17 and MR89

2017 Base+Sen PM - Dubbo

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	21	28.6	0.014	9.3	LOS A	0	0.00	0.67	49.0
2	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		211	32.7	0.118	0.9	LOS A		0.00	0.07	58.7
SH17 - North										
8	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.012	11.3	LOS A	1	0.39	0.66	46.9
Approach		200	33.0	0.118	0.6	LOS A	1	0.02	0.03	59.2
MR89 - West										
10	L	117	29.9	0.248	13.3	LOS A	11	0.49	0.74	44.9
12	R	21	28.6	0.247	13.5	LOS A	11	0.49	0.84	44.7
Approach		138	29.7	0.248	13.4	LOS A	11	0.49	0.76	44.8
All Vehicles		549	32.1	0.248	3.9	Not Applicable	11	0.13	0.23	54.6

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

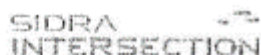
Following Queue
- Density for continuous movement



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Movement Summary

SH17 and MR89

2017 Base+Sen AM - Dubbo

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	21	28.6	0.014	9.3	LOS A	0	0.00	0.67	49.0
2	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		211	32.7	0.118	0.9	LOS A		0.00	0.07	58.7
SH17 - North										
8	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	117	29.9	0.141	11.6	LOS A	7	0.42	0.72	46.6
Approach		307	31.9	0.141	4.4	LOS A	7	0.16	0.27	54.1
MR89 - West										
10	L	11	30.0	0.119	21.2	LOS B	5	0.63	0.73	38.6
12	R	21	28.6	0.119	21.4	LOS B	5	0.63	0.88	38.5
Approach		31	29.0	0.119	21.3	LOS B	5	0.63	0.83	38.5
All Vehicles		549	32.1	0.141	4.0	Not Applicable	7	0.13	0.23	54.5

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Movement Summary

SH17 and MR89

2017 Base+Dev PM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	21	28.6	0.014	9.3	LOS A	0	0.00	0.67	49.0
2	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		211	32.7	0.118	0.9	LOS A		0.00	0.07	58.7
SH17 - North										
8	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.012	11.3	LOS A	1	0.39	0.66	46.9
Approach		200	33.0	0.118	0.6	LOS A	1	0.02	0.03	59.2
MR89 - West										
10	L	49	30.0	0.286	18.0	LOS B	14	0.59	0.80	40.9
12	R	56	30.4	0.286	18.1	LOS B	14	0.59	0.90	40.8
Approach		106	30.2	0.286	18.1	LOS B	14	0.59	0.85	40.9
All Vehicles		517	32.3	0.286	4.3	Not Applicable	14	0.13	0.21	54.1

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Movement Summary

SH17 and MR89

2017 Base+Dev AM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	56	30.4	0.037	9.3	LOS A	0	0.00	0.67	49.0
2	T	169	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		246	32.5	0.118	2.1	LOS A		0.00	0.15	57.1
SH17 - North										
8	T	169	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	49	30.0	0.064	11.8	LOS A	3	0.43	0.71	46.4
Approach		240	32.5	0.118	2.5	LOS A	3	0.09	0.15	56.6
MR89 - West										
10	L	11	30.0	0.106	19.4	LOS B	4	0.60	0.73	39.9
12	R	21	28.6	0.106	19.6	LOS B	4	0.60	0.88	39.8
Approach		31	29.0	0.106	19.5	LOS B	4	0.60	0.83	39.8
All Vehicles		517	32.3	0.118	3.3	Not Applicable	4	0.08	0.19	55.4

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement

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Movement Summary

SH17 and MR89

2017 Base

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	21	28.6	0.014	9.3	LOS A	0	0.00	0.67	49.0
2	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
Approach		211	32.7	0.118	0.9	LOS A	0.00	0.07		58.7
SH17 - North										
8	T	189	33.2	0.118	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.012	11.3	LOS A	1	0.39	0.66	46.9
Approach		200	33.0	0.118	0.6	LOS A	1	0.02	0.03	59.2
MR89 - West										
10	L	11	30.0	0.093	17.5	LOS B	4	0.57	0.71	41.4
12	R	21	28.6	0.092	17.6	LOS B	4	0.57	0.86	41.2
Approach		31	29.0	0.092	17.6	LOS B	4	0.57	0.81	41.3
All Vehicles		442	32.6	0.118	1.9	Not Applicable	4	0.05	0.10	57.2

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Movement Summary

SH17 and MR89

2009 Base+Sen PM - Parkes

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		174	32.8	0.098	0.9	LOS A		0.00	0.06	58.8
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.011	11.0	LOS A	0	0.35	0.65	47.2
Approach		168	32.7	0.098	0.7	LOS A	0	0.02	0.04	59.1
MR89 - West										
10	L	11	30.0	0.400	21.0	LOS B	23	0.66	0.87	38.7
12	R	121	29.8	0.394	21.2	LOS B	23	0.66	0.97	38.6
Approach		131	29.8	0.394	21.2	LOS B	23	0.66	0.96	38.6
All Vehicles		473	31.9	0.400	6.4	Not Applicable	23	0.19	0.30	51.5

Symbols which may appear in this table:

Following Degree of Saturation
 $x = 1.00$ for Short Lane with resulting Excess Flow
 $x = 1.00$ due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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INTERSECTION

Movement Summary

SH17 and MR89

2009 Base+Sen AM - Parkes

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	121	29.8	0.079	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		279	31.5	0.098	4.0	LOS A	0.00	0.29	54.7	
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.013	12.0	LOS A	1	0.44	0.68	46.2
Approach		168	32.7	0.098	0.7	LOS A	1	0.03	0.04	59.0
MR89 - West										
10	L	11	30.0	0.074	16.8	LOS B	3	0.56	0.71	41.9
12	R	16	31.2	0.074	17.0	LOS B	3	0.56	0.86	41.7
Approach		26	30.8	0.074	16.9	LOS B	3	0.56	0.80	41.8
All Vehicles		473	31.9	0.098	3.6	Not Applicable	3	0.04	0.23	55.2

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement

SIDRA
SOLUTIONS

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Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Comment
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SIDRA INTERSECTION

Movement Summary

SH17 and MR89

2009 Base+Sen PM - Dubbo

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		174	32.8	0.098	0.9	LOS A	0	0.00	0.06	58.8
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.011	11.0	LOS A	0	0.35	0.65	47.2
Approach		168	32.7	0.098	0.7	LOS A	0	0.02	0.04	59.1
MR89 - West										
10	L	116	30.2	0.211	12.2	LOS A	10	0.43	0.70	45.9
12	R	16	31.2	0.211	12.4	LOS A	10	0.43	0.82	45.8
Approach		132	30.3	0.211	12.2	LOS A	10	0.43	0.72	45.9
All Vehicles		474	32.1	0.211	4.0	Not Applicable	10	0.13	0.24	54.6

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Comment
2009 Base+Sen PM - Dubbo	D:\Modelling\FJP\09-April-Sidra\20100115-revise\SH17 and MR89.aep	2010-01-15	12:23:59	AKCELIK	3.2.2.1563	Completed	

Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Type	Model Category	Model Subcategory	Model Description	Model Notes
2009 Base+Sen AM - Dubbo	D:\Modelling\FJF\09-April-Sidra\20100115-revise\SH17 and MR89.aap	2010-01-15	12:23:59	AM	3.2.2.1563	Processed	Intersection	Signal	Control	2009 Base+Sen AM - Dubbo	

SIDRA INTERSECTION

Movement Summary

SH17 and MR89

2009 Base+Sen AM - Dubbo

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		174	32.8	0.098	0.9	LOS A	0.00	0.06	58.8	
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	116	30.2	0.132	11.2	LOS A	6	0.38	0.70	47.0
Approach		274	31.8	0.132	4.7	LOS A	6	0.16	0.30	53.7
MR89 - West										
10	L	11	30.0	0.083	18.2	LOS B	3	0.55	0.68	40.8
12	R	16	31.2	0.082	18.3	LOS B	3	0.55	0.86	40.7
Approach		26	30.8	0.082	18.3	LOS B	3	0.55	0.79	40.7
All Vehicles		474	32.1	0.132	4.1	Not Applicable	6	0.12	0.24	54.5

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Type	Model Category	Model Subcategory	Model Description	Model Notes
2009 Base+Sen AM - Dubbo	D:\Modelling\FJF\09-April-Sidra\20100115-revise\SH17 and MR89.aap	2010-01-15	12:23:59	AM	3.2.2.1563	Processed	Intersection	Signal	Control	2009 Base+Sen AM - Dubbo	

Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Type	Model Category	Model Subcategory	Model Description	Model Notes
2009 Base+Sen AM - Dubbo	D:\Modelling\FJF\09-April-Sidra\20100115-revise\SH17 and MR89.aap	2010-01-15	12:23:59	AM	3.2.2.1563	Processed	Intersection	Signal	Control	2009 Base+Sen AM - Dubbo	

SH17 - South	1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
	2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach			174	32.8	0.098	0.9	LOS A	0	0.00	0.06	58.8

SIDRA INTERSECTION

Movement Summary

SH17 and MR89

2009 Base+Dev PM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		174	32.8	0.098	0.9	LOS A	0	0.00	0.06	58.8
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.011	11.0	LOS A	0	0.35	0.65	47.2
Approach		168	32.7	0.098	0.7	LOS A	0	0.02	0.04	59.1
MR89 - West										
10	L	49	30.0	0.216	14.9	LOS B	10	0.51	0.71	43.5
12	R	47	29.8	0.217	15.1	LOS B	10	0.51	0.85	43.3
Approach		97	29.9	0.216	15.0	LOS B	10	0.51	0.78	43.4
All Vehicles		439	32.1	0.217	3.9	Not Applicable	10	0.12	0.21	54.6

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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SH17 - South	1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
	2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach			174	32.8	0.098	0.9	LOS A	0	0.00	0.06	58.8

Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Description	Model Location	Model Scale	Model Units	Model Language	Model Color	Model Font	Model Size	Model Print	Model Save	Model Load	Model Run	Model Stop	Model Help	Model About	Model Exit
Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Description	Model Location	Model Scale	Model Units	Model Language	Model Color	Model Font	Model Size	Model Print	Model Save	Model Load	Model Run	Model Stop	Model Help	Model About	Model Exit

SIDRA INTERSECTION

Movement Summary

SH17 and MR89

2009 Base+Dev AM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	47	29.8	0.031	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		205	32.2	0.098	2.1	LOS A	0	0.00	0.15	57.1
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	47	29.8	0.056	11.3	LOS A	2	0.39	0.69	46.8
Approach		205	32.2	0.098	2.6	LOS A	2	0.09	0.16	56.4
MR89 - West										
10	L	11	30.0	0.073	16.6	LOS B	3	0.54	0.69	42.0
12	R	16	31.2	0.073	16.8	LOS B	3	0.54	0.85	41.9
Approach		26	30.8	0.073	16.7	LOS B	3	0.54	0.79	41.9
All Vehicles		436	32.1	0.098	3.2	Not Applicable	3	0.07	0.19	55.6

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Description	Model Location	Model Scale	Model Units	Model Language	Model Color	Model Font	Model Size	Model Print	Model Save	Model Load	Model Run	Model Stop	Model Help	Model About	Model Exit
Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Description	Model Location	Model Scale	Model Units	Model Language	Model Color	Model Font	Model Size	Model Print	Model Save	Model Load	Model Run	Model Stop	Model Help	Model About	Model Exit

Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Description	Model Location	Model Scale	Model Units	Model Language	Model Color	Model Font	Model Size	Model Print	Model Save	Model Load	Model Run	Model Stop	Model Help	Model About	Model Exit
Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Description	Model Location	Model Scale	Model Units	Model Language	Model Color	Model Font	Model Size	Model Print	Model Save	Model Load	Model Run	Model Stop	Model Help	Model About	Model Exit

SIDRA INTERSECTION

Movement Summary

SH17 and MR89

2009 Base

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
SH17 - South										
1	L	16	31.2	0.011	9.3	LOS A	0	0.00	0.67	49.0
2	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
Approach		174	32.8	0.098	0.9	LOS A	0	0.00	0.06	58.8
SH17 - North										
8	T	158	32.9	0.098	0.0	LOS A	0	0.00	0.00	60.0
9	R	11	30.0	0.011	11.0	LOS A	0	0.35	0.65	47.2
Approach		168	32.7	0.098	0.7	LOS A	0	0.02	0.04	59.1
MR89 - West										
10	L	11	30.0	0.065	15.2	LOS B	3	0.50	0.67	43.2
12	R	16	31.2	0.065	15.4	LOS B	3	0.50	0.81	43.0
Approach		26	30.8	0.065	15.4	LOS B	3	0.50	0.76	43.1
All Vehicles		368	32.6	0.098	1.8	Not Applicable	3	0.05	0.10	57.4

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement

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2017 Base+Sen PM Tomingley	11.2	11.7	11.6	8.2	6.0	0.9	11	11	11	11
Level of Service	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
95% Back of Queue (m)	11	11	11	0	0	0	1	1	1	1
Prop. Queued	0.30	0.30	0.30	0.00	0.00	0.00	0.12	0.12	0.12	0.12
Eff. Stop Rate	0.59	0.68	0.67	0.67	0.00	0.08	0.00	0.65	0.07	0.45
Aver Speed (km/h)	47.3	46.9	47.0	49.0	60.0	58.5	58.3	48.1	56.9	50.5

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2017 Base+Sen PM Tomingley

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	4	40.0	0.200	11.2	LOS A	11	0.30	0.59	47.3
3	R	109	40.0	0.200	11.7	LOS A	11	0.30	0.68	46.9
Approach		115	40.0	0.199	11.6	LOS A	11	0.30	0.67	47.0
MR89 - East										
4	L	4	0.0	0.021	8.2	LOS A	0	0.00	0.67	49.0
5	T	32	29.0	0.021	6.0	LOS A	0	0.00	0.00	60.0
Approach		35	25.7	0.021	0.9	LOS A	0	0.00	0.08	58.5
MR89 - West										
11	T	32	29.0	0.022	0.1	LOS A	1	0.12	0.00	58.3
12	R	4	0.0	0.022	8.6	LOS A	1	0.12	0.65	48.1
Approach		35	25.7	0.022	1.1	LOS A	1	0.12	0.07	56.9
All Vehicles		195	34.6	0.200	7.6	Not Applicable	11	0.21	0.45	50.5

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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2017 Base+Sen PM Tomingley	11.2	11.7	11.6	8.2	6.0	0.9	11	11	11	11
Level of Service	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
95% Back of Queue (m)	11	11	11	0	0	0	1	1	1	1
Prop. Queued	0.30	0.30	0.30	0.00	0.00	0.00	0.12	0.12	0.12	0.12
Eff. Stop Rate	0.59	0.68	0.67	0.67	0.00	0.08	0.00	0.65	0.07	0.45
Aver Speed (km/h)	47.3	46.9	47.0	49.0	60.0	58.5	58.3	48.1	56.9	50.5

2017 Base+Sen PM Tomingley	11.2	11.7	11.6	8.2	6.0	0.9	11	11	11	11
Level of Service	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
95% Back of Queue (m)	11	11	11	0	0	0	1	1	1	1
Prop. Queued	0.30	0.30	0.30	0.00	0.00	0.00	0.12	0.12	0.12	0.12
Eff. Stop Rate	0.59	0.68	0.67	0.67	0.00	0.08	0.00	0.65	0.07	0.45
Aver Speed (km/h)	47.3	46.9	47.0	49.0	60.0	58.5	58.3	48.1	56.9	50.5

1	109	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.3
3	4	40.0	0.139	10.5	LOS A	7	0.16	0.69	48.0
Approach	115	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.2

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2017 Base+Sen PM Narromine

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	109	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.3
3	R	4	40.0	0.139	10.5	LOS A	7	0.16	0.69	48.0
Approach		115	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.2
MR89 - East										
4	L	4	0.0	0.021	8.2	LOS A	0	0.00	0.67	49.0
5	T	32	29.0	0.021	0.0	LOS A	0	0.00	0.00	60.0
Approach		35	25.7	0.021	0.9	LOS A	0	0.00	0.08	58.5
MR89 - West										
11	T	32	29.0	0.022	0.1	LOS A	1	0.12	0.00	58.3
12	R	4	0.0	0.022	8.6	LOS A	1	0.12	0.65	48.1
Approach		35	25.7	0.022	1.1	LOS A	1	0.12	0.07	56.9
All Vehicles		185	34.6	0.139	6.7	Not Applicable	7	0.12	0.42	51.4

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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1	109	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.3
3	4	40.0	0.139	10.5	LOS A	7	0.16	0.69	48.0
Approach	115	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.2

1	109	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.3
3	4	40.0	0.139	10.5	LOS A	7	0.16	0.69	48.0
Approach	115	40.0	0.139	10.1	LOS A	7	0.16	0.63	48.2

SIDRA INTERSECTION

2017 Base+Sen AM Narromine

Vehicle Movements



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SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2017 Base+ Dev PM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	39	41.0	0.179	10.8	LOS A	9	0.23	0.61	47.7
3	R	75	40.0	0.179	11.3	LOS A	9	0.23	0.68	47.3
Approach		114	40.4	0.179	11.1	LOS A	9	0.23	0.66	47.5
MR89 - East										
4	L	4	0.0	0.021	8.2	LOS A	0	0.00	0.57	49.0
5	T	32	29.0	0.021	0.0	LOS A	0	0.00	0.00	60.0
Approach		35	25.7	0.021	0.9	LOS A	0	0.00	0.08	58.5
MR89 - West										
11	T	32	29.0	0.022	0.1	LOS A	1	0.12	0.00	58.3
12	R	4	0.0	0.022	8.6	LOS A	1	0.12	0.65	48.1
Approach		35	25.7	0.022	1.1	LOS A	1	0.12	0.07	56.9
All Vehicles		184	34.8	0.179	7.3	Not Applicable	9	0.17	0.44	50.9

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Movement Summary

MR89 and Tomingley West Road

2017 Base+Dev AM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	4	40.0	0.016	11.2	LOS A	1	0.26	0.60	47.3
3	R	4	40.0	0.016	11.6	LOS A	1	0.26	0.68	47.0
Approach		10	40.0	0.016	11.4	LOS A	1	0.26	0.64	47.1
MR89 - East										
4	L	75	0.0	0.059	8.2	LOS A	0	0.00	0.67	49.0
5	T	32	29.0	0.059	0.0	LOS A	0	0.00	0.00	60.0
Approach		106	8.5	0.059	5.8	LOS A		0.00	0.47	51.7
MR89 - West										
11	T	32	29.0	0.049	0.4	LOS A	2	0.21	0.00	57.1
12	R	39	0.0	0.049	8.9	LOS A	2	0.21	0.64	47.8
Approach		70	12.9	0.049	5.1	LOS A	2	0.21	0.36	51.5
All Vehicles		186	11.0	0.059	5.0	Not Applicable	2	0.09	0.44	51.4

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Model Name	2017 Base+Dev AM	Model Date	15/01/2010	Model Time	12:29:34	Model User	AKCELIK	Model Path	D:\Modelling\FJF\09-April-Sidra\20100115-revise\MR89 and Tomingley West.aap	Model Result	OK
Model Type	Intersection	Model Version	3.2.2.1563	Model Author	AKCELIK	Model Reviewer	AKCELIK	Model Status	Completed	Model Comments	
Model Input	2017 Base+Dev AM	Model Output	2017 Base+Dev AM	Model Data	2017 Base+Dev AM	Model Results	2017 Base+Dev AM	Model Files	2017 Base+Dev AM	Model Reports	2017 Base+Dev AM

1	4	40.0	0.015	10.5	LOS A	1	0.18	0.61	48.1
3	4	40.0	0.015	10.9	LOS A	1	0.18	0.66	47.8
Approach	10	40.0	0.015	10.7	LOS A	1	0.18	0.64	47.9

SIDRA
INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2017 Base

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	4	40.0	0.015	10.5	LOS A	1	0.18	0.61	48.1
3	R	4	40.0	0.015	10.9	LOS A	1	0.18	0.66	47.8
Approach		10	40.0	0.015	10.7	LOS A	1	0.18	0.64	47.9
MR89 - East										
4	L	4	0.0	0.021	8.2	LOS A	0	0.00	0.67	49.0
5	T	32	29.0	0.021	0.0	LOS A	0	0.00	0.00	60.0
Approach		35	25.7	0.021	0.9	LOS A	0	0.00	0.08	58.5
MR89 - West										
11	T	32	29.0	0.022	0.1	LOS A	1	0.12	0.00	58.3
12	R	4	0.0	0.022	8.6	LOS A	1	0.12	0.65	48.1
Approach		35	25.7	0.022	1.1	LOS A	1	0.12	0.07	56.9
All Vehicles		80	27.5	0.022	2.2	Not Applicable	1	0.08	0.15	56.3

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement

SIDRA SOLUTIONS

Site: 2017 Base
D:\Modelling\FJF\09-April-Sidra\20100115-revise\MR89 and Tomingley West.aap
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1	4	40.0	0.015	10.5	LOS A	1	0.18	0.61	48.1
3	4	40.0	0.015	10.9	LOS A	1	0.18	0.66	47.8
Approach	10	40.0	0.015	10.7	LOS A	1	0.18	0.64	47.9

4	4	0.0	0.021	8.2	LOS A	0	0.00	0.67	49.0
5	32	29.0	0.021	0.0	LOS A	0	0.00	0.00	60.0
Approach	35	25.7	0.021	0.9	LOS A	0	0.00	0.08	58.5

11	32	29.0	0.022	0.1	LOS A	1	0.12	0.00	58.3
12	4	0.0	0.022	8.6	LOS A	1	0.12	0.65	48.1
Approach	35	25.7	0.022	1.1	LOS A	1	0.12	0.07	56.9

Table 1. Summary of the data used in the study									
Variable	Unit	Mean	SD	Min	Max	Skewness	Kurtosis	Normality	Outliers
Age	Years	35.2	12.5	18	65	-0.1	3.2	Normal	None
Gender	Male/Female	15/15	0	0	1	0	0	Binomial	None
Education	Years	12.8	1.5	9	16	0.2	2.8	Normal	None
Income	USD/month	1200	300	500	2000	0.5	2.5	Normal	None
Marital Status	Married/Single	10/5	0	0	1	0	0	Binomial	None
Occupation	Various	15	0	0	1	0	0	Binomial	None
Health Status	Good/Bad	12/3	0	0	1	0	0	Binomial	None
Smoking Status	Smoker/Non-smoker	5/10	0	0	1	0	0	Binomial	None
Alcohol Consumption	Yes/No	2/13	0	0	1	0	0	Binomial	None
Stress Level	Low/High	8/7	0	0	1	0	0	Binomial	None
Depression Score	0-10	4.5	2.5	0	10	-0.5	2.0	Normal	None
Anxiety Score	0-10	3.8	2.2	0	10	-0.3	1.8	Normal	None
Sleep Quality	Good/Poor	10/5	0	0	1	0	0	Binomial	None
Energy Level	High/Low	12/3	0	0	1	0	0	Binomial	None
Life Satisfaction	0-10	6.2	2.8	0	10	-0.2	2.2	Normal	None
Physical Activity	Yes/No	10/5	0	0	1	0	0	Binomial	None
Dietary Habits	Healthy/Unhealthy	8/7	0	0	1	0	0	Binomial	None
Social Support	Strong/Weak	10/5	0	0	1	0	0	Binomial	None
Work-Life Balance	Good/Bad	12/3	0	0	1	0	0	Binomial	None
Overall Well-being	0-10	5.5	2.5	0	10	-0.4	2.0	Normal	None

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base+Sen PM Tomingley

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	3	33.3	0.188	11.0	LOS A	10	0.27	0.59	47.5
3	R	108	39.8	0.188	11.4	LOS A	10	0.27	0.67	47.2
Approach		111	39.6	0.188	11.4	LOS A	10	0.27	0.67	47.2
MR89 - East										
4	L	3	0.0	0.018	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.018	0.0	LOS A	0	0.00	0.00	60.0
Approach		29	27.6	0.018	0.8	LOS A		0.00	0.07	58.6
MR89 - West										
11	T	26	30.8	0.018	0.1	LOS A	1	0.11	0.00	58.5
12	R	3	0.0	0.018	8.6	LOS A	1	0.11	0.65	49.2
Approach		29	27.6	0.018	1.0	LOS A	1	0.11	0.07	57.2
All Vehicles										
		160	35.5	0.188	7.8	Not Applicable	10	0.20	0.46	50.4

Symbols which may appear in this table:

Following Degree of Saturation
 @ $x = 1.00$ for Short Lane with resulting Excess Flow
 * $x = 1.00$ due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Table 1. Summary of the data sets used in the study									
Dataset	Number of samples	Number of features	Number of classes	Number of samples per class	Number of samples per feature	Number of samples per class per feature	Number of samples per class per feature per class	Number of samples per class per feature per class per class	Number of samples per class per feature per class per class per class
Dataset 1	1000	10	2	500	10	50	100	200	400
Dataset 2	1000	10	2	500	10	50	100	200	400
Dataset 3	1000	10	2	500	10	50	100	200	400
Dataset 4	1000	10	2	500	10	50	100	200	400
Dataset 5	1000	10	2	500	10	50	100	200	400
Dataset 6	1000	10	2	500	10	50	100	200	400
Dataset 7	1000	10	2	500	10	50	100	200	400
Dataset 8	1000	10	2	500	10	50	100	200	400
Dataset 9	1000	10	2	500	10	50	100	200	400
Dataset 10	1000	10	2	500	10	50	100	200	400

[illegible]

[illegible]

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base+Sen AM Tomingley

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	3	33.3	0.009	10.8	LOS A	0	0.25	0.60	47.7
3	R	3	33.3	0.009	11.2	LOS A	0	0.25	0.65	47.4
Approach		6	33.3	0.009	11.0	LOS A	0	0.25	0.63	47.6
MR89 - East										
4	L	108	0.0	0.074	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.074	9.0	LOS A	0	0.00	0.00	60.0
Approach		134	6.0	0.074	6.6	LOS A		0.00	0.54	50.8
MR89 - West										
11	T	26	30.8	0.018	9.5	LOS A	1	0.24	0.00	56.7
12	R	3	0.0	0.018	8.9	LOS A	1	0.24	0.64	47.7
Approach		29	27.6	0.018	1.4	LOS A	1	0.24	0.07	55.6
All Vehicles										
		169	10.7	0.074	5.9	Not Applicable	1	0.05	0.46	51.4

Symbols which may appear in this table:

Following Degree of Saturation
 # x = 1.00 for Short Lane with resulting Excess Flow
 * x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Site: 2009 Base+Sen PM Narromine	Model: 2009 Base+Sen PM Narromine	Scenario: 2009 Base+Sen PM Narromine	Analysis: 2009 Base+Sen PM Narromine	Results: 2009 Base+Sen PM Narromine	Comments: 2009 Base+Sen PM Narromine
2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base+Sen PM Narromine

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	108	39.8	0.132	10.0	LOS A	6	0.14	0.63	48.3
3	R	3	33.3	0.130	10.4	LOS A	6	0.14	0.68	48.1
Approach		111	39.6	0.132	10.0	LOS A	6	0.14	0.63	48.3
MR89 - East										
4	L	3	0.0	0.018	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.018	0.0	LOS A	0	0.00	0.00	60.0
Approach		29	27.6	0.018	0.8	LOS A	0	0.00	0.07	58.6
MR89 - West										
11	T	26	30.8	0.018	0.1	LOS A	1	0.11	0.00	58.5
12	R	3	0.0	0.018	8.6	LOS A	1	0.11	0.65	48.2
Approach		29	27.6	0.018	1.0	LOS A	1	0.11	0.07	57.2
All Vehicles		169	35.5	0.132	6.9	Not Applicable	6	0.11	0.44	51.2

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Site: 2009 Base+Sen PM Narromine	Model: 2009 Base+Sen PM Narromine	Scenario: 2009 Base+Sen PM Narromine	Analysis: 2009 Base+Sen PM Narromine	Results: 2009 Base+Sen PM Narromine	Comments: 2009 Base+Sen PM Narromine
2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine	2009 Base+Sen PM Narromine

Project Name	Tomingley Gold Project
Client	Alkan Resources Ltd
Location	Tomingley, NSW
Project No.	616/06
Report No.	616/06
Version	1.0
Author	AK
Check	AK
Approval	AK
Date	15/01/2010

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base+Sen AM Narromine

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	3	33.3	0.009	11.1	LOS A	0	0.16	0.61	47.5
3	R	3	33.3	0.009	11.5	LOS A	0	0.16	0.69	47.1
Approach		6	33.3	0.009	11.3	LOS A	0	0.16	0.65	47.3
MR89 - East										
4	L	3	0.0	0.018	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.018	0.0	LOS A	0	0.00	0.00	60.0
Approach		29	27.6	0.018	0.8	LOS A	0	0.00	0.07	58.6
MR89 - West										
11	T	26	30.8	0.094	0.1	LOS A	4	0.11	0.00	58.4
12	R	108	0.0	0.094	8.6	LOS A	4	0.11	0.65	48.2
Approach		134	6.0	0.093	6.9	LOS A	4	0.11	0.53	49.9
All Vehicles		169	10.7	0.094	6.0	Not Applicable	4	0.10	0.45	51.1

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Project Name	Tomingley Gold Project
Client	Alkan Resources Ltd
Location	Tomingley, NSW
Project No.	616/06
Report No.	616/06
Version	1.0
Author	AK
Check	AK
Approval	AK
Date	15/01/2010

Project Name	Tomingley Gold Project
Client	Alkan Resources Ltd
Location	Tomingley, NSW
Project No.	616/06
Report No.	616/06
Version	1.0
Author	AK
Check	AK
Approval	AK
Date	15/01/2010

Table 1. Summary of the data used in the study									
Variable	Unit	Mean	SD	Min	Max	Skewness	Kurtosis	Normality	Linearity
Age	Years	35.2	12.5	18	65	-0.1	3.2	0.95	0.98
Gender	Male/Female	1.2	1.1	0	2	0.5	0.8	0.92	0.96
Education	Years	12.5	2.1	8	16	-0.2	2.5	0.96	0.99
Income	USD	1500	500	500	3000	0.3	1.5	0.94	0.97
Marital Status	Married/Single	1.5	1.0	0	2	0.4	0.9	0.93	0.97
Occupation	Professional/Service/Unemployed	1.8	1.2	0	3	0.6	1.0	0.91	0.95
Health Status	Good/Fair/Poor	1.3	1.1	0	3	0.5	0.8	0.92	0.96
Stress Level	Low/Medium/High	1.4	1.0	0	3	0.4	0.9	0.93	0.97
Life Satisfaction	1-5	3.2	0.8	1	5	-0.1	2.8	0.95	0.98
Depression Score	0-10	2.5	1.5	0	10	0.2	1.2	0.94	0.97
Resilience Score	0-10	6.5	1.5	0	10	-0.2	2.5	0.96	0.99
Quality of Life	0-100	75	15	50	100	-0.1	3.0	0.95	0.98

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base+ Dev PM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tonmingley West Road										
1	L	38	39.5	0.170	10.6	LOS A	9	0.21	0.61	47.9
3	R	74	39.7	0.169	11.1	LOS A	9	0.21	0.68	47.6
Approach		111	39.6	0.169	10.9	LOS A	9	0.21	0.65	47.7
MR89 - East										
4	L	3	0.0	0.018	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.018	0.0	LOS A	0	0.00	0.00	60.0
Approach		29	27.6	0.018	0.8	LOS A		0.00	0.07	58.6
MR89 - West										
11	T	26	30.8	0.018	0.1	LOS A	1	0.11	0.00	58.5
12	R	3	0.0	0.018	8.6	LOS A	1	0.11	0.65	48.2
Approach		29	27.6	0.018	1.0	LOS A	1	0.11	0.07	57.2
All Vehicles		169	35.5	0.170	7.5	Not Applicable	9	0.16	0.45	50.8

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* $x = 1.00$ due to minimum capacity

Following LOS

* - Based on density for continuous movements

Following Queue

- Density for continuous movement



SIDRA SOLUTIONS

Site: 2009 Base+ Dev PM

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<p> Table 1. Summary of the data used in the study. </p>									
Variable	Unit	Mean	SD	Min	Max	Skewness	Kurtosis	Shapiro-Wilk	Normality
Age	Years	35.2	12.5	18	65	0.15	-0.5	0.98	Normal
Gender	Male/Female	1.2	0.4	1	2	0.05	0.0	0.99	Normal
Education	Years	12.8	1.5	9	16	-0.1	-0.2	0.99	Normal
Income	\$/month	1500	500	500	3000	0.2	0.1	0.97	Normal
Marital Status	Married/Single	1.1	0.3	1	2	0.02	0.0	0.99	Normal
Occupation	Professional/Service/Unemployed	1.5	0.5	1	3	0.08	0.0	0.98	Normal
Health Status	Good/Fair/Poor	1.8	0.6	1	3	0.12	0.0	0.97	Normal
Stress Level	Low/Medium/High	1.4	0.4	1	3	0.05	0.0	0.99	Normal
Life Satisfaction	1-5	3.2	0.8	1	5	-0.05	-0.1	0.99	Normal
Depression Score	0-10	2.5	1.2	0	10	0.18	0.5	0.96	Normal
Loneliness Score	0-10	3.8	1.5	0	10	0.22	0.8	0.95	Normal
Resilience Score	0-10	4.5	1.8	0	10	-0.12	-0.3	0.98	Normal
Life Satisfaction	1-5	3.2	0.8	1	5	-0.05	-0.1	0.99	Normal
Depression Score	0-10	2.5	1.2	0	10	0.18	0.5	0.96	Normal
Loneliness Score	0-10	3.8	1.5	0	10	0.22	0.8	0.95	Normal
Resilience Score	0-10	4.5	1.8	0	10	-0.12	-0.3	0.98	Normal

Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Type	Model Category	Model Sub-category	Model Description	Model Notes
2009 Base+Dev AM	D:\Modelling\FJF\09-April-Sidra\20100115-revise\MR89 and Tomingley West.aap	2010-01-15	12:29:32	AM	3.2.2.1563	Completed	Intersection	Signalized	Two-Phase	Two-Lane	Two-Phase, Two-Lane

SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base+Dev AM

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	3	33.3	0.009	10.9	LOS A	0	0.24	0.60	47.6
3	R	3	33.3	0.009	11.3	LOS A	0	0.24	0.66	47.3
Approach		6	33.3	0.009	11.1	LOS A	0	0.24	0.63	47.5
MR89 - East										
4	L	74	0.0	0.056	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.056	0.0	LOS A	0	0.00	0.00	60.0
Approach		100	8.0	0.056	6.1	LOS A	0	0.00	0.49	51.4
MR89 - West										
11	T	26	30.8	0.045	0.4	LOS A	2	0.21	0.00	57.2
12	R	38	0.0	0.045	8.8	LOS A	2	0.21	0.64	47.8
Approach		64	12.5	0.045	5.4	LOS A	2	0.21	0.38	51.3
All Vehicles		170	10.6	0.056	6.0	Not Applicable	2	0.09	0.46	51.2

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Type	Model Category	Model Sub-category	Model Description	Model Notes
2009 Base+Dev AM	D:\Modelling\FJF\09-April-Sidra\20100115-revise\MR89 and Tomingley West.aap	2010-01-15	12:29:32	AM	3.2.2.1563	Completed	Intersection	Signalized	Two-Phase	Two-Lane	Two-Phase, Two-Lane

Model Name	Model Path	Model Date	Model Time	Model User	Model Version	Model Status	Model Type	Model Category	Model Sub-category	Model Description	Model Notes
2009 Base+Dev AM	D:\Modelling\FJF\09-April-Sidra\20100115-revise\MR89 and Tomingley West.aap	2010-01-15	12:29:32	AM	3.2.2.1563	Completed	Intersection	Signalized	Two-Phase	Two-Lane	Two-Phase, Two-Lane

Site: 2009 Base	Scenario: 2009 Base	Analysis: 2009 Base	Model: 2009 Base	Results: 2009 Base	Summary: 2009 Base	Details: 2009 Base	Notes: 2009 Base	Comments: 2009 Base	Warnings: 2009 Base	Errors: 2009 Base	Messages: 2009 Base
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SIDRA INTERSECTION

Movement Summary

MR89 and Tomingley West Road

2009 Base

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Tomingley West Road										
1	L	3	33.3	0.008	10.2	LOS A	0	0.16	0.61	48.3
3	R	3	33.3	0.008	10.7	LOS A	0	0.16	0.66	48.0
Approach		6	33.3	0.008	10.5	LOS A	0	0.16	0.63	48.1
MR89 - East										
4	L	3	0.0	0.018	8.2	LOS A	0	0.00	0.67	49.0
5	T	26	30.8	0.018	0.0	LOS A	0	0.00	0.00	60.0
Approach		29	27.6	0.018	0.8	LOS A	0	0.00	0.07	58.6
MR89 - West										
11	T	26	30.8	0.018	0.1	LOS A	1	0.11	0.00	58.5
12	R	3	0.0	0.018	8.8	LOS A	1	0.11	0.65	48.2
Approach		29	27.6	0.018	1.0	LOS A	1	0.11	0.07	57.2
All Vehicles		64	28.1	0.018	1.8	Not Applicable	1	0.06	0.12	56.8

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement



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Site: 2009 Base	Scenario: 2009 Base	Analysis: 2009 Base	Model: 2009 Base	Results: 2009 Base	Summary: 2009 Base	Details: 2009 Base	Notes: 2009 Base	Comments: 2009 Base	Warnings: 2009 Base	Errors: 2009 Base	Messages: 2009 Base
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