Construction Management Plan

AURORA DEVELOPMENT

Stage 2 - Aurora (Lot 688) 3 Kintail Rd, Applecross

Hanssen Pty Ltd

Builders Reg 9922
Phone (08) 6218 3800
Fax (08) 6218 3899
271 Stirling Crescent Hazelmere WA 6055

1. General

1.1 Background

Aurora Applecross Development is stage 2 of Finbar's Applecross development to be constructed at Lot 688 No.3 Kintail Road. The apartment consists of 118 residential apartments, retail and commercial.

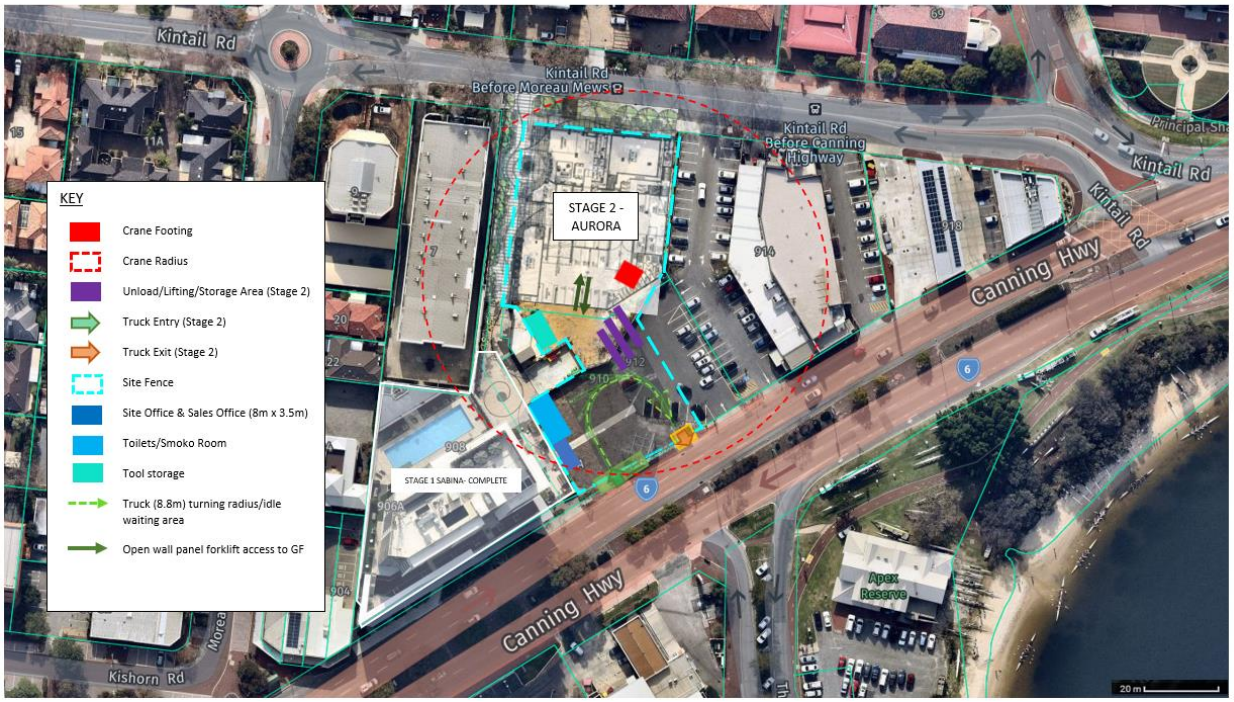
Hanssen Pty Ltd have been engaged by Finbar Group Ltd to construct this development and this Construction Management Plan is a detailed document which outlines the methods and procedures which will be implemented to manage construction activities to ensure the impact on the environment and surrounding community and infrastructure is minimised.

1.2 Site Layout

A general site layout for this works is included at Annexure 1 and below.

Th owner (Applecross Development Pty Ltd) of the land is also the owner of 910 Canning Highway, which is to be used during construction of Aurora.

CANNING HWY
APPLECROSS
LOTS 1, 2, 19, 20, 268
#3+3 KINTAIL RD & #908+#12 CANNING HWY
APPLECROSS 6153
MIXED USE DEVELOPMENT
455 RESIDENTIAL APARTMENTS &
1033M² RETAIL/COMMERCIAL



2. Construction Management Plan

2.1 Road and Footpath Closures

Hanssen Pty Ltd does not propose to close any roads and footpaths for the purpose of construction activities.

2.2 Traffic Management

Whilst no ongoing road closures are expected, suitable traffic management will be in place to make road users aware of construction activities. A traffic management plan has been prepared by QTM for City of Melville and Main Roads approval. Annexure 2 includes initial daily operation scheme for site access and egress Traffic Management Plan for reference.

All large/heavy vehicular traffic from site will use Canning Hwy as a primary access and egress for the works. Trucks access/egress in a forward gear, there is no idling on the street as there is waiting space allocated on site.
Other deliveries and smaller vehicular traffic will access/egress from Kintail Road via the shared Sabina driveway.

2.3 Pedestrian and Vehicular Access

The following measures will be taken by Hanssen Pty Ltd to maintain pedestrian and vehicular access to the road reserve and safeguard the city's facilities:

- Signage will be established at strategic prominent locations to alert pedestrians and road users to the movement of large vehicles associated with construction works ensuring the safety of pedestrians.
- The site office will be adequately signed and will be away from construction works during excavation and construction of the structure. After this a defined entry path will be provided to the site office.
- Temporary fencing will be utilised around the site along with appropriate signage preventing free access to the site.
- Pedestrian Management will be implemented in situations when footpath is to be closed.

2.4 Storage of Materials and Equipment on site

During the works all materials will be stored within the site boundary as indicated on Site Plan attached at Annexure 1. All large vehicle deliveries will access the site via Canning Hwy. Trucks access/egress in a forward gear, there is no idling on the street as there is waiting space allocated on site.

Delivery times: 7:00 am – 5:00 pm

2.5 Provisions for Parking

No parking will be allocated on site. The site is serviced by good public transport and workers carparking requirements are minimised. Workers will be reminded regularly not to park in the surrounding street network.

December 2021- March 2022: 15-20
April – December 2022 (progressive increase): 160 max.
January – mid 2023 (progressive decrease)

Please note there will be a Tool storage area allocated on site *(please see Site Layout)* to assist with commuting via public transport. If public transport is not feasible, nearby on street and City public car parks are located at;

① 29 Moreau Mews

First hour free (ticket must be displayed) $2.20 per hour thereafter.
2 hours free parking located between Kintail and Canning Beach Roads.

② Kishorn Road, Applecross (on street parking)

First hour free (ticket must be displayed) $2.20 per hour thereafter.
2 Hours free between Sleat and Ullapool Road

③ Canning Beach Road

First hour free (ticket must be displayed) $2.20 per hour thereafter located outside The Raffles Hotel.
3 hour free parking located along river between Moreau Mews and Riverway.

④ the Raffles Underground Car Park

First hour free (ticket must be displayed) $1.70 per hour or a maximum of $8.50 per day.
Fees apply 8.00am to 10.00pm Monday to Sunday.

⑤ Apex (2 The Esplanade, Mount Pleasant)

First hour free (ticket must be displayed) $1.70 per hour or $8.50 all day.
Fees apply 8.00am to 6.00pm, Monday to Friday.

⑥ The Precinct

First hour free (ticket must be displayed) $2.20 per hour thereafter

Their locations are mapped out below.

Buildings in the area potentially being built at the same time; Forbes Development, 20-22 Kintail Road and Canning Beach Road. Therefore, if these parking locations are full the below carparks are available.

⑦ Canning Bridge Library – 2 Kintail Road

3 hours free (ticket must be displayed) $3 per hour thereafter.
Fees apply 8.00am to 10.00pm, Monday to Saturday.

⑧ 13 The Esplanade, Mount Pleasant
First hour free (ticket must be displayed) $1.70 per hour thereafter or $8.50 all day.
Fees apply 8.00am to 6.00pm, Monday to Friday.

⑨ Ogilvie Road, Mount Pleasant
First hour free (ticket must be displayed) $3 per hour thereafter.

2.6 Condition of Footpath and Road Reserve

A photographic record of the condition of footpaths and roadways in the vicinity of construction will be conducted prior to works commencing by Encompass Construction Risk Services

2.7 Dewatering

There will be dewatering required on site done in accordance with the Dewatering Management Plan produced by Vortex Group.

2.8 Truck Wash Down Area

There will be no allocated wash down area for trucks onsite. All concrete suppliers are to be advised that their trucks must dispose of excess concrete and wash down at their depot after leaving site.

2.9 Storage and Disposal of Rubbish

All waste produced on site will be dumped in bins in a central location on site. A waste management company compliant to ISO 14001 has been contracted to control site waste.

Amenities onsite for construction (i.e offices and ablutions) will be cleaned out twice daily by site staff.

2.10 Control of Stormwater System Contamination

Site will be fenced off with screens according to the blue permitter marked on the Site Layout To prevent cement, sand and materials being carried offsite. Ongoing inspection and monitoring of access/egress points and the drainage systems for an assigned road sweeper to prevent vehicles and rainfall tracking sediment offsite. Stockpiled materials will be away from drainage, footpath, and vehicle paths.

2.11 Control of Sand and Dust

Shade cloth will be fixed to temporary fencing to prevent the spread of dust from site during excavation and construction of the lowest ground floor level. Water will be used as dust suppression during this stage of construction. Once the ground floor slab is constructed, dust will be minimal and where present will be controlled in a similar manner.

2.12 Fall Protection

2.13 Stormwater run-off

Stormwater run-off will be contained on site in stormwater tanks constructed in the basement and ground floor.

2.14 Noise Management

Please find Hanssen Noise Management Plan attached at Annexure 3.

Hours of operation of the site are restricted to those set out in the Environmental Protection (Noise) Regulations. The likely working hours are Monday-Friday 0700 – 1900hrs and Saturday 0700 – 1500hrs.

2.15 Access to Site

The site will be closed to the public and all visitors will be required to report immediately to the Site Manager via the site office located on site. Site signage stating this will be attached to temporary fencing on site and fencing will prevent the free access of the public to the site. Access and egress to and from the site will be via Canning Hwy.

2.16 Dilapidation Survey

Dilapidation survey will be completed at a later stage prior to works commencing.

7 Kintail Rd, Applecross
914 (IGA) Canning Hwy, Applecross
Post Office, Applecross
Roads and Kerbs, Kintail Rd and Canning Highway, Applecross
Common Sabina driveway

2.17 Community Liaison

Prior to commencement of construction activities an information newsletter will be distributed to all residential and commercial properties included in blue shaded area on plan below. The newsletter will include:-

1. Estimated construction duration and times;
2. Site contact details;
3. Complaints procedure.

Any complaints received will be recorded, and actioned by the Site Manager.

Action to be taken will include contacting the complainant, investigating the situation and providing feedback to the complainant. Where the complaint is made about works underway at that time, the site manager will direct those works to cease until the complaint is investigated, and if deemed necessary implement remedies prior to restarting those works.

- Contact for Complaints & Project/Site Manager – Site Office (08) 6218 3854 or Head Office (08) 6218 3800

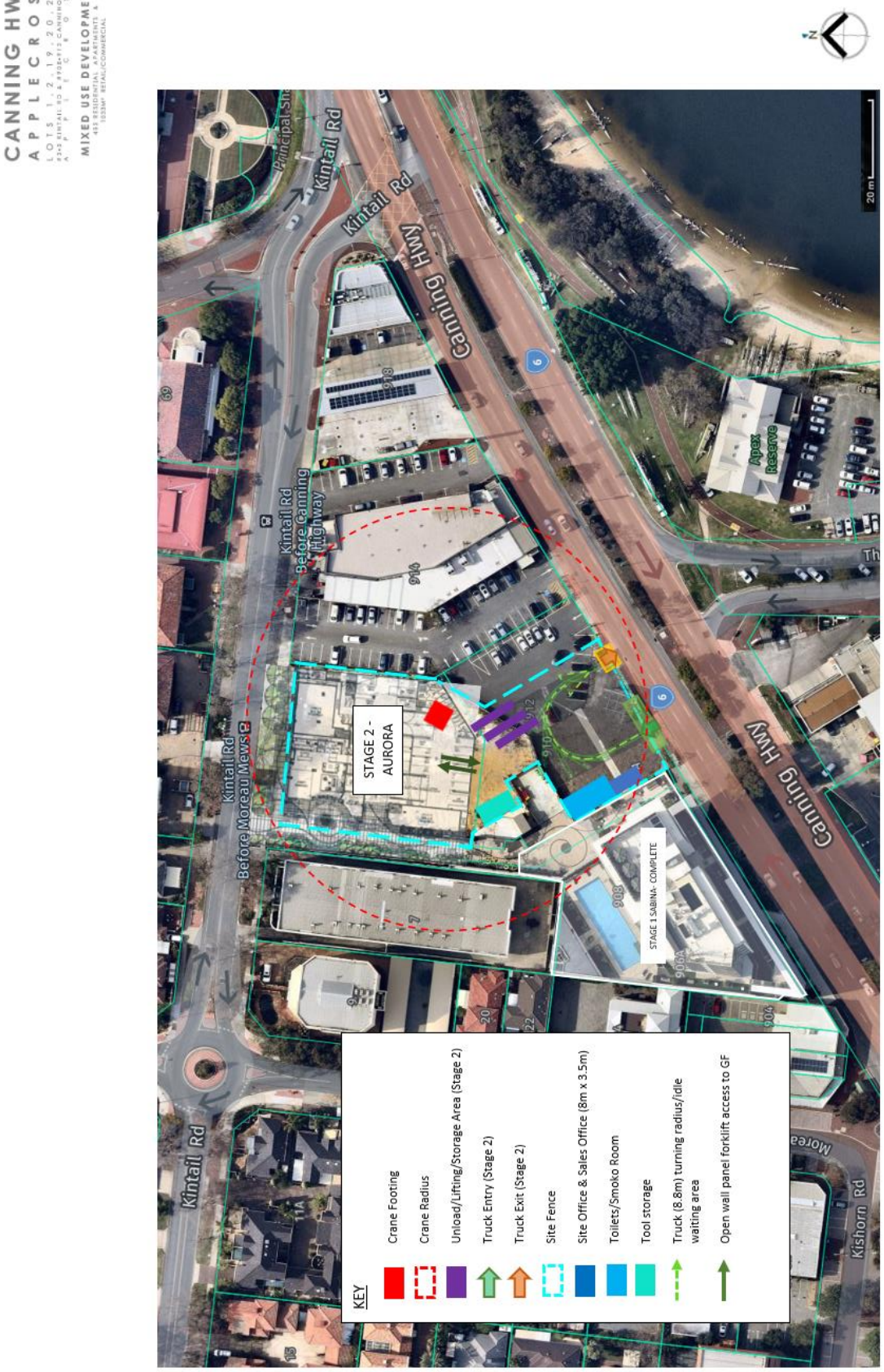
3. Noise and Vibration Management Plan

A noise and vibration management plan is developed for the activities associated with the construction of the Applecross Development.

This management plan outlines the procedures and controls that applied to all noise generating activity on the site. The objectives of these procedures and controls are to ensure that work carry out to minimise noise emission & vibration and protect the amenity of the adjoining noise sensitive receivers.

The Management Plan is included at Annexure 3.

ANNEXURE 1 SITE PLAN



ANNEXURE 2 TRAFFIC MANAGEMENT PLAN

Address

PO Box 97
Maddington WA 6109

21 Cartwright Drive
Forrestdale WA 6112

Works on Roads
Traffic Management Plan

AURORA APPLECROSS APARTMENTS
Canning Highway, Applecross

Client HANSSEN PTY LTD
Date September 2021

Declaration

I Courtney Lemon (KTS-AWTM-21-49008-01) declare that I have designed this Traffic Management Plan following a site inspection on 30/08/2021. The Traffic Management Plan prepared is in accordance with the Main Roads Code of Practice, AGTTM and AS 1742.3.

Signature: ..... Date: ... / ... / .....

	Name / Company	Accreditation Details	Date	Signed
TMP designed by:	Courtney Lemon / QTM	KTS-AWTM-21-49008-01	30/08/2021	
TMP reviewed by:	Michael Downs / QTM	STAP-AWTM-20-2065-02	31/08/2021	
RTM reviewed and endorsed by:				
Compliance Audit to be undertaken by:				
Road Authority Review by:				
Road Authority Authorisation	Road authority authorisation of the implementation of traffic signs and devices is given for Traffic Management Plan No. 2108-TMP30013-001-02. Signed Authorised Officer — Date (Print Name) — Position			
TMP No. 2108-TMP30013-001	**Rev. No. 02**		**Date 6/09/2021**	

REVISION REGISTER

Revision Number	Revision Date	Comments	Section / Page Number	Revised By
01	06/09/2021	TGS amendment	7.1 Page 25	C.L
02	06/09/2021	TGS amendment	7.1 Page 25	C.L

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1.1 Purpose and Scope

This Traffic Management Plan (TMP) outlines the traffic control and traffic management procedures to be implemented by the Project Manager and Project Contractors to manage potential hazards associated with the traffic environment during the project.

The project involves the construction of Aurora Apartments.

1.2 Objectives and Strategies

The objectives of the Traffic Management Plan are to ensure:

- The safety of the road workers.
- All road users, including vulnerable road users, are safely guided around, through or past the work site.
- The performance of the road network is not unduly impacted and the disruption and inconvenience to all road users are minimised for the duration of the works.
- Impacts on users of the road reserve and adjacent properties and facilities are minimised.

In an effort to meet these objectives the Traffic Management Plan will incorporate the following strategies:

- Ensuring all road users are managed including motorists, pedestrians, cyclists, people with disabilities and people using public transport.
- Ensuring work activities are carried out sequentially to minimise adverse impacts.
- Provision will be made for works personnel to enter the work area in a safe manner in accordance with safety procedures.
- All entry and exit movements to and from traffic streams shall be in accordance with the requirements of safe working practices.

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2.1 Location

The works are located at #3 Kintail Road in Applecross. The affected area is indicated in figure 1.0 below.

Figure 1.0 Site Location

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2.2 Project Details, Site Assessment and Site Constraints/Impacts

Item	Description
Project	Aurora Applecross
Location	Cannign Highway, Applecross
Road Classification, Existing Speed Limit	Primary Distributor with an existing speed limit of 60km/h
Road Authority	Main Roads WA
Local Government	City of Melville
Client Prime Contractor	Hanssen Pty Ltd
Sub-Contractor/s	TBD
Scope of Works	Construction of the Aurora Applecross
Staging of Work / Temporary Traffic Management	Stage 1 - Site access / egress: Truck symbolic and pedestrian watch your step signage erected. Additional stages expected to be added as the works progress.
Project Date	01/11/2021 – 01/01/2022
Hours / Days of Work	0700 - 1700
Duration of Work	Approximately 1 year
Other Constraints	- High traffic volumes - Footpaths - Frequent pedestrian movements - Property access / egress to be maintained
Concurrent/adjacent Works or Projects	No concurrent works upon site inspection 30/08/2021

2.3 Existing Traffic and Road Environment

Item	Description
Traffic Volume and Composition	Canning Highway has an average weekday traffic volume of 26,748 vehicles eastbound and 22,640 vehicles westbound
Existing road configuration	Sealed, median divided, two way carriageway with 3 lanes in each direction.
Existing Pedestrian / Cyclist Facilities	Footpaths and crossing points

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2.4 Overview of Proposed Temporary Traffic Management

Item	Description
Temporary Traffic Management Descriptions	Noncomplex traffic arrangements. Site access / egress schemes
Speed Zones – Dates and Times	Not applicable.
Lane Closures – Dates and Times	Not applicable.
Road Closures – Dates and Times	Not applicable.
Signal Modifications Description	Not applicable.
Proposed Lane Widths	Lane widths will be maintained as per their existing widths.
Road Safety Barrier	Not applicable.

2.5 Project Representatives

Position	Name	Contact Details
Road Authority Representative	Main Roads WA	P: 138 138 E: enquires@mainroads.wa.gov.au
Local Government	City of Melville	P: (08) 9364 0666 E: melinfo@melville.wa.gov.au
Project Manager / Prime Contractor	Hanssen Pty Ltd Natasha Moffat	P: (08) 6218 3847 E: natasha@hanssen.com.au
Site Supervisor / Manager		
TMP Design	QTM Engineering Courtney Lemon	P: (08) 6244 1650 E: design@qtm.net.au
TMP Implementation	QTM Traffic Management Aaron Willetts	P: (08) 6244 1650 E: aaron.willetts@qtm.net.au

Hanssen Pty Ltd have engaged QTM Pty Ltd to prepare this Traffic Management Plan and associated controls for the works.

The TMP will be implemented by Hanssen Pty Ltd.

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The following details the preliminary assessment of site hazards likely to be encountered, the level of risk associated with each and the control proposed. Note that the risk level is the level of assessed risk without the controls in place. The controls listed have been determined as being appropriate in reducing the risk to a level that is acceptable.

The hierarchy of control has been utilised to ensure that the highest practicable level of protection and safety is selected:

- Elimination
- Substitution
- Isolation
- Engineering
- Administration
- Personal Protection Equipment

In evaluating the options, a key consideration is whether the option takes traffic around, through or past the worksite.

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3.1 Risk Classification Tables

Qualitative measures of consequence or impact

Level	Descriptor	Example Descriptions
1	Insignificant	Midblock hourly traffic flow per lane is equal to or less than the allowable lane capacity detailed in AGTTM. No impact to the performance of the network. Affected intersection leg operates at a Level of Service (LoS) of A or B. No property damage.
2	Minor	Midblock hourly traffic flow per lane is greater than the allowable road capacity and less than 110% of the allowable road capacity as detailed in AGTTM. Minor impact to the performance of the network. Intersection performance operates at a Level of Service (LoS) of C. Minor property damage.
3	Moderate	Midblock hourly traffic flow per lane is equal to and greater than 110% and less than 135% of allowable road capacity as detailed in AGTTM. Moderate impact to the performance of the network. Intersection performance operates at a Level of Service (LoS) of D. Moderate property damage.
4	Major	Midblock hourly traffic flow per lane is equal to and greater than 135% and less then170% of allowable road capacity as detailed in AGTTM. Major impact to the performance of the network. Intersection performance operates at a Level of Service (LoS) of E. Major property damage.
5	Catastrophic	Midblock hourly traffic flow per lane is equal to and greater than 170% of allowable road capacity as detailed in AGTTM. Unacceptable impact to the performance of the network. Intersection performance operates at a Level of Service (LoS) of F. Total property damage.

OSH qualitative measures of consequence or impact

Level	Descriptor	Example Descriptions
1	Insignificant	No treatment required
2	Minor	First aid treatment required.
3	Moderate	Medical treatment required or Lost Time Injury
4	Major	Single fatality or major injuries or severe permanent disablement
5	Catastrophic	Multiple fatalities.

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Qualitative measures of likelihood

Level	Descriptor	Description
A	Almost Certain	The event or hazard: • is expected to occur in most circumstances, • will probably occur with a frequency in excess of 10 times per year.
B	Likely	The event or hazard: • Will probably occur in most circumstances, • will probably occur with a frequency of between 1 and 10 times per year.
C	Possible	The event or hazard: • might occur at some time, • will probably occur with a frequency of 0.1 to 1 times per year (i.e. once in 1 to 10 years).
D	Unlikely	The event or hazard: • could occur at some time, • will probably occur with a frequency of 0.02 to 0.1 times per year (i.e. once in 10 to 50 years).
E	Rare	The event or hazard: • may occur only in exceptional circumstances, • will probably occur with a frequency of less than 0.02 times per year (i.e. less than once in 50 years).

IMPORTANT NOTE: The likelihood of an event or hazard occurring shall first be assessed over the duration of the activity (i.e. "period of exposure"). For risk assessment purposes the assessed likelihood shall then be proportioned for a "period of exposure" of one year.

Example: An activity has a duration of 6 weeks (i.e. "period of exposure" = 6 weeks). The event or hazard being considered is assessed as likely to occur once every 20 times the activity occurs (i.e. likelihood or frequency = 1 event/20 times activity occurs = 0.05 times per activity). Assessed annual likelihood or frequency = 0.05 times per activity x 52 weeks/6 weeks = 0.4 times per year. Assessed likelihood = Possible.

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Qualitative Risk Analysis Matrix – Risk Rating

	Consequences				
Likelihood	**Insignificant 1**	**Minor 2**	**Moderate 3**	**Major 4**	**Catastrophic 5**
Almost Certain (A)	Low 5	High 10	High 15	Very High 20	Very High 25
Likely (B)	Low 4	Medium 8	High 12	Very High 16	Very High 20
Possible (C)	Low 3	Low 6	Medium 9	High 12	High 15
Unlikely (D)	Low 2	Low 4	Low 6	Medium 8	High 10
Rare (E)	Low 1	Low 2	Low 3	Low 4	Medium 7

Management approach for residual risk

Residual Risk Rating	Required Treatment
Very High	Unacceptable risk. **HOLD POINT.** Work cannot proceed until risk has been reduced.
High	High priority, OSH MR and Roadworks Traffic Manager (RTM) must review the risk assessment and approve the treatment and endorse the TGS prior to its implementation.
Medium	Medium Risk, standard traffic control and work practices subject to review by accredited AWTM personnel prior to implementation.
Low	Managed in accordance with the approved management procedures and traffic control practices.

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3.2 Risk Register

Risk ID	Risk Event	Consequence	Pre-treatment Risk			Treatment	Residual Risk		
			Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Residual
Health & Safety									
1	Personnel may be struck by a vehicle while attempting to install and/or remove signs and devices.	Injury to workers.	D	4	M8	Ensure works personnel are protected by vehicle, have appropriate accreditation and are aware of correct procedures. Ensure all traffic controllers have been sufficiently trained, assessed and are wearing appropriate PPE.	E	4	L4
2	Construction machinery conflicting with traffic management personnel.	Injury to workers.	D	4	M8	Ensure that sufficient clearance between traffic controller positions and the edge of work activities is provided at all times. Ensure all traffic controllers have been sufficiently trained, assessed and are wearing appropriate PPE. Traffic Controllers are to identify their escape route prior to commencement of works.	E	4	L4
Vulnerable Road & Path Users									
3	Pedestrians or cyclists trip/fall over or slip on hazards on the footpath.	Injury to pedestrians.	C	4	H12	TMP details warning to pedestrians and safeguards in the form of advance warning signage and/or Traffic Controllers at strategic locations to ensure safe passage through the site. If required, footpath shall be regularly swept and cleared of debris. Where signs are placed on footpaths, they shall provide sufficient room for a wheelchair/pram access past the sign. Traffic cones should be placed at the bottom of any bipods placed on a footpath.	E	4	L4
4	Pedestrian are unaware of the frequent truck movements and are struck by trucks accessing / egress site.	Injuries to pedestrians.	C	4	H12	Pedestrian watch your step signs to be erected at the access / egress points. Truck symbolic signage to be erected onsite. Trucks to access / egress the site at a low speed limit and proceed with caution.	D	4	M8
Traffic Impacts									
5	Construction traffic entering and leaving the site may conflict with vehicles.	Traffic incident resulting in damage to vehicle(s) and/or injury to drivers.	C	5	H15	TMP Clause 7.4 details procedures for dealing with access and egress from the work area.	E	5	M7

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Risk ID	Risk Event	Consequence	Pre-treatment Risk			Treatment	Residual Risk		
			Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Residual
Specifications, Standards, Rules & Policies									
6	Incorrectly designed or implemented Traffic Management Plan may result in inadequate protection of the worksite.	Injury to workers.	D	4	M8	Traffic Management Plan must be designed & implemented by suitably accredited personnel in accordance with AS1742.3, the Main Roads WA Code of Practice & Austroads Guide to Temporary Traffic Management (AGTTM). The crew leader shall inspect the site to ensure that the temporary traffic management signs and devices have been erected and maintained on-site and comply with the endorsed TMP.	E	4	L4
Environmental & Roadside Obstructions									
7	Temporary traffic management signs and devices become illegible.	Rise in complaints to local government. Reduced compliance of the traffic management signs.	D	4	M8	A drive through inspection of the site shall occur immediately after installation, regularly while installed, and after any change is implemented.	E	4	L4
8	Temporary traffic management signs or devices obstruct footpaths.	Rise in complaints to local government. Damage to vehicles and/or traffic management signs/devices.	A	3	H15	Where signs are placed on footpaths, they shall provide sufficient room for a wheelchair/pram access past the sign. Traffic cones should be placed at the bottom of any bipods placed on a footpath.	D	3	L6
9	Poor environmental conditions including rain, flooding, strong winds, fog/dust/smoke etc.	Impact to the visibility of traffic control devices. Change in condition of road surfaces.	C	4	H12	Provision to address these conditions is detailed in section 5.1 of the TMP. If safety of workers or traffic becomes a significant concern, works are to be aborted or postponed until the weather conditions improve.	E	4	L4

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4.1 Traffic Assessment and Analysis

4.1.1 Traffic and Speed Data

A summary of recent traffic data is provided below:

Location (Site Number)	Vehicles Per Day (% Heavy Vehicles)	Date	Source
Canning Highway (50939)	26,748vpd eastbound (6.3%)	2020/2021	Traffic Map

A summary of recent speed data is provided below:

Location (Site Number)	Posted Speed (KM/H)	85th Percentile Speed (KM/H)	Date	Source
Canning Highway (50939)	60km/h	60.7km/h	2020/2021	Traffic Map

4.1.2 Traffic Flow Analysis

Due to the traffic management arrangements having no impact on the existing network, the traffic management arrangements can be implemented as required by Hanssen Pty Ltd during their working hours as they impose no restrictions.

4.1.3 Temporary Speed Zones

Not applicable.

4.1.4 Existing Traffic Signals

The works will not impact any existing traffic signals.

4.1.5 Impact to Adjoining Network

An assessment of the traffic conditions determine that there is minimal impact on the existing road network.

4.1.6 End-of-Queue Treatment

Not applicable.

4.1.7 Temporary Traffic Signals

Not applicable.

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4.2 Road Users

4.2.1 Pedestrians

It is expected that pedestrians will not be affected by the works. However, Pedestrian Watch Your Step & truck symbolic signs shall be erected on the approach to the access / egress of the site to ensure pedestrians are aware of the frequent truck movements.

4.2.2 Cyclists

Cyclists will not be impeded by these works.

4.2.3 Public Transport

The works are expected to have no immediate impact to public transport or other bus services.

4.2.4 Heavy and Oversized Vehicles

Vehicle classification data indicates that approximately 6.3% of traffic on Canning Highway are classed as heavy vehicles. Canning Highway is not a RAV route and therefore the works shall have no impact on such vehicles.

4.2.5 Existing Parking Facilities

Existing parking facilities will be affected by the works. Hassen will be responsible for the reservation and notification of the parking bays.

4.2.6 Access to Adjoining Properties / Business

Access to nearby properties will remain unaffected by the works.

4.2.7 Rail Crossings

The works will not impact on any rail crossings.

4.2.8 School Crossings

The works will not impact on any school crossings.

4.2.9 Special Events and Other Works

Works are scheduled so that the works are not affected by other work sites and/or special events which may conflict with the effectiveness of the Traffic Management. Where unexpected worksites or events arise, the Local Government Authority shall be notified.

4.2.10 Emergency Vehicle Access

Emergency services will have continual access to all properties and the worksite; hence no specific facilities are required. A Traffic Controller shall assist emergency vehicles requiring to enter and/or travel through the worksite.

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4.3 Night Work Provisions

Works are scheduled to be undertaken during daylight hours and therefore will not be subject to any night requirements.

4.4 Road Safety Barriers

Not applicable.

4.5 Consultation and Communication / Notification

4.5.1 Other Agencies

In accordance with the CoP all relevant agencies shall be notified using the 'Notification of Roadworks' form attached in Appendix "A". A distribution list is provided on the bottom of the form. Other agencies shall be notified as required.

4.5.2 Public

Due to the ow-impact nature of the works, no public notification will take place.

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5.1 Provision to Address Environmental Conditions

5.1.1 Adverse Weather

Weather is not expected to adversely impact on the effectiveness of the traffic control detailed on the attached TGS's. Notwithstanding this, should adverse weather conditions be encountered during the works, the following contingency plans should be activated. Note: any adjustments to the plan shall be risk assessed and approved by someone holding a WTM or AWTM accreditation.

5.1.1.1 Rain

In the event of rain, an on-site assessment shall be made and sign spacing, and tapers may be extended by 25% to account for increased stopping distances. "Slippery When Wet" signs may be placed as required and all changes shall be recorded in the daily diary.

Where rain occurs, Traffic Management Personnel shall audit the site and where signage and / or devices are not clearly visible, signage may need to be adjusted to improve visibility or if necessary provide additional signage and delineation. Where stopping distances are adversely affected by wet surfaces, spacing between signs may need to be adjusted to provide increased reaction time for drivers. In cases where it is determined that the rain is so heavy that the risk is considered unacceptable, all work shall cease until rain has cleared. All changes shall be noted in the daily diary.

5.1.1.2 Floods

Should works be affected by flooding to the extent that the worksite becomes impassable or risk is considered unacceptable, all work shall cease immediately and Traffic Controllers (and other personnel if necessary) shall be deployed immediately to close the site and direct traffic around the flooded area (under the direction of the project manager or traffic manager). Emergency services and the Road Authority shall be notified immediately, and Traffic Controllers shall remain onsite until emergency services and the Road Authority personnel arrive and take control of the site.

5.1.1.3 Other Adverse Weather (strong winds, thunderstorms, etc.)

There is currently no other adverse weather expected to impact on the effectiveness of the traffic control detailed on the attached TGS's. Should unexpected sever weather arise while traffic management is implemented on site, additional equipment shall be sent to site as required to mitigate any hazards that arise. If the works are deemed too dangerous to continue, they shall be rescheduled until a later date.

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5.1.2 Sun Glare

Where sun glare is identified as adversely affecting a driver's ability to sight signage and / or traffic control devices, sign locations may need to be adjusted and additional delineation and/or traffic control devices provided to address the risk from glare. Additionally, in the event that traffic control is adversely affected by glare at sunset and sunrise, traffic controllers may need to assist in maintaining low traffic speeds.

5.1.3 Fog, Dust and Smoke

Where fog, dust or smoke is identified as adversely affecting a driver's ability to sight signage and / or traffic control devices, sign locations may need to be adjusted and additional delineation and/or traffic control devices provided to address the risk. All changes are to be noted in the daily diary.

Should works be affected by fog, dust or smoke to the extent that risk is considered unacceptable, all work shall cease immediately and Traffic Controllers (and other personnel if necessary) shall be deployed immediately to close the site.

5.1.4 Road Geometry, Terrain, Vegetation and Structures

There are no identified impacts associated with road geometry, terrain, vegetation or structures. Notwithstanding this, should the initial setup inspection indicate adverse impacts associated with the geometry, terrain, vegetation or structures, traffic control devices may be extended by 25% or reduced by 10% in order to address identified issues.

5.2 Existing Traffic and Advertising Signage

There are no identified impacts associated with existing traffic or advertising signage. Notwithstanding this, should the initial setup inspection indicate adverse impacts associated with existing signage, traffic control devices may be extended by 25% or reduced by 10% in order to address identified issues.

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6.1 Occupational safety and health

All persons and organisations undertaking these works or using the roadwork site have a duty of care under statute and common law to themselves, their employees, and all site users, lawfully using the site, to take all reasonable measures to prevent accident or injury.

This TMP forms part of the overall project Safety Management Plan and provides details on how all road users considered likely to pass through, past, or around the worksite will be safely and efficiently managed for the full duration of the site occupancy and works.

6.2 Roles and Responsibilities

6.2.1 Responsibilities

The Project Manager has the ultimate responsibility to ensure the TMP is implemented for the prevention of injury and property damage to employees, contractors, sub-contractors, road users and all members of the public.

The Project manager will ensure all site personnel are fully aware of their responsibilities, and that Traffic Controllers are appropriately trained and accredited and that sufficient controllers are available to ensure appropriate breaks are taken.

All personnel engaged in the field activities will follow the correct work practices as required by the CoP, AGTTM and AS1742.3.

All personnel will not commence or continue work until all signs, devices and barricades are in place and operational in accordance with the requirements of the TMP.

All personnel responsible for temporary traffic management shall ensure that the number, type and location of signs, devices and barricades are to a standard not less than Appendix F of this plan, CoP, AGTTM and AS1742.3. Should a situation arise that is not covered by this TMP, CoP, AGTTM or AS1742.3, the Road Authority Representative shall be notified.

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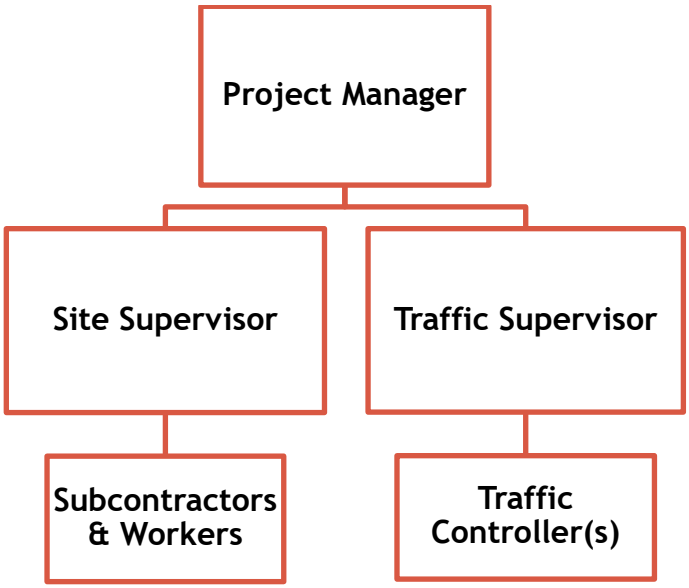
6.2.2 Roles

The following diagram outlines the responsibility hierarchy of this contact.



6.2.2.1 Project Manager

The project manager shall:

- Ensure all traffic control measures of this TMP are placed and maintained in accordance with this plan and the relevant Acts, Codes, Standards and Guidelines
- Ensure suitable communication and consultation with the affected stakeholders is maintained at all times
- Ensure inspections of the temporary traffic management are undertaken in accordance with the TMP, and results recorded. Any variations shall be detailed together with reasons
- Review feedback from field inspections, worksite personnel and members of the public, and take action to amend the traffic control measures as appropriate following approval from the Road Authority's Representative
- Arrange and/or undertake any necessary audits and incident investigations

6.2.2.2 Site Supervisor

The site supervisor is responsible for overseeing the day-to-day activities, and is therefore responsible for the practical application of the TMP, and shall:

- Instruct workers on the relevant safety standards, including the correct wearing of high visibility safety vests
- Ensure traffic control measures are implemented and maintained in accordance with the TMP
- Undertake and submit the required inspection and evaluation reports to management
- Render assistance to road users and stakeholders when incidences arising out of the works affect the network performance or the safety of road users and workers

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- Take appropriate action to correct unsafe conditions, including any necessary modifications to the TMP.

6.2.2.3 Traffic management personnel

- At least one person on site shall be accredited in Basic Worksite Traffic Management, and shall have the responsibility of ensuring the traffic management devices are set out in accordance with the TMP.

- All sites that are deemed are 'complex' by the Main Roads WA Code of Practice require at least one person accredited with either Worksite Traffic Management or Advanced Worksite Traffic Management to be on site to manage variations, contingencies and emergencies, and to take overall responsibility for traffic management.

- At all other sites, at least one person accredited in Advanced Worksite Traffic Management shall be available to attend the site at short notice at all times to manage variations, contingencies and emergencies, and to take overall responsibility for traffic management.

6.2.2.4 Traffic Controllers

Traffic Controllers shall be used to control road users to avoid conflict with plant, workers, traffic and pedestrians, and to stop and direct traffic in emergency situations. When using PTCDs, back up traffic controllers shall be provided and be positioned in a safe but prominent location to ensure drivers are aware that compliance with the PTCD is being observed.

Traffic Controllers shall:

- Operate in accordance with AGTTM Part 7: Traffic Controllers

- Be accredited in Basic Worksite Traffic Management

- Hold a current Traffic Controller's accreditation

6.2.2.5 Workers and subcontractors

Workers and Subcontractors shall:

- Correctly wear high visibility vests, in addition to other protective equipment required (e.g. footwear, eye protection, helmet sun protection etc.), at all times whilst on the worksite.

- Comply with the requirements of the TMP and ensure no activity is undertaken that will endanger the safety of other workers or the general public.

- Enter and leave the site by approved routes and in accordance with safe work practices.

6.3 Personal Protective Equipment (PPE)

All personnel entering the work site shall correctly wear high visibility vests to AS/NZS 4602, in addition to other protective equipment required on a site-by-site basis (e.g. protective footwear, eye protection, helmet, sun protection, respiratory devices etc.) at all times whilst on the worksite.

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6.4 Plant and equipment

All plant and equipment at the workplace shall meet statutory requirements and have the required registration, licences or certification where required. All mobile equipment shall be fitted with suitable reversing alarms. All mobile plant and vehicles shall be fitted with a pair of rotating flashing yellow lamps in accordance with AS1742.3 clause 4.14.1. All workers will be made aware of the safe work practice at the time of the site induction.

6.5 Trip Hazards

The worksite and its immediate surroundings shall be suitably protected and free of hazards, which could result in tripping by cyclists or pedestrians. Hazards, which cannot be removed, shall be suitably protected to prevent injury to road users, including those with sight impairment. Where level differences are significant, suitable barriers, which preclude pedestrian access shall be used.

Where works extend beyond daylight hours and adjacent lighting is insufficient to illuminate hazards to cyclists or pedestrians, appropriate temporary lighting shall be installed.

The worksite shall be kept tidy to reduce the risk to workers.

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7.1 Traffic Guidance Schemes

The Traffic Guidance Scheme (TGS) outlined in Appendix "F" and listed below have been provided for the following stages to demonstrate the type of controls that will be implemented throughout the term of the contract. All sign and device requirements are shown on each TGS. Should the use of additional (not shown on the TGS or listing of devices) or reduced number of devices be required due to unforeseen needs, they shall be recorded within the Daily Diary as a variation to the TMP, following prior approval.

Construction Stages	Traffic Management Stages	TGS Number and Version	Details
Stage 1	Site access / egress	2108-TGS30013-001-02	Truck symbolic and pedestrian warning signs

7.2 Sequence and Staging

The sequence of temporary traffic management installation, work activities and temporary traffic management removal are shown in the table below. Further detail of TGS installation & removal sequences and staging can be found in AGTTM Part 6, sections 6 & 8.

Step	Details
01	Advance warning signs.
02	Completion of works
03	Site checked & cleaned up
04	Removal of traffic control signs and devices in the reverse order of erection

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7.3 Traffic Control Devices

7.3.1 Sign Requirements

All signs used shall conform to the designs and dimensions as shown in Australian Standard AS 1742.3, AGTTM and the CoP.

Prior to installation, all signs and devices shall be checked by the Site Supervisor or a suitably qualified person to ensure that they are in good condition and meet the following requirements:

- Mechanical condition - Items that are bent, broken or have surface damage shall not be used.
- Cleanliness - Items should be free from accumulated dirt, road grime or other contamination.
- Colour of fluorescent signs - Fluorescent signs whose colour has faded to a point where they have lost their daylight impact shall be replaced.
- Retroreflectivity. - Signs for night-time use whose retroreflectivity is degraded either from long use or surface damage and does not meet the requirements of AS 1906 shall be replaced.
- Battery operated devices - shall be checked for lamp operation and battery condition.

Where signs do not conform either to the requirements of AS 1742.3 or would fail to pass any of the above checks, they shall be replaced on notice.

Signs and devices shall be positioned and erected in accordance with the locations and spacing's shown on the drawings. All signs shall be positioned and erected such that:

- They are properly displayed and securely mounted;
- They are within the driver's line of sight;
- They cannot be obscured from view;
- They do not obscure other devices from the driver's line of sight;
- They do not become a possible hazard to workers or vehicles; and
- They do not deflect traffic into an undesirable path.

Signs and devices that are erected before they are required shall be covered by a suitable opaque material. The cover shall be removed immediately prior to the commencement of work.

Where there is a potential for conflict of information between existing signage and temporary signage erected for the purpose of traffic control, the existing signs shall be covered. The material covering the sign shall ensure that the sign cannot be seen under all conditions i.e. day, night and wet weather. Care will be taken to ensure existing signs are not damaged by the covering material or by adhesive tape.

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7.3.2 Tolerances on Positioning of Signs and Devices

Where a specific distance for the longitudinal positioning of signs or devices with respect to other items or features is stated, for the spacing of delineating devices or for the length of tapers or markings, the following tolerances may be applied:

a) Positioning of signs, length of tapers or markings:

   i) Minimum, 10% less than the distances or lengths given.

   ii) Maximum, 25% more than the distances or lengths given.

b) Spacing of delineating devices:

   i) Maximum, 10% more than the spacing shown.

   ii) No minimum.

These tolerances shall not apply where a distance, length or spacing is already stated as a maximum, a minimum or a range.

7.3.3 Flashing Arrow Signs

Not applicable.

7.3.4 Delineation

Not applicable.

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7.4 Site Access for Work Vehicles

Construction and/or traffic management vehicles entering and exiting the traffic stream shall be mindful of the conditions that may affect the safety of these movements.

Access points shall be noted on the TGS and traffic controllers, work personnel and suppliers notified. Traffic Controllers may assist work vehicles enter and exit the work area.

All entry and exit movements will be in accordance with the Road Traffic Code and shall be undertaken in the following manner:

Vehicles shall:

- Decelerate slowly and signal their intention by indicator to leave the traffic stream;
- Activate the vehicle's rotating yellow lamp, where fitted, once a speed of 20 km/h. has been reached and at least 50m prior to the exit location.
- Switch on the vehicle hazard lights once the vehicle is stationary.
- Where risks associated with unassisted exit or entry to or from the traffic stream are high, Traffic Controllers should be used to assist entry and exit movements.

Vehicles fitted with rotating amber lamps shall have the vehicle's rotating lamp activated prior to entering the traffic stream and shall undertake the following:

- Switch off the vehicle hazard lights;
- Indicate intention to enter the traffic stream using direction indicators;
- Ensure there is a suitable gap from oncoming traffic to allow for a safe entry manoeuvre; and,
- Turn off the rotating yellow lamp(s) once a speed of 40 km/h is reached.

Entry and exit manoeuvres shall be avoided in close proximity to intersections. Work personnel shall not cross traffic streams on foot unless absolutely necessary.

Vehicles shall not obstruct paths and be parked an adequate distance from intersections or driveways to ensure clear sight lines remain for all road users.

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7.5 Communicating TMP Requirements

Prior to commencement of works on site, the traffic controller crew leader shall directly liaise with the Project Manager to discuss procedures and practices associated with the works & TMP. All traffic controllers shall complete any applicable site inductions prior to commencement of works. Visitors to the site must also receive suitable instruction and wear the required personal protection equipment.

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8.1 Traffic Incident Procedures

In the event of an incident or accident, whether or not involving traffic or road users, all work shall cease and traffic shall be stopped as necessary to avoid further deterioration of the situation. First Aid shall be administered as necessary, and medical assistance shall be called for if required.

Road plant within the work area that may impact on any services requiring access to a crash site will be cleared from the area quickly as necessary.

8.1.1 Serious Injury or Fatality

In the case of serious injury or fatality occurring within the traffic management site all work shall cease immediately, machinery and vehicles turned off and the area cleared of personnel as soon as possible. Traffic Controllers (and other personnel if necessary) shall be deployed immediately to ensure no traffic or other road users approach the area.

An Ambulance and Police shall be called on telephone number 000 where life threatening injuries are apparent.

All road workers and traffic management personnel shall preserve the scene leaving everything in situ, until direction is given by Police or WorkSafe.

A site-specific detour route and/or road closure point will be determined, signed and controlled by traffic management personnel and advised to Police, who will take charge of the site upon arrival. Detour routes will be determined so as to cater for all types of vehicles required to use them. An example of how to manage an emergency can be found in Section 5 of AGTTM Part 10.

All site personnel shall be briefed on control procedures covering incidents and crashes that result in serious injury or fatalities.

If it is determined that a road closure point is required on Canning Highway eastbound, the road shall be closed at the intersection of Sleat Road and traffic diverted along Forbes Road and Kintail Road leading back onto Canning Highway. Emergency services shall be notified along with MRWA RNOC, Main Roads WA, the PTA, the City of Melville and the local business/ residents affected by the road closure.

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8.1.2 Minor Incident or Vehicle Breakdown within Site

Broken down vehicles and vehicles involved in minor non-injury crashes shall be temporarily moved to the verge as soon as possible after details of the crash locations have been gathered and noted. Suitable recovery systems shall be used to facilitate prompt removal of broken down or crashed vehicles. Assistance shall be rendered to ensure the impact of the incident on the network is minimised.

Any traffic crash resulting in non-life-threatening injury shall be reported to the WA Police Service on 131 444.

Details of all incidents and accidents shall be reported to the Site Supervisor and Project Manager using the incident report form at Appendix "C" (or similar).

8.2 Emergency Services

On-site traffic controllers will be equipped with mobile communications to advise and/or liaise with emergency services to ensure a prompt response should the need arise.

8.3 Dangerous Goods

Should any incident arise involving vehicles transporting dangerous goods, all work shall cease immediately, machinery and vehicles turned off and the area cleared of personnel as soon as possible. Traffic Controllers (and other personnel if necessary) shall be deployed immediately to ensure no traffic or other road users approach the area.

Emergency services shall be notified of the proposed works nature, location, date and times as well as contact details for the site supervisor. All site personnel shall be briefed on evacuation and control procedures.

8.4 Damage to Services

In the event that gas services are damaged, all work shall cease immediately, machinery and vehicles turned off and the area cleared of personnel as soon as possible. Traffic Controllers (and other personnel if necessary) shall be deployed immediately to ensure no traffic or other road users approach the area. The Police Service and relevant supply authority shall be called *immediately*. Damage to any other services shall be treated in a similar manner except machinery may remain operational and access may be maintained where it is safe to do so.

All site personnel shall be briefed on evacuation and control procedures.

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8.5 Failure of Services

8.5.1 Failure of Traffic Signals

In the event that traffic signal infrastructure near the worksite is damaged or fails to operate correctly, all work shall cease immediately and Main Roads WA Road Network Operation Centre (RNOC) shall be notified immediately (phone 138 111).

8.5.2 Failure of Street Lighting

In the event that street lighting is damaged and fails to operate or operates incorrectly, Traffic Controllers (and other personnel if necessary with appropriate temporary lighting) shall be deployed immediately if the lighting failure adversely affects road user safety to control traffic movements as required. Western Power shall be notified immediately.

8.5.3 Failure of Power

In the event that power infrastructure is damaged and poses a risk through live current, Traffic Controllers (and other personnel if necessary) shall be deployed immediately to secure the site and prevent entry to the area affected by live power. Western Power shall be notified immediately (phone 13 13 51).

8.6 Emergency Contacts

In the event of an emergency the following relevant authorities must be contacted and advised of the nature of works, location, type of emergency and contact details for the site supervisor.

Emergency Service	E-mail/Website	Phone (Emergency)
WA Police Service	State.Traffic.Intelligence.Planning.&.Co-ordination.Unit@police.wa.gov.au	000
St. John Ambulance	BusinessSupportServices@stjohnwa.com.au	000
DFES	www.dfes.wa.gov.au/contactus/pages/dfesoffices.aspx	000
Power	http://www.westernpower.com.au/customerservice/contactus/	13 13 51
Gas	enquiries@atcogas.com.au	13 13 52
MRWA RNOC	RNOC.Control.Room.Information.Desk@mainroads.wa.gov.au	138 111

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9.1 Daily Inspections

Prior to works commencing the Site Supervisor shall undertake to communicate the Traffic Management Plan to all key stakeholders and affected parties.

On completion of setting out the traffic control measures, the site is to be monitored for a suitable period of time. If traffic speeds on the approaches to the work site are assessed as being above the temporary posted speed zone for the work site, the Site Supervisor is to initiate action to modify the approach signage and tapers in accordance with the requirements of AGTTM/CoP. All such actions are to be recorded in the Daily Diary. Should road users be observed to continue to travel in excess of the posted speed limit, the police may be requested to attend the site to enforce the temporary posted speed limit.

The Traffic Management Contractor shall ensure that all temporary signs, devices and controls are maintained at all times. To achieve this, procedures in line with the requirements outlined in AGTTM Part 6 will be instituted. The monitoring program shall incorporate inspections:

- Before the start of work activities on site,
- During the hours of work,
- Closing down at the end of the shift period, and
- After hours.

A daily record of the inspections shall be kept indicating:

- When traffic controls where erected,
- When changes to controls occurred and why the changes were undertaken,
- Any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

The Traffic Management Contractor shall ensure that personnel are assigned to monitor the traffic control scheme. Inspections shall at least satisfy the following requirements.

9.1.1 Before work starts

- Confirm TMP and TGS are suitable for the day's activities;
- Inspect all signs and devices to ensure they are undamaged, clean and comply with the requirements depicted on the TGS;
- All lamps should be checked and cleaned as necessary;
- After any adjustments have been made to the signs and devices, conduct a drive through inspection to confirm effectiveness.

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9.1.2 During work hours

- Designate and ensure that appropriate work personnel drive through the site periodically to inspect all signs and devices and ensure they are undamaged and comply with the requirements depicted on the Traffic Guidance Schemes;
- Attend to minor problems as they occur;
- Conduct on the spot maintenance/repairs as required;
- When traffic controllers are on the job, ensure they remain in place at all times. Relieve controllers as necessary to ensure attentiveness is retained;
- During breaks or changes in work activities remove or cover any signs that do not apply
- Re-position signs and devices as required by work processes throughout the day and keep records of any changes.

9.1.3 Closing Down Each Day

- Conduct a pre-close down inspection, allowing time for any appropriate maintenance works;
- Remove all signage;
- Record details of inspection and any changes made to layout.

9.1.4 After Hours

Not applicable.

9.2 TMP Audits and Inspections

If requested by the road authority, one compliance audit (using the 'Compliance Audit Checklist for Traffic Management for Works on Roads' – found on the MRWA website) may be conducted following setting up of the traffic management and prior to commencement of the works.

Audit findings, recommendations and actions taken shall be documented and copies forwarded to the Project Manager and the Road Authority's Representative.

9.3 Records

A daily diary recording all inspections including variations to the approved TMP shall be kept using the Daily Diary.

The Traffic Supervisor is to record all inspections made on a daily basis and at those times prescribed by the Traffic Management Implementation Standards. Upon completion of each day the Traffic Supervisor shall provide copies of the daily diary record to the Project Manager.

The Traffic Supervisor is to record all variations made to the approved Traffic Management Plan on a daily basis and indicate clearly the nature of the variations and the reason for the variations. Upon completion of each day the Traffic Supervisor shall provide copies of the variation record to the Project Manager.

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9.4 Public Feedback

Any feedback received from the public shall be reviewed by the project manager & field supervisor. The project manager shall take action to amend the traffic control measures as appropriate following consultation with Advance Worksite Traffic Management accredited personnel.

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10.1 TMP Review and Improvement

Improvement Action Summary Reports raised during the works are discussed and analysed during Management Review with specific attention to the analysis of trends. Trends are indicated by analysis of the recurrence of non-conformance categories shown in the non-conformance reports.

10.2 Variations

Any on-site variations must be noted in the Daily Diary.

10.3 Approvals

Before work commence it is necessary to seek approval from the following:

- Main Roads WA.

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Not required.

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APPENDIX B – VARIATION TO STANDARDS

Not required.

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Traffic Management Daily Diary

Location: _____ **Client:** _____ **Date:** _____

TMP No: _____ **TGS No:** _____ **Weather Conditions:** _____ **Diary Sheet:** _____ **of** _____

Start Time at Depot: _____ **Time Arrive Onsite:** _____ **Commencement of Site Setup:** _____ **Site Setup and Operational:** _____

Site Pulled Down at: _____ **Time Aftercare signs setup:** _____ **TGS No:** _____ **Time left site:** _____ **Finish time at Depot:** _____

☐ **Day Works** ☐ **Night Works** ☐ **Emergency Response** **Site Setup as per TGS** ☐ **Yes** ☐ **No (if not comment on next page)**

☐ **Attendance at Pre-Start Meeting** **Did an incident occur (if yes complete incident report form)** ☐ **Yes** ☐ **No**

I confirm that the above times of 'setup' and 'pulldown' of traffic management signs and devices are a true and correct record

Name (Site Supervisor): _____ Signed: _____

Drive Through Checks (Checks must be conducted at least every hour)

Time of check entered. Rule off and leave blank if the check does not apply to the site. Make a note of any issues on the next page.

Traffic Management Site Checks	1	2	3	4	5	6	7	8	9	10
Time										
Are signs upright, clean, visible, level & stable										
Are taper lengths correct										
Are speed limit signs correct and doubled up										
Are sign spacings correct										
Are cone/bollard alignments straight & spaced correctly										
Are devices operating correctly										
Are pedestrians, cyclists and other vulnerable road users catered for										
Are lane widths adequate										

Are vehicle queue lengths acceptable										
Is road surface condition adequate										
Is the work area clearly defined?										
Are the travel paths for both directions of traffic clearly defined? Is the work area appropriately separated from passing traffic? Check the transition at the interface of the modified alignment.										
Are centre lines/lane lines/edge lines clear and unambiguous?										
Are sight and stopping distances adequate at works, at intersections and driveways?										
Are traffic lanes clearly delineated?										
Are lighting for night-time controls operating correcting?										
Have other risks associated with traffic management at night been catered for, e.g. placement of lighting towers										

No. of TTM Vehicles Onsite: _____ **No. of TTM Personnel Onsite:** _____

TTM Personnel Names & Accreditations:

	Accreditation Details (tick)					**Time of Break from Stop/Slow** (Traffic controllers must have a 15 minute break every two hours of constant stop/slow operation)							
Name	TC	**BWTM**	**WTM**	**AWTM**	**OTMA**	On	Off	On	Off	On	Off	On	Off
						:	:	:	:	:	:	:	:
						:	:	:	:	:	:	:	:
						:	:	:	:	:	:	:	:
						:	:	:	:	:	:	:	:
						:	:	:	:	:	:	:	:
						:	:	:	:	:	:	:	:

Additional Comments _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

I confirm that the details contained herein are true and correct

Name: (TTM Leader): _____ Signed: _____

Incident Notification Form

Date:		**Job No:**	
Client:		**Time:**	am pm
Location:			

Details of incident		
Reported to:		
Type	**Weather conditions**	**Light conditions**
Injury ☐ Property damage ☐ Motor vehicle accident ☐ Near miss ☐ **Police Attended** Yes / No	Clear ☐ Overcast ☐ Raining ☐ Fog/ smoke/dust ☐	Day light ☐ Night time ☐ Dawn ☐ Dusk ☐
Road surface Sealed ☐ unsealed ☐	**Road conditions** Wet ☐ Dry ☐	**Street lighting** On ☐ Off ☐

Incident description **(What did you see or hear?)**
Describe all relevant background information (if not mentioned above), sequence of events leading to the accident, what occurred that could have caused the accident, and detailed description of damage/injury.

All incidents must be reported to your Supervisor within 30 minutes of the incident occurring or becoming apparent.

Hazard Report Form

Date: _____ Job Number: _____

Reported By:

Name: _____ Position: _____

Reported To:

Name: _____ Position: _____

Site location: _____

☐ Workplace Hazard ☐ Unsafe Condition

Description of Hazard:

What needs to be done?

Signature: _____ Date: _____

Copy given to:

Supervisor: _____ (Signature)

QHSE Advisor: _____ (Signature)

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21 Cartwright Drive Forrestdale WA 6112 / PO Box 97 Maddington WA 6109

mainroads WESTERN AUSTRALIA

SITE 50939

Hourly Volume

Canning Hwy (H013)

East of Sleat Rd (SLK 6.41)

2020/21
Monday to Friday

	All Vehicles			Heavy Vehicles			
	EB	WB	Both	EB	WB	Both	%
00:00	68	77	145	3	4	7	4.8
01:00	44	37	81	3	2	5	6.2
02:00	32	33	65	4	2	6	9.2
03:00	41	27	68	2	4	6	8.8
04:00	103	86	189	5	6	11	5.8
05:00	395	274	669	43	17	60	9.0
06:00	1114	895	2009	105	111	216	10.8
07:00	2493	1317	3810	142	122	264	6.9
08:00	2423	1485	3908	134	113	247	6.3
09:00	1746	1438	3184	126	130	256	8.0
10:00	1534	1339	2873	119	109	228	7.9
11:00	1661	1459	3120	130	114	244	7.8
12:00	1689	1482	3171	131	103	234	7.4
13:00	1605	1462	3067	111	117	228	7.4
14:00	1747	1589	3336	127	103	230	6.9
15:00	1921	1747	3668	124	110	234	6.4
16:00	1837	1819	3656	103	92	195	5.3
17:00	1859	1766	3625	71	89	160	4.4
18:00	1432	1500	2932	41	64	105	3.6
19:00	940	921	1861	29	26	55	3.0
20:00	769	671	1440	25	28	53	3.7
21:00	642	593	1235	17	14	31	2.5
22:00	406	409	815	13	12	25	3.1
23:00	247	214	461	5	9	14	3.0
TOTAL	26748	22640	49388	1613	1501	3114	6.3

Peak Statistics

AM	TIME	07:15	07:30	07:30	07:30	06:30	06:45
	VOL	2645	1550	4175	152	143	269
PM	TIME	14:45	16:15	16:30	14:30	13:00	12:30
	VOL	1941	1824	3722	131	117	240

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SITE 50939

Hourly Speed

Canning Hwy (H013)

East of Sleat Rd (SLK 6.41)

2020/21
Monday to Friday

60

All Vehicles

Eastbound

	Average Volume/Percentage		Minimum/Maximum		Mean	Median	SD	85th Percentile
00:00	68	0.3	40.4	85.2	59.4	59.2	6.4	65.0
01:00	44	0.2	42.6	87.9	58.7	58.8	6.5	64.5
02:00	32	0.1	47.2	80.1	59.6	60.0	5.5	64.5
03:00	41	0.2	38.6	85.2	61.4	60.8	6.7	66.8
04:00	103	0.4	35.4	83.4	62.0	61.7	5.5	66.2
05:00	395	1.5	32.0	85.4	60.2	60.1	5.8	65.6
06:00	1114	4.2	7.6	80.8	57.0	57.3	5.7	62.3
07:00	2493	9.3	5.3	81.9	52.1	52.9	7.8	59.1
08:00	2423	9.1	5.4	92.8	51.0	51.9	8.0	58.0
09:00	1746	6.5	15.8	99.1	55.0	55.2	5.8	60.5
10:00	1534	5.7	13.9	80.1	55.4	55.8	5.9	61.1
11:00	1661	6.2	30.3	117.9	54.8	55.1	6.1	60.7
12:00	1689	6.3	8.5	84.6	54.8	55.0	6.2	61.0
13:00	1605	6.0	13.7	81.9	55.2	55.3	6.0	61.2
14:00	1747	6.5	10.5	78.1	53.8	54.1	6.4	60.3
15:00	1921	7.2	7.2	81.9	54.2	54.6	6.8	60.8
16:00	1837	6.9	26.9	82.4	55.1	55.6	6.3	61.2
17:00	1859	7.0	12.0	87.4	54.2	54.7	6.4	60.2
18:00	1432	5.4	21.0	93.4	54.7	54.9	5.7	60.1
19:00	940	3.5	28.4	93.3	54.8	54.8	5.3	59.9
20:00	769	2.9	14.8	91.2	55.6	55.8	5.4	60.7
21:00	642	2.4	15.0	99.8	56.0	56.1	5.7	61.3
22:00	406	1.5	12.2	80.5	56.9	57.1	5.8	62.3
23:00	247	0.9	16.3	92.0	57.5	57.8	6.0	62.6
DAY	26748	100.0	5.3	117.9	54.5	54.9	6.7	60.7

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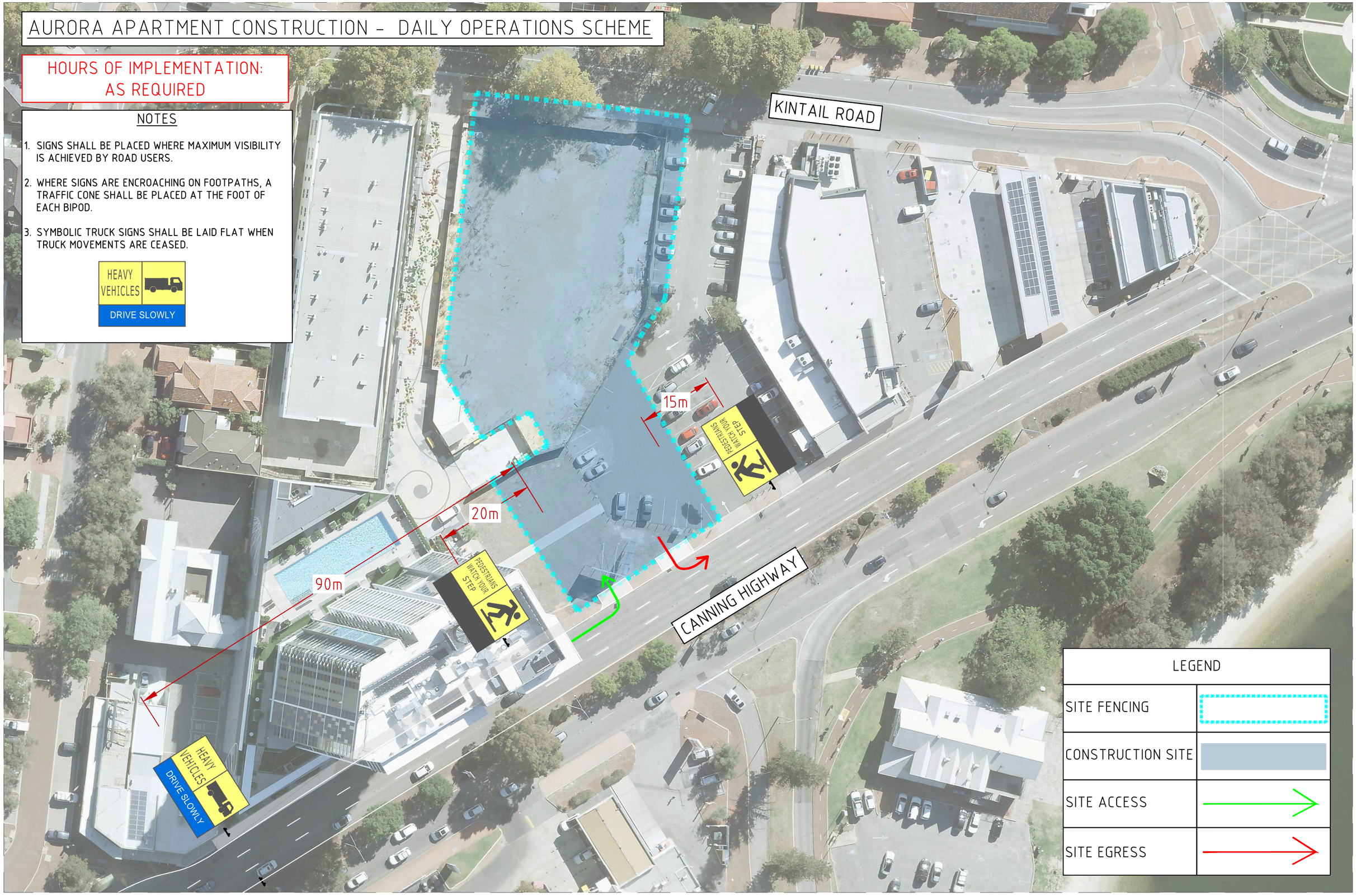
AURORA APARTMENT CONSTRUCTION - DAILY OPERATIONS SCHEME

HOURS OF IMPLEMENTATION:
AS REQUIRED

NOTES

1. SIGNS SHALL BE PLACED WHERE MAXIMUM VISIBILITY IS ACHIEVED BY ROAD USERS.
2. WHERE SIGNS ARE ENCROACHING ON FOOTPATHS, A TRAFFIC CONE SHALL BE PLACED AT THE FOOT OF EACH BIPOD.
3. SYMBOLIC TRUCK SIGNS SHALL BE LAID FLAT WHEN TRUCK MOVEMENTS ARE CEASED.



LEGEND	
SITE FENCING	
CONSTRUCTION SITE	
SITE ACCESS	
SITE EGRESS	

21 CARTWRIGHT DRIVE, FORRESTDALE
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N

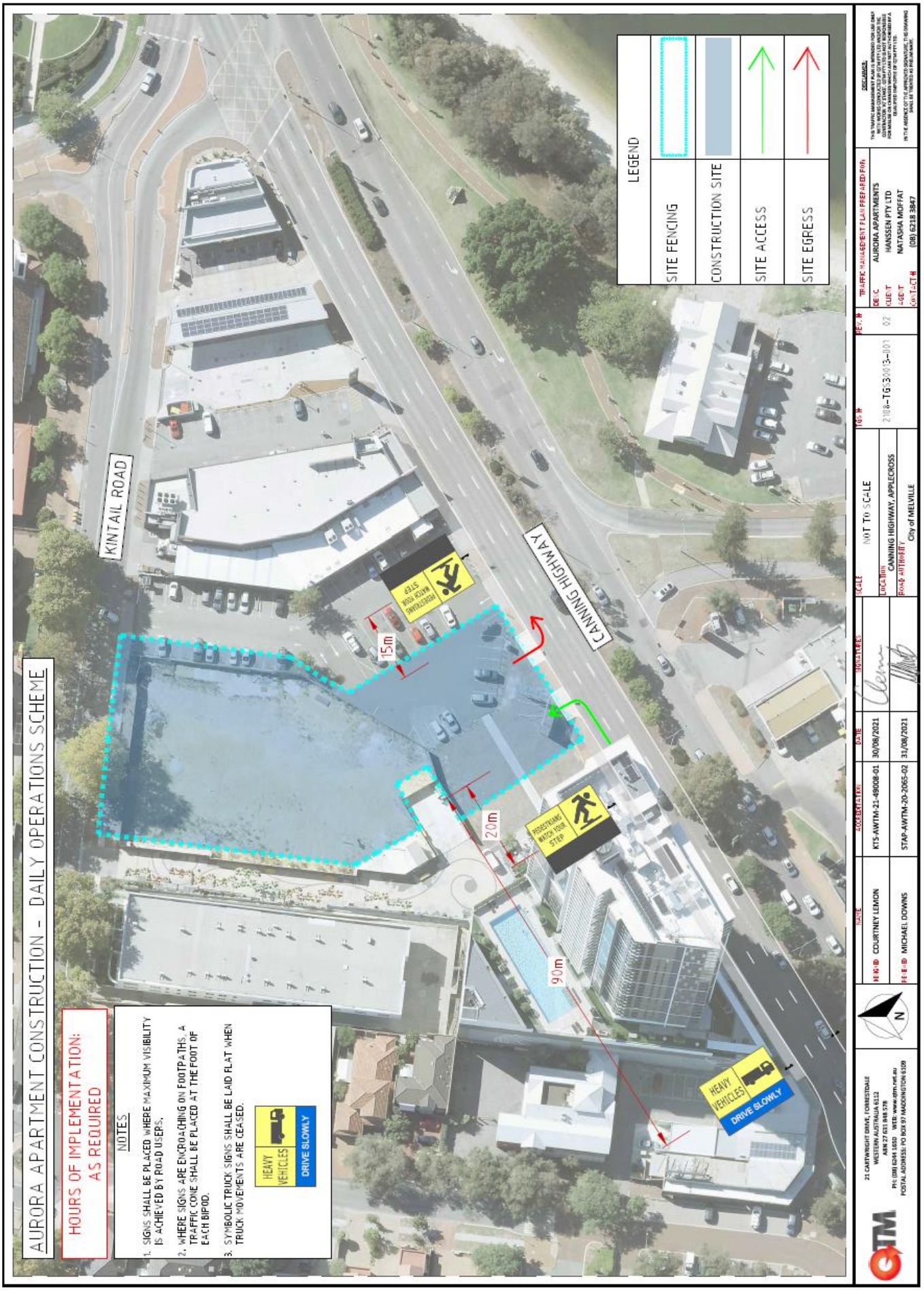
	NAME	ACCREDITATION	DATE	SIGNATURES
DESIGNED	COURTNEY LEMON	KTS-AWTM-21-49008-01	30/08/2021	
REVIEWED	MICHAEL DOWNS	STAP-AWTM-20-2065-02	31/08/2021	

SCALE	NOT TO SCALE
LOCATION	CANNING HIGHWAY, APPLECROSS
ROAD AUTHORITY	City of MELVILLE
TGS #	2108-TGS30013-001
REV. #	02

TRAFFIC MANAGEMENT PLAN PREPARED FOR:

DESC.	AURORA APARTMENTS
CLIENT	HANSSEN PTY LTD
AGENT	NATASHA MOFFAT
CONTACT #	(08) 6218 3847

ANNEXURE 2 TRAFFIC MANAGEMENT DIAGRAM



ANNEXURE 3 NOISE & VIBRATION MANAGEMENT PLAN

INTRODUCTION

The development is located at Lot 1, 2, 3, 19, 20 & 268 Canning Hwy Applecross Western Australia. Construction work comprises of multi-storey apartments, retail, commercial and parking for residents.

This report outlines the proposed plan for management of noise and vibration associated with the construction works on this site.

Building & construction sites pose different noise & vibration control problems compared with industrial sites. The main issues are:

- Activities are carried out in the open.
- Noise arises from many different kinds of activities; the character can vary with different stages of the work.
- Many of the process require vibration or impact to carry out the work.
- Construction sites are impossible to separate by planning. They occur in the midst of our commercial and urban environments.
-

Regulatory control of noise from building construction sites cannot be considered in the same manner as noise in a neighbourhood. It is not practical or possible to reduce noise to the general ambient levels. However, it is necessary that in the construction of the works, measures to reduce the effects and annoyance of noise & vibration emission from the site be implemented.

The purpose of this management plan is to establish a process for the:

- Management of noise & vibration on construction sites.
- Provide an effective communication link between adjoining residents & the construction site for the management of complaints regarding noise & vibration.
- Establish processes to minimise the noise & vibrations from the site.
- Establish guidelines for the noise emission & vibration from the construction site.
- Set conditions for noise and vibration monitoring on the site.

A noise and vibration management plan has been developed for the activities associated with the construction of the Applecross Apartments.

This management plan outlines the procedures and controls that are applied to all noise generating activity on the site. The objectives of these procedures and controls are to ensure that work is carried out to minimise noise emission & vibration and protect the amenity of the adjoining noise sensitive receivers.

1. DESCRIPTION OF THE WORKS

1.1 Description of the Works

A mixed use development comprising Commercial Units and apartments, refer to plans and elevations for complete details.

1.2 Construction Activities

The building is to be constructed using traditional building techniques for high rise and brickwork for low rise development.

- The structure for the apartments is proposed as precast bubble deck floors with In situ toppings.
- Lift core and stair core to be precast panels with in situ column structure
- External walls will be a mixture of precast panels and heavy duty framing on the balcony
- Internal walls will be lightweight construction

2. Surrounding Noise Sensitive Premises

There is a building in close proximity to the construction site. The builder will liaise with the home owners/ building managers of these premises to advise them of the working hours of the construction site.

The builder will provide the name & telephone number for any out of hour issues.

3. NOISE AND VIBRATION STANDARDS

Construction by its very nature is a noisy activity that involves impact and vibration. Responsible standards therefore must take note of the constraints imposed by this activity as well as being considerate of the amenity in the adjoining neighbourhood.

3.1 Environmental Protection (Noise) Regulations, 1997

"Construction Work" is addressed in Regulation 13 of the Environmental Protection (Noise)" Regulations 1997. It is therefore subject to the requirements of the Regulations. The Regulations require:

- That work to be carried out between the hours of 07:00 and 19:00 hours on any day which is not a Sunday or Public holiday.
- 'Construction Work' must be carried out in accordance with Control of Noise Practices as set out in Section 6 of Australian Standard *AS2436-1981 Guide to Noise Control on Construction, Maintenance and Construction Sites.*
- Equipment used for construction must be the quietest reasonably available.

For work to be done outside the above hours, the contractor must in addition to the above:

- Advise all nearby occupants of the work to be done at least 24 hours before.
- Must show that it is reasonably necessary for the works to be done out of hours.
- Prepare noise management plan for the proposed activity.

3.2 Australian Standard AS 2436

3.2.1 Control of Noise: Generally the control of noise on the site will be in accordance with the Australian Standard *AS 2436-Guide to Noise Control on Construction Maintenance and Demolition Sites.* In accordance with the Standard, the methods used *to* reduce noise emission from the site will include:

Substitution:	Where practicable quieter machinery or process are to be used;
Modification:	Engineered noise control is to be implemented on specific noisy items of equipment. This may include fitting of improved performance mufflers, screening of stationery noise sources, and other techniques as appropriate; *[All proposed equipment to be fitted appropriate silencers]*
Siting of Equipment:	high noise-level equipment is to be located away from noise sensitive areas; [*Pre-cast concrete trucks to be located in lane way on west side of the site to maximise distance to noise sensitive neighbours]*
Maintenance:	Ensure equipment on site is appropriately maintained so as to emit minimum noise.
Equipment Noise:	Ensure equipment on site meets sound levels as set out in clause 6.2

3.2.2 Control of Vibration: Vibration is due to use on the construction site of heavy vehicles, earth moving equipment, compactors and impact type processes. The control of vibration is mainly limited to the selection of construction processes.

Impact Activities:	The vibration and noise levels associated with impact pile driving will be reduced by use of Continuous Flight Auger [CFA] Piles that generate no vibration;
Compacting:	When required, the smallest possible compactor suitable for task is to be used;

4. CONSTRUCTION NOISE AND VIBRATION OBJECTIVES

4.1 AS 2436 Guide to Noise Control on Construction Maintenance and Demolition Sites

The Australian Standard AS 2436, Section 3 states that care shall be taken in applying criteria that normally would be used to regulate noise emitted from industrial, commercial and residential premises to construction, and particularly for those activities which are transitory and of short duration.

With reference to control of noise from construction sites, the AS2436 recommends:

- Reasonable and suitable noise guidelines be established;
- All practicable measures are taken on the building site to regulate noise emissions, including the siting of noisy static process, selecting less noisy processes, and regulating construction hours.
- Undertake noise monitoring where non-compliance occurs to assist in the
- Management and control of noise emission.

4.2 Noise Guidelines

4.2.1 Noise Objectives: Generally, the L_{10} noise level for long term construction noise as measured over hourly monitoring periods should not exceed 10 dB(A)above the L_{10} Assigned Level as established in the Environmental Protection (Noise) Regulations, 1997.

For short high noise level events measured over a 15 minute period should not exceed 20 dB (A) above the L_{10} Assigned Level. This criterion is for any 15 minute period within the hour.

4.2.2 Assigned Level: The Assigned Level as determined by the Environmental Protection (Noise) Regulations 1997, is determined on the traffic flow and land zoning within a 100 metre radius circle and 450 metre radius outer circle. The determination of the Assigned Level for the adjoining buildings is based on:

- Major road in the inner circle
- 30% of land in the inner and outer circle being zoned commercial

The Assigned Level for daytime being 07:00 to 19:00 hours Monday to Saturday is:

Assigned Levels	**L_{10}**	**L_1**
Residential Premises:	54 dB(A)	64 dB(A)
Commercial Premises:	60 dB(A)	75 dB(A)

4.2.3 Noise Guidelines: The proposed guidelines for the construction works is therefore L_{10} 64 dB(A) at residential premises. For short high noise level events L_{10} 74 dB(A) for any 15minute period in the hour. Noise measurement and monitoring is to be used as a feedback tool to assist in management of noise levels.

4.3 Vibration

Setting of vibration limits for the Construction site is difficult. There is insufficient data to establish reasonable standards. Measurement and monitoring of ground vibration as required is therefore to be carried out. The data collected can then be used to assess the vibration levels for various work processes, and used for management of these construction processes.

The vibration caused by construction works needs to be considered in terms of both: The effect on people and the effect on building.

4.3.1 Human Sensitivity: The result of the vibration measurements can be compared to the Australian Standard AS 2670.2 Evaluation of Human Exposure to Whole Body Vibration - art 2; Continuous and Shock induced vibration in Buildings. This standard will be used to assess the human discomfort caused by vibration generated construction activities.

4.3.2 Building Vibration: The vibration standards that will be used to assess the effect of vibration on building structure will be based on:

- Highly sensitive structures: 2mm/s PPV
- Sensitive structures : 10mm/s PPV

5. NOISE LEVEL OF ACTIVITIES AND EQUIPMENT

6.1 Hours of Work

It is proposed to undertake all work during daytime hours being 07:00 to 19:00 Monday to Saturday, except in emergency situations where required to ensure safety is maintained. In this latter situation work will be carried out in strict accordance with the requirements for 'out of hours work' as set out in the Environmental Protection (Noise) Regulations.

6.2 Noise Level of Equipment and Processes

Representative sound power levels of equipment and process to be used during the works are set out in Table 1:

Equipment Process	Indicative Sound Power Level dB(A)	Indicative Sound Pressure Level at 10m.
Air compressor	90- 100	62-72 dB(A)
Angle Grinder	114	86 dB(A)
Bobcat	105	77 dB(A)
Compactor	112	84 dB(A)
Compressor	94-	66 dB(A)
Concrete pump and truck	105	77 dB(A)
Concrete saw	112-122	84-94 dB(A)
Concrete truck	100	72dB(A)
Concrete vibrator	101	73 dB(A)
Crane	105	72dB(A)
Drilling	94	66 dB(A)
Excavator	114	86 dB(A)
Hammering (impact)	120	92 dB(A)
Impact Drill	105	77 dB(A)
Jackhammer	121	93 dB(A)
Lighting Tower	92	74 dB(A)
Pneumatic hand tools	114- 117	86-89 dB(A)
Truck	108	90 dB(A)

TABLE 1: Nominal Noise Level of Equipment and Construction Processes

The noise levels as set out above are derived from the following sources:

- Table D2 of Australian Standard 2436-1981
- In-house data bases
- Draft NSW Construction Guidelines

6. NOISE AND VIBRATION CONTROL METHODS

6.1 Management Plan

The determination of appropriate noise control measures will be dependent on the particular activities and construction equipment used. The following Sections outline the site activities during the construction process. The activities are identified in terms of the level of potential nuisance, and process for noise/ vibration management.

Where an activity is listed as potentially creating a high noise or vibration nuisance, the contractor will maintain a log of the times that this activity is being carried out.

Site Activity	**Usual method and comment**	**Nuisance level**	**Vibration Management**	**Noise Management**
Piling to perimeter of site	Normal method of using sheet piling will be minimised 80% of boundary retaining wal will be installed using Continuous Flight Auger (CFA) piles that generate no vibration. Small amount of piling to be used	<u>Vibration</u> Low for CFA High for sheet piling Noise High impulse noise during sheet piling. Reduced noise for CFA piling	Vibration monitoring will be carried out and vibration levels kept below 6 mm/sec, which is below Australia Standards. If vibration levels rise above 6mm/sec work be stopped and pre drilling done to lower vibration levels.	(1) Identify quietest process suitable for the task. (2) Use equipment fitted with silencers where manufactured. (3) Demonstrate that noise minimisation was one of the criteria considered in plant selection.
Compaction of sand	Heavy Vibration roller	<u>Vibration</u> High <u>Noise</u> High	(1)Use the smallest possible unit needed to compact the fill to a safe level. (2) Compact only those areas for which compaction is essential. (3) Limit times of compaction to restricted hours. ie. between hours of 8.30 am and 3.30 pm and no more than 2 hours at a time. Minimum of 1 hour break between any 2 hour work period. No work on Sundays or public holidays.	(1) All as for vibration management. (2) Use equipment fitted with side covers to engines where manufacture permits.

Site Activity	Usual method and comment	Nuisance level	Vibration Management	Noise Management
Drilling for soil nails and anchors	Penetration is achieved by a high frequency vibrating head preceded immediately by a jet stream of air. This stream acts as the main "drilling "component. The drilling rig has a normal industrial noise level	Vibration Low Noise Low - medium	Monitor penetration to enable early identification of existence of rock. (Not expected) This would necessitate a change of drilling technique.	As for vibration management
Pouring of concrete for walls	Concrete is poured directly for the pre-mix truck and vibrated with a high frequency vibrator.	Vibration Low Noise Medium	Observe core working hours.	Observe core working hours.
Brick or block cutting	Use of purpose made masonry saws	Vibration Low Noise Medium to High	As for noise	Use low noise cutting blades
Material movement	The height of the buildings requires the use of cranes. for the vertical movement of materials, These may be either fixed or mobile. Horizontal movement will be mainly by trucks which will be off loaded by hand, tractor or hiab or crane.	Vibration Low Noise Medium	As for noise	(1) Restrict use to core hours except with permission of the architect. (2) Fuelling up to be done at the end of the working day rather than the beginning. (3) Deliveries to be arranged to be at end of day rather than early morning.
Concrete scabbling	Scabbling for concrete joints and minor concrete removal fanning part of the normal building process	VibrationLowNoiseMedium	As for noise	(1) Scabble joints when concrete is relatively green.(2) Use electric tools of the minimum required capacity.(3) Carry out only within core hours and where possible delay use until after 8.00 am.

Site Activity	Usual method and comment	Nuisance level	Vibration Management	Noise Management
Concrete Jack hammering	Jack hammering is usually required as a result a change of design or of site omission or error. The nature of the works requires the use of heavy duty pneumatic equipment.	Vibration Medium Noise High	As for noise	(1) Good site management will minimise the necessity. (2) Carry out any required work during restricted hours for high nuisance level work. E.g. between hours of 8.30 am and 3.30 pm and for no more than 2 hours at a time. Minimum of 1 hour break between any 2 hour work period. No work at all on Sundays or public holidays. (3) Exemptions at discretion of architect and will only be approved where justification can be quantified,
Power hand tools	Power saws used in formwork and timber framing	Vibration Low Noise Medium to High	As for noise	Limit use to core hours but with mornings starts delayed until 7.30 am on Mondays to Fridays, 8.00 on Saturdays and 9.00 on Sundays
Precast concrete and steel erection of prefabricated components.	This operation is normally carried out with cranes and incidental hand and power tools.	Vibration Low Noise Low	Refer to previous component activities	Refer to previous component activities

6.2 Noise Control Methods

6.2.1 *Selection of Alternate Appliance or Process:* Where a particular appliance or activity is found to generate noise levels that exceed the criteria, it may be possible to select an alternate approach or appliance.

6.2.2 *Acoustic Barriers:* Barriers or screens can be effective in reducing noise levels, and can be located at either the source or receiver. Barriers at the source are generally only effective for static equipment. The degree of noise reduction achieved is dependent on the exte11t to which the line of sight is blocked. If receiver is totally shielded, A noise reduction of up 10 dB(A) is possible. Where only partial obstruction is achieved noise reduction of 5 to 7 dB(A) can be achieved.

6.2.3 *Silencing Devices:* Where construction processes or appliances are noisy, the use of silencing devices may be possible. This can be in the form of engine shrouding, or industrial silencers.

6.2.4 *Establishment of Site Practices:* This involves formulation of work practices to reduce noise exposure to adjoining residences. This can be achieved by location of fixed equipment as far as practicable from residents, and rotating location of equipment to provide respite to receivers. Loading of construction vehicles should occur as far as practicable from noise sensitive premises.

6.2.5 *Strategic Positioning of Processes on Site:* This involves the location of particular processes or activities such that direct line of site is obstructed. In the construction of building structures this may be achieved by leaving a specific facade till last to maintain a noise barrier to adjoining residents.

6.2.6 *Material Handling:* Use of used conveyor belt or rubber matting can significantly reduce noise associated with impact of material being dropped.

6.2.7 *Site Induction:* All site managers and workers should be made aware of the noise and vibration limits established for the site and noise control measures to be implemented. Site managers to review daily expected noise emission from activities and prepare options for noise control, and providing respite to specific residential areas.

Prior to commencing any new activity, determine the likely effect on adjoining properties. Where the level of either noise or vibration is likely to be high, carry out the following procedure

1. Decide if alternate methods are available for the specific situation
2. Implement necessary procedures to minimise the effect on adjoining properties.
3. Advise the nominated contact in sufficient time to allow 24- hours notice to be given to neighbours.

7. NOISE PREDICTIONS

7.1 Mobile Equipment

Equipment used in the construction process will be moved to all areas of the site depending on the area of construction.

7.2 Fixed Equipment

Generally the location of fixed equipment will be assessed on the basis of minimising noise emission to adjoining residential facilities, and fit for purpose.

The tower crane will be an electric crane located in the centre of the site.

8. NOISE MEASUREMENT & MONITORING

In order to verify that the predicted noise emissions of the equipment to be used on the site is similar to the that modelled, the noise levels of the equipment will be measured on site as soon as practicable after commencement of each phase of the work. Noise levels significantly higher than the base noise levels set out in Section 6.2 (i.e. more than 3 dB (A) above the listed levels in table1) will require a review of the noise management plan and proposed noise control options.

9. COMMUNITY CONTACT PROCEDURE

For a construction noise management program to be effective requires continual and direct communication between all parties that may be affected, the construction contractor and the Local Authority. This communication link establishes a dynamic response process that allows for adjustment of work methods and criteria for the benefit of all parties impacted by the construction process.

The objective of the community contact procedure is to:

- Inform the groups about the project and the noise control being implemented.
- Increase understanding of the acoustic issues associated activities involved in the construction process.
- Identify community concerns so that they can be addressed.

A community contact / complaints process is to be established to ensure any complainants regarding environmental noise emission are recorded and investigated. The construction contractor must provide signage with contact details, or an accessible site office to permit complaints to be made.

Local residents likely to be affected by excessive noise are to be notified of the intended construction program and for any proposed activity likely to result in increased annoyance to residents (such as concrete demolition with rock breaker)

A follow up procedure for all complaints is to be established. Procedure to include:

- Registration of noise complaint
- Identification of noise source
- Assessment of noise level
- Corrective action to mitigate noise emission if found to be unreasonable
- Re-assessment to ensure noise control procedures implements are successful
- Close-out

10. CONCLUSION

A noise and vibration management plan has been developed for the construction of mixed use development:

- Identifies the noise sensitive receivers around the site
- Establishes procedures to minimise noise and vibration to the surrounding noise sensitive premises
- Provides list of expected noise levels for various equipment
- Establishes a Community contact procedure for communication between construction contractor, community and local authority
- Establishes a noise complaint procedure