

Epping to Thornleigh Third Track Alliance

Traffic Management and Access Plan (TMAP)



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Document Control

Title Traffic Management and Safety Plan (TMAP)

Document Number/Ref: ETTT-TFNSW-PE-000275

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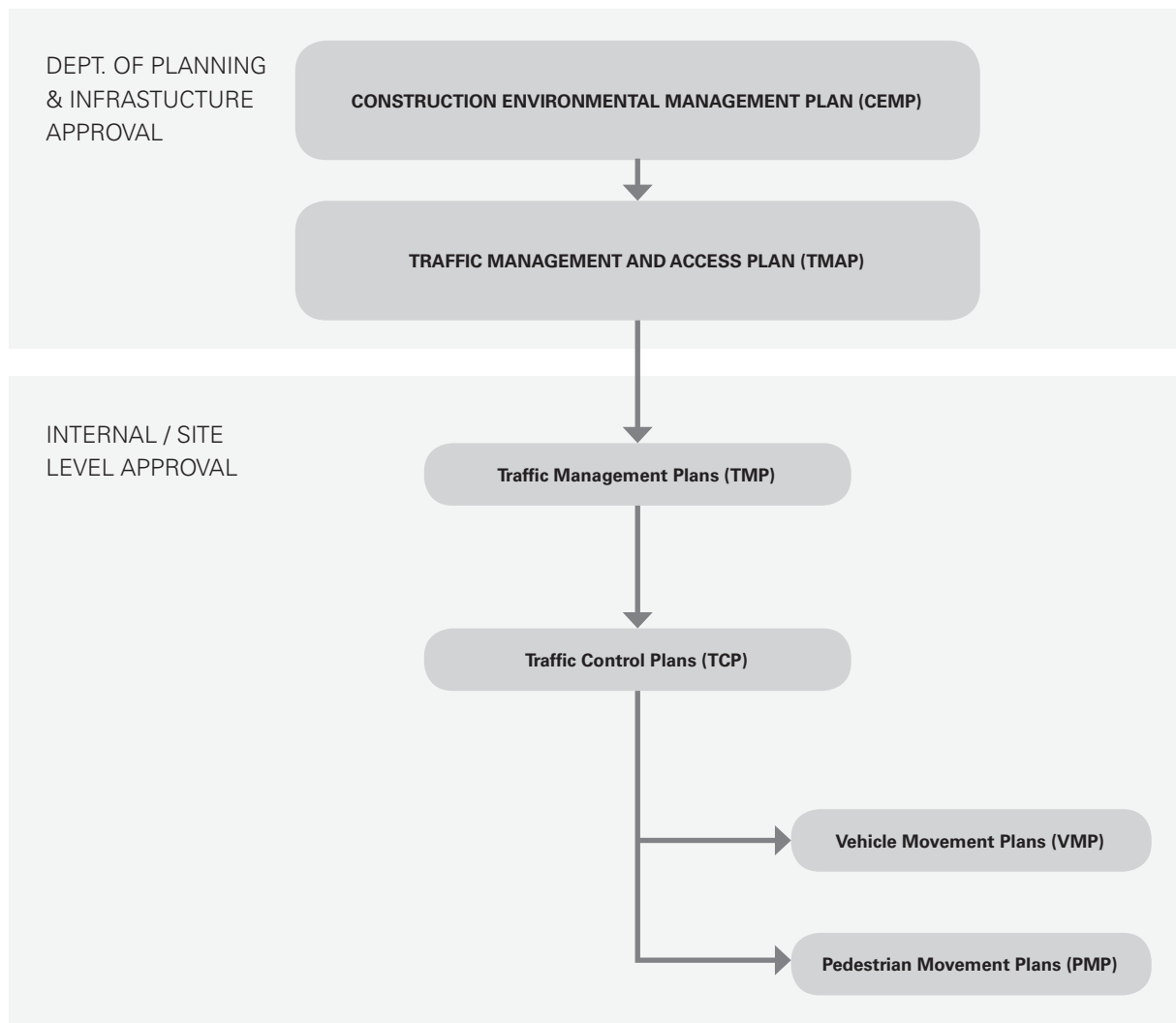
Details of Revisions

Rev	Date	Description
0 - 4	04/05/13 - 28/8/14	Internal Review
4		
5	9/09/13	Compiled for DP&I Review and Approval
6	25 /10/13	Following DP&I approval
7	8/11/13	Typo's corrected to VMPs
8	24/02/14	VMPs for Wicks Rd Compound, Talavera Rd Compound added VMPs modified for Wongala Crescent TCPs removed Edits to Cover Page
9	14/02/14	VMPs modified
10	10/07/14	VMPs modified - Format amended for readability purposes. Several VMPs combined to reduce confusion. Access to Epping Rd from Epping Office (Blaxland Rd Compound) amended to include Maida Rd, Epping. <i>ETTT-VMP-0006</i> added to illustrate access route to Gate E31. <i>ETTT-VMP-General Notes</i> added so that important notes are available in one location. Repeated notes from each VMP are collated in this General Notes page. Amendment to Table 3 to include Gate E31.
11	10/09/2014	ETTT-VMP-001 modified to include access to Talavera Rd Compound via Pittwater Rd
12	14/10/2014	ETTT-VMP-008 added to include access into the rail corridor via Phyllis Ave Thornleigh
13	15/03/2015	Annual review, VMPs modified, updated for Organisation Chart. Incorporate document design changes in-line with Web Content Accessibility Guidelines (WCAG)
14	19/10/2015	ETTT-VMP-0002 added to include a designated Temporary Waiting Bay away from residential areas
15	03/03/2016	Annual review, updated for Organisation Chart. Finalised for document design changes in-line with Web Content Accessibility Guidelines (WCAG)

Contents

1 Objective	2
2 Legislation / Standards / Guidelines	3
3 Supporting Procedures, Forms, Checklists and Registers	4
4 Management Process Tools	5
5 Traffic Management Plan (TMP)	7
6 Traffic Control Plan (TCP)	8
7 Road Occupancy Licence (ROL)	10
8 Construction Site Compounds	11
9 Access Gates	12
10 New Road Accesses	14
11 Key Construction Activities	15
12 Construction heavy vehicle numbers and composition	17
13 Construction Routes	18
14 Vehicle Movement Plan (VMP)	22
15 Managing Pedestrians, Cyclists and Parking	25
16 Commuter and Passenger Management	27
17 Development Process	29
18 Roles and Responsibilities	30
19 Inspection, Audit and Reporting	33
20 Consultation and Communication	35
21 Managing Unplanned Incidents	36
22 Existing Conditions	37
23 Implementation of Mitigation Measures	39
Appendix A –Vehicle Movement Plans (VMPs)	46

Figure 1 – Hierarchy of Traffic Management Plans



1 Objective

To manage traffic (vehicles, pedestrians and commuters) and transport for the construction works to ensure any potential impacts on the public or environment are minimised and to comply with the Epping to Thornleigh Third Track Project (ETTT) Condition of Approval (CoA) E34 c), TfNSW Standard Requirements and the Environmental Impact Statement (EIS).

2 Legislation / Standards / Guidelines

Legislation	Standards	Guidelines
<ul style="list-style-type: none"> • NSW Ministers Conditions of Approval (MCoA) SSI-5132 	<ul style="list-style-type: none"> • TfNSW Standard Requirements – TSR Prelude A8 and C18 	<ul style="list-style-type: none"> • Epping to Thornleigh Environmental Impact Statement – Access, Traffic and Transport Mitigation and Management Measures
<ul style="list-style-type: none"> • <i>Roads Act 1993</i> 	<ul style="list-style-type: none"> • TfNSW Standard Requirements –TSR Prelude C4 	<ul style="list-style-type: none"> • Revised Environmental Mitigation Measures
<ul style="list-style-type: none"> • Transport (Safety and Traffic Management) Act 1999 	<ul style="list-style-type: none"> • TfNSW Standard Requirements – TSR S1 Clause 7.18 	<ul style="list-style-type: none"> • Austroads Guide
<ul style="list-style-type: none"> • Project EPL 20287 	<ul style="list-style-type: none"> • TfNSW Standard Requirements – TSR T1 Clause 3.4 	<ul style="list-style-type: none"> • RMS Traffic Control at Worksite (TCWS) Manual
	<ul style="list-style-type: none"> • AS1742.3-2009 Traffic Control for Works on Roads 	

3 Supporting Procedures, Forms, Checklists and Registers

Tools that are used to support the implementation of this Plan include:

Procedure	Form	Checklist	Register
		• Daily Traffic Control Checklist	• TMP Register
		• Weekly Traffic Control inspection Checklist	• CoMP Register
		• External Safety Audit (when necessary)	• TCP Register
			• VMP Register
			• ROL Register

4 Management Process Tools

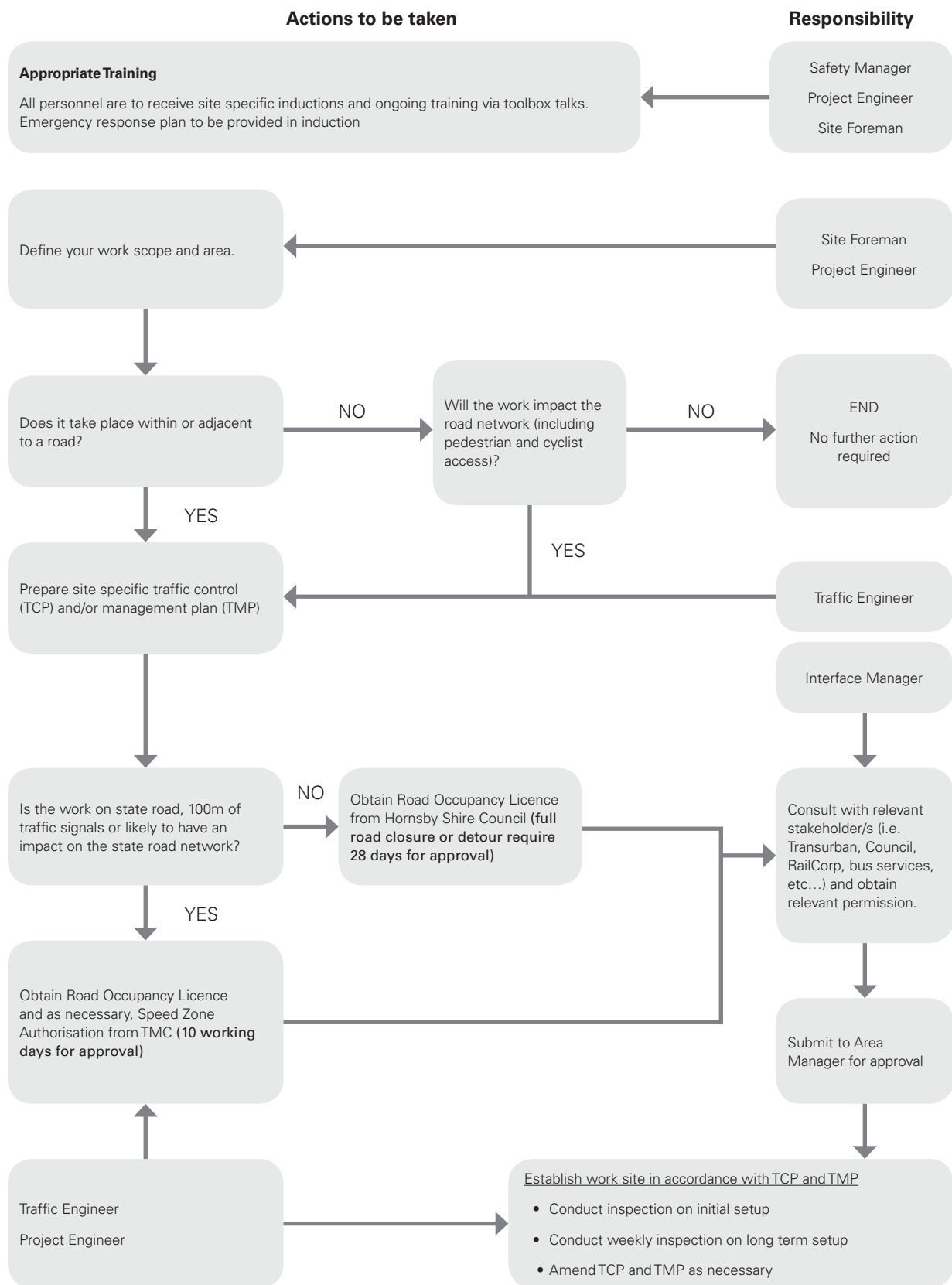
This Traffic Management and Access Plan (TMAP) operates as the master document in a set of plans and drawings dealing with the safe and effective management of traffic during the design and construction phase of the project. It prescribes the traffic management strategies to be implemented as part of the works.

The strategy for the TMAP is to ensure that the ETTT project:

- maintain safe and reliable traffic flow during construction on the road network (i.e. motorway, arterial and local roads);
- provide safe access and egress points between the various worksites on the project and the existing road network;
- maximise the safety for the workers and general public by isolating work areas including those in and around station buildings from traffic, cyclists and pedestrians flows, applying low exposure work methods, education and the installation of appropriate traffic control;
- minimise construction activities on local roads and residential areas wherever possible;
- minimise heavy vehicle movements in peak traffic and out of hours;
- plan and phase all works to effectively minimise road occupancy, avoid potential impacts and minimise conflict points on the existing network;
- use current analysis of traffic volume data to identify peak periods and assist with the planning of road occupancies;
- implement traffic control operations that minimise delay to road users:
- limit obstructions and restrictions, and when required provide alternatives to maintain access for local community and transport operators;
- plan works to allow for effective emergency response; and
- actively liaise with key stakeholders including RMS, police, local councils, transport operators, Station Liaison Group and local businesses to ensure they are informed about proposed changes to the road network.
- Driver training in regards to minimising traffic impact on the community will be covered in the site induction for all ETTT personnel and subcontractors.

A review of the TMAP will be undertaken yearly to ensure the document remains up to date and reflects the status of progress and any changes made to the traffic management process. The TMAP will also be updated accordingly based on consultation and debriefs from relevant stakeholders i.e. RailCorp, emergency services, local council, RMS and Transurban.

Figure 2 –TCP Procedure



5 Traffic Management Plan (TMP)

This TMAP will specify what TMPs require approval by the Project Manager. TMPs will be developed where the project will have a major impact on the arterial road network and require consultation with RMS, Traffic Management Centre, Council and Hills M2 Motorway. Planning for the project has identified that a TMP will be developed for the overbridge works at the M2 and full directional closures of Beecroft Road. TMP and VMPs generally will be developed at least one month prior to the commencement of works. Investigations by the construction team have identified TMPs will be required for the M2 Motorway, Beecroft Road complete closure. TMP's will generally include:

- An overview of the construction activities and traffic management requirements including;
 - Program (commencement and completion dates) and hours of work
 - Current and anticipated traffic usage patterns during implementation (i.e. average, low and peak flows, school holidays, traffic embargoes, etc.)
 - Traffic staging drawings and if necessary temporary works design detailing any modifications to existing roads, parking (including both construction and public), pathways and changes to public transport access and routes.
- Traffic Control Plans (TCP) detailing work area and any modification to traffic patterns, property access and parking facilities.
- Vehicle Movement Plans (VMP) detailing frequency, route and procedure for site access.
- Pedestrians Movement Plans (PMP) detailing route, procedure and control measure to ensure safety of commuters, pedestrians, cyclists and site personnel.
- Details on stakeholder consultation
- Details on relevant permits and licences required prior to implementation of TMP
- Details on frequency of site inspection and audits as per **TABLE 7 –TCP INSPECTION REQUIREMENT**
- Detail the site specific emergency response plan
- Local bus operators would be consulted to ensure that the timing of short term road or kerb closures minimise impacts to bus services.
- Coordination of proposal staging, vehicle movement and scheduling, equipment and resourcing, joint use of access points and regular project liaison between the NWRL and other projects interfacing with ETTT.

Consultation with relevant stakeholder/s will be conducted during the planning stages and as part of the TMP process to identify and minimise the impacts on the road network, pedestrians and cyclists access and modification to the public transport system (i.e. car parking, train station access, bus routes, etc...) Notification of these changes will be conducted as per the Community and Liaison Management Plan prior to implementation of the TMP. Emergency services (police, fire and ambulance) will be notified as part of this consultation process. The TMP will be submitted to the relevant Road Authority i.e. Hornsby/Parramatta Council, RMS, Transport Management Centre and/or The Hills Motorway

The construction of the project will be undertaken and staged so that it does not affect timetabled passenger and freight operations other than during scheduled track closedowns or as otherwise agreed with Sydney Trains and Transport for NSW.

6 Traffic Control Plan (TCP)

TCP will be developed in accordance with the RMS Traffic Control at Worksite Manual. The main objective for the TCP is to provide a safe work area for both workers and general public while maintaining the road network operational capacity by minimising lane closures and traffic stoppage during peak traffic periods. The TCP is to operate within the Road Occupancy Licence (ROL) conditions. The TCP will detail the following:

- Traffic control signage and traffic flow arrangement
- Work area
- Speed limits
- Direction of construction traffic and if necessary reversing arrangements (spotter to be utilised for all heavy vehicle and plant reversing movements)
- Parking locations (both construction and public)

The VMP and PMP can be incorporated into the TCP or developed as stand-a-lone plans if necessary. Plans will be available to any relevant road authority if requested.

Table 1 – Traffic Control Plans required

Location	Location
Epping Bowling Club	Cambridge Street
Access gates E1, E2 and E3 without lane closure	Access gates E1, E2 and E3 with lane closure
Full lane closure, Beecroft Road	M2 Bridge abutment off Beecroft Road
Sydney Water main relocation, barrier installation	Ausgrid western side of Beecroft Road
Access gates between M2 Motorway and Cheltenham	Cheltenham Station works (west side)
M2 overbridge beams	M2 overbridge launch
Cheltenham Station works (east side)	Day Street access gate
Beecroft Station works	Cheltenham Station to Beecroft Scout Hall (Sutherland Road)
Chapman Avenue bridgeworks	Access gates Beecroft Station to Boundary Road
Ausgrid works Wongala Crescent	Yarrara Road works
Pennant Hills Station works	Railway Street service relocations
Railway Street piling	Ramsay Street electrical works

Table 2 – Nominated Site Compounds and Stockpile Sites

ID	COMPOUND	LOCATION	USE OF SITE	ACCESS
EIS S1	M2 Southern Compound	Existing bus flyover roadway to the south of the M2 within the rail corridor approx.	Crib sheds, toilet facilities and storage	M2 bus under pass and Cambridge St to Epping Rd. Left-in and left-out only
EIS S2	M2 Northern Compound	South of Old Beecroft Rd within the rail corridor approx.	Crib sheds, toilet facilities and storage	Existing rail corridor access on Old Beecroft Rd
EIS S3	Cheltenham Station Compound	Cheltenham Station in the vicinity of the existing car park	Site office, crib sheds, parking and toilet facilities	The Crescent, Cheltenham
EIS S4	Beecroft Scout Hall Compound	North of The Crescent, East of the scout hall within the rail corridor approx.	Crib sheds parking and toilet facilities	The Crescent, Beecroft
EIS S5	Beecroft Station Compound	Beecroft Station in the vicinity of the existing car park	Not nominated yet	Wongala Crescent. Left-in and left-out only
EIS S6	Pennant Hills Station West Compound	Within rail corridor west of Pennant Hills Station approx.	Crib sheds and toilet facilities	Yarrara Rd, Pennant Hills. Left-in and left-out only
MAIN 1	Pennant Hills Main Office	423 Pennant Hills Road Pennant Hills	Main project office	City View Rd, Pennant Hills
MAIN 3	Epping Site Office	South of Epping Station	Site office, crib sheds, storage, parking and toilet facilities	Blaxland Rd southbound. Left-in and left-out only

7 Road Occupancy Licence (ROL)

The Alliance will obtain ROL or concurrence from the relevant road authority prior to installation of temporary traffic control and occupying the road, except in the case of an emergency, or when directed by Police or Emergency Services. The Alliance will adhere to the ROL conditions and approved period of operation. All ROL application will be accompanied by the relevant TCPs. The relevant road authorities are as follows:

- Hornsby/Parramatta Council - for all local roads (i.e. non-state road) in the relevant Council boundaries.
- Transport Management Centre (TMC) – for all state road including any activity that may have impact on the road network and infrastructure (i.e. traffic signals)
- The Hills Motorway Limited (THML) – for any activity on the M2 motorway

8 Construction Site Compounds

The primary and satellite construction compound locations have been identified in the CCAFMP and are identified in Table 2. The identified sites have generally been selected based on:

- Practically: the required space for heavy vehicle movements and ready access to rail corridor and public road system
- Environmental Impacts: positioned within cleared land where possible, non-indigenous landscaped areas or within other areas dominated by exotic vegetation
- Useability: located within a proposed construction zone and near major components of works and would make the best use of existing and available hardstand areas.
- All designated site compounds will provide onsite parking for staff where possible, visitors and minor plant as required. In addition this will be supplemented by a remote parking facility and project shuttle bus arrangements.

All site compound plans will detail the following:

- Gate and access routes including pedestrian marked walkway
- Speed limits and direction of travel
- Site safety requirement and emergency procedure
- Emergency assembly point, route and vehicle access
- Location of first aid facilities and fire fighting equipments
- Location of hazardous materials
- Major and significant offices and compounds are to be sign posted to assist in deliveries.

If there are no existing right hand turn facilities (i.e. seagull, right hand turn bay, passing lane, etc...) access to all site compounds would be left-in and left-out movements with movements that do not encroach onto the wrong side of the road when entering or leaving the sites and all vehicles can enter and exits the sites in a forward direction. If this is not feasible consultation would be undertaken with Hornsby and/or Parramatta Council and/or RMS and TMC. If necessary a TMP and TCP will be developed as per the procedure outlined in **FIGURE 2 –TCP PROCEDURE**

Additional minor facilities approved under MCoA E31 may also require a TCP and or VMP to be prepared.

9 Access Gates

A number of gates, existing and new are proposed for to construct and operate the project. The majority of the construction accesses would be located on local roads. The volume of construction vehicle movements to and from each of these accesses was considered in the EIS and resultant noise levels considered as part of the noise sub plan for the project. On balance, levels were considered to be minor due to the existing traffic volumes on the surrounding arterial network. Where required, improvements to the existing access tracks within the rail corridor would be provided to facilitate safe construction vehicles access into / out of the construction compounds. The driveway for all gates (i.e. area between the gate and the road) must be pedestrian and where applicable bicycle safe. All gates are to be signposted stating construction site and no access to the public. Refer to the section "Construction Routes and Vehicle Movement Plans" for the nominated routes to access these gates.

Access to private property shall be maintained during construction unless otherwise agreed with the property owner in advance. A landowner's access that is physically affected by the Alliance shall be reinstated to at least an equivalent standard, in consultation with the property owner.

Table 3 – Location of access gates nominated in the EIS

GATE	TYPE	SIDE OF CORRIDOR	PROVIDE ACCESS FROM
E1	Existing	West	Access from Beecroft Rd, south of Carlingford Rd exit
E2	Existing	West	Access from Beecroft Rd, north of Carlingford Rd
E3	Existing	West	Access from Beecroft Rd, north of Carlingford Rd
N1	New	West	Access from Beecroft Rd, south of Kandy Avenue
E4	Existing	West	Access from Old Beecroft Rd, immediate north of M2
E5	Existing	West	Access from The Crescent, South of Lyne Rd
E6	Existing	East	Access from Sutherland Rd, South of Cobran Rd
N2	New	West	Access from The Crescent, opposite of Lyne Rd
E7	Existing	East	Access from Sutherland Rd, opposite of Day Rd
E8	Existing	East	Access from Sutherland Rd, north of Cheltenham Rd
E9	Existing	West	Access from The Crescent, opposite of The Promenade
E10	Existing	East	Access from Sutherland Rd, btw Chorley Ave and Summerwood Way
N3	New	West	Access from The Crescent, immediately north of Beecroft Substation
E11	Existing	West	Access from The Crescent, opposite Murray Rd
E12	Existing	West	Access from The Crescent , south of Kirkham St
E13	Existing	East	Access from Sutherland Rd, north of Glenelg Place
E14	Existing	West	Access from The Crescent , north of the Scout Hall
N4	New	West	Access from The Crescent , south of the Scout Hall
E15	Existing	East	Access from Sutherland Rd, south of Copeland Rd
E16	Existing	West	Access from Wongala Cres, opposite of Hannah St
E17	Existing	East	Access from Sutherland Rd, opposite of Wandeen Ave
E18	Existing	West	Access from Wongala Cres, north of Chapman Ave
E19	Existing	East	Access from Sutherland Rd, between Chapman Ave and Narena Close
N5	New	West	Access from Wongala Cres, south of Albert Rd

GATE	TYPE	SIDE OF CORRIDOR	PROVIDE ACCESS FROM
E20	Existing	West	Access from Wongala Cres, north of Albert Rd
E21	Existing	West	Access from Wongala Cres, opposite Sherwood Close
E22	Existing	West	Access from Wongala Cres, between Lilla Rd and Brecks Way
E23	Existing	West	Access from end of Wongala Cres, south of Cumberland Hwy overpass
E24	Existing	East	Access from Hampden Rd, south of the Cumberland Hwy overpass
E25	Existing	West	Access from Yarrara Rd, opposite of Shields Lane
E26	Existing	East	Access from end of Railway St
E27	Existing	East	Access from end of Railway St
E28	Existing	East	Access from southern end of Stevens St
E29	Existing	East	Access from northern end of Stevens St
N6	New	West	Access from Yarrara Rd, opposite of (slightly north of Fullbourne Ave)
E30	Existing	West	Access from Yarrara Rd, between Pritchard St and Wells St
E31	Existing	East	Access from Railway Pde, south of Bellevue St

10 New Road Accesses

Any new temporary or permanent road access proposed by the Alliance must be formalised as required by the RMS Traffic Control at Worksites manual by completing the following activities where relevant:

- Road Geometry and Alignment including Stormwater Drainage
- Construction and Public access
- Safety Barrier and Fencing Placement
- Line marking
- Lighting
- Consultation with TPD's Property Group, the applicable road authority (i.e. Hornsby Shire Council and/or RMS) and any businesses or residents to determine any further issues need to be addressed prior to construction.
- Conduct road safety audit as outline in the section "Inspection, Audit and Reporting"

11 Key Construction Activities

The key construction activities, its impact on traffic and mitigation measures are as follows:

1. Bridge works over the M2 Motorway and Viaduct adjacent to Beecroft Rd

- Key impacts: Temporary lane and carriageway closures
- Mitigation measures: Refer to procedure outline in **FIGURE 2 –TCP PROCEDURE** and **FIGURE 3 –VMP PROCEDURE**
- Conduct early consultation with TMC and THML

2. Rail works of approximately 6km of new track and three turn outs

- Key impacts: Construction access and routes
- Mitigation measures: Refer to procedure outline in **FIGURE 2 –TCP PROCEDURE** and **FIGURE 3 –VMP PROCEDURE**

3. Stations upgrade at Cheltenham Station, Pennant Hills Station and Beecroft Station

- Key impacts: Commuters, cyclist, pedestrians, parking, access to station and public transport
- Mitigation measures: Refer to procedure outline in **FIGURE 5 and COMMUTER AND PEDESTRAIN MANAGEMENT PLAN**

4. Civil works such as sandstone cutting, embankment formation, retaining walls and utility relocation and protection

- Key impacts: Construction access and routes
- Mitigation measures: Refer to procedure outline in **FIGURE 2 –TCP PROCEDURE** and **FIGURE 3 –VMP PROCEDURE**

5. Rail systems works (power supplies, signalling, communications and control systems, overhead wiring, etc.)

- Key impacts: Construction access and routes
- Mitigation measures: Refer to procedure outline in **FIGURE 2 –TCP PROCEDURE** and **FIGURE 3 –VMP PROCEDURE**

Consideration will be given to the staging of the works to minimise the road traffic impacts on areas where significant disruption are likely to occur. These have been identified as in and around Cheltenham Girls High School during school drop off and pick up periods, around Beecroft Village during morning and afternoon peak traffic periods, along Yarrara Road during morning and afternoon peak periods, along Beecroft Road between the M2 and Epping during morning, afternoon and weekend peak periods and on the M2 Motorway between the M2 and Epping during morning, afternoon and weekend peak periods. Consultation will be undertaken with each of the relevant authorities in relation to lane and road closures prior to the works and approval gained through TCP, TMP and ROL process.

Oversize vehicular movements currently envisaged for the project include the delivery of the M2 bridge girders (3 a night) and plant deliveries (various). Timing for these movements is under the direction of RMS however, deliveries, duration and number may change in response to changing construction methodologies.

Impacts on commuters and pedestrians in and around the station precincts will be managed in close consultation with Hornsby Shire Council and Sydney Trains Station Liaison Group and approval gained from them prior to the implementation of restrictions and changes to pedestrian movements and flows.

Table 4 – Traffic Control at Work Site (TCWS) Manual VMP Requirements

PROVIDING TRUCK MOVEMENTS APPROACH SPEED 60KM/HR TO 80KM/HR SITE DISTANCE LESS THAN 2*APPROACH SPEED				
ADT	300 to 1,500	More than 1,500		
Number of truck movements per shift	≤20	>20	≤20	>20
TCP with traffic controllers or traffic signals	*Not Required	Yes	Yes	Yes
VMP required	*Not Required	Yes	*Not Required	Yes
Warning signs required as per TCWS manual standard TCP 195	*Not Required	Yes	*Not Required	Yes

PROVIDING TRUCK MOVEMENTS APPROACH SPEED 60KM/HR TO 80KM/HR SITE DISTANCE MORE THAN 2*APPROACH SPEED				
ADT	300 to 1,500	More than 1,500		
Number of truck movements per shift	≤20	>20	≤20	>20
TCP with traffic controllers or traffic signals	*Not Required	Yes	*Not Required	Yes
VMP required	*Not Required	Yes	*Not Required	Yes
Warning signs required as per TCWS manual standard TCP 195	*Not Required	Yes	*Not Required	Yes

Note:

*Not Required - Only applicable for light vehicles and rigid trucks. If any trucks and deliveries that will encroach onto the wrong side of the road and/or required to stop traffic, a TCP and/or TMP will be developed in accordance with Figure 2

12 Construction heavy vehicle numbers and composition

Light vehicle movements would generally be perceived as part of general movements across the wider road network with the key focus of this plan on heavy vehicles and numbers due to the nature of the surrounding environment and risk of conflicts. The highest heavy vehicle numbers would occur during the earthworks program which will be during 2014-2015. It is anticipated volumes of material moved would be between 1800m³ to 3500m³ a week. Higher volumes and numbers may occur during rail possessions due to a need to move material safely when trains are not operating. Indicative heavy vehicle numbers and types are identified below in Table 5:

Table 5 – Average Heavy Vehicles Movements

Location	Average Number of Trucks/hour (may be an increase in possessions)	Type
Cut 2	4	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 3	3	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 4	3	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 5	3	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 8	5	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 9	4	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 10	4	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 11	3	Truck and Dog*, Bogie Tipper or Heavy Rigid
Cut 12	3	Truck and Dog*, Bogie Tipper or Heavy Rigid
Retaining Wall 13 and 14	2	Truck and Dog*, Bogie Tipper or Heavy Rigid
Down Relief (Pennant Hills to Thornleigh)	3	Truck and Dog*, Bogie Tipper or Heavy Rigid
Structural zone areas	5	Truck and Dog*, Bogie Tipper or Heavy Rigid
Capping	5	Truck and Dog*, Bogie Tipper or Heavy Rigid
Ballast	5	Truck and Dog*, Bogie Tipper or Heavy Rigid
Station Works	2 each location	Truck and Dog*, Bogie Tipper or Heavy Rigid
Piling and retaining walls	2 each location	Truck and Dog*, Bogie Tipper or Heavy Rigid
Beecroft Road and Cambridge Street	4 each location	Truck and Dog*, Bogie Tipper or Heavy Rigid
Compound S1	2	Light/heavy rigid delivery vehicles
Compound S2	2	Light/heavy rigid delivery vehicles
Compound S3	4	Light/heavy rigid delivery vehicles
Compound S4	3	Light/heavy rigid delivery vehicles
Compound S5	3	Light/heavy rigid delivery vehicles
Compound S6	2	Light/heavy rigid delivery vehicles

* Truck and Dog will be utilised only where site access permits

13 Construction Routes

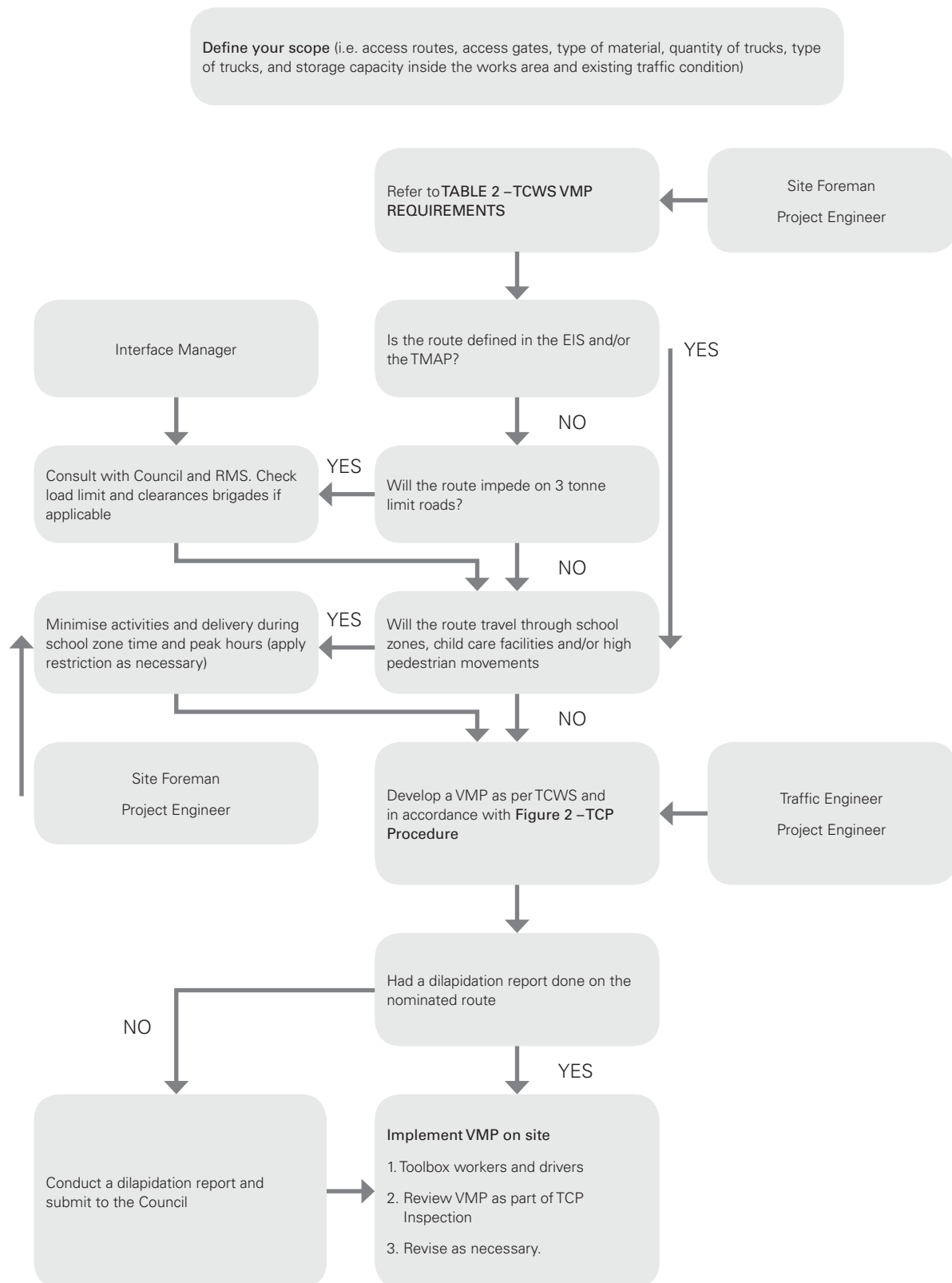
Consideration will be given to the delivery of construction materials via rail or utilising the rail corridor to move machinery (including setting up of cranes, etc.) whenever it is reasonable and feasible to minimise impacts on the road network.

Construction vehicle routes have been developed in reference to the EIS nominated route and form part of a TCP/VMP when finalised and approved by Council. New routes not identified in the EIS nominated route will be identified using the process as highlighted in **FIGURE 3 – VMP PROCEDURE**. Where feasible, route markers will be installed for routes identified in this TMAP and any significant or high usage routes.

Note Beecroft Rd pedestrian overbridge adjacent to Epping Station has a 4.6m vertical clearance in the northbound direction and 4.4m in the southbound direction.

Prior to construction, an independent and qualified person or team shall undertake a Road Dilapidation Report on the nominated routes. The report shall assess the current condition of the road and describe mechanisms to restore any damage that may result due to traffic and transport related to the construction works. The report shall be submitted to the Hornsby and/or Parramatta Council or RMS for review prior to the commencement of haulage. Following completion of construction, a subsequent report shall be prepared to assess any damage that may have resulted from the Alliance work. Restoration or reinstate of roads affected by the Alliance shall be undertaken upon completion of construction and in accordance with the reasonable requirements of the relevant road authority.

Figure 3 – VMP Procedure



Due to the safety and performance on the intersection, the following **roads and intersection only permit left-in and left-out movements** unless a TCP is implemented and all conditions on the ROL are followed i.e. do not conduct stop / go during peak hours, maintain traffic flow etc:

1. Beecroft Rd
2. Beecroft Rd and Old Beecroft Rd intersection
3. Beecroft Rd, The Crescent and Kirkham Rd intersection
4. Yarrara Rd

The following roads have a 3 tonne load limit:

- Sutherland Rd (between Chapman Ave and Cheltenham Rd), near Cheltenham Station
- Yarrara Rd /The Esplanade, near Pennant Hills and Thornleigh Stations
- Copeland Rd (between Beecroft Rd and Pennant Hills Rd), near Beecroft Station
- Kirkham St (between Beecroft Rd and Murray Farm Rd, near Beecroft Rd)

Where possible, the Alliance is to consider using other alternative routes to roads; with 3 tonne load limits, high pedestrian areas and school zones.

Table 6– Summary of Sensitive Receivers

Sensitive Receivers	Address	Potential Traffic Impacts	Sensitive Times
Local Roads	Various location from gate to arterial road	Construction vehicle noise	Out of hours works
Arden Anglican School	39-43 Wongala Cres, Beecroft	Construction vehicle noise	School zone time
Beecroft Primary School	90-98 Beecroft Rd, Beecroft	Minimum compared to existing situation	School zone time
Cheltenham Girls High School	Beecroft Rd & The Promenade, Beecroft	Construction vehicle noise	School zone time & exam time
Beecroft Long Day and Early Learning Centre	23A Wongala Cres, Beecroft	Construction vehicle noise	Working hours and pick up and drop off time
KU Cheltenham Memorial Preschool	Beecroft Rd & The Promenade, Beecroft	Construction vehicle noise	Working hours and pick up and drop off time
Beecroft Buddies Childcare Centre	45 Wongala Cres, Beecroft	Construction vehicle noise	Working hours and pick up and drop off time
Beecroft Combined OSHC Program	90-98 Beecroft Rd, Beecroft	Minimum compared to existing situation	Working hours and pick up and drop off time
Beecroft Nursing Home	134 Beecroft Rd, Beecroft	Construction vehicle noise	Out of hours works
Uniting Church Retirement Home	Copeland Rd, west of Beecroft Rd	Construction vehicle noise	Out of hours works
Pennant Hills Library	Ramsay Rd & Yarrara Rd, Pennant Hills	Construction vehicle noise	Working hours
Beecroft Scout Hall	Kirkham St and The Crescent, Beecroft	Construction vehicle noise	Out of hours works
Beecroft Uniting Church	82 Beecroft Rd, Beecroft	Construction vehicle noise	Possession Weekend

Sensitive Receivers	Address	Potential Traffic Impacts	Sensitive Times
Beecroft Town / Community Centre	Wongala Cres & Hannah St, Beecroft	Construction vehicle noise	Peak hours and lunch time
Beecroft Lawn Tennis Club	The Crescent and Beecroft Rd, Beecroft	Construction vehicle noise	Possession Weekend
Cheltenham Recreational Club	60-74 The Crescent, Cheltenham	Construction vehicle noise	Out of hours works
Pennant Hills Town / Community Centre	Yarrara Rd, Pennant Hills	Construction vehicle noise	Peak hours and lunch time

14 Vehicle Movement Plan (VMP)

Prior to commencement of any work activity, the Engineer shall define the following:

- Scope of works (i.e. approximate amount and type of machinery, plant and labourer required)
- Define the access route and gates
- Assessed the route and consider the changes to the existing traffic network
- Identify any sensitive receivers on the route (i.e. school zones, child care and age care facilities, etc...)

Refer to **TABLE 8 –SUMMARY OF SENSITIVE RECEIVERS** and if necessary, apply restrictions and implement additional controls (e.g. minimise truck movements in school zones during school zone time, isolate work area from high pedestrian movement areas, etc...)

If necessary development of a site specific VMP as per this TMAP and RMSTCWS manual

The VMP will detail the following:

- Construction vehicle route
- Type of vehicles accessing the route (i.e. light vehicles only, rigid or semi trucks, oversize, etc...) Signage
- Procedure to access, travelling through and exit site
- Construction parking
- Restriction (i.e. hours of construction travel on certain routes to avoid impeding on items as listed below)
- Any significant landmark and sensitive receivers such as schools, child and age care facilities, train stations and public sporting ground
- A general note for the VMP Procedure for the project will be included. Draft details of this note is as follow below:

VMP General Procedure

“Deliveries of materials to site:

1. Engineer or foreman to plan the delivery (refer to **Figure 3 – VMP Procedure**). Where feasible, construction material to be delivered via rail and attempt to use the rail corridor to move materials and machinery.
2. Always plan delivery outside of peak road traffic periods and outside of school peak periods where feasible;
3. Adequately communicate with the sub-contractor the project traffic management requirements;
4. Notify traffic controllers of the vehicle movement details e.g. time and direction; as required;
5. If a vehicle is unable to perform construction activities immediately, reroute to the designated waiting area to prevent impacts on roads;
6. Contact the driver when the site is ready.
7. Minimise engine idling whenever possible especially in residential area.
8. Heavy vehicles travelling to site will be directed to refer to the RMS heavy vehicle section.

“When leaving the site:

1. Site access to be via nominated construction access gates
2. Access to be maintained at all times to affected private properties
3. Ensure the loads are secured and covered if there is the potential to generate dust;
4. Ensure wheels are free from mud and sediment; and

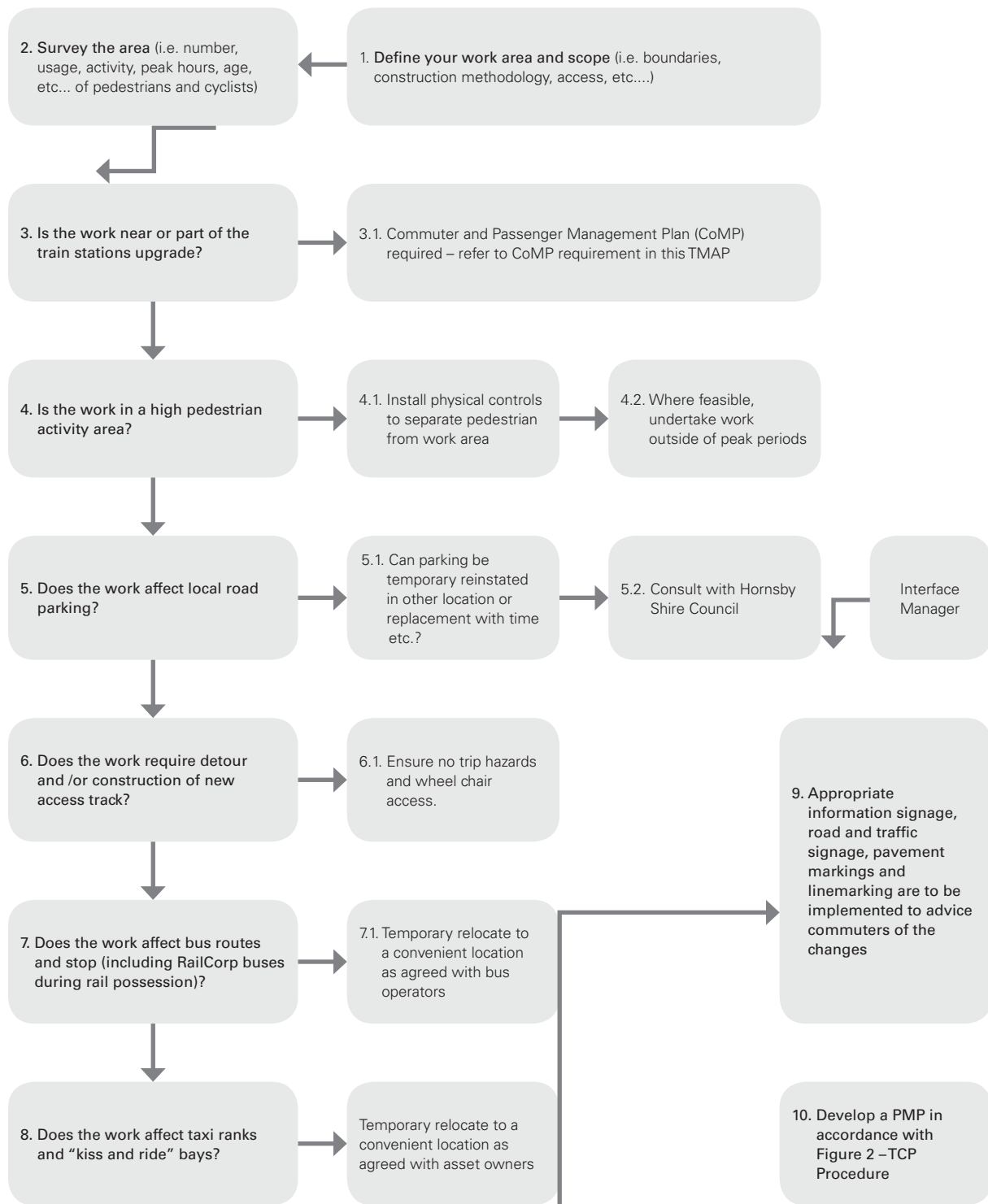
5. *In the event of an incident (spill) or accident:*

- *Report incident details to the Project Environment Manager or Site Foreman*
- *Contact emergency services if required."*

The nominated communication protocol on site is via UHF radio. As the project progress, UHF radio channels and protocols will be established as per the work areas. The general UHF channels and protocols for the project and work areas will be detailed in the site induction. If a more specific requirement is necessary (i.e. involving traffic controllers, numerous plant activities, etc.) this will be detailed in the site specific VMP and toolbox to all relevant personnel.

Current VMPs are attached (**Appendix A**).

Figure 4 – PMP Development Process



15 Managing Pedestrians, Cyclists and Parking

The PMP describes how the Alliance will safely manage pedestrians, cyclists and commuters on the project. As detailed in **FIGURE 5 – PMP DEVELOPMENT PROCESS** the Alliance will identify pedestrians, cyclists and commutes needs by considering the following:

Number of pedestrians

- Type of pedestrian activities (i.e. residential, commuters, retail, school, etc...)
- Origin and destination points of pedestrians, and their desired travel path
- Needs of vulnerable pedestrians (i.e. wheelchair, young children, etc...)
- Key facilities (i.e. train stations, bus stops, taxi ranks, “kiss and ride” bays, cyclist facilities, schools, sporting grounds, shopping centres.)
- Peak hour traffic (i.e. between 0800 to 0900 and 1500 to 1600 for school, Saturday morning for sporting grounds)

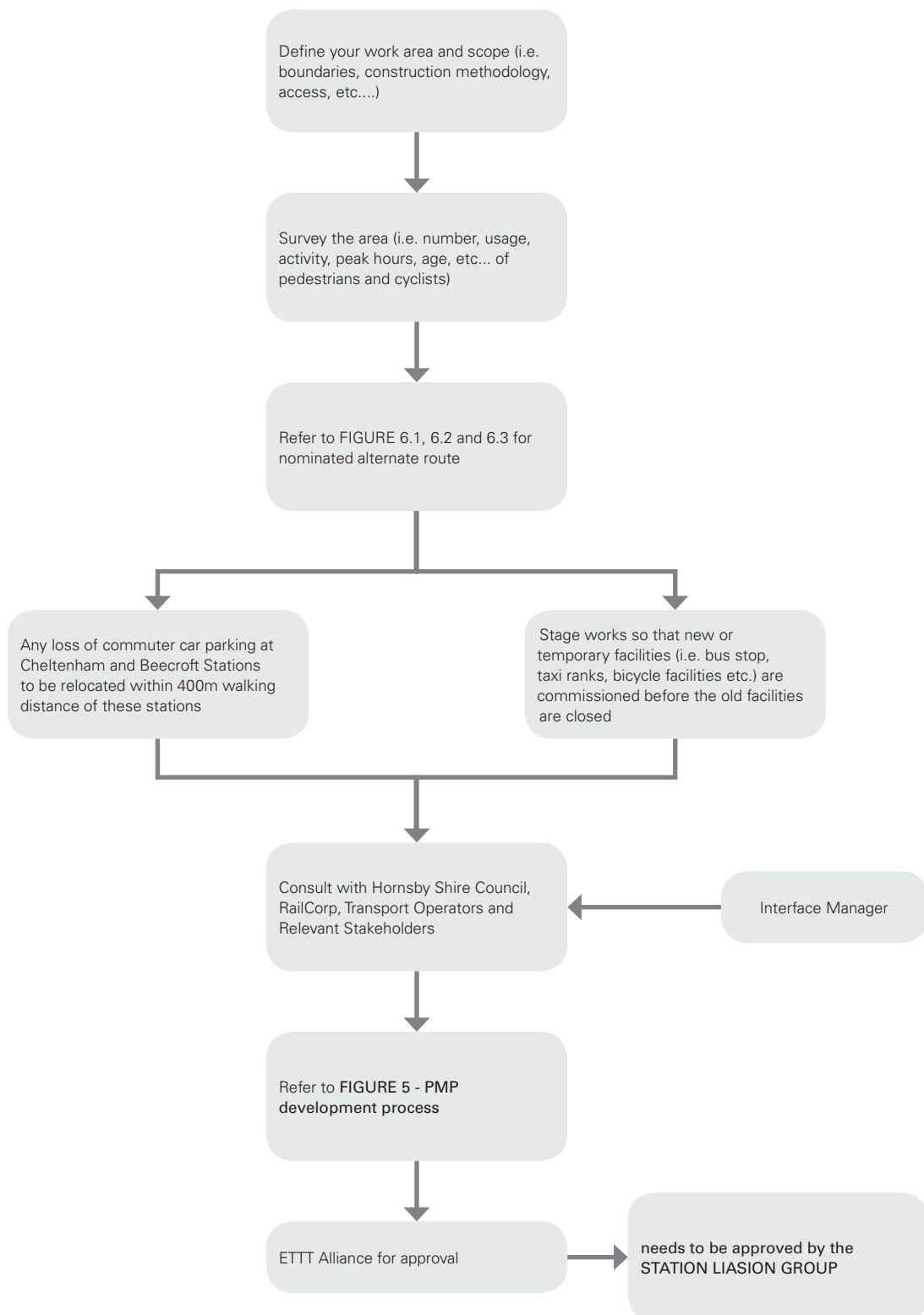
The key construction areas and routes identified where there is a high level of interface with pedestrians and cyclists are as follow:

- Cheltenham Train Station - Mitigation measures: Refer to procedure outline in **FIGURE 4 – PMP Development Process and CoMP**
- Beecroft Train Station - Mitigation measures: Refer to procedure outline in **FIGURE 4 – PMP Development Process and CoMP**
- Pennant Hills Train Station - Mitigation measures: Refer to procedure outline in **FIGURE 4 – PMP Development Process and CoMP**
- Yarrara Rd between Pennant Hills Rd and Thornleigh Station - Mitigation measures: Delivery and/or cartage of material outside peak hour times and/or minimise deliveries during peak hours as per **FIGURE 3 – VMP PROCEDURE and CoMP**
- Beecroft Rd, Cheltenham (around the vicinity of Arden Anglican School, Beecroft Primary School and Cheltenham Girls High School) - Mitigation measures: Undertake delivery and/or cartage of materials outside school zone time and/or minimise deliveries during peak hours as per as per **FIGURE 3 – VMP PROCEDURE**
- Beecroft Rd south of the M2 – Mitigation measures: Refer to procedure outline in **FIGURE 4 – PMP Development Process**
- Cheltenham Rd, Copeland Rd, Chapman and Pennant Hills Rd road bridges - Mitigation measures: Refer to procedure outline in **FIGURE 4 – PMP Development Process**

When constructing work along local roads or any public space where the pedestrian and cyclist access may be affected, alternate routes will be clearly signed and delineated at each access points and throughout the detour route in accordance with the TCWS manual and Austroad Guide. The work site must be secure at all times with appropriate fencing / barriers and secure to the ground with appropriate connections and bracing. Where there is penetration, drop or a significant hazard the site will be secure with a 1.8m minimum high fencing. All access gates to these work sites have to be manned or locked at all times. Appropriate construction signage with emergency contact details will be erected. Allowance will be made on all temporary footpath, access or detour for wheelchair access. These routes will have the same grade as the existing routes, a smooth surface with no trip hazards and require regular inspection and maintenance as detailed in - **TCP INSPECTION REQUIREMENT and INSPECTION, AUDIT AND REPORTING** section of this TMAP

TCWS Manual Section 9.3 and AustRoads Guide to Traffic Engineering Practice – Pedestrians Part 13, Section 1 provide guidance on the needs of pedestrians. When pedestrians are diverted onto existing roadways adjacent to traffic flows, additional treatment will be implemented to ensure adequate separation is provided and clearly delineated

Figure 5 – Commuter and Passenger Management Process



16 Commuter and Passenger Management

As the Alliance is working in the vicinity of the train stations, specific movement plans are to be developed. These plans comprise:

- a) drawings showing the layout of public areas, including facilities provided for rail staff and patrons for each stage of Works;
- b) proposed arrangements at the station clearly showing the position of hoarding and platform interchange provision.
- c) documented clearances and free area of platforms. The proposed level of service during construction shall be also identified;
- d) drawings showing proposed arrangement of signage (temporary and existing) including location, size and wording;
- e) drawings showing arrangement of passenger information panels including temporary relocations and modifications;
- f) a program clearly indicating when configuration will be changed and proposed period of change;
- g) controlled site access points;
- h) delineation of work and public areas;
- i) access points from different modes of transport and general ingress and egress points: and
- j) identification of level changes via ramps, stairs, and other means.

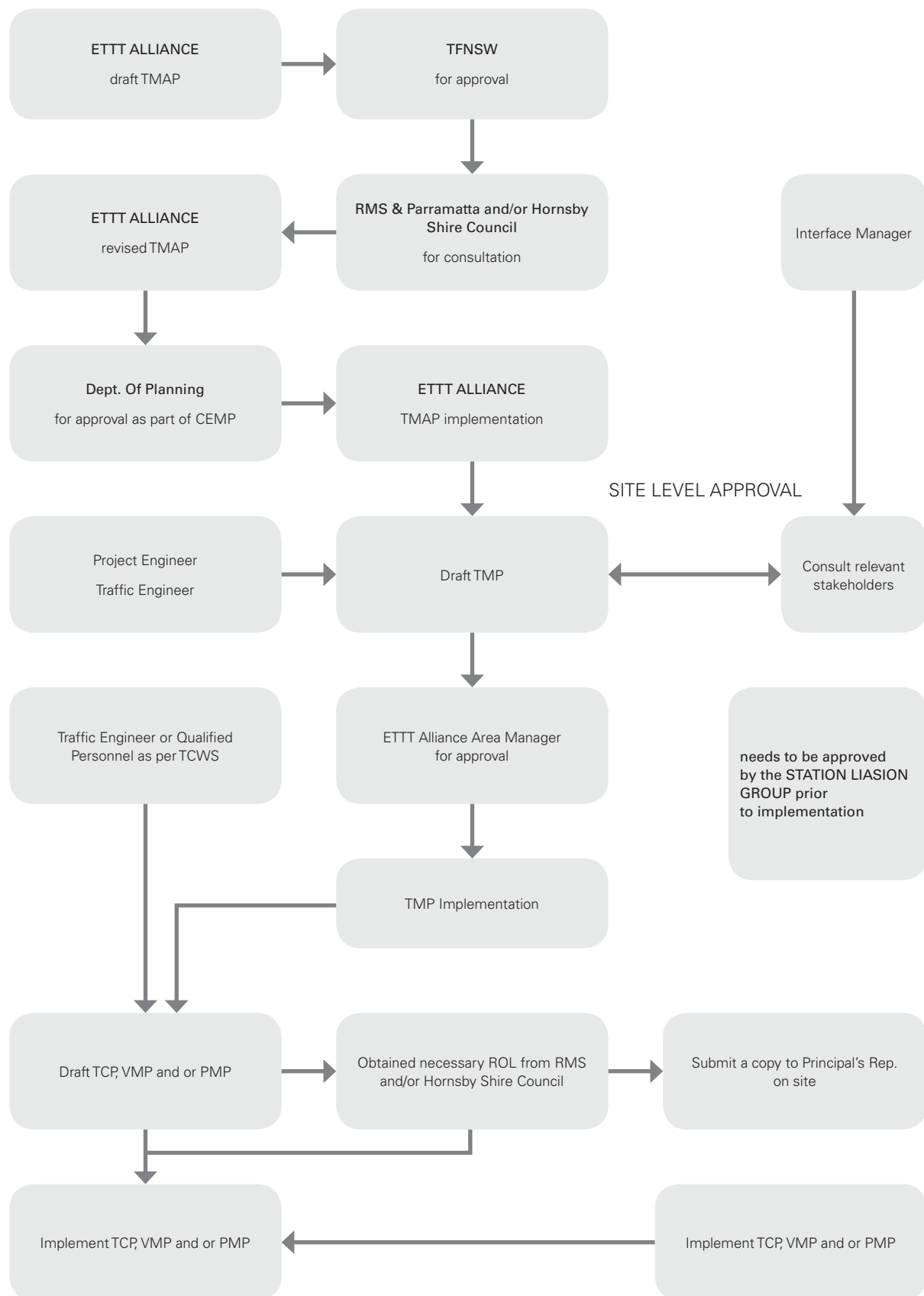
The Alliance will clearly sign and delineate any detour or alternate route in accordance with the TCWS manual and Austroads Guide. The work site must be secure at all times with appropriate fencing / barriers and secure to the ground with appropriate connections and bracing. Where there is penetration, drop or a significant hazard the site will be secure with a 1.8m minimum high fencing. All access gates to these work sites have to be manned or locked at all times. Appropriate construction signage with emergency contact details will be erected at each of these gates. The Principal's Representative may direct the Contractor to include additional or alternative signage and delineation than that specified in the COMP. The diagrams will be developed in consultation with the appropriate Station Liaison Group.

- Prior to implementation of any management devices the plan(s) shall be submitted to Station Liaison Group for approvals;
- Work around train stations will adhere to the following conditions:
- Any loss of designated commuter car parking during construction at Cheltenham and Beecroft Stations would be accommodated Any affected bicycle facilities, e.g. lockers, racks hoops/rails, would be reinstated to a location close to the new station entrance.

Changes to station facilities would be staged and communicated via signage so that new or temporary facilities are commissioned before the old facilities are closed, where possible. Bus stops, taxi ranks and "kiss and ride" locations affected by construction would be temporarily relocated to nearby locations so that they remain available throughout construction.

Any changes to pedestrian and cyclists routes and its facilities, bus stops, taxi ranks, car parking etc will be consulted with the Station Liaison Group, Hornsby and/or Parramatta Council, Sydney Trains and transport operators.

Figure 6 – TMAP and TMP Approval and Implementation Process



17 Development Process

This TMAP is developed and approved by means of consultation and agreement of key and relevant stakeholders, in particular RMS and Councils. Once approved, all site specific TMP's will be developed in accordance with this TMAP and approved by ETTT Alliance Project Manager. The site specific TMP will address the specific key issues from the consultation with the relevant stakeholders. From the TMP, any relevant TCP's, VMP's and PMP's will be generated by qualified personnel with a Design and Inspection Traffic Control Plans "orange" card and/or Select and Modify Traffic Control Plans (red) card and in accordance with the TCWS manual. This approval process is as outlined in **FIGURE 6 –TMAP AND TMP APPROVAL AND IMPLEMENTAION PROCESS**.

18 Roles and Responsibilities

Alliance Manager (AM)

- Approve the TMAP and revisions.

Construction Manager (CM)

- Determine the overall project work activities, scope and timing of activities.
- Approve the TMP and CoMP and revisions.

Interface Manager

- Manage all correspondence and liaison between the Alliance and external stakeholders, asset owners, community groups, etc.

Area Manager (AM)

- Development and implementation overall area staging plan.
- Determine the individual work activities, scope and timing of activities.

Stations Senior Project Engineer (SPE) and Project Engineer (PE)

- Development and implementation of the plans where appropriate.
- Development and implementation of stations upgrade staging plans including scope and timing of activities.
- Propose and implement remedial action to meet construction requirements.

Traffic Engineer (TE) – with Select/Modify Traffic Control Plan “red” card and Design & Inspect Traffic Control Plan “orange” card

- Development of any relevant TMP, TCP, VMP and PMP with the assistant of the PE.
- Development and implementation process and procedure for site traffic management with the assistant of the PE.
- Ensure the traffic management objectives as per this TMAP of the projects are achieved.
- Apply and obtain any relevant ROL and Speed Zone Authorisation (SZA).
- Implement procedure and checklist as per **TABLE 7-TCP INSPECTION REQUIREMENT** and monitor compliance level.
- Monitor, inspect and report any deficiencies in regards to traffic control management on site.

Foreman (F) and Project Engineer (PE)

- Implementation of any relevant TMP, TCP, VMP and PMP.
- Co-ordinate and program daily activities with Leading Hands, Foreman and Subcontractors / Traffic Supervisor.
- Monitor, inspect and report any deficiencies in regards to traffic control management on site.

Safety Manager (SM)

- Report any identified concerns to the CM.
- Investigate and report incidents.
- Training of workers in WMP and SWMS specific to traffic management operations.
- As necessary, assist with safety aspects of TMP, CoMP, TCP, VMP and PMP design and implementation.

Traffic Supervisor (Subcontractor) – with Traffic Controller “blue” card and Apply Traffic Control Plans “yellow” card

- Setup TCP as per approved plans and close down TCP as per TCWS manual.
- Inspect TCP as per **TABLE 7 –TCP INSPECTION REQUIREMENT**
- If necessary amend TCP and report back to Traffic and or relevant Project Engineer
- Coordinate daily site TCP requirements

Figure 7 –Traffic Hierarchy Chart

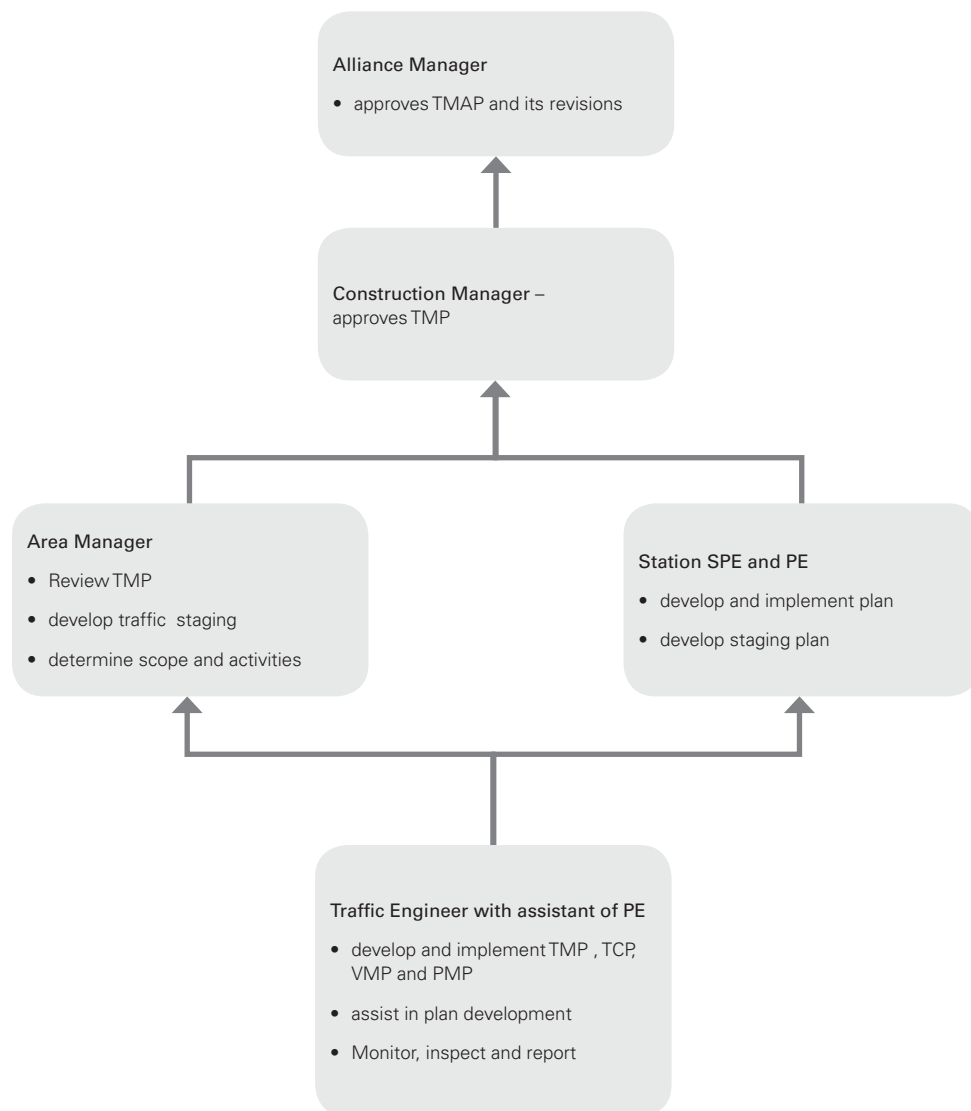


Table 7 –TCP Inspection Requirement

INSPECTION	RESPONSIBILITY	FREQUENCY
Traffic Control Setup	Traffic Supervisor	Before works start, 3hr max. interval during work and demobilisation / pack up
Weekly inspections	Traffic Engineer, Project and Foreman	On the day the work begins, and at least once per week.
Pre-opening inspections	Traffic Engineer and Project Engineer	Prior to opening temporary traffic switches, lane deviations or side track.
Pedestrian detour route	Leading hand, Foreman and Engineer	Informal daily inspection. Formal at least once per week or after heavy wind and/or rain events.

Note:

*Note: The reference to Engineer, Foreman and Leading Hand in the above table refers to personnel responsible for the work activity.

19 Inspection, Audit and Reporting

For the duration of the occupation by the Alliance of any part of a road open to the public, the Alliance must maintain, repair, clean and otherwise be responsible for the condition and function of that part of road. The Alliance will undertake regular inspections to ensure the safety of all traffic, pedestrians and commuters through and surrounding all work sites. The responsibilities and frequencies of inspections are as detailed in **TABLE 7–TCP INSPECTION REQUIREMENT** and is as per Section 6.1 of the TCWS manual. The Alliance has identified pedestrian interface at certain locations on the project as significant and will require additional monitoring on any detour and amendments to existing route. This is to ensure safety of the general public and commuters.

Where the Works or the Temporary Works require a change to existing boundaries and/or changed interface between the existing rail and road networks (such as through physical alteration, change or use and/or introduction of new hazards) then the Contractor must arrange for a “Road Safety Audit” to be carried out as per RMS Technical Direction for Road Safety Practitioners (TD2003/RS003) and RMS Guidelines for Road Safety Audit Practices.

Road safety audits must be carried out at least the following stages:

- On completion of the detailed design for the proposed changes to existing road networks; and
- On completion of construction of the changes to existing road networks but prior to operation.

The road safety audits must be carried out by a team consisting of a lead auditor and at least one other member who is experienced in traffic management. The lead auditor must be considered by the Institute of Public Works Engineering Australia Ltd (NSW Division) to be a level 3 auditor. Any identified issues or deficiencies identified during traffic inspection or audit will be assessed against a “risk matrix” i.e. frequency verses severity. Any high risk issues will be addressed and control immediately. Other items will be address upon completion of the inspection or audit and dealt with accordingly in the appropriate time frame.

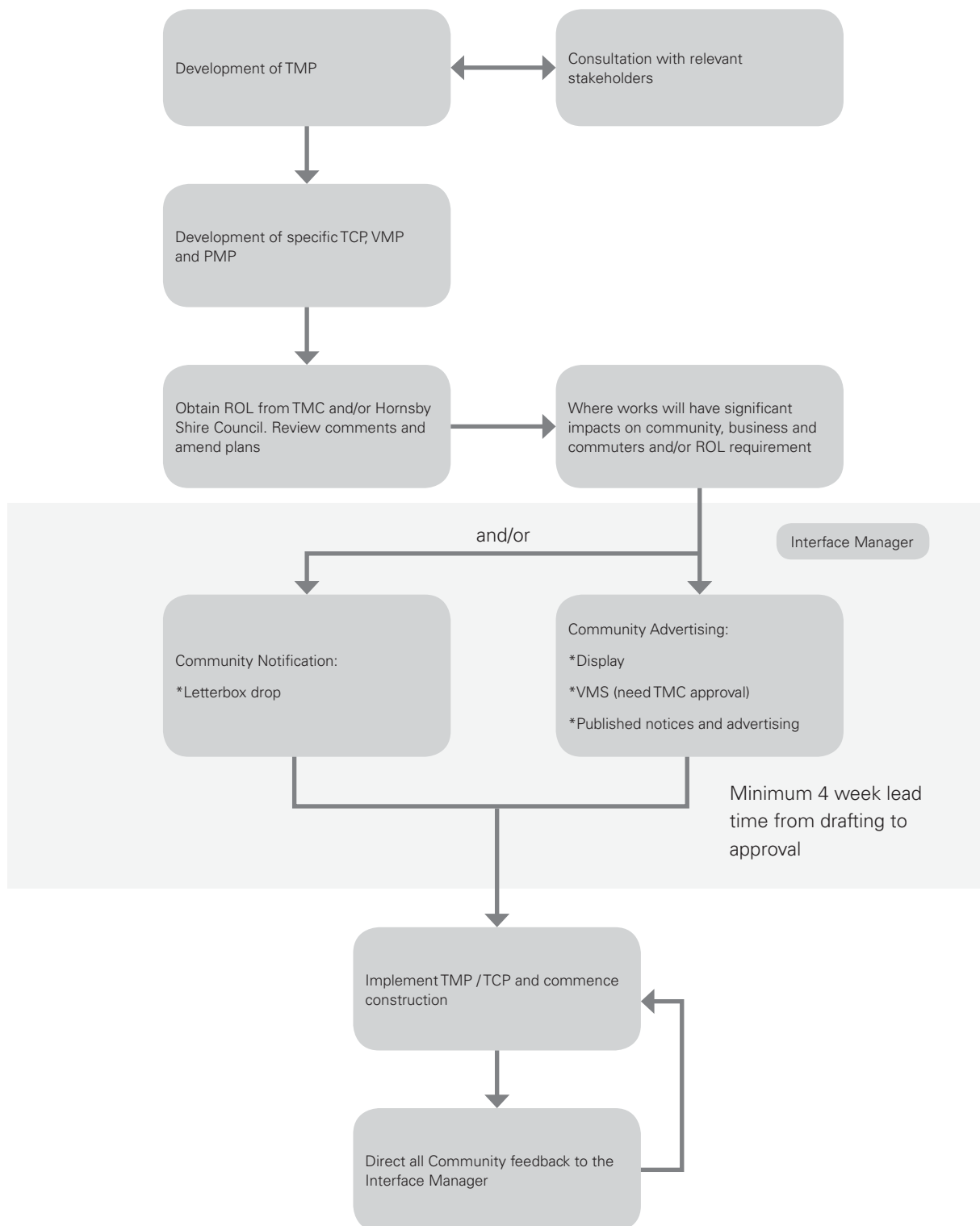
The Traffic and Access Management Plans will be updated and improved continually throughout the life of the project. Plans will not stagnate between the formal management reviews. Triggers for review include:

- Within 1 month following a major (Class 1) incident
- Where an audit recommends a review
- Where there are repeat non-conformances and these are not closed out within the agreed timeframe
- As otherwise determined by the Environmental Manager in consultation with the Construction Manager.

The frequency of reporting as a result of audits or reviews falls under the following four categories:

- Immediate – reporting of major construction related incidents and critical issues
- Within 1 working day – formal reports of major construction related incidents
- Weekly Report – on planned lane closures / road occupancies and the performance results of recently implemented changed traffic conditions
- Monthly Report – on construction activities, incidents and proposed major traffic, pedestrians and/or commuters changes

Figure 9 – Consultation and Communication Process



20 Consultation and Communication

A comprehensive Community Liaison Management Plan (CLMP) has been prepared for the ETTT project. The project encourages public participation at each phase of the project including planning, construction and commissioning. The project's approach to community and stakeholder engagement will be tailored to each phase and component of the project, enabling appropriate consideration and balancing of community and stakeholders' social economic, environmental, safety and functional issues to achieve best for project outcomes.

As illustrated in **FIGURE 2 –TCP PROCEDURE, FIGURE 3 VMP PROCEDURE, FIGURE 4 – PMP DEVELOPMENT PROCESS, FIGURE 5 - DEVELOPMENT PROCESS and FIGURE 6 –TMAP andTMP APPROVAL AND IMPLEMENTATION PROCESS** any initial consultation and communication to relevant stakeholders will be through the Alliance Interface Manager with the exception of ROL applications. Interface with the TMC and Hornsby Shire Council in regards to ROL submissions will be managed by the relevant Area Manager and/or Traffic Engineer.

During the development of site specific TMP, the following stakeholders will be consulted as appropriate:

- Transport for NSW
- RMS
- Hornsby and/or Parramatta Council
- Emergency services
- Local businesses
- Local schools
- Local residents
- Community liaison / action groups
- Bicycle and pedestrian groups
- Station Liaison Group
- Adjacent major infrastructure project i.e. NWRL
- Transport Operators

Specific community notifications will be required for certain TMP. Notification of traffic re-arrangements will be distributed by letters to residents and local businesses that are directly affected by construction activities and changes to traffic conditions.

Specific advertising will publicly advertise adequate information during the construction to keep the community, including business, informed of proposed changes to traffic, parking and/or commuters movements. This notification may be in various formats including displays, variable message (VMS) boards, letterbox drops, published notices and advertising.

All forms of notification and advertising will be reviewed by the Transport for NSW and relevant authorities. The approval process for TfNSW is 5 working days and the time frame for notification is 2 weeks prior to commencement of construction and/or implementation of changed traffic conditions.

The need of either notification and/or advertising will be nominated by the Interface Manager and in accordance with the ROL conditions.

21 Managing Unplanned Incidents

21.1 Managing Traffic Incidents

The management and response to unplanned traffic incidents on the road network is not the responsibility of the Alliance, but where possible (i.e. where the Alliance has occupied the road and resource available) the procedure is as follows:

- If necessary contact Emergency Services
- Establish or amend traffic control to isolate and make safe of area. If possible maintain traffic flow till incident is clear.
- Prevent further harm and provide assistance if necessary
- Upon arrival of RMS and/or emergency services the site should be handed to the appropriate personnel.
- During major incidents provide a senior construction representative on-site to liaise with the RMS and and/or emergency services

The Alliance has identified two areas where there is a significant interface with traffic and that the occurrence of traffic incidents will have negative impacts on the operation of the road network:

- Viaduct construction and service relocation works on Beecroft Rd; and
- M2 bridge construction

Further to the procedure as listed above the Alliance will at these locations (or on any state road):

- Apply and maintain communication protocols between TMC
- Disseminate road condition information to the TMC for their distribution to road users.

21.2 Managing Construction Site Emergencies

The Alliance will develop an Emergency and Crisis Management Plan as part of the Safety Management Plan, which will incorporate standard operating procedures for managing construction site emergencies / incidents. These plans will:

- define the Alliance's roles and responsibilities in the event of incident and emergencies;
- establish and define Alliance's roles and emergency response procedures for dealing with different category of emergency arising from construction, traffic and environmental incidents;
- identify and define the roles and responsibilities of the Alliance project personnel during emergencies and incidents;
- define the TfNSW, RMS and emergency services roles and responsibilities in the event of an incident or emergency;
- outline the communication protocols and system/s
- establishment formal arrangements for the review and maintenance of the plan

All construction or construction related incidents are entered into the safety database by the project Safety Team.

22 Existing Conditions

Table 8 – Summary of Arterial and Sub-arterial Roads

Road / Route	Description
Epping Road	An arterial road which joins to Beecroft Road and Blaxland Road immediately east of the Beecroft Road bridge over the rail line. The bridge over the rail line at Epping currently provides five lanes (three lanes eastbound and two lanes westbound).
Beecroft Road (at Epping)	A four-lane, two way undivided sub-arterial road. It provides a connection between Epping Road, Blaxland Road runs along the western side of the rail line, between Epping Road and the M2 Motorway in the Epping study area.
Carlingford Road	A four-lane, two way undivided arterial road which connects Beecroft Road to the east and Cumberland Highway to the west. The posted speed limit is 60km/h with a 40km/h school zone outside Epping West Public School.
M2 Motorway	A high capacity motorway connecting the north-west area of Sydney with the Lower North Shore. The road generally has six-lanes with a divided carriageway and a posted speed limit of 100km/hr. The upgrading of the M2 Motorway has just been completed.
Blaxland Road	A four-lane, two-way undivided sub-arterial road. It runs along the eastern side of the rail line and connects with Land Cove Road at Top Ryde in the south and Epping Road in the north. The posted speed limit is 60km/h with a 40km/h school zones outside St Therese Primary School
Cheltenham Road	A two-lane two-way undivided local road crossing the rail lines with two-lane two-way over bridge. It connects Sutherland Road to the north and The Crescent to the south. The speed limit is 50km/h
Beecroft Road (at Cheltenham)	A four-lane, two-way undivided sub-arterial road that connects with the M2 Motorway to the south and Pennant Hills Road to the north. Beecroft Road runs along the western side of the rail line. The posted speed limits is 60km/h with a 40km/h school zone outside Arden Anglican School, Beecroft Primary School and Cheltenham Girls High School.
Beecroft Rd (at Beecroft)	A four-lane, two-way undivided sub-arterial road that connects with The Crescent to the south and Pennant Hills Road to the north. Beecroft Road runs along the western side of the rail line, south of Copeland Road. The posted speed limit is 60km/h with a 40km/h school zone outside Arden Anglican School, Beecroft Primary School and Cheltenham Girls High School.
Pennant Hills Road	Pennant Hills Road (Cumberland Highway), forms part of the National Highway network. It is a RMS controlled road which runs along the eastern side of the rail lines. Pennant Hills Road is a six-lane divided road with a posted speed limit of 70km/h.
Yarrara Road	A two-lane two-way undivided collector road which runs along the western side of the rail lines. The posted speed limit is 60km/h.

Table 9 – Key Intersections’ Peak Hours

Intersection	Intersection Control	Peak Hours (Mon – Fri)
Beecroft Rd/Old Beecroft Rd	Give-way priority	0700 to 0800 and 1730 to 1830
Beecroft Rd/Cheltenham Rd	Signals	0730 to 0830 and 1715 to 1815
Beecroft Rd/The Crescent	Give-way priority	0700 to 0800 and 1645 to 1745
Beecroft Rd/Copeland Rd	Signals	0715 to 0815 and 1715 to 1815
Beecroft Rd/Chapman Ave	Five-way priority	0715 to 0815 and 1700 to 1800
Pennant Hills Rd/City View Rd	Signals	0700 to 0800 and 1515 to 1615
Pennant Hills Rd/Yarrara Rd	Signals	0730 to 0830 and 1530 and 1630
Yarrara Rd/Wells St	Give-way priority	0730 to 0830 and 1700 and 1800

23 Implementation of Mitigation Measures

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
REMMs Access, traffic and transport					
1.	J.8	The CEMP would include measures to manage the potential impacts of construction compound operations. This would include inputs into the traffic management plan to ensure that vehicle movements to and from construction compounds do not impact on surrounding receivers.	Planning and during construction	Engineer	TMP and VMP
2.	O.1	Road occupancy licenses/ road opening permits for temporary closure of roads would be obtained, where required.	Prior to construction	Engineer	ROL licence
3.	O.2	Traffic management plans would be prepared and provided to the relevant Roads Authority as required.	Prior to construction	Engineer	TMP
4.	O.3	Heavy vehicles would be restricted to specified routes, with the aim of avoiding local streets, high pedestrian areas and school zones. Where feasible, route markers would be installed for heavy vehicles along designated routes.	During construction	Engineer And Foreman	VMP
5.	O.4	Directional signage would be provided at each corridor access point to assist in deliveries to each work site.	During construction	Foreman	Check gates
6.	O.5	Signs would be provided at each access point for pedestrian and cyclist guidance.	Implementation	Engineer and Foreman	PMP

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
7.	O.6	Limit off-site construction vehicle parking to designated areas. Areas of temporary on-street parking during peak construction events would be identified in the traffic management plans to minimise the impact on surrounding properties and businesses.	Planning and during construction	Engineer and Foreman	TCP
8.	O.7	The queuing and idling of construction vehicles in residential streets would be minimised.	During construction	Foreman	Induction and toolbox
9.	O.8	An emergency response plan would be developed for construction traffic incidents.	Prior to construction	Safety Manager	This plan and Emergency and Crisis Management Plan
10.	O.9	A pre and post construction assessment of road pavement assets would be conducted in areas likely to be used by heavy construction vehicles.	Prior to and after construction	Engineer	Dilapidation report
11.	O.10	Where required, public communications would be conducted to advise the community and local residents of vehicle movements and anticipated effects on the local road network relating to site works in accordance with the CEMP.	Prior to construction	Interface Manager	Community notification
12.	O.11	Access to all private properties adjacent to the works would be maintained during construction, unless otherwise agreed with property owners.	During construction	Engineer	TMP and/or TCP
13.	O.12	During project inductions, all heavy vehicle drivers would be provided with the emergency response plan for construction traffic incidents.	During construction	Safety Manager	Induction

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
14.	O.13	Undertake construction vehicle traffic movements outside of peak road traffic periods and outside of school peak periods where feasible.	During construction	Foreman and Engineer	ROL conditions, and/or TCP
15.	O.14	Where required, improvements to the existing access tracks within the rail corridor would be provided to facilitate safe construction vehicle access into/out of the construction compounds.	During construction	Foreman and Engineer	VMP or site inspection
16.	O.15	Bus stops, taxi ranks and kiss-and-ride locations affected by construction would be temporarily relocated to nearby convenient locations so that they remain available throughout construction. Agreement of the asset owners and consultation with transport providers would be undertaken.	Prior to construction	Engineer	CoMP, TCP
17.	O.16	Local bus operators would be consulted to ensure that the timing of short term road or kerb closures (if required) minimise impacts to bus services.	Prior to construction	Engineer	CoMP and/or TCP
18.	O.17	Coordination of proposal staging, vehicle movement and scheduling, equipment and resourcing, joint use of access points and regular project liaison between the NWRL and ETTT projects.	Prior to construction	Interface Manager	Consultation meeting minutes

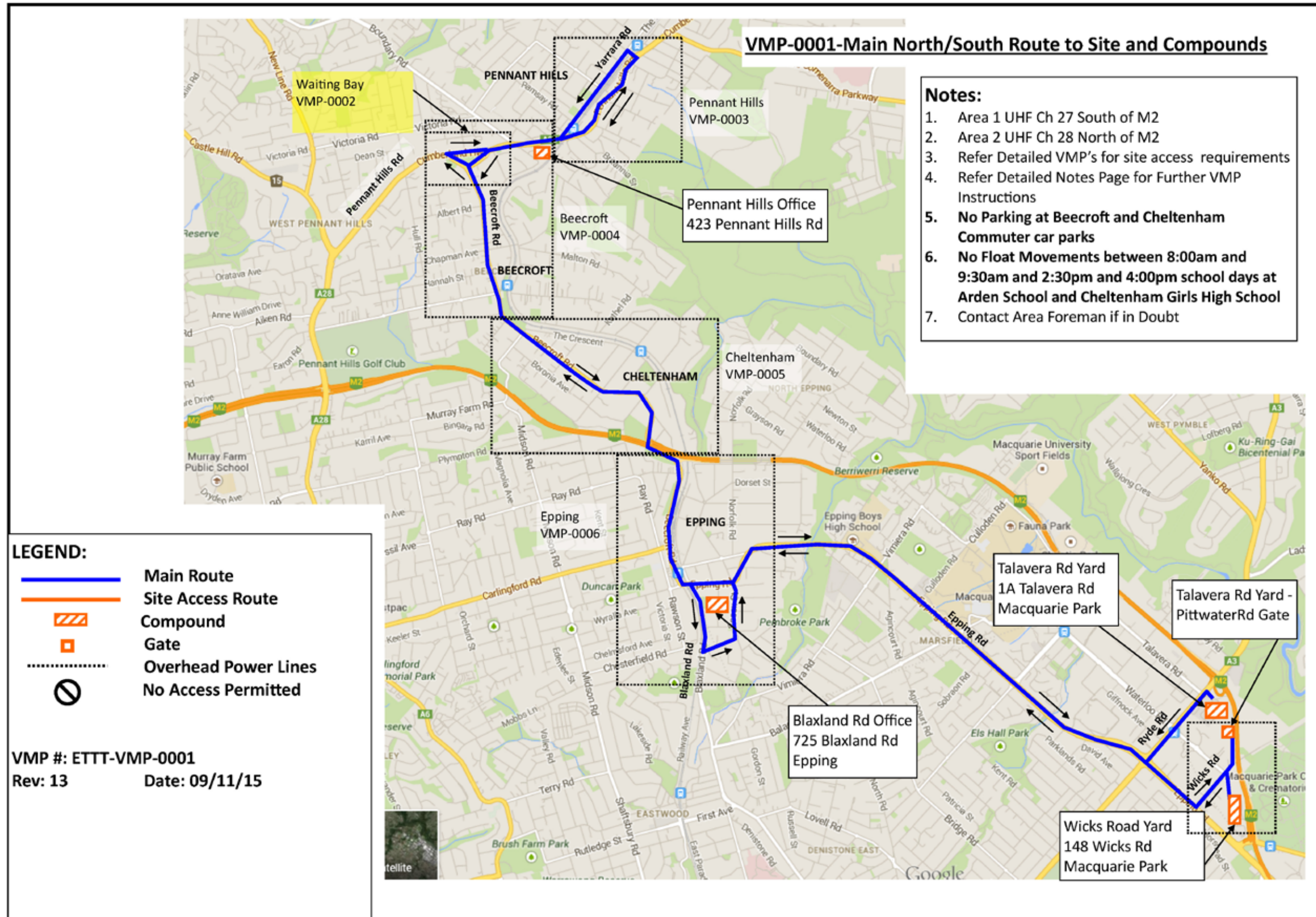
No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
19.	O.18	Affected stakeholders, such as local government authorities, emergency services, local schools, public transport operators, public transport users, road users, local businesses, local employees and residents, would receive advance notification of scheduled construction works to allow for planning of required journeys.	Prior to construction	Interface Manager	Community notification
20.	O.19	The construction of the ETTT proposal would be undertaken and staged so that it does not affect timetabled passenger and freight operations other than during scheduled track closedowns or and as otherwise agreed with RailCorp and Transport for NSW. As discussed in Section 5.7.1 of the EIS, additional closedowns may potentially be required.	Planning	Construction and Area Managers	Staging Plans
21.	O.20	Construction methods would seek to minimise the number of trucks using the public road network by:			
22.		- delivering construction materials via rail to the construction sites, where possible and feasible	Planning	Area Managers	Preplanning Meeting minutes
23.		- using the rail corridor, where possible, to move machinery and materials.	During Construction	Engineer and Foreman	VMP
24.	O.21	Changes to station facilities would be staged and communicated via signage so that new or temporary facilities are commissioned before the old facilities are closed, where possible.	Planning and during construction	Engineer and Foreman	Commuter plans

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
25.	O.22	Any loss of designated commuter car parking during construction at Cheltenham and Beecroft Stations would be accommodated on local streets within a 400 metres walking distance of these stations.	Planning	Engineer	TCP, commuter plans
26.	O.23	Any loss of other parking near construction sites, for example street parking, would be minimised in terms of duration. Consultation with Council to determine any temporary mitigation measures such as replacement timed parking would be carried out.	Planning	Engineer	TCP
27.	O.24	Any affected bicycle facilities, e.g. lockers, racks hoops/rails, would be reinstated to a location close to the new station entrance in consultation with Hornsby Shire Council.	During construction	Engineer and Foreman	TCP
28.	O.25	Appropriate information signage, road and traffic signage, pavement markings and line marking are to be implemented to advise commuters of the changed designated commuter car parking conditions.	During construction	Engineer and Foreman	TCP

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
29.	O.26	Left-in and left-out only vehicle movements would be provided at the following locations:			
30.		- into and out-of construction compound S1 from Beecroft Road	During construction	Engineer and Foreman	VMP
31.		- at the Beecroft Road/ Old Beecroft Road intersection	During construction	Engineer and Foreman	VMP
32.		- at the Beecroft Road/ The Crescent/Kirkham Road intersection	During construction	Engineer and Foreman	VMP
33.		- into and out-of construction compound S6 from Yarrara Road.	During construction	Engineer and Foreman	VMP
34.	O.27	Site accesses for construction compounds would be designed so that left-in-left out movements occur within existing kerbside lanes, vehicles do not encroach onto the wrong side of the road when entering or leaving the sites and all vehicles can enter and exit the sites in a forward direction. Where this is not feasible, consultation would be undertaken with Hornsby Shire Council or RMS (depending on road ownership) and Traffic Management Centre (TMC) to determine appropriate traffic management measures.	Planning and during construction	Engineer and Foreman	TCP and/or VMP
35.		Ongoing liaison with neighbouring projects (i.e. NWRL) to manage potential cumulative construction impacts would be undertaken throughout construction.	Planning and during construction	Construction Manager	Interface meetings

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
36.	Good Practice	Provide an induction to site personnel (including subcontractors) addressing the requirements of this TMP and their responsibilities with regard to traffic management.	Planning and during construction	Construction Manager	Site Induction
37.	Good Practice	Where possible, materials are to be delivered to the site avoiding school drop off and pick up times (8 am to 9.30 am and 2.30 pm to 4 pm).	Construction	Project Engineers	Contract
38.	Good Practice	Lane closures are to be limited to the minimum amount of time required to allow for safe traffic movements	Construction	Project Engineers	ROL
39.	Good Practice	Heavy vehicle use on major roads should be timed for periods of lower traffic loads (eg out of peak periods and night time)	Construction	Project Engineers	ROL
40.	Good Practice	A vehicle/traffic movement plan will be developed for deliveries involving oversize vehicles	Construction	Project Engineers	TCP
41.	Good Practice	Loads will be covered and tailgates secured when entering public roads to prevent debris falling on roads.	Construction	Foreman	TCP
42.	Good Practice	Traffic controls such as variable message signage and controllers shall be employed for the project in accordance with the TMP and VMP as appropriate.	Construction	Foreman	TCP





Appendix A –Vehicle Movement Plans (VMPs)



Notes:

1. Area 1 UHF Ch 27 South of M2
2. Area 2 UHF Ch 28 North of M2
3. Contact Area Foreman if in Doubt

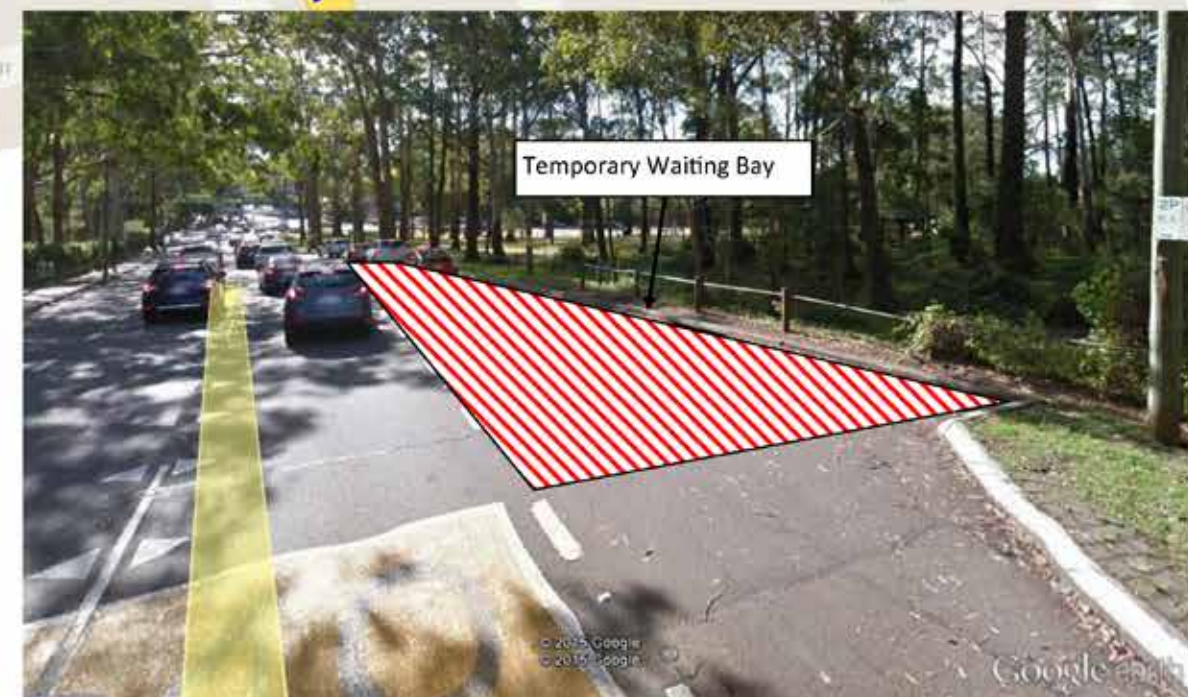
LEGEND:

	Main Route
	Site Access Route
	Compound
	Gate
	Overhead Power Lines
	No Access Permitted
	Temporary Waiting Bay

VMP #: ETTT-VMP-0002

Rev: 13 Date: 09/11/15

VMP-0002-Temporary Waiting Bay



Notes:







1. Area 2 UHF Ch 28 North of M2
2. **Right Hand Turn Entry at Gate E25 Permitted when Traffic Control is in Place.**
3. Refer Detailed Notes Page for Further VMP Instructions
4. Contact Area Foreman if in Doubt

OHV WIRE CLEARANCE

E24=6.6m
 E25B=4.9m
 E26/E27=No Vehicle Access to Corridor
 E28=7.60m
 E29=8.86m
 E30=5.7m
 N6=4.5m

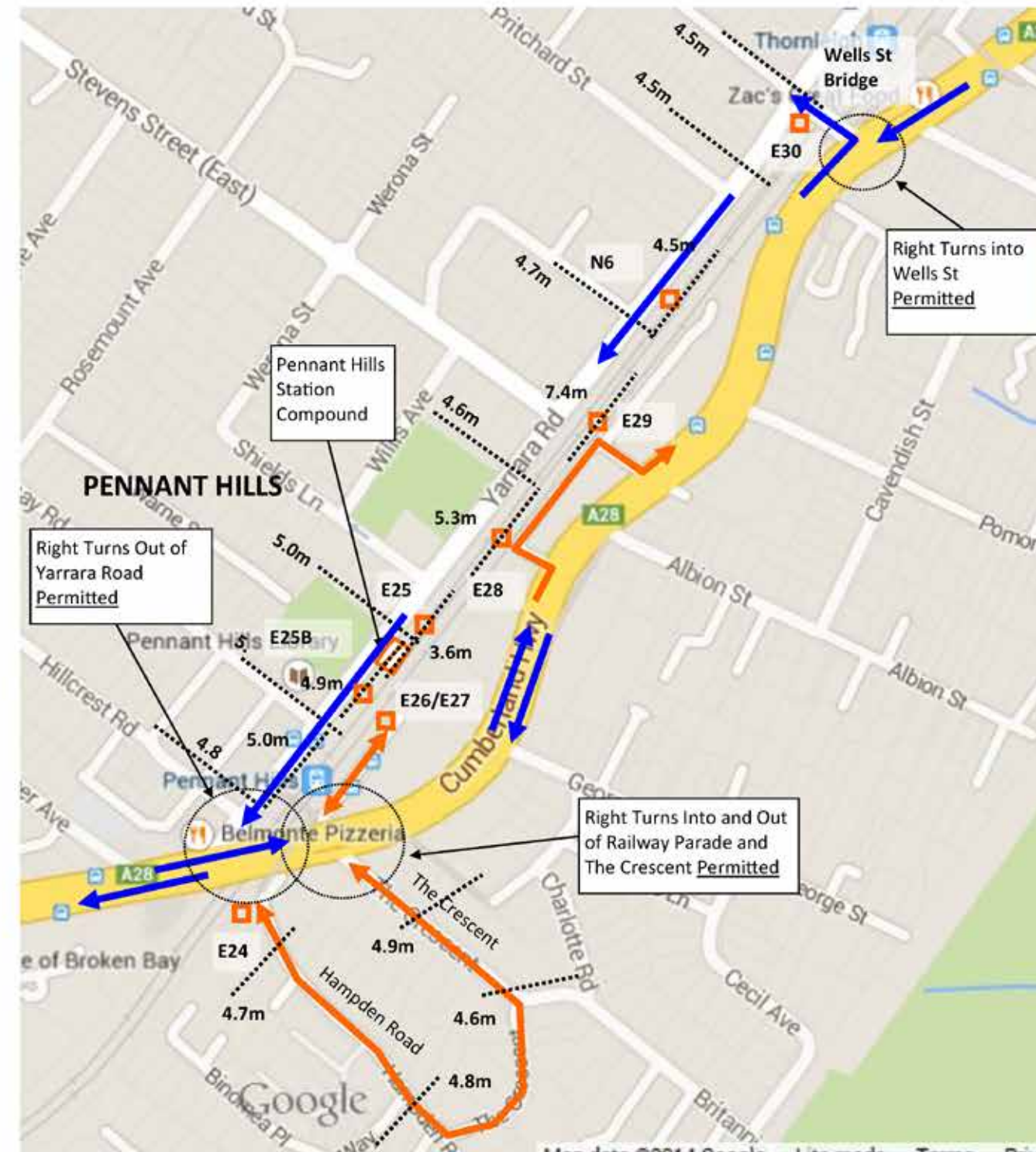
Yarrara Rd = 4.5m Min
 Railway Parade = N/A
 Hampden St and the Crescent =4.6m Min

LEGEND:

	Main Route
	Site Access Route
	Compound
	Gate
	Overhead Power Lines
	No Access Permitted

VMP #: ETTT-VMP-0003
 Rev: 13 Date: 09/11/15

VMP-0003-Pennant Hills - Gates E24, E25, E26, E27, E28, E29, E30



1. Area

- VMP #: ETTT-VMP-0004**
Rev: 13 **Date: 09/11/15**



Notes:

1. Area 2 UHF Ch 28 North of M2
2. Right Hand Turn Entry and Exit to all Cheltenham Rail Access Gates permitted when Traffic Control is in place.
3. No Parking at Beecroft and Cheltenham Commuter car parks
4. No Float Movements between 8:00am and 9:30am and 2:30pm and 4:00pm school days at Arden School and Cheltenham Girls High School
5. Refer Detailed Notes Page for Further VMP Instructions
6. Contact Area Foreman if in Doubt

OHV WIRE CLEARANCE

E5=4.1m
 E9=5.5m
 E11/E12/E14=N/A
 Crescent North of Cheltenham Rd = 4.6m min
 Crescent South of Cheltenham Rd = 4.0m min
 Cheltenham Rd = 4.0m min
 The Boulevard = 4.3m
 Lyne Rd = 4.5m
 Old Beecroft Road = 3.6m

LEGEND:

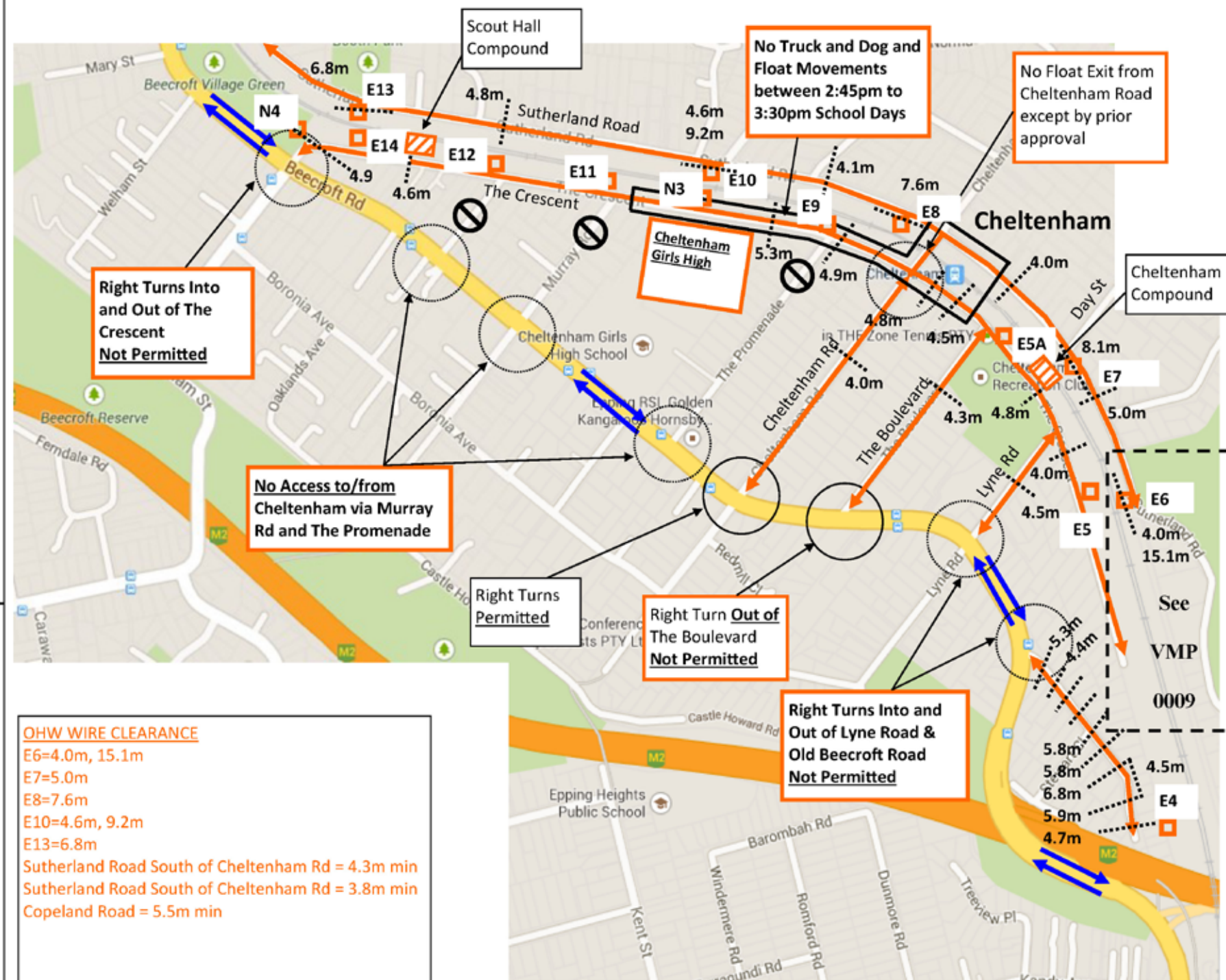
- Main Route
- Site Access Route
- ▨ Compound
- Gate
- ⋯ Overhead Power Lines
- ⊘ No Access Permitted

VMP #: ETTT-VMP-0005

Rev: 13

Date: 09/11/15

VMP-0005-Cheltenham - Gates E5 to E14 and E5A, N3, N4



OHV WIRE CLEARANCE

E6=4.0m, 15.1m
 E7=5.0m
 E8=7.6m
 E10=4.6m, 9.2m
 E13=6.8m
 Sutherland Road South of Cheltenham Rd = 4.3m min
 Sutherland Road South of Cheltenham Rd = 3.8m min
 Copeland Road = 5.5m min

Notes:

1. Area 2 UHF Ch 28 North of M2
2. One way into Railway Parade from Pennant Hill Rd
3. Refer Detailed Notes Page for Further VMP Instructions
4. Contact Area Foreman if in Doubt







OHV WIRE CLEARANCE

E31= 5.9m

Railway Parade = Lowest 5.4m

Parkes Street = Lowest 5.5m

LEGEND:

	Main Route
	Site Access Route
	Compound
	Gate
	Overhead Power Lines
	No Access Permitted

VMP #: ETTT-VMP-0007

Rev: 13

Date: 09/11/15

VMP-0007-Thornleigh - Gates E31



Notes:

1. Area 2 UHF Ch 28 North of M2
2. Refer Detailed Notes Page for Further VMP Instructions
3. Contact Area Foreman if in Doubt

LEGEND:

- Main Route
- Site Access Route
- Compound
- Gate
- Overhead Power Lines
- No Access Permitted

VMP #: ETTT-VMP-0008
Rev: 13 Date: 09/11/15







VMP-0008-North Ryde Talavera Rd Yard—Pittwater Rd Gate



Notes:

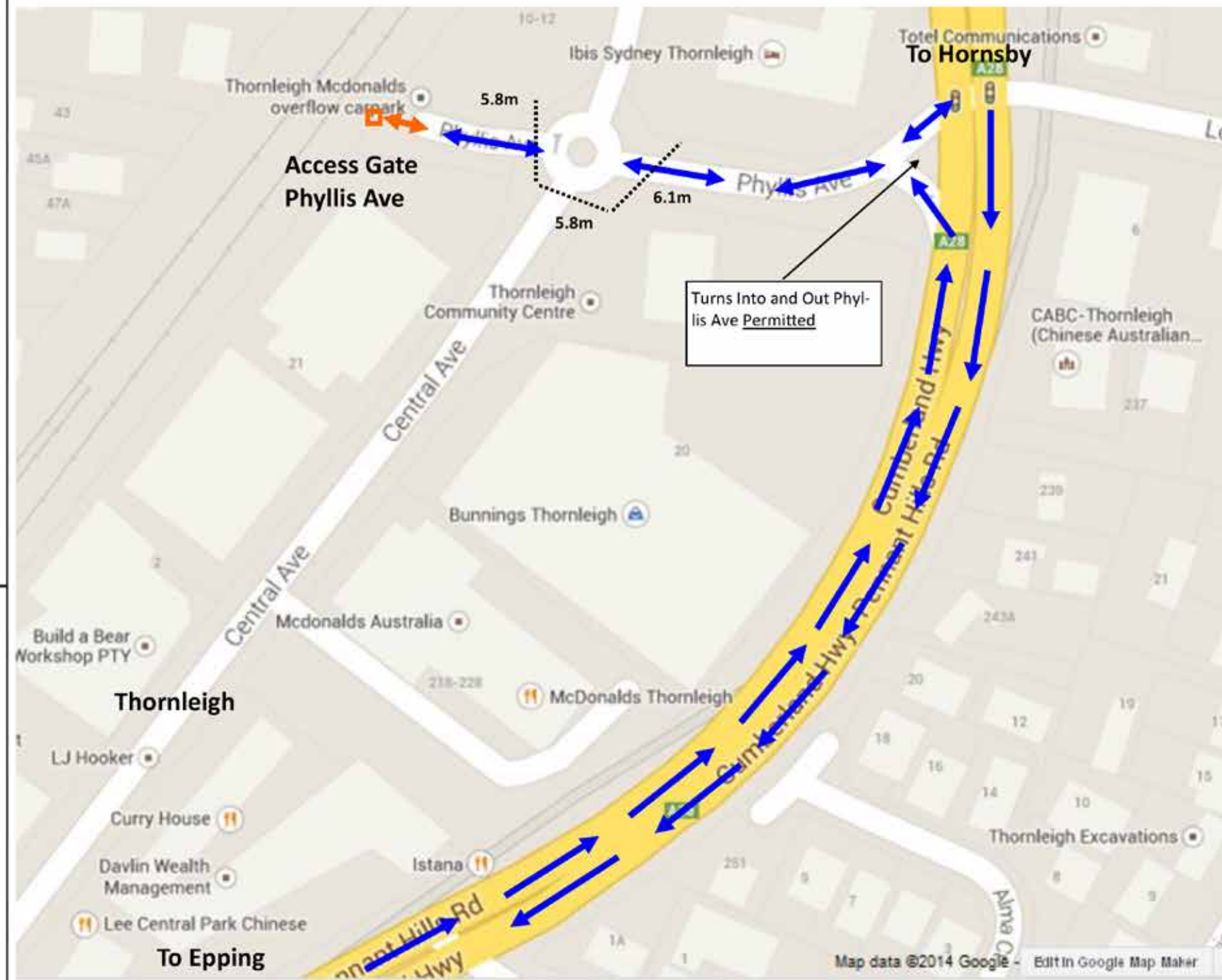
1. Refer Detailed Notes Page for Further VMP Instructions
2. Contact Area Foreman if in Doubt

LEGEND:

	Main Route
	Site Access Route
	Compound
	Gate
	Overhead Power Lines
	No Access Permitted

VMP #: ETTT-VMP-0009

Rev: 13 Date: 09/11/15

VMP-0009-Thornleigh - Access Gate Phyllis Ave

Notes:

1. Refer Detailed Notes Page for Further VMP Instructions
2. Contact Area Foreman if in Doubt







OHW WIRE CLEARANCE

Lowest Overhead is 4.4m

E6=4.5m

N8=No overhead

LEGEND:

	Main Route
	Site Access Route
	Compound
	Gate
	Overhead Power Lines
	No Access Permitted

VMP #: ETTT-VMP-00

Rev: 13

Date: 09/11/15

VMP-00010-Sutherland Road Gate E6 to Gate N8



VMP-Detailed Notes

Notes:

1. Area 1 UHF Ch 27 South of M2.
2. Area 2 UHF Ch 28 North of M2.
3. Left Hand turn Entry and Exit to rail access gates and local roads permitted unless sign posted otherwise.
4. Right Hand Turn Entry and Exit to Rail Access Gates **permitted when Traffic Control is in place.**
5. Right Hand Turn Entry and Exit to local roads from Pennant Hills Road and Beecroft Roads **permitted as shown on detailed VMP's and summarised below.**
6. **No Parking at Beecroft and Cheltenham Commuter car parks.**
7. **No Float Movements between 8:00am and 9:30am and 2:30pm and 4:00pm school days at Arden School and Cheltenham Girls High School.**
8. **Minimise Truck Movements between 8:00am and 9:30am and 2:30pm and 4:00pm school days at Arden School and Cheltenham Girls High School.**
9. **50km/hr speed limit applies to all local roads.**
10. Avoid construction vehicles queuing outside of gates and local roads.
11. Do not block or restrict access to properties without prior approval and notification.
12. Minimise noise e.g. engine idling, no shouting.
13. Ensure loads are covered and wheels are free from mud prior to leaving site.
14. In the event of incident (spill or accident), contact the Alliance Foreman immediately
15. All heavy vehicles travelling to site should check the following website prior: www.rms.nsw.gov.au/heavyvehicles/ravmap
16. Alternative VMP and Access requirements may be permitted. A request shall be made to the Traffic Manager and appropriate traffic management measures development and approved prior.
17. Contact Area Foreman if in Doubt

Permitted Turns off or onto Pennant Hills Road and Beecroft Road:

Access to and from site from Pennant Hills Road

Wells Street—Left Turns In/Out and Right Turn In
Railway Parade—Left Turns In/Out and Right Turn In/Out
The Crescent—Left Turns In/Out and Right Turn In/Out
Yarrara Road—Left Turns in/out and Right Turns Out
City View Road—Left Turns in/out and Right Turns Out
Beecroft Road—Left Turns In/Out and Right Turn In/Out







Access to and from site from Beecroft Road

Albert Road—Left Turns In/Out permitted. **Right Turns not Permitted. No access permitted from/to Beecroft Road Mon-Fri 8:00am-9:30am.**
Chapman Avenue—**No access permitted from/to Beecroft Road**
Hannah Street—**No access permitted from/to Beecroft Road**
Copeland Road—Left Turns In/Out and Right Turns In/Out

The Crescent—Left Turns In/Out permitted. **Right Turns not Permitted.**
Murray Road—**No access permitted from/to Beecroft Road**
The Promenade—**No access permitted from/to Beecroft Road**
Cheltenham Road—Left Turns In/Out and Right Turn In/Out
The Boulevard—Left Turns In/Out and Right Turn In. **Right turn out of the Boulevard not Permitted.**
Lyne Road—Left Turns In/Out permitted. **Right Turns not Permitted.**
Old Beecroft Road—Left Turns In/Out permitted. **Right Turns not Permitted.**

Blaxland Road—Left Turns In/Out and Right Turn In. **Right turn out of the Blaxland not Permitted.**
Langston Place—Left Turns In/Out and Right Turn out. **Right turn into Langston Place not Permitted.**

LEGEND:

	Main Route
	Site Access Route
	Compound
	Gate
	Overhead Power Lines
	No Access Permitted

VMP #: ETTT-VMP-General Notes

Rev: 13

Date: 09/11/15

