

Pre-Construction Minor Works Approval Form

Minor Works are defined as any low impact activities that are undertaken prior to the commencement of 'construction' as defined in the project's applicable planning approval. However if Minor Works affect or potentially affect heritage items, threatened species, populations or endangered ecological communities, these works are defined as 'construction' unless otherwise determined by the applicable planning authority.

Minor Works approvals do not remove any obligation to comply with the project's applicable planning approval conditions (including requirements prior to 'any works' commencing) or obtain any other applicable permits, licenses or approvals as necessary.

This application and all supporting information must be submitted to TfNSW/the Environmental Representative as one (1) PDF file at least 10 business days prior to the commencement of the proposed Minor Works.

Part 1: Application	
Contractor:	Ultramag Geophysics
Project:	Deep Ground Penetrating Radar
Application Title: (e.g. Smith St trenching works)	Deep Ground Penetrating Radar survey of proposed construction footprint of SM C&SW (Central Station Terminal & Yard and City Road Sites) .
Application Number:	1
Application Date:	27/1/2017
Planning Approval:	Chatswood to Sydenham EIS
Minor Works Categories: <ul style="list-style-type: none"> Highlight as applicable. If Items 4, 8 or 11 are applicable, this form must be endorsed by an Environmental Representative. 	<ol style="list-style-type: none"> Survey, survey facilitation and investigations works (including road and building dilapidation survey works, drilling and excavation). Treatment of contaminated sites. Establishment of ancillary facilities (excluding demolition), including construction of ancillary facility access roads and providing facility utilities. Operation of ancillary facilities that have minimal impact on the environment and community. Minor clearing and relocation of vegetation (including native). Installation of mitigation measures, including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments. Property acquisition adjustment works, including installation of property fencing and utility relocation and adjustments to properties. Utility relocation and connections. Maintenance of existing buildings and structures. Archaeological testing under the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010) or archaeological monitoring undertaken in association with other Minor Works to ensure there is no impact on heritage items. Any other activities that have minimal environmental impact, including construction of minor access roads, temporary relocation of pedestrian and cycle paths and the provision of property access.
Planning Authority Determination: Will the proposed works affect or have the potential to affect heritage items, threatened species, populations or endangered ecological communities?	No

Part 2: Details

Describe the proposed Minor Works:

Including work methodologies, site location(s) and site description(s) (e.g. landscape type, waterways, etc.).

Sydney Metro have employed Ultramag Geophysics to conduct a low impact Deep Ground Penetrating Radar (DGPR) investigative survey of a number of sites in and around Central Station Terminal & Yards as well as 8 locations within Alexandria, Waterloo, Redfern, Barangaroo and Sydney CBD.

Ultramag Geophysics plan to undertake this DGPR work over a series of night shifts during February and March, 2017 (*Appendix 5 – Schedule of Works*).

The proposed survey areas are shown by the numbered (1-22) green, pink and blue lines in *Appendix 5, Locations 1 to 8*.

Each numbered survey line (*Appendix 5, Locations 1 to 8*) indicates an individual survey area, consisting of a series of straight, parallel survey lines at 2 metre intervals. See *Appendix 5 – Schedule of Works* for number of lines planned for each site.

There are three basic components to conducting the survey safely and efficiently:

1. Set an electronic survey 'grid' for each site using a simple, hand-held Real Time Kinetic (RTK) GPS (*Appendix 6, Image 1*).
2. This 'grid' is then used as a reference/guide for the Deep Ground Penetrating Radar (DGPR) component of the survey (*Appendix 6, Image 2*).
3. Finally, GPS data and DGPR data are correlated (remotely) to deduce inferences about sub-surface structures at each site.

DGPR survey technique:

To perform a DGPR survey, surveyors drag two flat antennae, in series (as seen laying flat on the roadway in *Appendix 6, Image 2*), slowly, in a straight line, taking readings every 0.5 metres. Surveyors traverse a series of parallel lines for each site, at approximately 2 metre intervals.

The work is not strenuous and does not contain any heavy lifting, as there is little resistance to antennae sliding along the pavement.

Crew members consist of:

- 1 individual to 'pull' the antenna system from the front.
- 1 individual to operate the system, taking readings.
- 1 individual to act as assistant and lookout.

Equipment required:

- One 3 metre transmitting antenna (top right in *Appendix 6, Image 2*).
- One 6 metre receiving antenna (bottom left in *Appendix 6, Image 2*).
- One Radar Transmitter (centre of black antenna, top right in *Appendix 6, Image 2*).
- One Radar Receiver (hand held in *Appendix 6, Image 3*).
- Correct PPE for all survey crew, including full length, collared, white, high visibility shirts and pants, steel or AS composite toe safety boots, orange high visibility vest with a reflective X on the rear, safety hard hat, gloves and safety glasses (see *Appendix 6, Image 3*).

Special Considerations:

- Survey work is to be conducted during night shifts in order to cause minimal disturbance to Central Station staff and public train passengers.
- Given the sensitivity of the survey instruments being used, Ultramag plan to work with Central Station staff to have individual platforms cleared of rolling stock while surveyors are working on specific platforms (as per *Appendix 5 – Schedule of Works*).
- Ultramag staff are able to work flexibly with Central Station staff and can rearrange survey schedule at short notice to work on vacant platforms, as suits station staff.
- Ultramag request permission to unbolt and remove station seating and signage (*Appendix 6, Images 4 & 5*, respectively) while surveying each platform island. Seats and signs are each fastened by 4 hexagonal screws, and would be re-instated as found after each shift.
- The south western extent of survey line number 12 (see yellow circled areas in *Appendix 5, Location 4*) includes some survey points which are close to two upright structures for overhead wires. Survey crew and equipment are to stay further than 3 metres horizontally from any electrical infrastructure.

	<p>RTK GPS Survey:</p> <p>As an integral part of the DGPR survey, Ultramag will create a survey grid using a Real Time Kinetic (RTK) Global Positioning System (GPS) (<i>Appendix 6, Image 1</i>).</p> <p>The RTK GPS survey grid will be marked prior to the DGPR survey. The same areas will be covered by the RTK GPS (5 sets of parallel lines, at 2 metre spacing for each of the numbered pink, green and blue lines in <i>Appendix 5, Locations 1 to 8</i>. Survey points are taken every 10 metres and will be completed prior to commencement of DGPR survey component.</p> <p>As part of the RTK GPS survey, Ultramag would like to make small markings on the ground, as a grid to be used for the DGPR survey. Two washable/dissolvable options for making these markings are:</p> <ul style="list-style-type: none"> • Lumber Crayons • White Chalk <p>Similarly, Ultramag would like to use white (or other, specified) spray paint to mark grid points in the yards, on the ballast. Ultramag have applied to Central Station authorities for this approval.</p> <p>Crew members consist of:</p> <ul style="list-style-type: none"> • One RTK GPS operator. • One RTK GPS assistant. <p>Equipment required:</p> <ul style="list-style-type: none"> • One Real Time Kinetic (RTK) Global Positioning System (<i>Appendix 6, Image 1</i>). • Correct PPE for all survey crew, including full length, collared, white, high visibility shirts and pants, steel or AS composite toe safety boots, orange high visibility vest with a reflective X on the rear, safety hard hat, gloves and safety glasses (see <i>Appendix 6, Image 3</i>). • Lumber crayons or white chalk for marking survey points on Central Station platforms and city road sites. • White spray paint for marking survey points on Central Station Yard ballast. <p>Special Considerations:</p> <ul style="list-style-type: none"> • Survey work is to be conducted during night shifts in order to cause minimal disturbance to Central Station staff and public train passengers as well as road traffic and members of the public using city road sites. • Ultramag staff are able to work flexibly with Central Station staff and can rearrange survey schedule at short notice to work on vacant platforms, as suits station staff. • Ultramag request permission to use non-permanent, washable lumber crayons (or white chalk) on station platforms (<i>Appendix 5, Location 4</i>) to mark out grid points. • Ultramag request permission to use white (or other, specified) spray paint on yard ballast (for sites in <i>Appendix 5, Location 4</i>) to mark out grid points. • Ultramag have made provisions to engage the services of a rail approved Protection Officer to be present onsite for all survey works in the Rail Corridor. • Ultramag have employed the services of a certified traffic control authority to assist in applying for Council Approvals, Police Permits and Road Occupancy Licences for all City Road Sites (<i>Appendix 5, Locations 1-3, and 6-8</i>). The traffic control authority will assist in surveying these sites by blocking traffic lanes (no full road closures) and directing traffic, providing a safe work area for surveyors. • For the safety of the survey crew, Ultramag have made provisions to employ personal security officers for the duration works at a number of City Road Sites (<i>Appendix 5, Locations 1-3, and 6-8</i>).
<p>Planned Commencement Date:</p>	<p>6/2/2017</p>
<p>Local Sensitivities: Describe the presence (if any) of local sensitive environmental areas and community receptors.</p>	<p>Included in the proposed work is a survey of 300 metres of Hickson Road, Barangaroo. This is a very culturally sensitive site, requiring understanding and patience from survey crew. Strict adherence to the terms of engagement and expectations from authorities such as BDA are essential at this site to ensure satisfactory and timely production of deliverables.</p> <p>There are also cultural heritage considerations to be aware of at Central Station Terminal. Survey markings are to be made with non-permanent, water soluble, washable "lumber crayons" or chalk. Markings are only to be made but on the pavement (not shelter structures).</p>

Part 3: Environmental Risk Assessment and Management

Prepare an Environmental Risk Assessment (in accordance with the *Sydney Metro Risk Management Standard*) and an Environmental Control Map for the proposed Minor Works and attach as Appendix 1.
 If an Environmental Risk Assessment and/or an Environmental Control Map for the proposed Minor Works is/are already contained in existing documentation, attach the relevant section(s) as Appendix 1.

Documentation:
 List any existing documents (including those referenced above) that the proposed Minor Works will be undertaken in accordance with and attach as Appendix 2 (e.g. plans, procedures, etc.).

Environmental Risk Assessment – Appendix 1

 Locations of proposed works, referenced in Environmental Risk assessment – *Appendix 5, Locations 1 to 8*

Part 4: Workforce Notification

How will the environmental and community risks and associated mitigation measures of the proposed Minor Works be communicated to the contractor's workforce?

Environmental and community risks are to be communicated via two avenues.

 General Inductions:
 Ultramag employees are to be briefed on all environmental, health & safety and community related risks prior to commencement of any operations. This includes:

- Ultramag Geophysics specific survey equipment competencies
- RIW and White Card obtainments
- Ultramag Scope of Works document

Specific inductions, briefings and signed documentation:

- Ultramag Geophysics survey crew are to familiarise themselves with and sign Safe Work Methods Statement (SWMS) during briefing with Ultramag Environmental officer.
- Ultramag Geophysics survey crew are to familiarise themselves with and sign Site Safety Management Plan (SSMP). This will include a briefing with the Ultramag survey crew supervisor, prior to commencement of any work.
- A further Site Specific Safety Management Plan is to be discussed and signed at the beginning of each shift, during pre-work briefings on site.

Part 5: Community Consultation

What community consultation has been undertaken already?

To date, no community consultation has been undertaken in regard to Ultramag Geophysics' proposed survey works for Sydney Metro.

What community consultation is planned to be undertaken?

Community notification required for all sites at Locations 2, 3, 6 – 8 (*Appendix 5*).
 Sydney Metro to provide this notification and Ultramag survey crew to be issued with project contact cards to be handed out in the event of on-site enquiries.

If drafted already, attach applicable Community Notification as Appendix 3.


Part 6: Contact Details

Nominate contractor's project manager, environmental and communications contact(s).

Name:	Joel Gajewski	Position:	Project Manager	Phone:	0402 813 178
	Daniel McClelland		Communications manager		0427 014 002
	Joel Gajewski		Environmental contact		0402 813 178

Part 7: Signature

This signature acknowledges that the proposed Minor Works will be undertaken in accordance with this application, have minimal environmental impact and are not defined as 'construction' in accordance with the applicable planning approval.



Name:	Joel Gajewski		
Signature:		Date:	27/01/2017

Determination Page

(TfNSW/Environmental Representative Use Only)

12. Endorsement/Approval

These signatures represent formal endorsement/approval for the proposed Minor Works to commence in accordance with this application and the applicable planning approval requirements (subject to any determination from the applicable planning authority as may be required by the planning approval conditions).

	TfNSW Principal Manager, Communication & Engagement – Endorsement (required for all applications)	TfNSW Principal Manager, Sustainability, Environment & Planning – Approval (required for all applications)	Environmental Representative – Endorsement (required as necessary in accordance with the applicable planning approval, optional for all other circumstances)
Signature:			
Name:	Michael Lloyd	FIL CERONE	
Date:	30/1/17	31/1/17	
Comments:	Nil	—	Supporting letter attached as Appendix 4 if necessary.
Conditions:	Subject to OOHWA where required.	—	Supporting letter attached as Appendix 4 if necessary.
<input checked="" type="checkbox"/> Approved (by TfNSW)			
<input type="checkbox"/> Endorsed (by Environmental Representative)			
<input type="checkbox"/> Rejected			

Appendix 1: Cover Page

Environmental Risk Assessment

Project Phase	Environmental Risk Assessment				
	Consequence	Probability	Severity	Risk Index	Control Measures
Drive To Site	Exhaust Fumes, motor noise	L1 - Frequent	S6 - Insignificant	3 - Medium	Drive sensibly, no 'dangerous' driving.
	Incidents with wildlife while driving	L4 - Remote	S3 - Major	2 - High	Drive sensibly, remain alert for wildlife on road.
	Road incidents leading to injury	L5 - Improbable	S1 - Catastrophic	2 - High	Driver to be well-rested and remain alert while driving.
	Oil and fuel spill onto road and waterways	L4 - Remote	S5 - Minor	3 - Medium	Regular vehicle services. Check fuel and oil prior to driving.
Set Up Traffic Control	Motor noise, radio noise	L1 - Frequent	S6 - Insignificant	3 - Medium	No idling or radios. Park away from residential buildings where applicable.
	Noises from worker voices	L2 - Probable	S5 - Minor	3 - Medium	No shouting or improper language. Be mindful of passing public.
Set Up Survey Equipment	Noises from worker voices	L3 - Occasional	S5 - Minor	3 - Medium	No shouting or improper language. Be mindful of passing public.
	General noise from setting up equipment	L1 - Frequent	S6 - Insignificant	3 - Medium	Park away from residential buildings where applicable* Place/move equipment with care (no dropping antennas etc)
TRK GPS Survey	Interactions with wildlife	L3 - Occasional	S4 - Moderate	2 - High	Do not approach wildlife. Survey around wildlife where necessary.
	Survey markers contaminating waterways	L4 - Remote	S6 - Insignificant	4 - Low	Use water-based, dissolvable chalk or crayon for marking, where possible.
	Noises from worker voices	L3 - Occasional	S5 - Minor	3 - Medium	No shouting or improper language. Be mindful of passing public.
Perform DGPR Survey	Interactions with wildlife	L3 - Occasional	S4 - Moderate	2 - High	Do not approach wildlife. Survey around wildlife where necessary.
	Noise from survey equipment	L3 - Occasional	S6 - Insignificant	4 - Low	Be mindful of friction noise with pavement when shifting radar antennae.
	Noises from worker voices	L2 - Probable	S5 - Minor	3 - Medium	No shouting or improper language. Be mindful of passing public.
Pack Away Equipment	Noises from worker voices	L3 - Occasional	S5 - Minor	3 - Medium	No shouting or improper language. Be mindful of passing public.
	General noise from setting up equipment	L2 - Probable	S5 - Minor	3 - Medium	Place/move equipment with care (no dropping antennas etc)
General Behaviour	Environmental pollution (rubbish)	L3 - Occasional	S5 - Minor	3 - Medium	All rubbish (including food scraps) to be taken from site by survey crew. Site to be scanned and cleaned of rubbish after each shift.
	Damage to vegetation	L2 - Probable	S5 - Minor	3 - Medium	Leave all vegetation as found, including trees and other plants planted in medium strips and side-walk. Survey around vegetation where necessary.
Drive Home From Site	Exhaust Fumes, motor noise	L1 - Frequent	S6 - Insignificant	3 - Medium	Drive sensibly, no 'dangerous' driving.
	Incidents with wildlife while driving	L4 - Remote	S3 - Major	2 - High	Drive sensibly, remain alert for wildlife on road.
	Road incidents leading to injury	L5 - Improbable	S1 - Catastrophic	2 - High	Driver to be well-rested and remain alert while driving.
	Oil and fuel spill onto road and waterways	L4 - Remote	S5 - Minor	3 - Medium	Regular vehicle services. Check fuel and oil prior to driving.

* Park on the western sides of Cope Street and Renwick Street (Appendix 5, Location 2 & 3)

Risk Rating Table

		L6	L5	L4	L3	2	L1		
Consequences	Likelihood	S1	2	1	1	1	1	1	
		S2	3	2	1	1	1	1	
	S1. Catastrophic	L1. Frequent	S3	3	3	2	2	1	Extreme = 1
	S2. Critical	L2. Probable	S4	4	3	3	2	2	High = 2
	S3. Major	L3. Occasional	S5	4	4	3	3	3	Medium = 3
	S4. Moderate	L4. Remote	S6	4	4	4	4	3	Low = 4
S5. Minor	L5. Improbable								
S6. Insignificant	L6. Incredible								

Appendix 2: Cover Page

Environmental Management Documentation.

Appendix 3: Cover Page

Community Notification.

Appendix 4: Cover Page

Environmental Representative Supporting Letter.

Appendix 5: Methodology

Schedule of Works

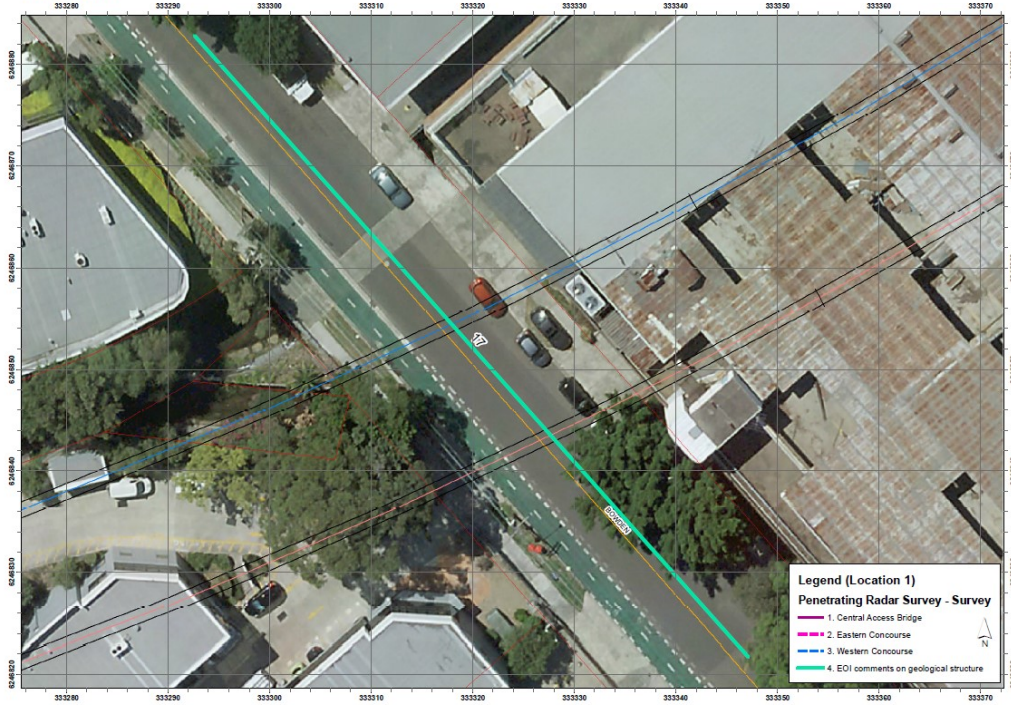
Site Description	Length (m)	Number of survey lines	Total line metres (m)	Time allocated (days)	Access Window	Planned Date*	Site ID
Platforms 16 & 17	105	5	525	0.5	30th Jan - 30 June	Mon - 6th Feb	8
Platforms 18 & 19	105	5	525	0.5	30th Jan - 30 June	Tues - 7th Feb	9
Platforms 20 & 21	105	5	525	0.5	30th Jan - 30 June	Wed - 8th Feb	10
Platforms 22 & 23	105	5	525	0.5	30th Jan - 30 June	Thurs - 9th Feb	11
Platforms 2 & 3	110	5	550	0.5	30th Jan - 30 June	Sun - 12th Feb	1
Platforms 4 & 5	110	5	550	0.5	30th Jan - 30 June	Sun - 12th Feb	2
Platforms 6 & 7	110	5	550	0.5	30th Jan - 30 June	Mon - 13th Feb	3
Platforms 8 & 9	110	5	550	0.5	30th Jan - 30 June	Mon - 13th Feb	4
Platforms 10 & 11	110	5	550	0.5	30th Jan - 30 June	Tues - 14th Feb	5
Platforms 12 & 13	110	5	550	0.5	30th Jan - 30 June	Tues - 14th Feb	6
Platforms 14 & 15	110	5	550	0.5	30th Jan - 30 June	Wed - 15th Feb	7
Platform 1	110	5	550	0.5	30th Jan - 30 June	Wed - 15th Feb	22
Tracks 1	224	5	1120	0.5	30th Jan - 30 June	Fri - 17th Feb***	12
Tracks 2	86	5	430	0.25	30th Jan - 30 June	Fri - 17th Feb***	13
Park Street, Sydney	156	10	1560	1	22nd Feb - 1st Mar	Wed - 22nd Feb	14
Pitt Street, Sydney	96	10	960	0.5	23rd Feb - 2nd Mar	Thurs - 23rd Feb	15
Macquarie Street Park**	82	5	410	0.25	NA	Thurs - 23rd Feb	16
Hikson Road, Barangaroo	296	12	3552	2.5	26th Feb - 5th Mar	Sun - 26th Feb	21
Hikson Road, Barangaroo	296	12	3552	2.5	26th Feb - 5th Mar	Mon - 27th Feb	21
Hikson Road, Barangaroo	296	12	3552	2.5	26th Feb - 5th Mar	Tues - 28th Feb	21
Renwick Street, Redfern	76	3	228	0.25	1st Mar- 8th Mar	Wed - 1st Mar	19
Bowden Street, Alexandria	82	6	492	0.5	1st Mar- 8th Mar	Wed - 1st Mar	17
Cope Street, Waterloo	211	7	1477	1	2nd Mar- 9th Mar	Thurs - 2nd Mar	18
Regent Street, Redfern	103	10	1030	0.75	5th Mar - 12th Mar	Sun - 5th Mar	20

* Based on an 8hr shift, starting at 10pm of Planned Date

** Site does not require traffic control

***Based on an 8 hr shift, starting at 8am of Planned Date

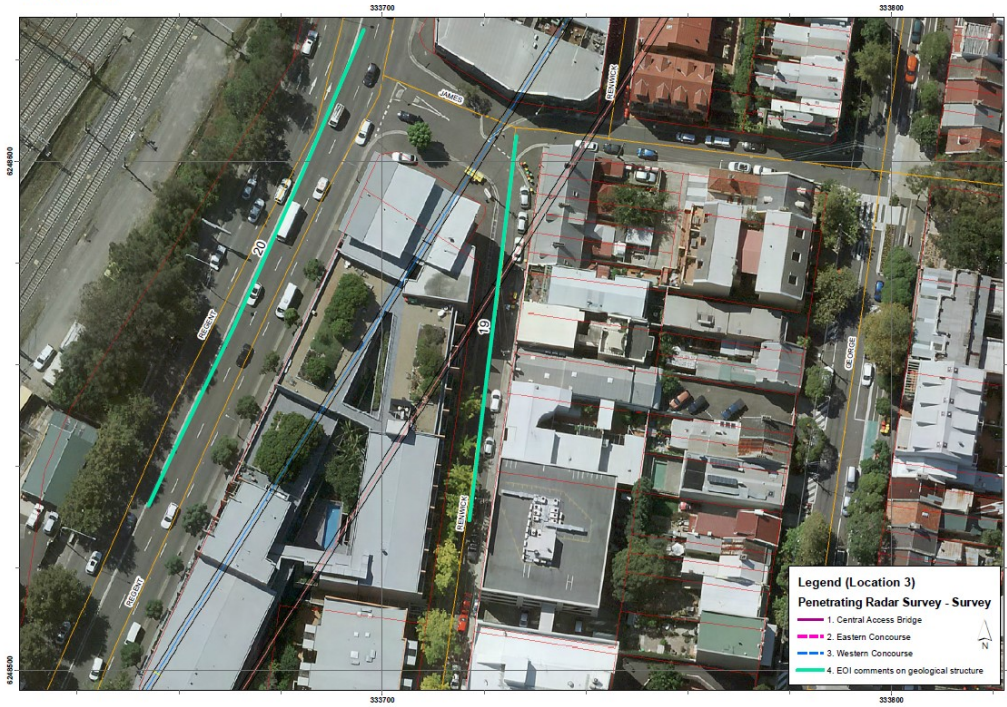
Location 1



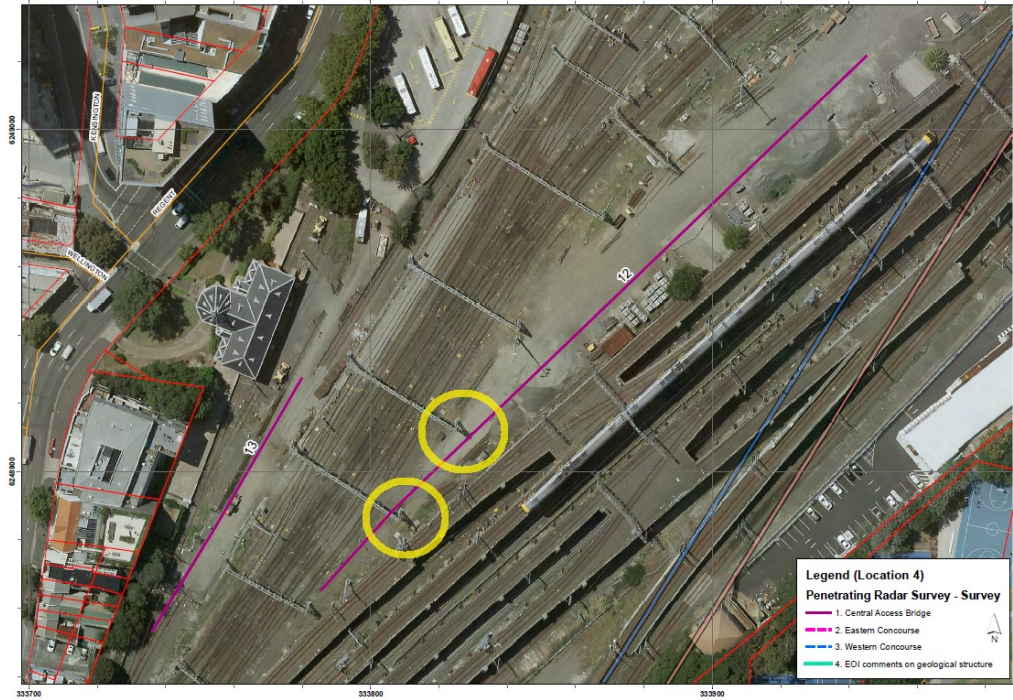
Location 2



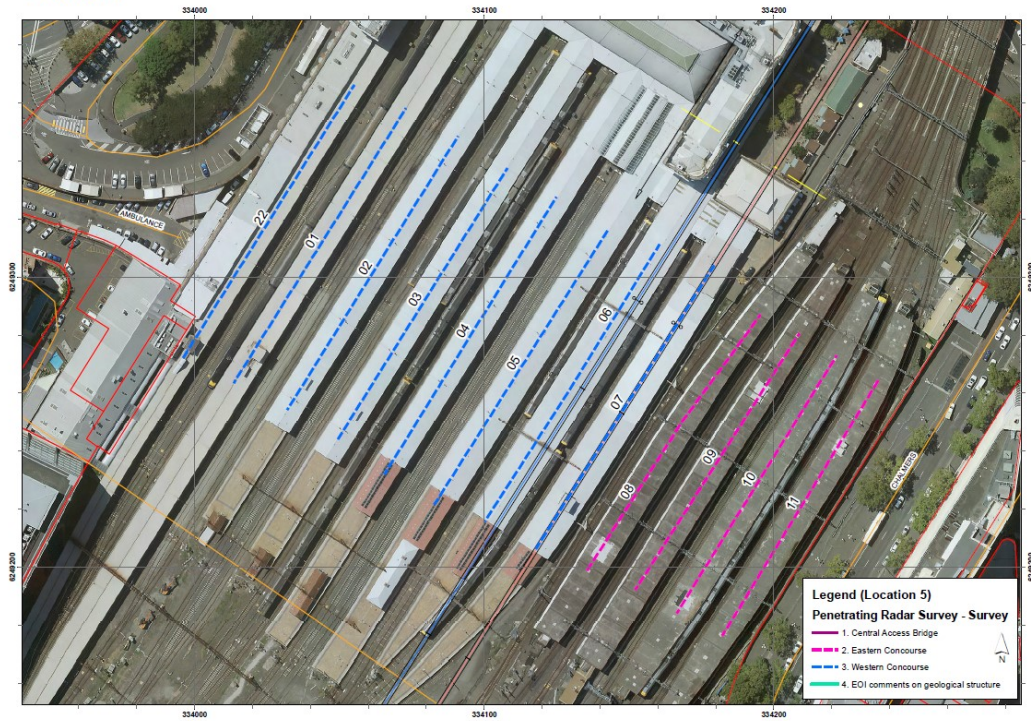
Location 3



Location 4



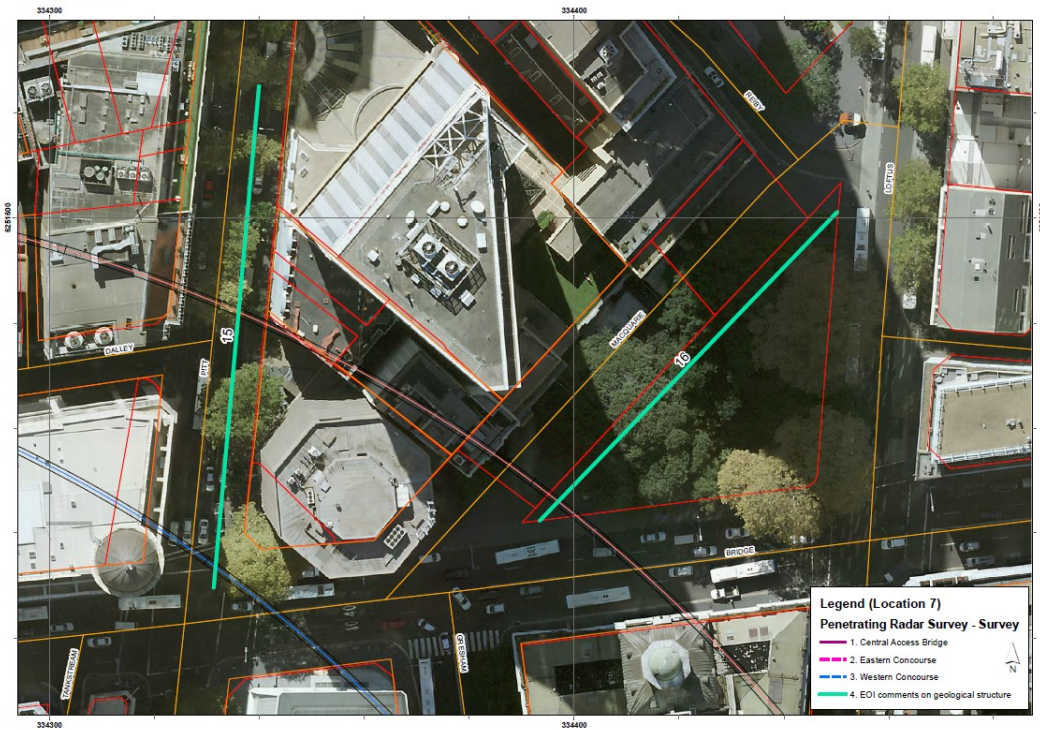
Location 5



Location 6



Location 7



Location 8



Appendix 6: Supporting Documentation

Image 1: Real Time Kinetic (RTK) Global Positioning System (GPS)



Image 2: DGPR Radar Antenna System



Image 3: DGPR Radar Receiver System



Image 4: Central Station Platform Seating



Image 5: Central Station Platform Signage



Ultramag Geophysics – Proposed Timing of Survey Works

Site Description	Length (m)	Number of survey lines	Total line metres (m)	Time allocated (days)	Access Window	Planned Date*	Site ID
Platforms 16 & 17	105	5	525	0.5	30th Jan - 30 June	Wed - 8th Feb	8
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Platforms 20 & 21	105	5	525	0.5	30th Jan - 30 June	Sun - 12th Feb	10
Platforms 22 & 23	105	5	525	0.5	30th Jan - 30 June	Mon - 13th Feb	11
Platforms 2 & 3	110	5	550	0.5	30th Jan - 30 June	Tues - 14th Feb	1
Platforms 4 & 5	110	5	550	0.5	30th Jan - 30 June	Tues - 14th Feb	2
Platforms 6 & 7	110	5	550	0.5	30th Jan - 30 June	Wed - 15th Feb	3
Platforms 8 & 9	110	5	550	0.5	30th Jan - 30 June	Wed - 15th Feb	4
Platforms 10 & 11	110	5	550	0.5	30th Jan - 30 June	Thurs - 16th Feb	5
Platforms 12 & 13	110	5	550	0.5	30th Jan - 30 June	Thurs - 16th Feb	6
Platforms 14 & 15	110	5	550	0.5	30th Jan - 30 June	Sun - 19th Feb	7
Platform 1	110	5	550	0.5	30th Jan - 30 June	Sun - 19th Feb	22
Tracks 1	224	5	1120	0.5	30th Jan - 30 June	Tues - 21st Feb***	12
Tracks 2	86	5	430	0.25	30th Jan - 30 June	Tues - 21st Feb***	13
Park Street, Sydney	156	10	1560	1	22nd Feb - 1st Mar	Wed - 22nd Feb	14
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Regent Street, Redfern	103	10	1030	0.75	5th Mar - 12th Mar	Sun - 5th Mar	20

* Based on an 8hr shift, starting at 10pm of Planned Date

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